

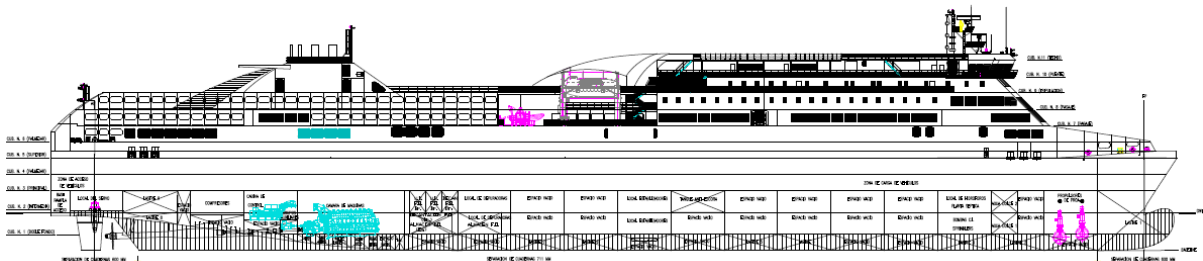


UNIVERSIDAD DE LA CORUÑA
ESCUELA POLITÉCNICA SUPERIOR
GRADO EN ARQUITECTURA NAVAL

TRABAJO FIN DE GRADO Nº: 14-105
ALUMNA: MARÍA DE LA LUZ MURAS CASAS

RO – RO 1000 PAX.

CUADERNO Nº:5
CONDICIONES DE CARGA



GRADO EN ARQUITECTURA NAVAL
TRABAJO FIN DE GRADO

CURSO 2.013-2014

PROYECTO NÚMERO 14-105

TIPO DE BUQUE : RO-RO 1000 PAX.

CLASIFICACIÓN , COTA Y REGLAMENTOS DE APLICACIÓN : DNV, IMO, SOLAS, MARPOL, Convenio Internacional de Líneas de Carga 1966

CARACTERÍSTICAS DE LA CARGA: 950 pasajeros; 5 cubiertas de carga para 250 turismos

VELOCIDAD Y AUTONOMÍA : velocidad en prueba al 85% MCR, 22 nudos; autonomía a velocidad de prueba 2500 millas.

SISTEMAS Y EQUIPOS DE CARGA / DESCARGA : dos puertas en zona de popa; rampa móvil entre cubiertas de carga.

PROPULSIÓN : 2 Motores diesel eléctrica acoplados a hélices de paso variable

TRIPULACIÓN Y PASAJE : 50 tripulantes más 950 pasajeros

OTROS EQUIPOS E INSTALACIONES : hélices de maniobra en proa.

Ferrol, Septiembre de 2.013.

ALUMNO: D^a María de la Luz Muras Casas.

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LINEA DE MARGEN.

PUNTOS DE INUNDACIÓN.

1.- INTRODUCCIÓN:

Partiendo de las dimensiones calculadas en el Cuaderno III:

Lt	180,28 m.
Lpp	167,22 m.
B	28,2 m.
D	9,53 m.
T	6,09 m.
Cb	0,539
Cm	0,982
Cp	0,549
Δ	17178,00 ton.
V	22 nudos
BHP (KW)	15224,4
N° pasajeros	950
N° tripulantes	50

Partiendo de estos datos, se procede a realizar las condiciones de carga.

2.- ESTABILIDAD EN ESTADO INTACTO:

INTRODUCCIÓN:

A continuación se comprobará que el buque cumple todos los criterios de estabilidad en estado intacto que son los exigibles por la IMO. Los criterios de estabilidad aplicables son los contenidos en la resolución de la IMO A.749.18 C en los apartados:

- 3.1.2.1
- 3.1.2.2
- 3.1.2.3
- 3.1.2.4
- 3.1.2.5
- 3.1.2.6
- 3.2.2

2.- ESTABILIDAD EN ESTADO INTACTO:

CORRECCION POR SUPERFICIES LIBRES:

Debido al efecto de superficie libre provocado por el líquido existente en los tanques, se produce una elevación virtual del centro de gravedad del buque, que afecta al GM, y un desplazamiento del líquido que afecta a las curvas GZ, dando lugar a una determinada disminución de sus valores que habrá que tener en cuenta.

Antes de realizar la corrección por superficies libres, será necesario saber que tanques se ven afectados por esta corrección. Según la resolución A 749 (18) no es necesario incluir en los cálculos de superficies libres (no corrigen) aquellos tanques que verifiquen que:

$$\text{➤ } \frac{v b \gamma k \sqrt{\delta}}{\Delta_{\min}} < 0.01$$

➤ Donde:

- v = capacidad total del tanque en m^3 .
- b = anchura máxima del tanque en m.
- γ = peso específico del líquido contenido en el tanque en m^3/ton .
- k : es un coeficiente adimensional que se obtiene según la relación de b/h :

- Para $\cot(\theta)$ mayor o igual que $\frac{b}{h}$:

$$\circ k = \frac{\sin(\theta)}{12} \left(1 + \frac{\tan^2 \theta}{2}\right) \times \frac{b}{h}$$

- Para $\cot(\theta)$ menor o igual que $\frac{b}{h}$:

$$\circ k = \frac{\cos(\theta)}{8} \left(1 + \frac{\tan(\theta)}{b/h}\right) - \frac{\cos(\theta)}{12 \times \left(\frac{b}{h}\right)^2} \left(1 + \frac{\cot^2 \theta}{2}\right)$$

- δ = Coeficiente de bloque de tanque = v/blh
- l = longitud máxima del tanque en m.
- h = altura máxima del tanque en m.
- Δ_{\min} = Desplazamiento mínimo del buque en ton.

2.- ESTABILIDAD EN ESTADO INTACTO:

CORRECCION POR SUPERFICIES LIBRES:

RESUMEN

Nombre	γ (m ³ /Ton.)	Aft (m.)	Fore (m.)	F.Port (m.)	F.Stbd. (m.)	F.Top. (m.)	F.Bott. (m.)	v (m ³)	b (m.)	l (m.)	h (m.)	δ	b/h	k	Δ min (Ton.)	Resultado	Corrige
LASTRE 2	1.025	143.46	152.00	-14.01	14.01	2.56	0.00	80.97	28.02	8.54	2.56	0.13	10.95	0.11	11655.33	0.01	SI
LASTRE 3	1.025	134.37	143.46	-14.01	14.01	2.56	0.00	119.12	28.02	9.09	2.56	0.18	10.95	0.11	11655.33	0.01	SI
LASTRE 8	1.025	75.14	83.68	-8.46	8.46	2.56	0.00	351.41	16.92	8.54	2.56	0.95	6.61	0.11	11655.33	0.06	SI
LASTRE 9	1.025	66.60	75.14	-8.46	8.46	2.56	0.00	351.41	16.92	8.54	2.56	0.95	6.61	0.11	11655.33	0.06	SI
REBOSE D.O.	0.84	63.23	66.60	-8.46	-5.21	2.56	0.00	26.36	3.25	3.37	2.56	0.94	1.27	0.06	11655.33	0.00	NO
REBOSE F.O.	0.9443	59.86	63.23	-8.46	-5.21	2.56	0.00	26.63	3.25	3.37	2.56	0.95	1.27	0.06	11655.33	0.00	NO
LASTRE 10	1.025	58.06	59.86	-8.46	-5.21	2.56	0.00	14.21	3.25	1.80	2.56	0.95	1.27	0.06	11655.33	0.00	NO
LASTRE 11	1.025	58.06	66.60	-5.21	8.46	2.56	0.00	283.89	13.67	8.54	2.56	0.95	5.34	0.11	11655.33	0.04	SI
LODOS	0.913	49.52	52.82	-8.46	-5.21	2.56	0.00	24.60	3.25	3.30	2.56	0.90	1.27	0.06	11655.33	0.00	NO
ALMACEN ACEITE 1	0.92	36.11	45.86	-5.14	-3.35	2.56	0.00	31.51	1.79	9.75	2.56	0.71	0.70	0.04	11655.33	0.00	NO
ALMACEN ACEITE 2	0.92	36.11	45.86	3.35	5.14	2.56	0.00	31.51	1.79	9.75	2.56	0.71	0.70	0.04	11655.33	0.00	NO
AGUAS CILINDRICAS	1	43.83	45.32	-1.55	1.55	2.56	0.00	10.13	3.10	1.49	2.56	0.86	1.21	0.06	11655.33	0.00	NO
ACEITE SUCIO	0.92	40.98	43.83	-1.55	1.55	2.56	0.00	18.30	3.10	2.85	2.56	0.81	1.21	0.06	11655.33	0.00	NO
ALMACEN ACEITE 3	0.92	38.14	40.98	-1.55	1.55	2.56	0.00	16.38	3.10	2.84	2.56	0.73	1.21	0.06	11655.33	0.00	NO
AGUAS ACEITOSAS	0.92	35.29	38.14	-1.55	1.55	2.56	0.00	14.03	3.10	2.85	2.56	0.62	1.21	0.06	11655.33	0.00	NO
DERRAME BANDEJA F.O.	0.9443	32.45	35.29	-2.02	0.00	2.56	0.00	7.14	2.02	2.84	2.56	0.49	0.79	0.04	11655.33	0.00	NO
DERRAME BANDEJA ACEITE	0.92	32.45	35.29	0.00	2.02	2.56	0.00	7.14	2.02	2.84	2.56	0.49	0.79	0.04	11655.33	0.00	NO
AGUA DULCE 1	1	143.46	147.73	-3.72	3.72	6.09	2.56	103.45	7.44	4.27	3.53	0.92	2.11	0.11	11655.33	0.01	SI
ALMACEN F.O. 1	0.9443	58.06	65.11	-13.20	-8.46	6.09	2.56	112.06	4.74	7.05	3.53	0.95	1.34	0.06	11655.33	0.00	NO
DECANTACION F.O. 1	0.9443	50.42	58.06	-13.20	-8.46	6.09	2.56	121.44	4.74	7.64	3.53	0.95	1.34	0.06	11655.33	0.00	NO
ALMACEN F.O. 2	0.9443	58.06	65.11	8.46	13.20	6.09	2.56	112.06	4.74	7.05	3.53	0.95	1.34	0.06	11655.33	0.00	NO
ALMACEN D.O.	0.84	50.42	57.16	8.46	13.20	6.09	2.56	107.13	4.74	6.74	3.53	0.95	1.34	0.06	11655.33	0.00	NO
AGUA TECNICA	1	29.45	32.45	-1.45	1.45	6.09	2.56	29.17	2.90	3.00	3.53	0.95	0.82	0.04	11655.33	0.00	NO
AGUA DULCE 2	1	143.46	147.73	-3.72	3.72	9.53	6.09	103.82	7.44	4.27	3.44	0.95	2.16	0.11	11655.33	0.01	SI
ALMACEN F.O. 3	0.9443	58.06	65.11	-13.20	-8.46	9.53	6.09	109.20	4.74	7.05	3.44	0.95	1.38	0.06	11655.33	0.00	NO
DECANTACION F.O. 2	0.9443	55.48	58.06	-13.20	-8.46	9.53	6.09	39.96	4.74	2.58	3.44	0.95	1.38	0.06	11655.33	0.00	NO
U.D. F.O. 1	0.9443	52.95	55.48	-13.20	-8.46	9.53	6.09	39.19	4.74	2.53	3.44	0.95	1.38	0.06	11655.33	0.00	NO
U.D. F.O. 2	0.9443	50.42	52.95	-13.20	-8.46	9.53	6.09	39.19	4.74	2.53	3.44	0.95	1.38	0.06	11655.33	0.00	NO
U.D. D.O. 1	0.84	51.02	52.52	-3.60	-0.20	9.53	6.09	16.66	3.40	1.50	3.44	0.95	0.99	0.05	11655.33	0.00	NO
U.D. D.O. 2	0.84	49.52	51.02	-3.60	-0.20	9.53	6.09	16.66	3.40	1.50	3.44	0.95	0.99	0.05	11655.33	0.00	NO
ALMACEN F.O. 4	0.9443	58.06	65.11	8.46	13.20	9.53	6.09	109.20	4.74	7.05	3.44	0.95	1.38	0.06	11655.33	0.00	NO
ALMACEN F.O. 5	0.9443	50.42	57.16	8.46	13.20	9.53	6.09	104.40	4.74	6.74	3.44	0.95	1.38	0.06	11655.33	0.00	NO
AGUA DULCE 3	1	15.37	23.91	-5.46	5.46	9.53	6.09	304.76	10.92	8.54	3.44	0.95	3.17	0.11	11655.33	0.03	SI
AGUA DULCE 4	1	13.23	15.37	-8.46	8.46	9.53	6.09	118.33	16.92	2.14	3.44	0.95	4.92	0.11	11655.33	0.02	SI

TANQUE ANTIESCORA 1
TANQUE ANTIESCORA 2
LASTRE 1
LASTRE 4
LASTRE 5
LASTRE 6
LASTRE 7
LASTRE 12
LASTRE 13
LASTRE 14
LASTRE 15

EL VOLUMEN NO VARIARÁ EN NINGUNA CONDICIÓN, POR LO TANTO NO ES NECESARIO REALIZAR NINGUNA CORRECCIÓN.

2.- ESTABILIDAD EN ESTADO INTACTO:**VALOR DE LA CORRECCIÓN:**

Dentro de un mismo servicio y para una determinada condición de carga, se tendrá en cuenta para las correcciones, los tanques que den lugar en algún momento de la navegación a superficies libres, hasta que el buque se encuentre en otra condición de carga. De entre estos:

- Los que presenten superficie libre en todo el intervalo.
- Entre los que se consumen en un orden prefijado, los que causen el mayor valor del momento por superficies libres (MSL).

En caso de que esté previsto consumir al mismo tiempo de más de un tanque (por ejemplo, cuando haya que consumir simultáneamente de tanques simétricos respecto a crujía) se considerarán a la vez todos los tanques que, de acuerdo con el orden de consumos previsto, presenten superficie libre al mismo tiempo, eligiéndose el conjunto para el que sea mayor la suma de sus respectivos momentos por superficie libre.

La corrección será la suma de las correcciones de los tanques de cada servicio. Estas correcciones suponen una disminución de los valores de GM y GZ.

2.- ESTABILIDAD EN ESTADO INTACTO:**CORRECCION POR SUPERFICIES LIBRES AL GM:**

La disminución de la altura metacéntrica viene dada por:

$$\text{➤ } GM_{\text{dism.}} = \frac{\sum l_i \times \gamma_i}{\Delta}$$

➤ Donde:

- l_i : es el momento de inercia de la superficie líquida del tanque al que corresponda, en m^4 .
- γ_i : es el peso específico del líquido al que corresponda, en ton/m^3 .
- Δ : es el desplazamiento del buque en la situación de cara que se esté estudiando, en ton.

➤ Por tanto, el valor de la altura metacéntrica corregida será:

- $GM_{\text{corregido}} = GM - GM_{\text{dism.}}$

2.- ESTABILIDAD EN ESTADO INTACTO:**CORRECCION POR SUPERFICIES LIBRES AL GZ:**

La disminución de la curva de brazos adrizantes viene dada por:

$$\text{➤ } GZ_{\text{dism.}} = \frac{\sum (M_{f.s.})_i}{\Delta}$$

➤ Donde:

- $(M_{f.s.})_i$: corresponde con el momento provocado por la superficie libre en el tanque correspondiente al 50% de llenado y el 30% de inclinación.
- Δ : es el desplazamiento del buque en la situación de cara que se esté estudiando, en ton.

➤ Por tanto, el valor de la altura metacéntrica corregida será:

- $GZ_{\text{corregido}} = GZ - GZ_{\text{dism.}}$

2.- ESTABILIDAD EN ESTADO INTACTO:**CONDICIONES DE CARGA A ESTUDIAR:**

Las condiciones de carga reglamentarias son, según la resolución IMO A.749.18:

- Buque en la condición de salida a plena carga, con la totalidad de provisiones y combustible y de pasajeros con su equipaje.
- Buque en la condición de llegada a plena carga, con la totalidad de pasajeros con su equipaje, pero con sólo el 10% de provisiones y combustible.
- Buque sin carga pero con la totalidad de provisiones y combustible y de pasajeros con su equipaje.
- Buque en las mismas condiciones que en el punto anterior, pero con sólo el 10% de provisiones y combustible.

2.- ESTABILIDAD EN ESTADO INTACTO:**CONDICIONES DE CARGA A ESTUDIAR:**❖ **Peso carga útil:**

- $P_{\text{coches}} = 250 \text{ coches} \times 2 \frac{\text{ton.}}{\text{Coche}} = 500 \text{ ton.}$
- El centro de gravedad de los mismos a 0,7 m sobre cubierta.

❖ **Peso tripulación y pasaje:**

- $P_{\text{tripulación}} = 50 \text{ tripulantes} \times 200 \frac{\text{kg.}}{\text{tripulante}} = 10 \text{ ton.}$
- $P_{\text{pasaje}} = 950 \text{ pasajeros} \times 150 \frac{\text{kg.}}{\text{pasajero}} = 142.50 \text{ ton.}$
- El centro de gravedad será a 1 m sobre la cubierta en la que se encuentren, tal y como indica la resolución IMO A.749.18 (Capítulo 3, Apartado 3.1), por tanto se estará considerando la situación en que todo el pasaje y tripulación este de pie.

❖ **Peso víveres:**

- $P_{\text{víveres}} = 4.75 \text{ días} \times 1000 \text{ personas} \times 30 \frac{\text{kg}}{\text{persona día}} = 142.50 \text{ ton.}$

❖ **Peso elementos de estiva:**

- Se supondrá un valor de:
 - $P_{\text{elementos de estiba}} = 200 \text{ ton}$

- ❖ Se considerará necesaria la utilización de lastre permanente en las condiciones reglamentarias.

2.- ESTABILIDAD EN ESTADO INTACTO:

CONDICION N°:1:

RESULTADOS

(SIN CORRECCIÓN POR SUPERFICIES LIBRES)

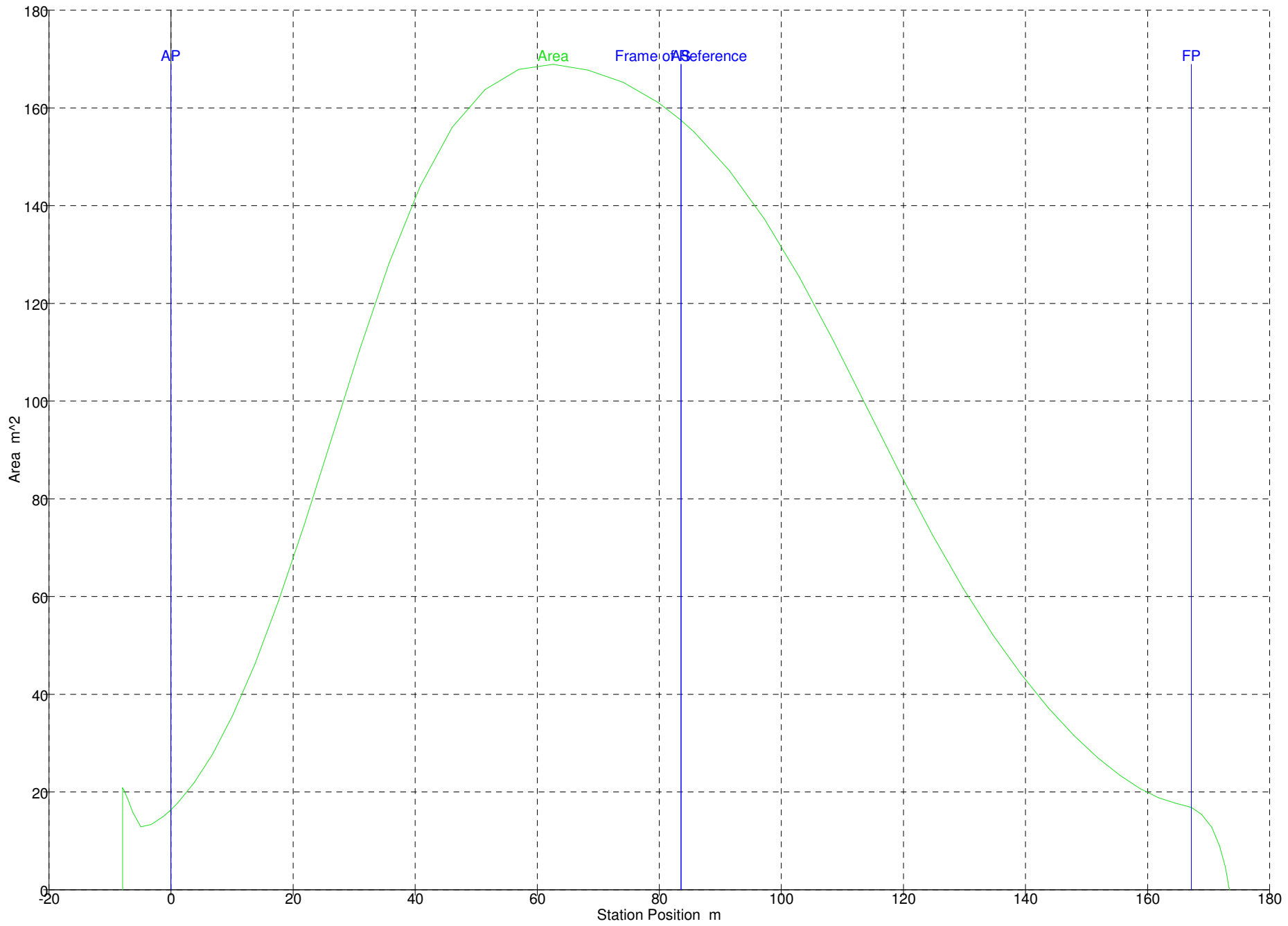
Academic Version

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
15	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
16	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.498	IMO A.749(18)
17	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.429	IMO A.749(18)
18	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.592	IMO A.749(18)
19	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
20	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
21	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
22	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.575	IMO A.749(18)
23	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
24	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.128	IMO A.749(18)
25	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.332	IMO A.749(18)
26	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
27	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
28	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
29	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
30	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
31	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
32	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
33	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
34	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
35	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
36	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
37	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
38	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
39	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
40	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
41	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)
42	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
44	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
45	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
46	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
47	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
49	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
50	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
51	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
52	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			17105.439	5772.652	4459.630	75.151	-0.020	7.332	36.852	
55	FS correction								0.002		
56	VCG fluid								7.334		

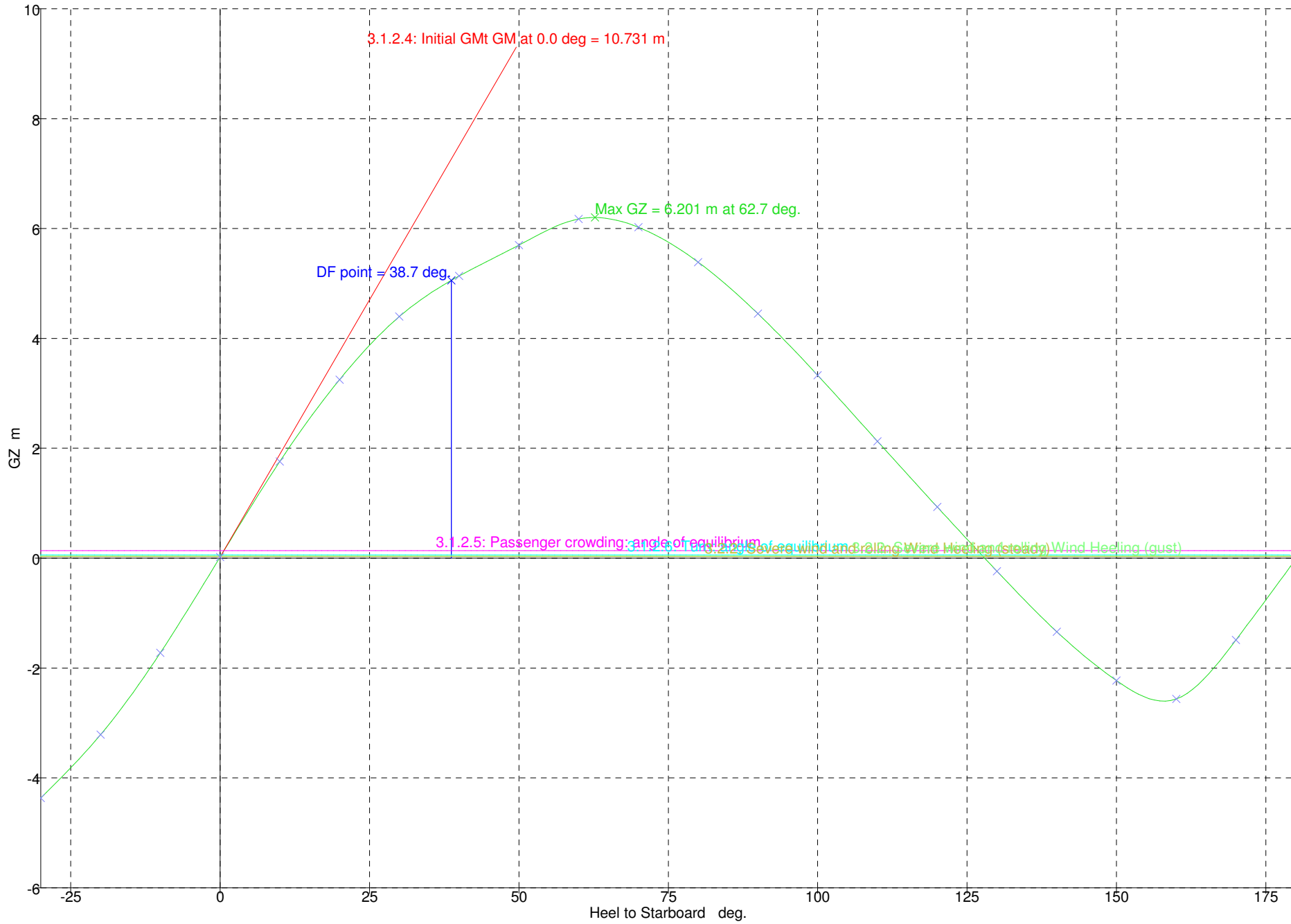
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1	Draft Amidships m	5.976
2	Displacement t	17105
3	Heel deg	-0.1
4	Draft at FP m	5.491
5	Draft at AP m	6.462
6	Draft at LCF m	6.075
7	Trim (+ve by stern) m	0.971
8	WL Length m	181.305
9	Beam max extents on WL m	28.205
10	Wetted Area m ²	5138.29
11	Waterpl. Area m ²	4122.76
12	Prismatic coeff. (Cp)	0.545
13	Block coeff. (Cb)	0.532
14	Max Sect. area coeff. (Cm)	0.979
15	Waterpl. area coeff. (Cwp)	0.806
16	LCB from zero pt. (+ve fwd) m	75.125
17	LCF from zero pt. (+ve fwd) m	66.658
18	KB m	3.505
19	KG fluid m	7.334
20	BMt m	14.560
21	BML m	485.061
22	GMt corrected m	10.731
23	GML m	481.231
24	KMt m	18.065
25	KML m	488.556
26	Immersion (TPc) tonne/cm	42.258
27	MTc tonne.m	492.245
28	RM at 1deg = GMt.Disp.sin(1) t	3203.39
29	Max deck inclination deg	0.3492
30	Trim angle (+ve by stern) deg	0.3328



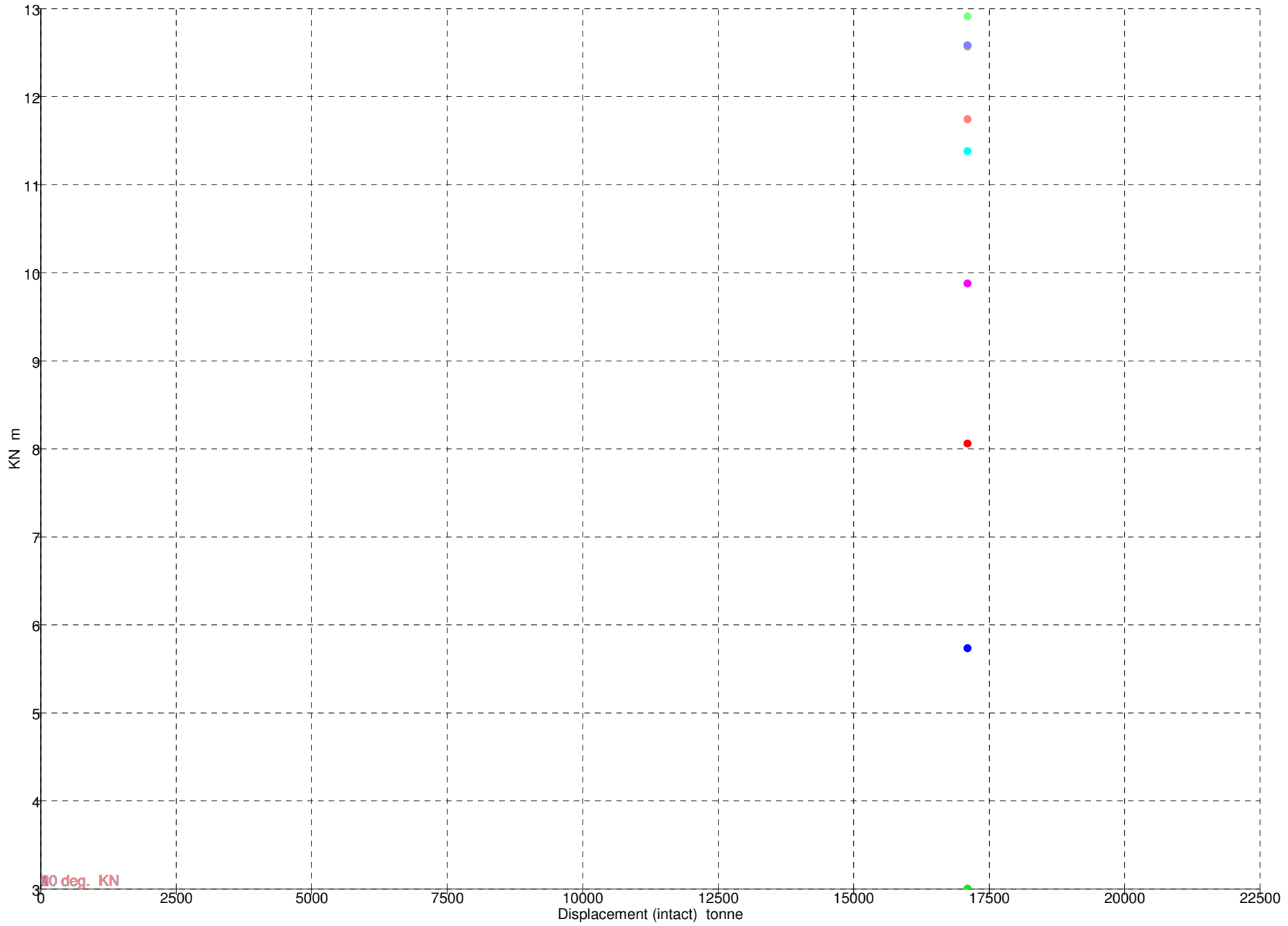
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.364	-3.213	-1.723	0.020	1.762	3.250	4.398	5.137	5.698	6.175	6.024	5.389	4.450	3.329	2.129	0.932	-0.237
2	Area under GZ curve from zero heel	71.6649	33.6001	8.6293	0.0360	9.0310	34.3447	72.9156	120.863	175.056	234.724	296.256	353.630	403.028	442.033	469.351	484.634	488.083
3	Displacement t	17105	17104	17105	17105	17105	17105	17105	17104	17105	17105	17105	17105	17106	17106	17106	17106	17106
4	Draft at FP m	4.865	5.314	5.464	5.491	5.464	5.314	4.867	3.955	2.264	-0.870	-7.489	-27.501	n/a	-51.790	-31.704	-24.894	-21.452
5	Draft at AP m	4.954	5.834	6.309	6.462	6.309	5.834	4.953	3.377	0.734	-3.966	-12.817	-37.990	n/a	-59.310	-34.217	-25.578	-21.171
6	WL Length m	181.369	181.338	181.309	181.305	181.309	181.338	181.369	181.230	180.381	172.824	174.061	174.925	175.686	176.532	177.350	178.083	178.733
7	Beam max extents on WL m	26.125	29.224	28.640	28.205	28.640	29.225	26.125	24.186	24.334	23.094	21.283	20.308	20.000	20.308	21.156	21.487	20.297
8	Wetted Area m^2	4829.44	4898.11	4947.31	5138.34	4947.30	4898.18	4829.43	4799.88	4837.26	4840.25	4761.83	4744.55	4753.17	4771.76	4803.79	4853.54	4893.24
9	Waterpl. Area m^2	3701.32	3813.16	3901.59	4122.82	3901.58	3813.21	3701.24	3677.66	3771.56	3633.92	3236.55	3018.48	2920.90	2909.16	2973.99	3087.69	3193.95
10	Prismatic coeff. (Cp)	0.629	0.588	0.555	0.545	0.555	0.588	0.629	0.655	0.676	0.720	0.734	0.753	0.776	0.805	0.843	0.888	0.918
11	Block coeff. (Cb)	0.341	0.337	0.408	0.532	0.408	0.337	0.341	0.354	0.359	0.423	0.508	0.617	0.679	0.565	0.485	0.448	0.457
12	LCB from zero pt. (+ve fwd) m	75.149	75.139	75.130	75.126	75.130	75.137	75.157	75.178	75.193	75.239	75.254	75.260	75.256	75.243	75.217	75.181	75.142
13	LCF from zero pt. (+ve fwd) m	77.750	74.303	71.037	66.658	71.037	74.302	77.754	80.809	82.308	79.760	77.685	76.540	75.891	75.278	74.790	74.558	74.616
14	Max deck inclination deg	30.0000	20.0007	10.0040	0.3326	10.0040	20.0007	30.0000	40.0002	50.0008	60.0014	70.0012	80.0006	90.0000	99.9997	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	0.0307	0.1782	0.2895	0.3326	0.2895	0.1784	0.0295	-0.1979	-0.5244	-1.0607	-1.8247	-3.5892	-90.000	-2.5749	-0.8610	-0.2345	0.0961



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	17105	6.040	0.333 (fixed)	76.970	0.000	0.000	3.002	5.735	8.059	9.878	11.381	12.569	12.912	12.583	11.744



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	A.749(18) C	3.1.2.1: Area 0 to 30				Pass	
2		<i>from the greater of</i>					
3		spec. heel angle	0.0	deg	0.0		
4		<i>to the lesser of</i>					
5		spec. heel angle	30.0	deg	30.0		
6		angle of vanishing stability	128.0	deg			
7		shall not be less than (>=)	3.1513	m.deg	72.9156	Pass	+2213.83
8							
9	A.749(18) C	3.1.2.1: Area 0 to 40				Pass	
10		<i>from the greater of</i>					
11		spec. heel angle	0.0	deg	0.0		
12		<i>to the lesser of</i>					
13		spec. heel angle	40.0	deg			
14		first downflooding angle	38.7	deg	38.7		
15		angle of vanishing stability	128.0	deg			
16		shall not be less than (>=)	5.1566	m.deg	114.2210	Pass	+2115.05
17							
18	A.749(18) C	3.1.2.1: Area 30 to 40				Pass	
19		<i>from the greater of</i>					
20		spec. heel angle	30.0	deg	30.0		
21		<i>to the lesser of</i>					
22		spec. heel angle	40.0	deg			
23		first downflooding angle	38.7	deg	38.7		
24		angle of vanishing stability	128.0	deg			
25		shall not be less than (>=)	1.7189	m.deg	41.3054	Pass	+2303.02
26							
27	A.749(18) C	3.1.2.2: Max GZ at 30 or greater				Pass	
28		<i>in the range from the greater of</i>					
29		spec. heel angle	30.0	deg	30.0		
30		<i>to the lesser of</i>					
31		spec. heel angle	90.0	deg			
32		angle of max. GZ	62.7	deg	62.7		
33		shall not be less than (>=)	0.200	m	6.201	Pass	+3000.50
34		<i>Intermediate values</i>					
35		angle at which this GZ occurs		deg	62.7		
36							
37	A.749(18) C	3.1.2.3: Angle of maximum GZ				Pass	
38		shall not be less than (>=)	25.0	deg	62.7	Pass	+150.91
39							
40	A.749(18) C	3.1.2.4: Initial GMt				Pass	
41		spec. heel angle	0.0	deg			
42		shall not be less than (>=)	0.150	m	10.731	Pass	+7054.00
43							
44	A.749(18) C	3.1.2.5: Passenger crowding: angle of equilibrium				Pass	
45		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
46		number of passengers: nPass =	1000				
47		passenger mass: M =	0.150	tonne			

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		distance from centre line: D =	15.830	m			
49		cosine power: n =	0				
50		shall not be greater than (<=)	10.0	deg	0.7	Pass	+93.35
51		<i>Intermediate values</i>					
52		Heel arm amplitude		m	0.139		
53							
54	A.749(18) C	3.1.2.6: Turn: angle of equilibrium				Pass	
55		<i>Turn arm: $a v^2 / (R g) h \cos^n(\phi)$</i>					
56		constant: a =	0.9996				
57		vessel speed: v =	22.000	kn			
58		turn radius, R, as percentage of Lwl	510.00	%			
59		h = KG - mean draft / 2	4.344	m			
60		cosine power: n =	0				
61		shall not be greater than (<=)	10.0	deg	0.2	Pass	+97.68
62		<i>Intermediate values</i>					
63		Heel arm amplitude		m	0.061		
64							
65	A.749(18) C	3.2.2: Severe wind and rolling				Pass	
66		<i>Wind arm: $a P A (h - H) / (g disp.) \cos^n(\phi)$</i>					
67		constant: a =	0.99966				
68		wind pressure: P =	504.0	Pa			
69		area centroid height (from zero point): h =	6.000	m			
70		total area: A =	3500.000	m ²			
71		H = vert. centre of projected lat. u'water area	3.162	m			
72		cosine power: n =	0				
73		gust ratio	1.5				
74		<i>Area2 integrated to the lesser of</i>					
75		roll back angle from equilibrium (with steady heel arm)	25.0 (-24.9)	deg	-24.9		
76		<i>Area 1 upper integration range, to the lesser of:</i>					
77		spec. heel angle	50.0	deg			
78		first downflooding angle	38.7	deg	38.7		
79		angle of vanishing stability (with gust heel arm)	127.6	deg			
80		<i>Angle for GZ(max) in GZ ratio, the lesser of:</i>					
81		angle of max. GZ	62.7	deg	62.7		
82		Select required angle for angle of steady heel ratio:	DeckEdge1				
83		Criteria:				Pass	
84		Angle of steady heel shall not be greater than (<=)	16.0	deg	0.1	Pass	+99.65
85		Angle of steady heel / Deck edge immersion angle shall be less than (<)	80.00	%	0.41	Pass	+99.49
86		Area1 / Area2 shall not be less than (>=)	100.00	%	215.88	Pass	+115.88
87		<i>Intermediate values</i>					
88		Heel arm amplitude		m	0.030		
89		Equilibrium angle with steady heel arm		deg	0.1		
90		Equilibrium angle with gust heel arm		deg	0.1		
91		Deck edge immersion angle		deg	13.7		
92		Area1 (under GZ), from 0.1 to 38.7 deg.		m.deg	114.2165		
93		Area1 (under HA), from 0.1 to 38.7 deg.		m.deg	1.7255		
94		Area1, from 0.1 to 38.7 deg.		m.deg	112.4910		

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	Code	Criteria	Value	Units	Actual	Status	Margin %
95		Area2 (under GZ), from -24.9 to 0.1 deg.		m.deg	-50.9866		
96		Area2 (under HA), from -24.9 to 0.1 deg.		m.deg	1.1225		
97		Area2, from -24.9 to 0.1 deg.		m.deg	52.1092		
98							

2.- ESTABILIDAD EN ESTADO INTACTO:

CONDICION N°:1:

RESULTADOS

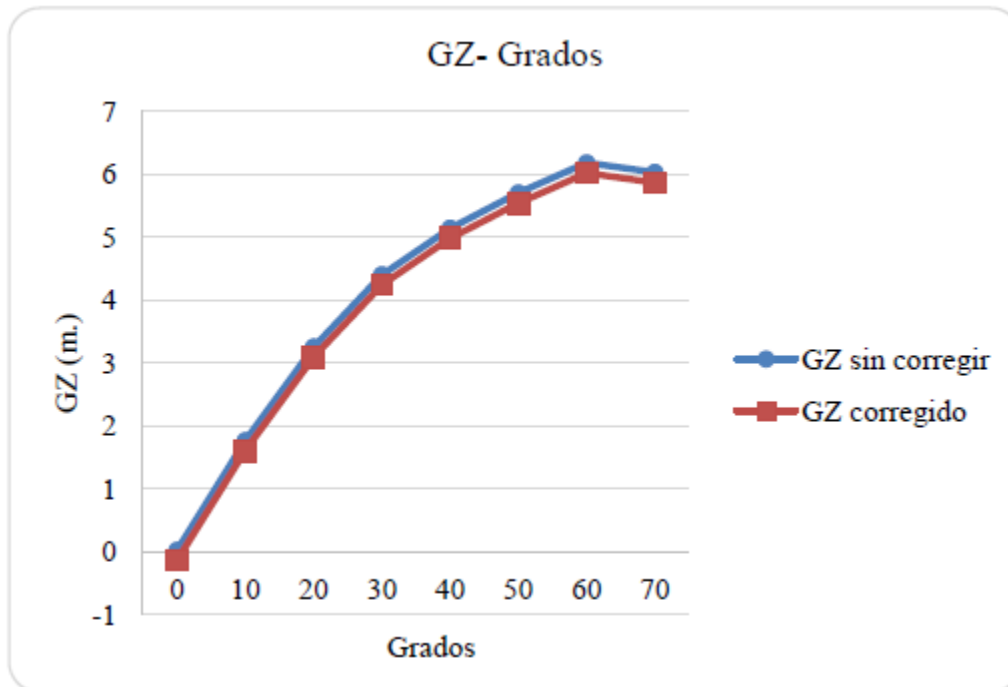
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2.- ESTABILIDAD EN ESTADO INTACTO:**CONDICION N°:1:**

Nombre	γ (m ³ /Ton.)	Inercia (m ⁴ .)	$\Sigma li \gamma_i$	Δ (ton.)	Corrección GM (m.)
LASTRE 2	1.025	87.80	89.99	17105.439	0.615071031
LASTRE 3	1.025	233.05	238.88		
LASTRE 8	1.025	3191.93	3271.73		
LASTRE 9	1.025	3192.00	3271.80		
LASTRE 11	1.025	1683.11	1725.19		
AGUA DULCE 1	1	129.84	129.84		
AGUA DULCE 2	1	135.69	135.69		
AGUA DULCE 3	1	858.08	858.08		
AGUA DULCE 4	1	799.86	799.86		

Nombre	Mf.s.	Δ (ton.)	Corrección GZ (m.)
LASTRE 2	93	17105.439	0.159138272
LASTRE 3	160.85		
LASTRE 8	653.41		
LASTRE 9	653.41		
LASTRE 11	426.46		
AGUA DULCE 1	81.32		
AGUA DULCE 2	82.81		
AGUA DULCE 3	356.81		
AGUA DULCE 4	214.06		

Grados	0	10	20	30	40	50	60	70
GZ (m.)	0.02	1.762	3.25	4.398	5.137	5.698	6.175	6.024
GZ corregido (m.)	-0.139	1.603	3.091	4.239	4.978	5.539	6.016	5.865

2.- ESTABILIDAD EN ESTADO INTACTO:**CONDICION N°:1:**

Area 0° a 30° (deg.m.)	22.758
Area 0° a 40° (deg.m.)	107.14
Area 30° a 40° (deg.m.)	84.384
GZ 30° (m.)	4.239
GZ máx.	60°
GM (m.)	10.731
GM corregido (m.)	10.116

A la vista de los resultados una vez aplicada la corrección, el buque cumple todos los requisitos de estabilidad establecidos anteriormente en estado intacto

2.- ESTABILIDAD EN ESTADO INTACTO:

CONDICION N°:2:

RESULTADOS

(SIN CORRECCIÓN POR SUPERFICIES LIBRES)

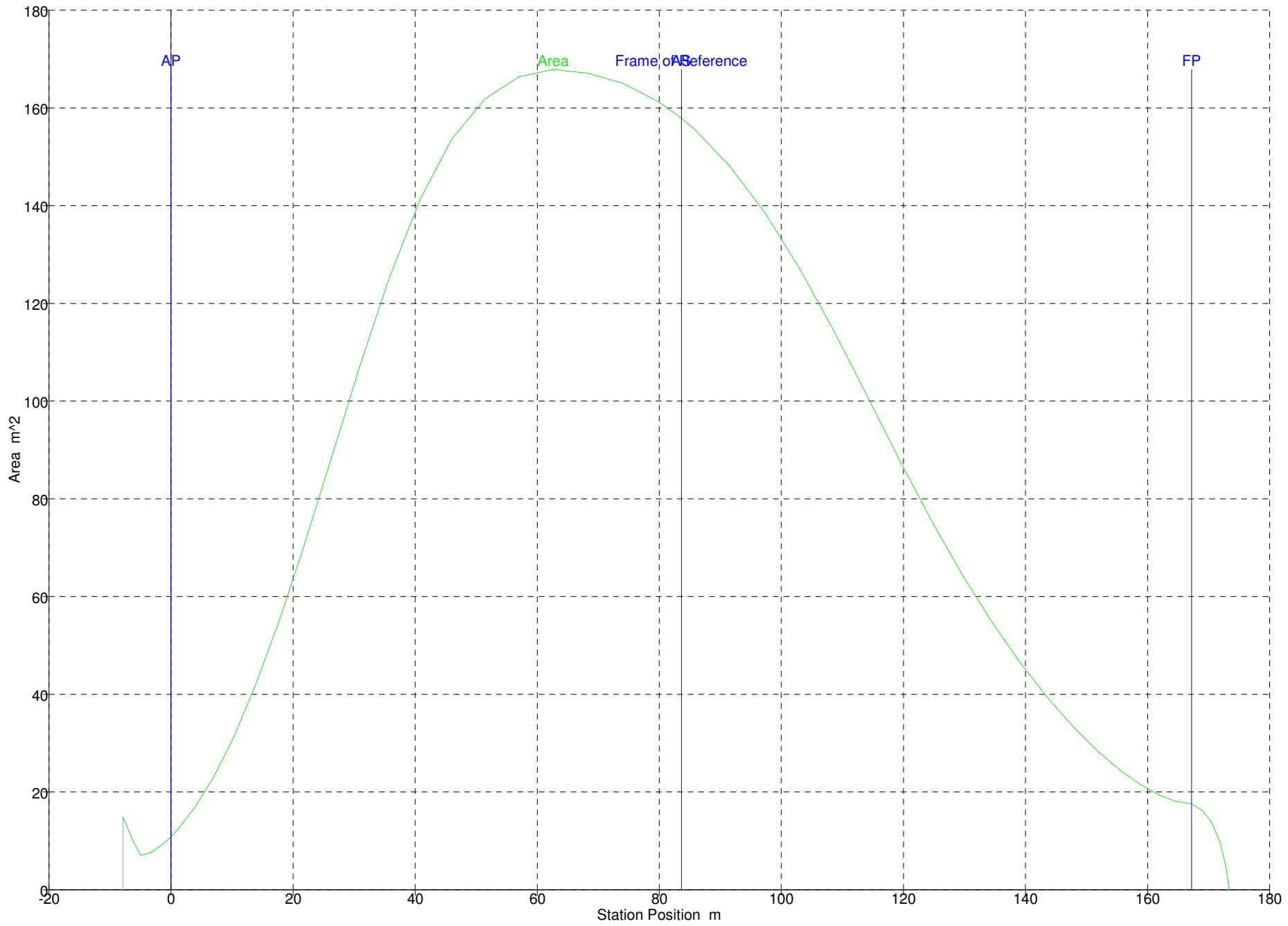
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	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	100%	82.930	82.930	80.907	80.907	147.503	0.000	1.552	0.000	IMO A.749(18)
11	LASTRE 3	100%	122.105	122.105	119.127	119.127	138.668	0.000	1.514	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	100%	360.197	360.197	351.411	351.411	79.410	0.000	1.280	0.000	IMO A.749(18)
17	LASTRE 9	100%	360.202	360.202	351.416	351.416	70.870	0.000	1.280	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.498	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.429	IMO A.749(18)
20	LASTRE 10	100%	14.569	14.569	14.213	14.213	58.960	-6.834	1.281	0.000	IMO A.749(18)
21	LASTRE 11	100%	290.990	290.990	283.893	283.893	62.330	1.625	1.280	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.592	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.996	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.996	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.128	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.707	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.285	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.707	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.524	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.737	5.646	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.020	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.089	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	799.873	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.301	IMO A.749(18)
54	Total Loadcase			16989.663	5772.652	4395.313	76.426	-0.035	6.821	1993.995	
55	FS correction								0.117		
56	VCG fluid								6.939		

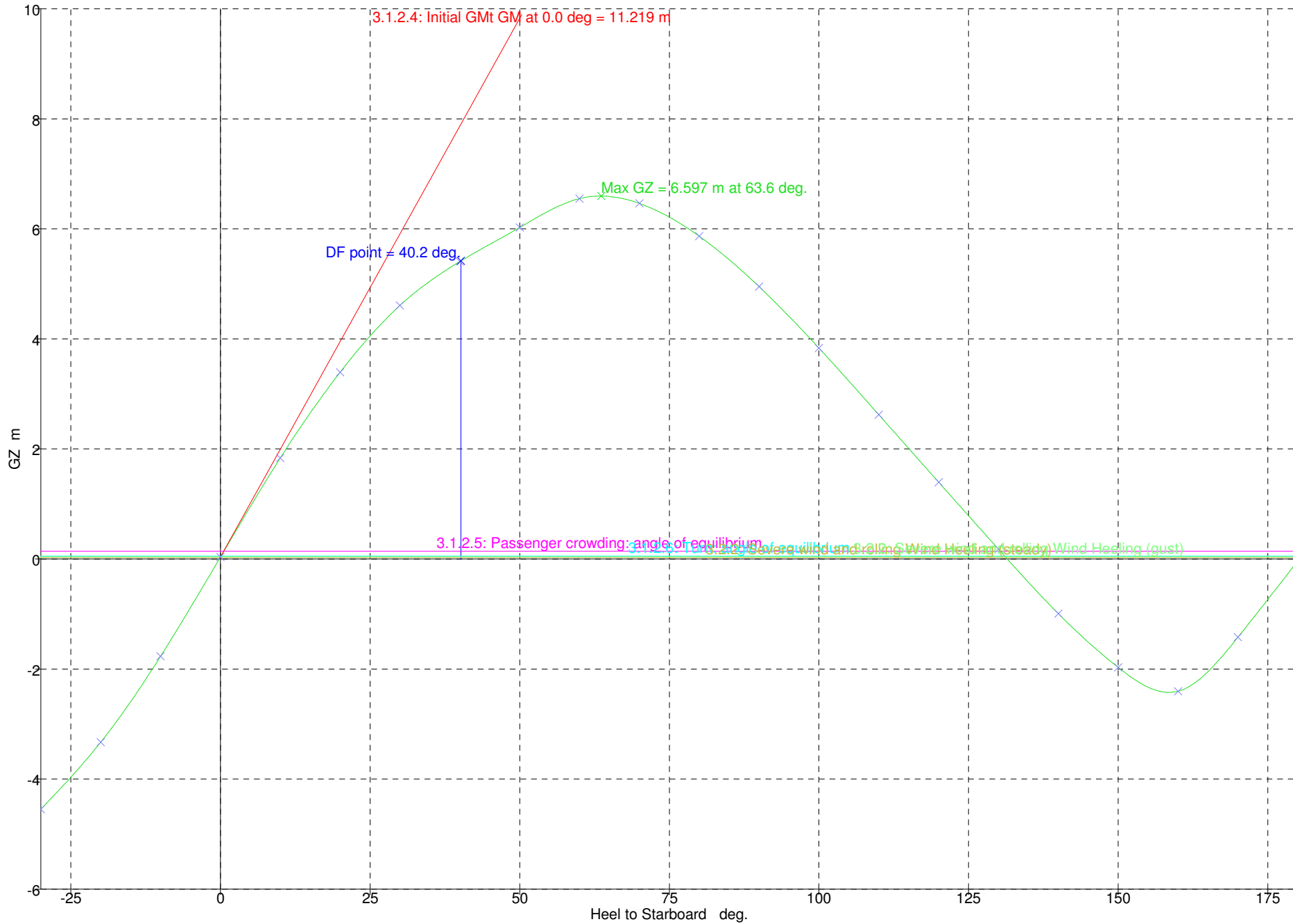
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1	Draft Amidships m	5.992
2	Displacement t	16990
3	Heel deg	-0.2
4	Draft at FP m	5.720
5	Draft at AP m	6.264
6	Draft at LCF m	6.046
7	Trim (+ve by stern) m	0.545
8	WL Length m	181.249
9	Beam max extents on WL m	28.205
10	Wetted Area m ²	5146.27
11	Waterpl. Area m ²	4127.95
12	Prismatic coeff. (Cp)	0.545
13	Block coeff. (Cb)	0.532
14	Max Sect. area coeff. (Cm)	0.977
15	Waterpl. area coeff. (Cwp)	0.807
16	LCB from zero pt. (+ve fwd) m	76.427
17	LCF from zero pt. (+ve fwd) m	66.853
18	KB m	3.482
19	KG fluid m	6.939
20	BMt m	14.676
21	BML m	487.994
22	GMt corrected m	11.219
23	GML m	484.537
24	KMt m	18.158
25	KML m	491.471
26	Immersion (TPc) tonne/cm	42.312
27	MTc tonne.m	492.272
28	RM at 1deg = GMt.Disp.sin(1) t	3326.69
29	Max deck inclination deg	0.2592
30	Trim angle (+ve by stern) deg	0.1866



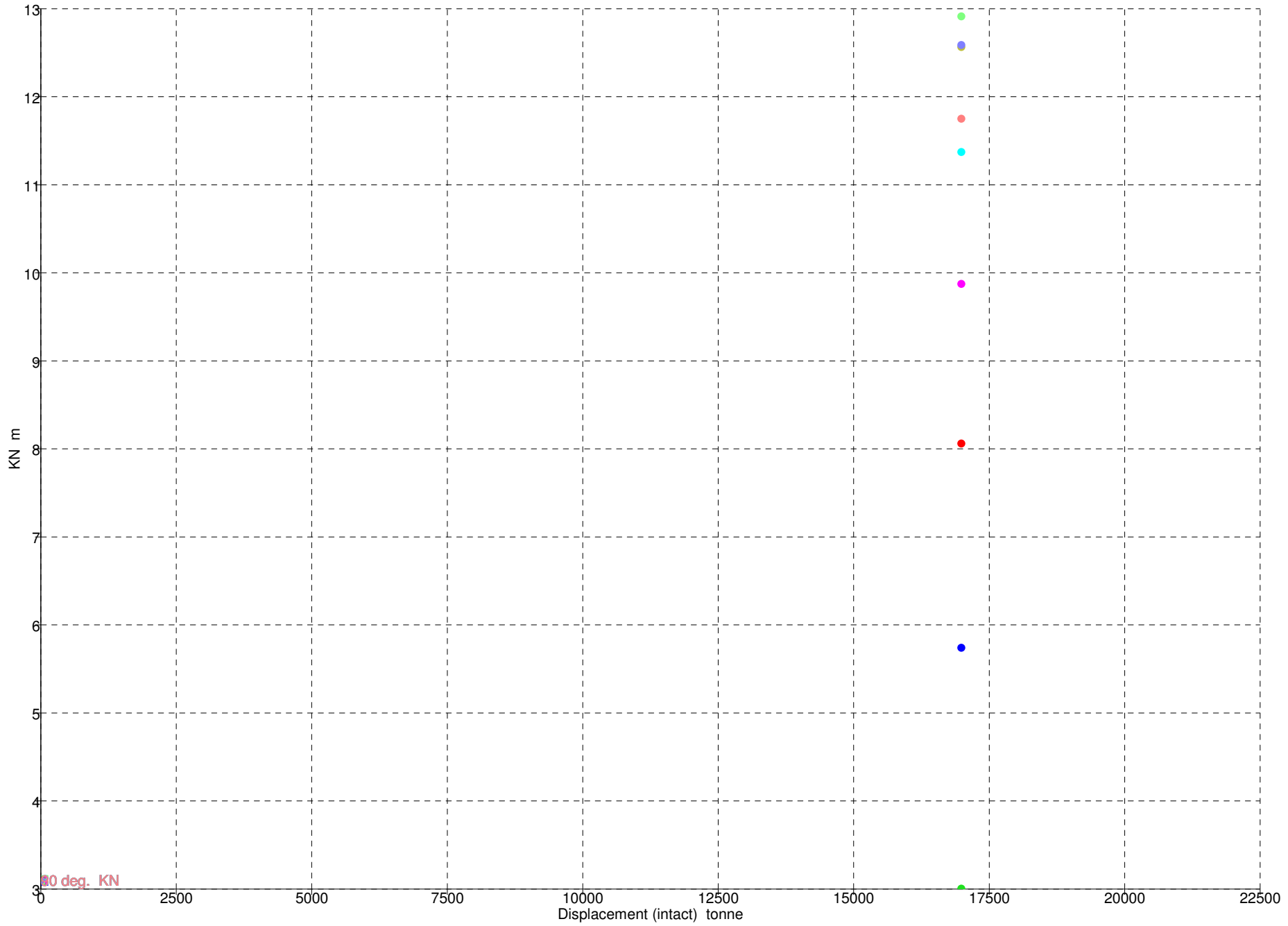
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.547	-3.329	-1.767	0.035	1.836	3.395	4.608	5.407	6.025	6.552	6.463	5.867	4.950	3.835	2.622	1.395	0.177
2	Area under GZ curve from zero heel	74.1048	34.5366	8.7663	0.0636	9.4700	35.8756	76.2268	126.578	183.764	246.947	312.562	374.539	428.836	472.880	505.205	525.289	533.141
3	Displacement t	16990	16989	16990	16990	16990	16989	16989	16989	16989	16990	16990	16990	16990	16990	16990	16990	16990
4	Draft at FP m	5.131	5.577	5.720	5.716	5.720	5.576	5.129	4.227	2.566	-0.459	-6.766	-25.955	n/a	-50.160	-30.900	-24.378	-21.086
5	Draft at AP m	4.655	5.565	6.067	6.266	6.067	5.566	4.656	3.042	0.346	-4.464	-13.636	-39.693	n/a	-61.051	-35.068	-26.127	-21.568
6	WL Length m	181.370	181.275	181.247	181.250	181.247	181.276	181.371	181.289	180.608	175.313	174.334	175.208	175.948	176.734	177.520	178.227	178.853
7	Beam max extents on WL m	26.051	29.169	28.640	28.205	28.640	29.169	26.050	24.215	24.483	23.094	21.283	20.308	20.000	20.308	21.137	21.395	20.212
8	Wetted Area m^2	4813.51	4887.22	4933.76	5146.02	4933.74	4887.29	4813.40	4788.23	4824.15	4854.35	4756.16	4737.27	4743.32	4761.42	4793.19	4841.86	4880.17
9	Waterpl. Area m^2	3681.94	3796.28	3880.54	4127.89	3880.53	3796.34	3681.94	3666.33	3761.84	3666.65	3250.60	3030.38	2929.63	2916.75	2979.50	3088.61	3189.36
10	Prismatic coeff. (Cp)	0.632	0.591	0.556	0.545	0.556	0.591	0.632	0.658	0.677	0.710	0.732	0.751	0.775	0.804	0.843	0.884	0.918
11	Block coeff. (Cb)	0.342	0.338	0.408	0.533	0.408	0.338	0.342	0.354	0.356	0.417	0.508	0.616	0.652	0.545	0.471	0.437	0.455
12	LCB from zero pt. (+ve fwd) m	76.437	76.428	76.417	76.411	76.417	76.425	76.428	76.463	76.480	76.532	76.554	76.555	76.572	76.561	76.535	76.498	76.454
13	LCF from zero pt. (+ve fwd) m	78.429	74.971	71.682	66.850	71.682	74.970	78.424	81.581	83.075	80.544	77.997	76.836	76.123	75.518	75.055	74.863	75.039
14	Max deck inclination deg	30.0003	20.0000	10.0007	0.1885	10.0007	20.0000	30.0003	40.0010	50.0017	60.0024	70.0021	80.0010	90.0000	99.9994	109.999	119.999	129.999
15	Trim angle (+ve by stern) deg	-0.1631	-0.0039	0.1189	0.1885	0.1189	-0.0035	-0.1618	-0.4060	-0.7604	-1.3719	-2.3526	-4.6964	-90.000	-3.7265	-1.4280	-0.5992	-0.1651



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16990	6.027	0.187 (fixed)	77.462	0.000	0.000	3.002	5.739	8.059	9.873	11.370	12.563	12.912	12.587	11.750



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	A.749(18) C	3.1.2.1: Area 0 to 30				Pass	
2		<i>from the greater of</i>					
3		spec. heel angle	0.0	deg	0.0		
4		<i>to the lesser of</i>					
5		spec. heel angle	30.0	deg	30.0		
6		angle of vanishing stability	131.5	deg			
7		shall not be less than (>=)	3.1513	m.deg	76.2268	Pass	+2318.90
8							
9	A.749(18) C	3.1.2.1: Area 0 to 40				Pass	
10		<i>from the greater of</i>					
11		spec. heel angle	0.0	deg	0.0		
12		<i>to the lesser of</i>					
13		spec. heel angle	40.0	deg	40.0		
14		first downflooding angle	40.2	deg			
15		angle of vanishing stability	131.5	deg			
16		shall not be less than (>=)	5.1566	m.deg	126.5784	Pass	+2354.69
17							
18	A.749(18) C	3.1.2.1: Area 30 to 40				Pass	
19		<i>from the greater of</i>					
20		spec. heel angle	30.0	deg	30.0		
21		<i>to the lesser of</i>					
22		spec. heel angle	40.0	deg	40.0		
23		first downflooding angle	40.2	deg			
24		angle of vanishing stability	131.5	deg			
25		shall not be less than (>=)	1.7189	m.deg	50.3516	Pass	+2829.29
26							
27	A.749(18) C	3.1.2.2: Max GZ at 30 or greater				Pass	
28		<i>in the range from the greater of</i>					
29		spec. heel angle	30.0	deg	30.0		
30		<i>to the lesser of</i>					
31		spec. heel angle	90.0	deg			
32		angle of max. GZ	63.6	deg	63.6		
33		shall not be less than (>=)	0.200	m	6.597	Pass	+3198.50
34		<i>Intermediate values</i>					
35		angle at which this GZ occurs		deg	63.6		
36							
37	A.749(18) C	3.1.2.3: Angle of maximum GZ				Pass	
38		shall not be less than (>=)	25.0	deg	63.6	Pass	+154.54
39							
40	A.749(18) C	3.1.2.4: Initial GMt				Pass	
41		spec. heel angle	0.0	deg			
42		shall not be less than (>=)	0.150	m	11.219	Pass	+7379.33
43							
44	A.749(18) C	3.1.2.5: Passenger crowding: angle of equilibrium				Pass	
45		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
46		number of passengers: nPass =	1000				
47		passenger mass: M =	0.150	tonne			

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		distance from centre line: D =	15.830	m			
49		cosine power: n =	0				
50		shall not be greater than (<=)	10.0	deg	0.6	Pass	+94.32
51		<i>Intermediate values</i>					
52		Heel arm amplitude		m	0.140		
53							
54	A.749(18) C	3.1.2.6: Turn: angle of equilibrium				Pass	
55		<i>Turn arm: $a v^2 / (R g) h \cos^n(\phi)$</i>					
56		constant: a =	0.9996				
57		vessel speed: v =	22.000	kn			
58		turn radius, R, as percentage of Lwl	510.00	%			
59		h = KG - mean draft / 2	3.826	m			
60		cosine power: n =	0				
61		shall not be greater than (<=)	10.0	deg	0.1	Pass	+98.97
62		<i>Intermediate values</i>					
63		Heel arm amplitude		m	0.054		
64							
65	A.749(18) C	3.2.2: Severe wind and rolling				Pass	
66		<i>Wind arm: $a P A (h - H) / (g disp.) \cos^n(\phi)$</i>					
67		constant: a =	0.99966				
68		wind pressure: P =	504.0	Pa			
69		area centroid height (from zero point): h =	6.000	m			
70		total area: A =	3500.000	m ²			
71		H = vert. centre of projected lat. u'water area	3.170	m			
72		cosine power: n =	0				
73		gust ratio	1.5				
74		<i>Area2 integrated to the lesser of</i>					
75		roll back angle from equilibrium (with steady heel arm)	25.0 (-25.0)	deg	-25.0		
76		<i>Area 1 upper integration range, to the lesser of:</i>					
77		spec. heel angle	50.0	deg			
78		first downflooding angle	40.2	deg	40.2		
79		angle of vanishing stability (with gust heel arm)	131.1	deg			
80		<i>Angle for GZ(max) in GZ ratio, the lesser of:</i>					
81		angle of max. GZ	63.6	deg	63.6		
82		Select required angle for angle of steady heel ratio:	DeckEdge1				
83		Criteria:				Pass	
84		Angle of steady heel shall not be greater than (<=)	16.0	deg	0.0	Pass	+100.17
85		Angle of steady heel / Deck edge immersion angle shall be less than (<)	80.00	%	-0.18	Pass	+100.23
86		Area1 / Area2 shall not be less than (>=)	100.00	%	232.58	Pass	+132.58
87		<i>Intermediate values</i>					
88		Heel arm amplitude		m	0.030		
89		Equilibrium angle with steady heel arm		deg	0.0		
90		Equilibrium angle with gust heel arm		deg	0.1		
91		Deck edge immersion angle		deg	15.0		
92		Area1 (under GZ), from 0.1 to 40.2 deg.		m.deg	127.4904		
93		Area1 (under HA), from 0.1 to 40.2 deg.		m.deg	1.8020		
94		Area1, from 0.1 to 40.2 deg.		m.deg	125.6884		

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	Code	Criteria	Value	Units	Actual	Status	Margin %
95		Area2 (under GZ), from -25.0 to 0.1 deg.		m.deg	-52.9153		
96		Area2 (under HA), from -25.0 to 0.1 deg.		m.deg	1.1267		
97		Area2, from -25.0 to 0.1 deg.		m.deg	54.0419		
98							

2.- ESTABILIDAD EN ESTADO INTACTO:

CONDICION N°:2:

RESULTADOS

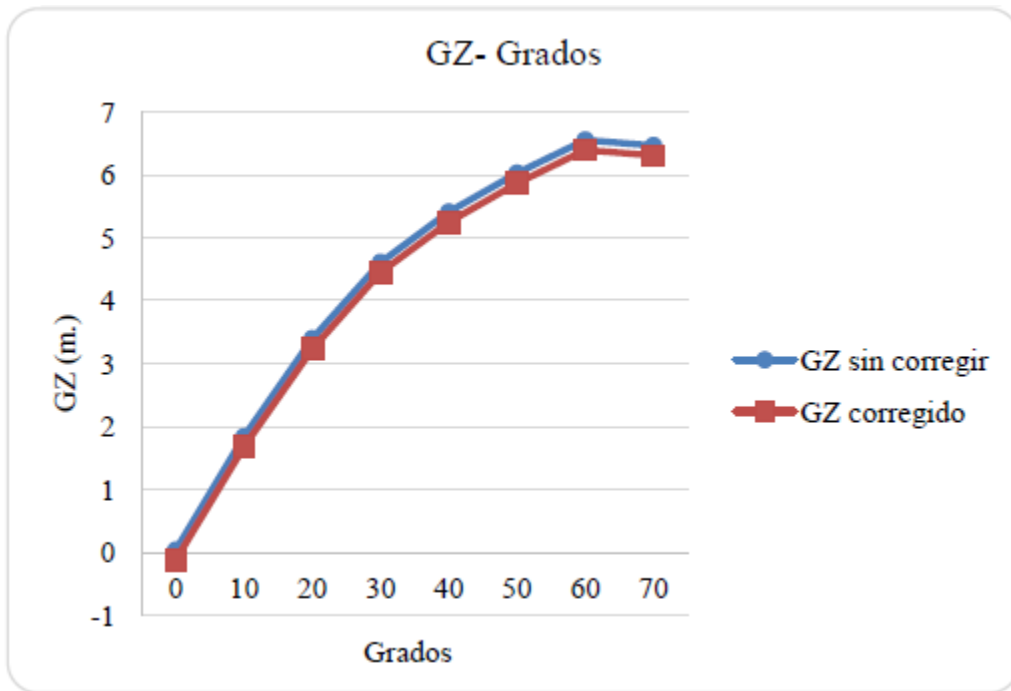
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2.- ESTABILIDAD EN ESTADO INTACTO:**CONDICION N°:2:**

Nombre	γ (m ³ /Ton.)	Inercia (m ⁴ .)	$\Sigma li \gamma_i$	Δ (ton.)	Corrección GM (m.)
LASTRE 2	1.025	87.80	89.99	16989.663	0.61926243
LASTRE 3	1.025	233.05	238.88		
LASTRE 8	1.025	3191.93	3271.73		
LASTRE 9	1.025	3192.00	3271.80		
LASTRE 11	1.025	1683.11	1725.19		
AGUA DULCE 1	1	129.84	129.84		
AGUA DULCE 2	1	135.69	135.69		
AGUA DULCE 3	1	858.08	858.08		
AGUA DULCE 4	1	799.86	799.86		

Nombre	Mf.s.	Δ (ton.)	Corrección GZ (m.)
LASTRE 2	93	16989.663	0.160222719
LASTRE 3	160.85		
LASTRE 8	653.41		
LASTRE 9	653.41		
LASTRE 11	426.46		
AGUA DULCE 1	81.32		
AGUA DULCE 2	82.81		
AGUA DULCE 3	356.81		
AGUA DULCE 4	214.06		

Grados	0	10	20	30	40	50	60	70
GZ (m.)	0.035	1.836	3.395	4.608	5.407	6.025	6.552	6.463
GZ corregido (m.)	-0.125	1.676	3.235	4.448	5.247	5.865	6.392	6.303

2.- ESTABILIDAD EN ESTADO INTACTO:**CONDICION N°:2:**

Area 0° a 30° (deg.m.)	23.83
Area 0° a 40° (deg.m.)	112.4
Area 30° a 40° (deg.m.)	88.565
GZ 30° (m.)	4.448
GZ máx.	60°
GM (m.)	11.219
GM corregido (m.)	10.6

A la vista de los resultados una vez aplicada la corrección, el buque cumple todos los requisitos de estabilidad establecidos anteriormente en estado intacto

2.- ESTABILIDAD EN ESTADO INTACTO:

CONDICION N°:3:

RESULTADOS

(SIN CORRECCIÓN POR SUPERFICIES LIBRES)

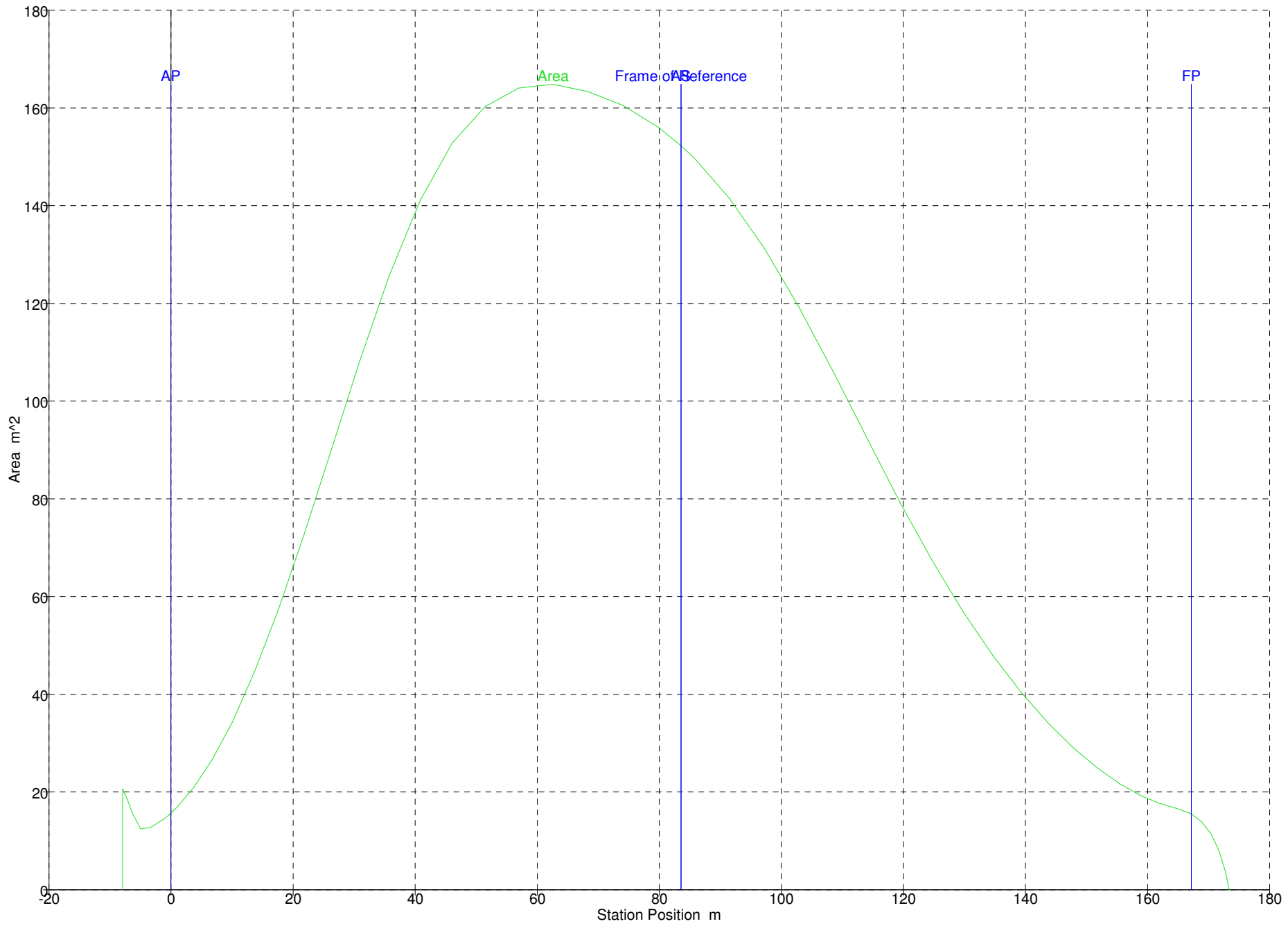
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	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	143.509	-0.256	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	134.422	-0.485	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	75.188	-8.442	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	66.648	-8.442	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.886	-6.841	0.128	7.498	IMO A.749(18)
19	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.517	-6.841	0.128	8.429	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	58.070	-6.701	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	58.109	-5.190	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	10%	22.464	2.246	24.604	2.460	51.265	-6.750	0.263	7.592	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
26	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.589	-0.007	0.481	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.136	-0.009	0.944	5.128	IMO A.749(18)
31	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.462	-0.904	1.266	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.461	0.896	1.266	1.298	IMO A.749(18)
33	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
35	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
36	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
37	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
38	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
50	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
51	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			16462.939	5772.652	4459.630	74.535	-0.021	7.082	36.852	
55	FS correction								0.002		
56	VCG fluid								7.084		

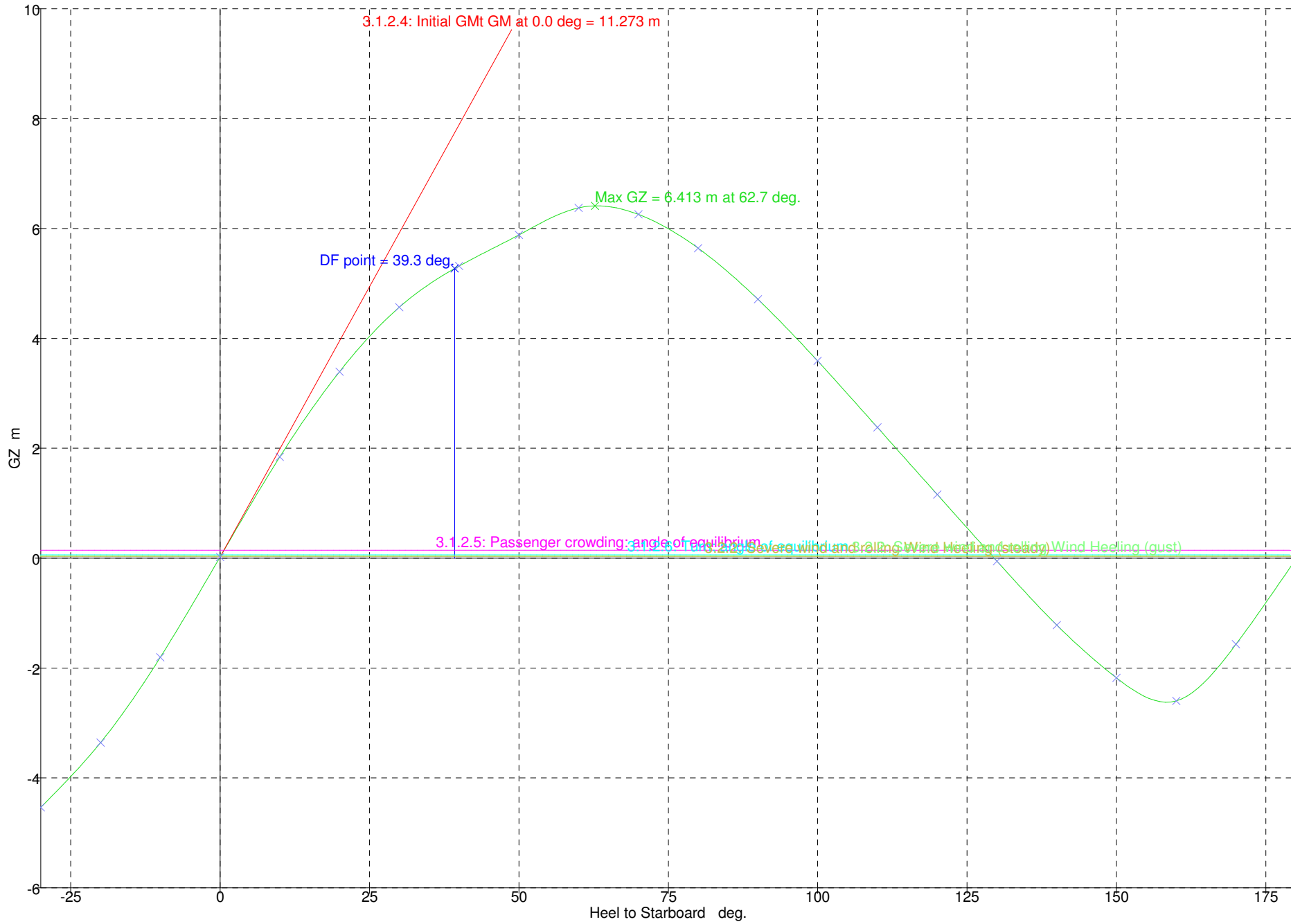
Academic Version

1	Draft Amidships m	5.791
2	Displacement t	16463
3	Heel deg	-0.1
4	Draft at FP m	5.145
5	Draft at AP m	6.437
6	Draft at LCF m	5.924
7	Trim (+ve by stern) m	1.291
8	WL Length m	181.387
9	Beam max extents on WL m	28.205
10	Wetted Area m ²	5052.12
11	Waterpl. Area m ²	4097.67
12	Prismatic coeff. (Cp)	0.537
13	Block coeff. (Cb)	0.523
14	Max Sect. area coeff. (Cm)	0.979
15	Waterpl. area coeff. (Cwp)	0.801
16	LCB from zero pt. (+ve fwd) m	74.501
17	LCF from zero pt. (+ve fwd) m	66.366
18	KB m	3.414
19	KG fluid m	7.084
20	BMt m	14.943
21	BML m	500.439
22	GMt corrected m	11.273
23	GML m	496.769
24	KMt m	18.357
25	KML m	503.837
26	Immersion (TPc) tonne/cm	42.001
27	MTc tonne.m	489.052
28	RM at 1deg = GMt.Disp.sin(1) t	3238.87
29	Max deck inclination deg	0.4552
30	Trim angle (+ve by stern) deg	0.4425



Academic Version

	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.534	-3.356	-1.805	0.021	1.845	3.395	4.569	5.319	5.884	6.378	6.258	5.643	4.712	3.590	2.380	1.159	-0.054
2	Area under GZ curve from zero heel	74.8215	35.1678	9.0421	0.0374	9.4594	35.9422	76.1180	125.842	181.868	243.462	307.178	366.999	418.982	460.607	490.490	508.178	513.693
3	Displacement t	16463	16462	16463	16463	16463	16462	16463	16463	16463	16463	16463	16463	16463	16463	16463	16463	16463
4	Draft at FP m	4.551	4.990	5.128	5.146	5.128	4.990	4.554	3.634	1.915	-1.385	-8.393	-29.475	n/a	-53.919	-32.772	-25.595	-21.968
5	Draft at AP m	4.859	5.776	6.272	6.436	6.272	5.776	4.857	3.242	0.559	-4.162	-13.096	-38.537	n/a	-59.834	-34.473	-25.752	-21.312
6	WL Length m	181.324	181.385	181.388	181.386	181.388	181.385	181.325	181.067	180.085	172.482	173.689	174.572	175.358	176.268	177.126	177.894	178.570
7	Beam max extents on WL m	25.771	29.091	28.640	28.205	28.640	29.091	25.770	23.808	23.969	23.094	21.283	20.308	20.000	20.308	21.107	21.247	19.985
8	Wetted Area m^2	4739.40	4806.17	4856.66	5052.18	4856.65	4806.26	4739.41	4690.57	4739.81	4732.78	4672.16	4661.68	4667.87	4687.53	4719.23	4767.16	4798.81
9	Waterpl. Area m^2	3653.46	3768.40	3867.22	4097.69	3867.21	3768.46	3653.39	3605.54	3706.82	3593.31	3214.20	3004.53	2903.94	2892.61	2953.69	3057.94	3148.08
10	Prismatic coeff. (Cp)	0.623	0.582	0.547	0.537	0.547	0.582	0.623	0.649	0.670	0.715	0.730	0.750	0.775	0.805	0.844	0.892	0.900
11	Block coeff. (Cb)	0.338	0.331	0.400	0.523	0.400	0.331	0.338	0.352	0.357	0.415	0.501	0.612	0.688	0.568	0.487	0.452	0.451
12	LCB from zero pt. (+ve fwd) m	74.528	74.516	74.508	74.504	74.508	74.515	74.540	74.560	74.575	74.614	74.627	74.630	74.623	74.609	74.582	74.546	74.507
13	LCF from zero pt. (+ve fwd) m	77.713	74.053	70.841	66.366	70.841	74.052	77.719	80.333	82.060	78.903	77.217	76.276	75.527	74.954	74.460	74.257	74.310
14	Max deck inclination deg	30.0001	20.0015	10.0074	0.4420	10.0074	20.0015	30.0001	40.0001	50.0007	60.0011	70.0010	80.0004	90.0000	99.9998	109.999	120.000	129.999
15	Trim angle (+ve by stern) deg	0.1054	0.2692	0.3922	0.4420	0.3922	0.2694	0.1037	-0.1344	-0.4647	-0.9514	-1.6110	-3.1015	-90.000	-2.0256	-0.5827	-0.0537	0.2247



3.1.2.4: Initial GMt GM at 0.0 deg = 11.273 m

DF point = 39.3 deg.

Max GZ = 6.413 m at 62.7 deg.

3.1.2.5: Passenger crowding: angle of equilibrium

3.1.2.5: Tan. eq. wind and rolling

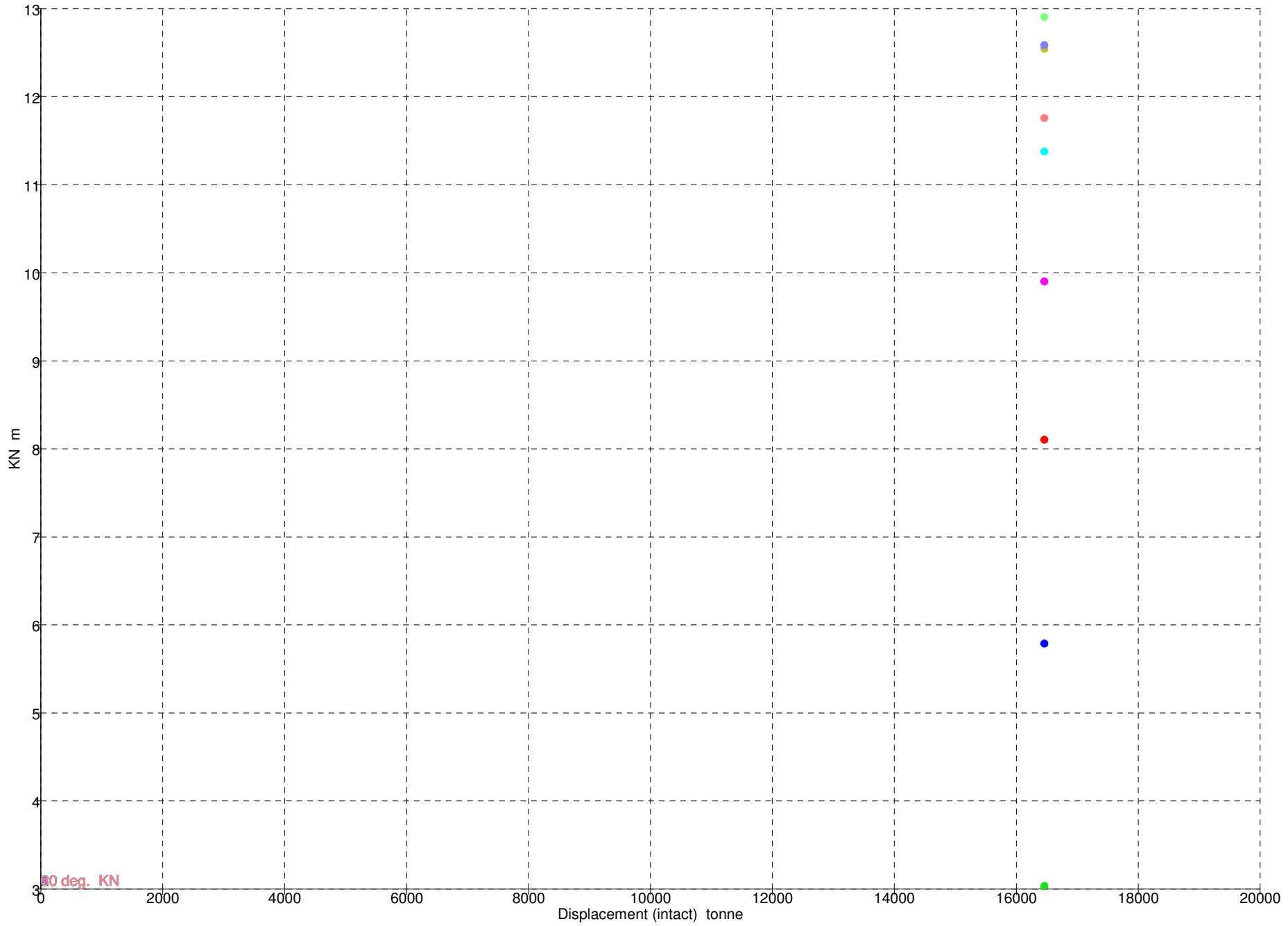
3.2.2: Severe wind and rolling

Wind Heeling (steady)

Wind Heeling (gust)

Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16463	5.877	0.442 (fixed)	77.024	0.000	0.000	3.033	5.788	8.102	9.900	11.377	12.545	12.905	12.588	11.756



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	A.749(18)	3.1.2.1: Area 0 to 30				Pass	
2		<i>from the greater of</i>					
3		spec. heel angle	0.0	deg	0.0		
4		<i>to the lesser of</i>					
5		spec. heel angle	30.0	deg	30.0		
6		angle of vanishing stability	129.6	deg			
7		shall not be less than (>=)	3.1513	m.deg	76.1180	Pass	+2315.45
8							
9	A.749(18)	3.1.2.1: Area 0 to 40				Pass	
10		<i>from the greater of</i>					
11		spec. heel angle	0.0	deg	0.0		
12		<i>to the lesser of</i>					
13		spec. heel angle	40.0	deg			
14		first downflooding angle	39.3	deg	39.3		
15		angle of vanishing stability	129.6	deg			
16		shall not be less than (>=)	5.1566	m.deg	121.9723	Pass	+2265.36
17							
18	A.749(18)	3.1.2.1: Area 30 to 40				Pass	
19		<i>from the greater of</i>					
20		spec. heel angle	30.0	deg	30.0		
21		<i>to the lesser of</i>					
22		spec. heel angle	40.0	deg			
23		first downflooding angle	39.3	deg	39.3		
24		angle of vanishing stability	129.6	deg			
25		shall not be less than (>=)	1.7189	m.deg	45.8543	Pass	+2567.65
26							
27	A.749(18)	3.1.2.2: Max GZ at 30 or greater				Pass	
28		<i>in the range from the greater of</i>					
29		spec. heel angle	30.0	deg	30.0		
30		<i>to the lesser of</i>					
31		spec. heel angle	90.0	deg			
32		angle of max. GZ	62.7	deg	62.7		
33		shall not be less than (>=)	0.200	m	6.413	Pass	+3106.50
34		<i>Intermediate values</i>					
35		angle at which this GZ occurs		deg	62.7		
36							
37	A.749(18)	3.1.2.3: Angle of maximum GZ				Pass	
38		shall not be less than (>=)	25.0	deg	62.7	Pass	+150.91
39							
40	A.749(18)	3.1.2.4: Initial GMt				Pass	
41		spec. heel angle	0.0	deg			
42		shall not be less than (>=)	0.150	m	11.273	Pass	+7415.33
43							
44	A.749(18)	3.1.2.5: Passenger crowding: angle of equilibrium				Pass	
45		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
46		number of passengers: nPass =	1000				
47		passenger mass: M =	0.150	tonne			

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		distance from centre line: D =	15.830	m			
49		cosine power: n =	0				
50		shall not be greater than (<=)	10.0	deg	0.7	Pass	+93.41
51		<i>Intermediate values</i>					
52		Heel arm amplitude		m	0.144		
53							
54	A.749(18)	3.1.2.6: Turn: angle of equilibrium				Pass	
55		<i>Turn arm: $a v^2 / (R g) h \cos^n(\phi)$</i>					
56		constant: a =	0.9996				
57		vessel speed: v =	22.000	kn			
58		turn radius, R, as percentage of Lwl	510.00	%			
59		h = KG - mean draft / 2	4.186	m			
60		cosine power: n =	0				
61		shall not be greater than (<=)	10.0	deg	0.2	Pass	+97.95
62		<i>Intermediate values</i>					
63		Heel arm amplitude		m	0.059		
64							
65	A.749(18)	3.2.2: Severe wind and rolling				Pass	
66		<i>Wind arm: $a P A (h - H) / (g \text{ disp.}) \cos^n(\phi)$</i>					
67		constant: a =	0.99966				
68		wind pressure: P =	504.0	Pa			
69		area centroid height (from zero point): h =	6.000	m			
70		total area: A =	3500.000	m ²			
71		H = vert. centre of projected lat. u'water area	3.056	m			
72		cosine power: n =	0				
73		gust ratio	1.5				
74		<i>Area2 integrated to the lesser of</i>					
75		roll back angle from equilibrium (with steady heel arm)	25.0 (-24.	deg	-24.9		
76		<i>Area 1 upper integration range, to the lesser of:</i>					
77		spec. heel angle	50.0	deg			
78		first downflooding angle	39.3	deg	39.3		
79		angle of vanishing stability (with gust heel arm)	129.2	deg			
80		<i>Angle for GZ(max) in GZ ratio, the lesser of:</i>					
81		angle of max. GZ	62.7	deg	62.7		
82		Select required angle for angle of steady heel ratio:	DeckEdg				
83		Criteria:				Pass	
84		Angle of steady heel shall not be greater than (<=)	16.0	deg	0.1	Pass	+99.61
85		Angle of steady heel / Deck edge immersion angle shall be less than (<)	80.00	%	0.45	Pass	+99.44
86		Area1 / Area2 shall not be less than (>=)	100.00	%	220.35	Pass	+120.35
87		<i>Intermediate values</i>					
88		Heel arm amplitude		m	0.032		
89		Equilibrium angle with steady heel arm		deg	0.1		
90		Equilibrium angle with gust heel arm		deg	0.1		
91		Deck edge immersion angle		deg	13.8		
92		Area1 (under GZ), from 0.1 to 39.3 deg.		m.deg	121.9672		
93		Area1 (under HA), from 0.1 to 39.3 deg.		m.deg	1.8869		
94		Area1, from 0.1 to 39.3 deg.		m.deg	120.0804		

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	Code	Criteria	Value	Units	Actual	Status	Margin %
95		Area2 (under GZ), from -24.9 to 0.1 deg.		m.deg	-53.2849		
96		Area2 (under HA), from -24.9 to 0.1 deg.		m.deg	1.2099		
97		Area2, from -24.9 to 0.1 deg.		m.deg	54.4948		
98							

2.- ESTABILIDAD EN ESTADO INTACTO:

CONDICION N°:3:

RESULTADOS

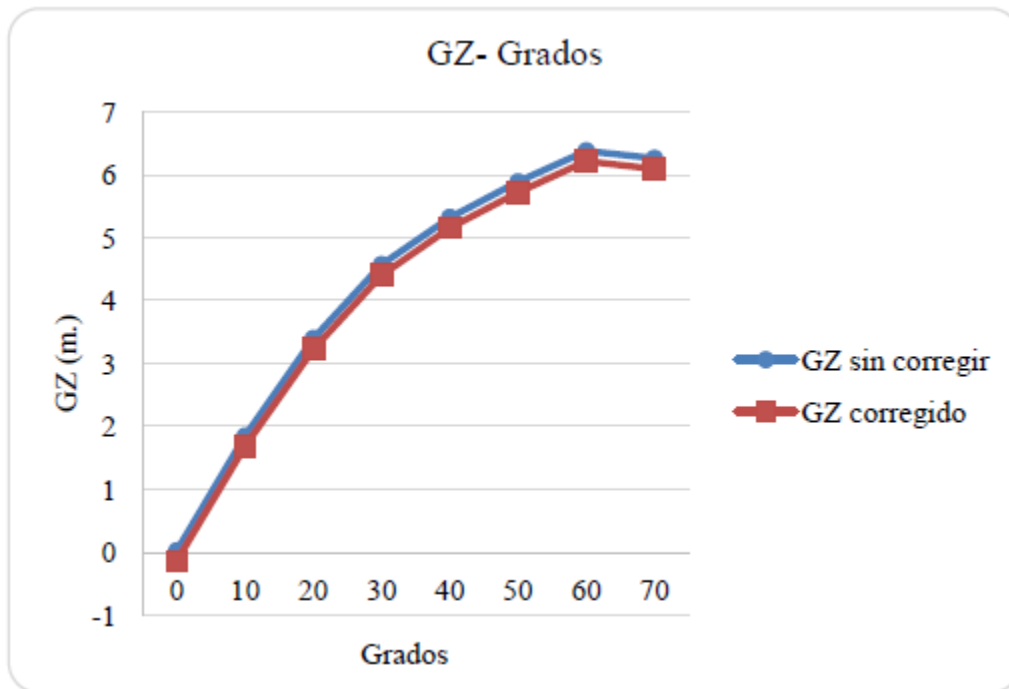
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2.- ESTABILIDAD EN ESTADO INTACTO:**CONDICION N°:3:**

Nombre	γ (m ³ /Ton.)	Inercia (m ⁴ .)	$\Sigma li \gamma_i$	Δ (ton.)	Corrección GM (m.)
LASTRE 2	1.025	87.80	89.99	16462.939	0.639075441
LASTRE 3	1.025	233.05	238.88		
LASTRE 8	1.025	3191.93	3271.73		
LASTRE 9	1.025	3192.00	3271.80		
LASTRE 11	1.025	1683.11	1725.19		
AGUA DULCE 1	1	129.84	129.84		
AGUA DULCE 2	1	135.69	135.69		
AGUA DULCE 3	1	858.08	858.08		
AGUA DULCE 4	1	799.86	799.86		

Nombre	Mf.s.	Δ (ton.)	Corrección GZ (m.)
LASTRE 2	93	16462.939	0.16534897
LASTRE 3	160.85		
LASTRE 8	653.41		
LASTRE 9	653.41		
LASTRE 11	426.46		
AGUA DULCE 1	81.32		
AGUA DULCE 2	82.81		
AGUA DULCE 3	356.81		
AGUA DULCE 4	214.06		

Grados	0	10	20	30	40	50	60	70
GZ (m.)	0.021	1.845	3.395	4.569	5.319	5.884	6.378	6.258
GZ corregido (m.)	-0.144	1.68	3.23	4.404	5.154	5.719	6.213	6.093

2.- ESTABILIDAD EN ESTADO INTACTO:**CONDICION N°:3:**

Area 0° a 30° (deg.m.)	23.755
Area 0° a 40° (deg.m.)	111.51
Area 30° a 40° (deg.m.)	87.755
GZ 30° (m.)	4.404
GZ máx.	60°
GM (m.)	11.273
GM corregido (m.)	10.634

A la vista de los resultados una vez aplicada la corrección, el buque cumple todos los requisitos de estabilidad establecidos anteriormente en estado intacto

2.- ESTABILIDAD EN ESTADO INTACTO:

CONDICION N°:4:

RESULTADOS

(SIN CORRECCIÓN POR SUPERFICIES LIBRES)

Academic Version

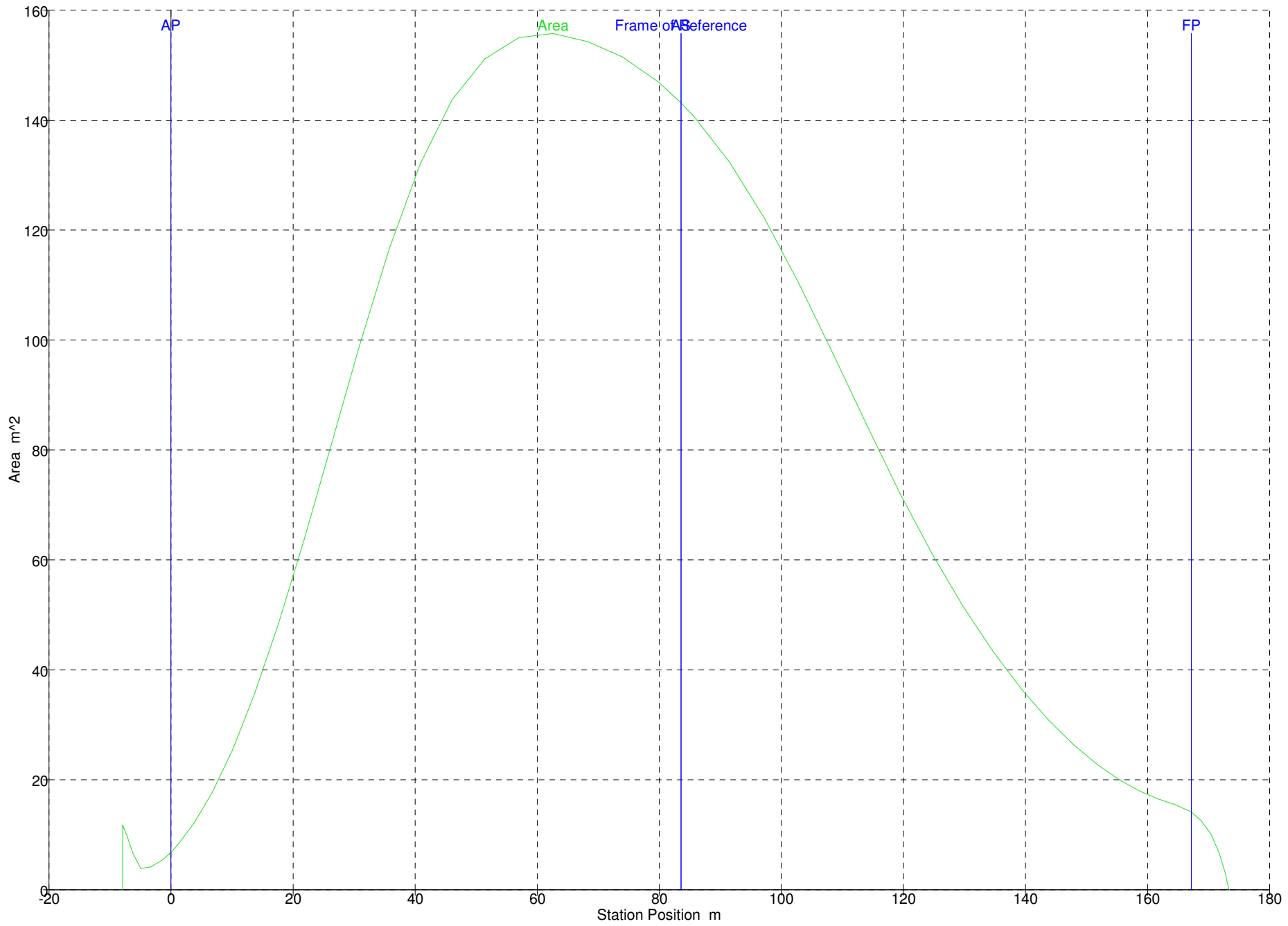
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.498	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.429	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.592	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.996	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.996	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.128	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.707	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.286	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.707	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.525	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.646	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.021	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.099	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	799.884	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.302	IMO A.749(18)
54	Total Loadcase			15116.170	5772.652	3194.345	75.266	-0.064	6.975	1994.021	
55	FS correction								0.132		
56	VCG fluid								7.107		

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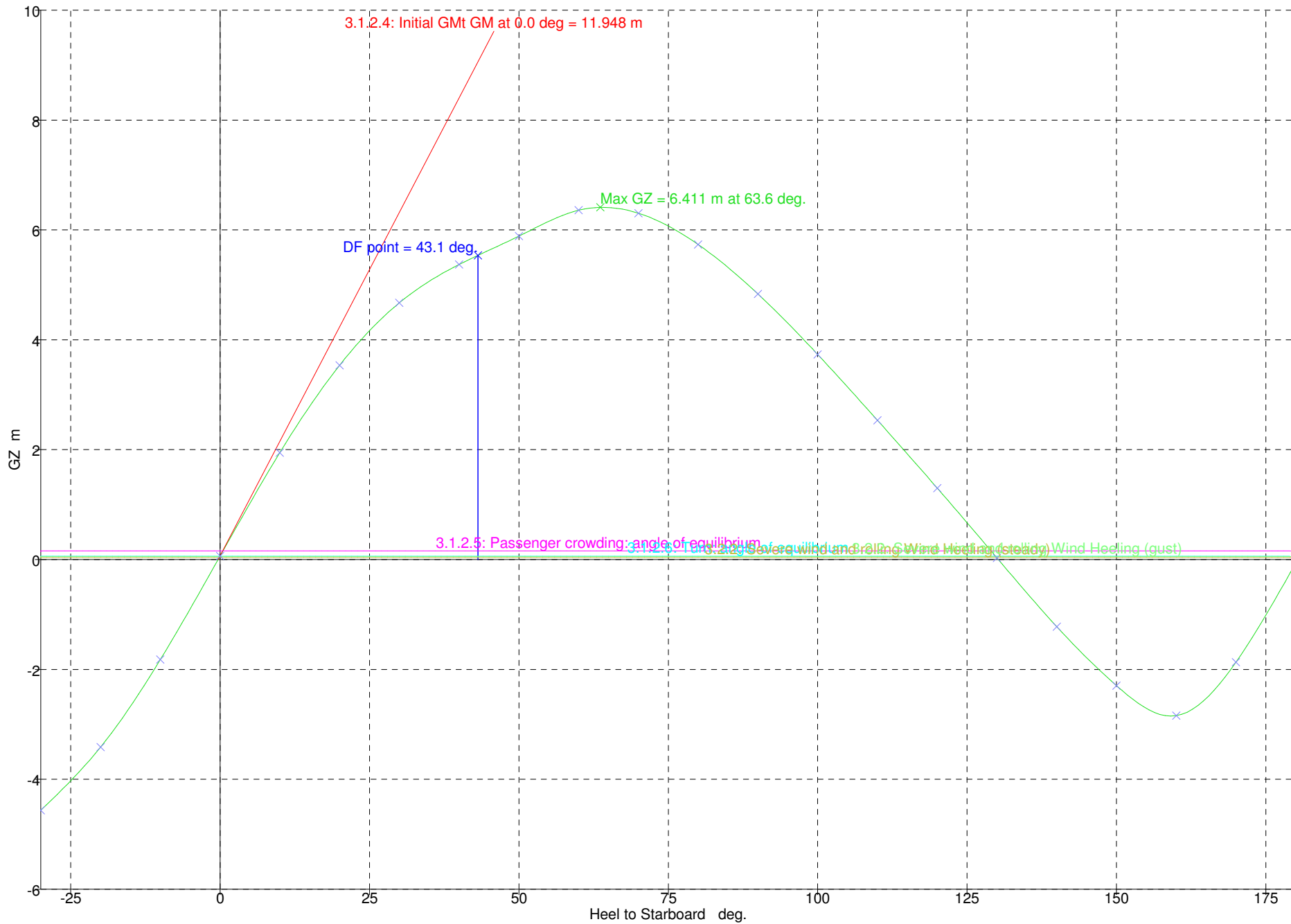
1	Draft Amidships m	5.468
2	Displacement t	15116
3	Heel deg	-0.3
4	Draft at FP m	4.821
5	Draft at AP m	6.115
6	Draft at LCF m	5.601
7	Trim (+ve by stern) m	1.295
8	WL Length m	181.362
9	Beam max extents on WL m	28.205
10	Wetted Area m ²	4881.35
11	Waterpl. Area m ²	4031.27
12	Prismatic coeff. (Cp)	0.522
13	Block coeff. (Cb)	0.505
14	Max Sect. area coeff. (Cm)	0.970
15	Waterpl. area coeff. (Cwp)	0.788
16	LCB from zero pt. (+ve fwd) m	75.224
17	LCF from zero pt. (+ve fwd) m	66.454
18	KB m	3.205
19	KG fluid m	7.107
20	BMt m	15.847
21	BML m	528.222
22	GMt corrected m	11.945
23	GML m	524.320
24	KMt m	19.051
25	KML m	531.402
26	Immersion (TPc) tonne/cm	41.321
27	MTc tonne.m	473.949
28	RM at 1deg = GMt.Disp.sin(1) t	3151.22
29	Max deck inclination deg	0.5591
30	Trim angle (+ve by stern) deg	0.4436

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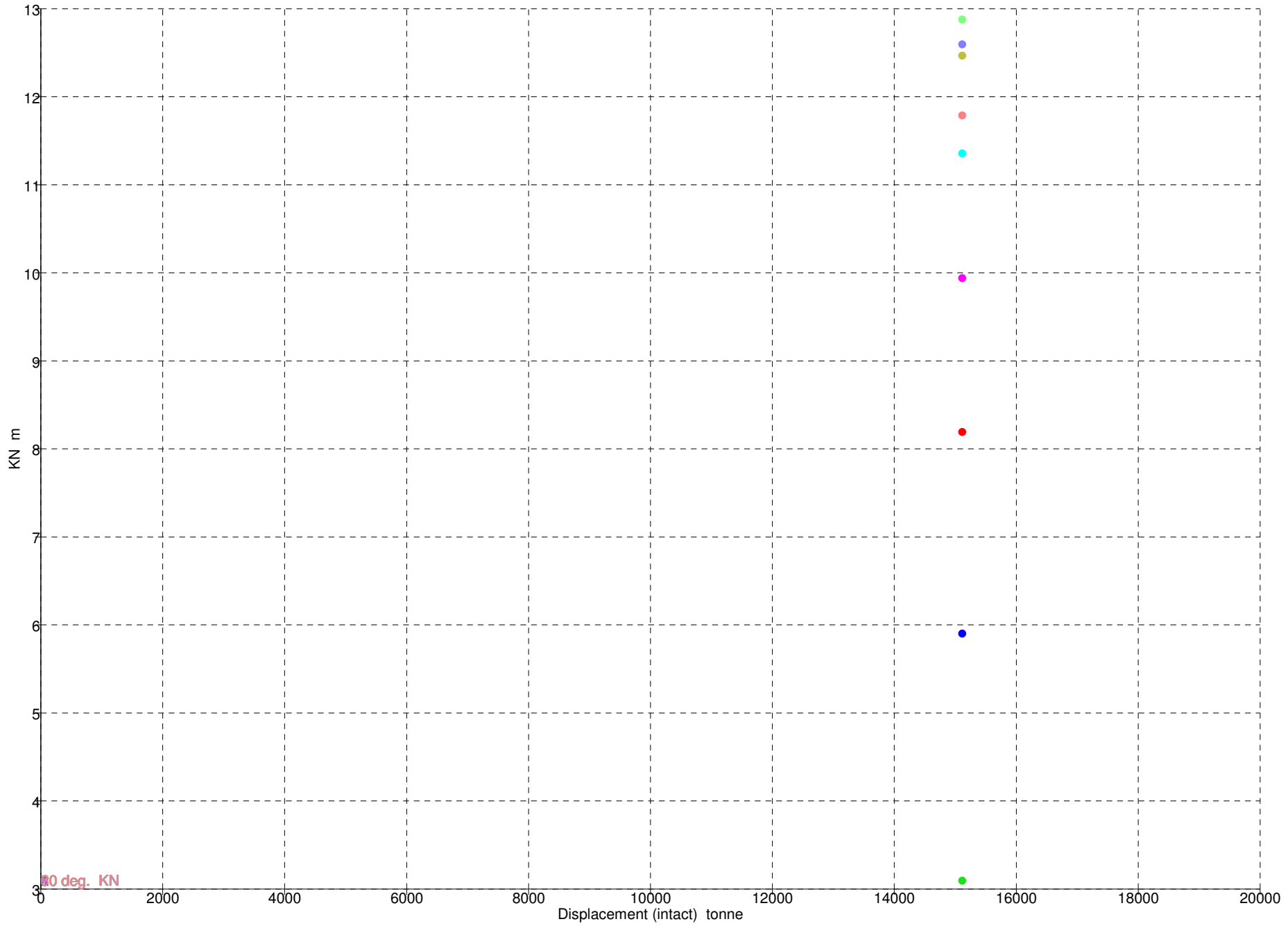
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.563	-3.415	-1.820	0.064	1.946	3.535	4.674	5.371	5.887	6.359	6.305	5.735	4.835	3.735	2.535	1.301	0.030
2	Area under GZ curve from zero heel	75.5797	35.4420	8.9019	0.1164	10.1828	37.9185	79.3634	129.868	186.170	247.626	311.447	371.989	425.053	468.026	499.420	518.627	525.309
3	Displacement t	15116	15116	15116	15116	15116	15115	15116	15116	15115	15116	15116	15116	15116	15116	15117	15117	15116
4	Draft at FP m	4.353	4.766	4.868	4.821	4.868	4.766	4.356	3.438	1.705	-1.738	-9.039	-30.918	n/a	-55.558	-33.616	-26.167	-22.409
5	Draft at AP m	4.239	5.278	5.857	6.115	5.857	5.277	4.237	2.489	-0.345	-5.239	-14.768	-41.966	n/a	-63.256	-36.151	-26.855	-22.146
6	WL Length m	181.299	181.354	181.368	181.362	181.368	181.354	181.299	180.982	179.843	172.223	173.414	174.317	175.118	176.062	176.934	177.728	178.434
7	Beam max extents on WL m	24.877	28.683	28.640	28.205	28.640	28.683	24.877	23.182	23.554	23.094	21.283	20.308	20.000	20.308	20.934	20.520	19.054
8	Wetted Area m^2	4525.34	4614.81	4666.16	4880.72	4666.16	4614.69	4527.69	4493.26	4533.79	4538.87	4497.58	4490.23	4497.06	4516.76	4547.77	4587.39	4601.40
9	Waterpl. Area m^2	3512.85	3656.72	3770.81	4030.67	3770.79	3656.65	3515.10	3478.72	3567.19	3536.06	3191.47	2985.83	2885.36	2871.06	2921.60	2997.93	3049.76
10	Prismatic coeff. (Cp)	0.616	0.575	0.536	0.522	0.536	0.575	0.616	0.640	0.660	0.704	0.722	0.745	0.772	0.807	0.851	0.898	0.920
11	Block coeff. (Cb)	0.334	0.321	0.385	0.507	0.385	0.321	0.334	0.345	0.347	0.397	0.484	0.598	0.662	0.544	0.468	0.445	0.460
12	LCB from zero pt. (+ve fwd) m	75.269	75.249	75.241	75.227	75.243	75.249	75.283	75.306	75.324	75.359	75.379	75.385	75.383	75.366	75.337	75.299	75.256
13	LCF from zero pt. (+ve fwd) m	78.263	74.718	71.399	66.465	71.400	74.718	78.320	81.181	82.695	78.856	76.763	75.920	75.210	74.679	74.244	74.183	74.426
14	Max deck inclination deg	30.0000	20.0006	10.0055	0.4434	10.0055	20.0006	30.0000	40.0006	50.0015	60.0018	70.0014	80.0007	90.0000	99.9997	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	-0.0390	0.1751	0.3389	0.4434	0.3387	0.1752	-0.0409	-0.3254	-0.7023	-1.1992	-1.9622	-3.7796	-90.000	-2.6355	-0.8683	-0.2357	0.0901



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	15116	5.546	0.444 (fixed)	77.745	0.000	0.000	3.094	5.901	8.190	9.938	11.354	12.466	12.877	12.594	11.787



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	A.749(18)	3.1.2.1: Area 0 to 30				Pass	
2		<i>from the greater of</i>					
3		spec. heel angle	0.0	deg	0.0		
4		<i>to the lesser of</i>					
5		spec. heel angle	30.0	deg	30.0		
6		angle of vanishing stability	130.2	deg			
7		shall not be less than (>=)	3.1513	m.deg	79.3634	Pass	+2418.43
8							
9	A.749(18)	3.1.2.1: Area 0 to 40				Pass	
10		<i>from the greater of</i>					
11		spec. heel angle	0.0	deg	0.0		
12		<i>to the lesser of</i>					
13		spec. heel angle	40.0	deg	40.0		
14		first downflooding angle	43.1	deg			
15		angle of vanishing stability	130.2	deg			
16		shall not be less than (>=)	5.1566	m.deg	129.8681	Pass	+2418.48
17							
18	A.749(18)	3.1.2.1: Area 30 to 40				Pass	
19		<i>from the greater of</i>					
20		spec. heel angle	30.0	deg	30.0		
21		<i>to the lesser of</i>					
22		spec. heel angle	40.0	deg	40.0		
23		first downflooding angle	43.1	deg			
24		angle of vanishing stability	130.2	deg			
25		shall not be less than (>=)	1.7189	m.deg	50.5047	Pass	+2838.20
26							
27	A.749(18)	3.1.2.2: Max GZ at 30 or greater				Pass	
28		<i>in the range from the greater of</i>					
29		spec. heel angle	30.0	deg	30.0		
30		<i>to the lesser of</i>					
31		spec. heel angle	90.0	deg			
32		angle of max. GZ	63.6	deg	63.6		
33		shall not be less than (>=)	0.200	m	6.411	Pass	+3105.50
34		<i>Intermediate values</i>					
35		angle at which this GZ occurs		deg	63.6		
36							
37	A.749(18)	3.1.2.3: Angle of maximum GZ				Pass	
38		shall not be less than (>=)	25.0	deg	63.6	Pass	+154.54
39							
40	A.749(18)	3.1.2.4: Initial GMt				Pass	
41		spec. heel angle	0.0	deg			
42		shall not be less than (>=)	0.150	m	11.948	Pass	+7865.33
43							
44	A.749(18)	3.1.2.5: Passenger crowding: angle of equilibrium				Pass	
45		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
46		number of passengers: nPass =	1000				
47		passenger mass: M =	0.150	tonne			

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		distance from centre line: D =	15.830	m			
49		cosine power: n =	0				
50		shall not be greater than (<=)	10.0	deg	0.5	Pass	+95.19
51		<i>Intermediate values</i>					
52		Heel arm amplitude		m	0.157		
53							
54	A.749(18)	3.1.2.6: Turn: angle of equilibrium				Pass	
55		<i>Turn arm: $a v^2 / (R g) h \cos^n(\phi)$</i>					
56		constant: a =	0.9996				
57		vessel speed: v =	22.000	kn			
58		turn radius, R, as percentage of Lwl	510.00	%			
59		h = KG - mean draft / 2	4.241	m			
60		cosine power: n =	0				
61		shall not be greater than (<=)	10.0	deg	0.0	Pass	+100.21
62		<i>Intermediate values</i>					
63		Heel arm amplitude		m	0.060		
64							
65	A.749(18)	3.2.2: Severe wind and rolling				Pass	
66		<i>Wind arm: $a P A (h - H) / (g \text{ disp.}) \cos^n(\phi)$</i>					
67		constant: a =	0.99966				
68		wind pressure: P =	504.0	Pa			
69		area centroid height (from zero point): h =	6.000	m			
70		total area: A =	3500.000	m ²			
71		H = vert. centre of projected lat. u'water area	2.876	m			
72		cosine power: n =	0				
73		gust ratio	1.5				
74		<i>Area2 integrated to the lesser of</i>					
75		roll back angle from equilibrium (with steady heel arm)	25.0 (-25.	deg	-25.1		
76		<i>Area 1 upper integration range, to the lesser of:</i>					
77		spec. heel angle	50.0	deg			
78		first downflooding angle	43.1	deg	43.1		
79		angle of vanishing stability (with gust heel arm)	129.8	deg			
80		<i>Angle for GZ(max) in GZ ratio, the lesser of:</i>					
81		angle of max. GZ	63.6	deg	63.6		
82		Select required angle for angle of steady heel ratio:	DeckEdg				
83		Criteria:				Pass	
84		Angle of steady heel shall not be greater than (<=)	16.0	deg	-0.1	Pass	+100.87
85		Angle of steady heel / Deck edge immersion angle shall be less than (<)	80.00	%	-0.86	Pass	+101.08
86		Area1 / Area2 shall not be less than (>=)	100.00	%	258.00	Pass	+158.00
87		<i>Intermediate values</i>					
88		Heel arm amplitude		m	0.037		
89		Equilibrium angle with steady heel arm		deg	-0.1		
90		Equilibrium angle with gust heel arm		deg	0.0		
91		Deck edge immersion angle		deg	16.1		
92		Area1 (under GZ), from 0.0 to 43.1 deg.		m.deg	147.0234		
93		Area1 (under HA), from 0.0 to 43.1 deg.		m.deg	2.4076		
94		Area1, from 0.0 to 43.1 deg.		m.deg	144.6158		

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	Code	Criteria	Value	Units	Actual	Status	Margin %
95		Area2 (under GZ), from -25.1 to 0.0 deg.		m.deg	-54.6526		
96		Area2 (under HA), from -25.1 to 0.0 deg.		m.deg	1.3990		
97		Area2, from -25.1 to 0.0 deg.		m.deg	56.0517		
98							

2.- ESTABILIDAD EN ESTADO INTACTO:

CONDICION N°:4:

RESULTADOS

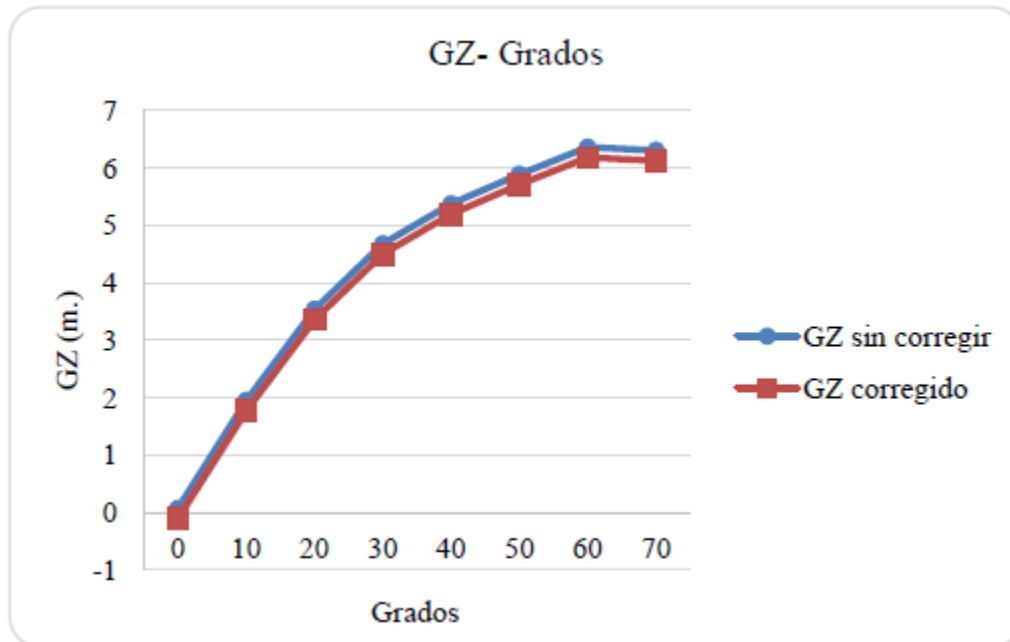
(CON CORRECCIÓN POR SUPERFICIES LIBRES)

2.- ESTABILIDAD EN ESTADO INTACTO:**CONDICION N°:4:**

Nombre	γ (m ³ /Ton.)	Inercia (m ⁴ .)	$\Sigma li \gamma_i$	Δ (ton.)	Corrección GM (m.)
LASTRE 2	1.025	87.80	89.99	15116.17	0.696013607
LASTRE 3	1.025	233.05	238.88		
LASTRE 8	1.025	3191.93	3271.73		
LASTRE 9	1.025	3192.00	3271.80		
LASTRE 11	1.025	1683.11	1725.19		
AGUA DULCE 1	1	129.84	129.84		
AGUA DULCE 2	1	135.69	135.69		
AGUA DULCE 3	1	858.08	858.08		
AGUA DULCE 4	1	799.86	799.86		

Nombre	Mf.s.	Δ (ton.)	Corrección GZ (m.)
LASTRE 2	93	15116.17	0.180080669
LASTRE 3	160.85		
LASTRE 8	653.41		
LASTRE 9	653.41		
LASTRE 11	426.46		
AGUA DULCE 1	81.32		
AGUA DULCE 2	82.81		
AGUA DULCE 3	356.81		
AGUA DULCE 4	214.06		

Grados	0	10	20	30	40	50	60	70
GZ (m.)	0.064	1.946	3.535	4.674	5.371	5.887	6.359	6.305
GZ corregido (m.)	-0.116	1.766	3.355	4.494	5.191	5.707	6.179	6.125

2.- ESTABILIDAD EN ESTADO INTACTO:**CONDICION N°:4:**

Area 0° a 30° (rad.m.)	24.6
Area 0° a 40° (rad.m.)	114.39
Area 30° a 40° (rad.m.)	89.79
GZ 30° (m.)	4.494
GZ máx.	60°
GM (m.)	11.945
GM corregido (m.)	11.249

A la vista de los resultados una vez aplicada la corrección, el buque cumple todos los requisitos de estabilidad establecidos anteriormente en estado intacto

3.- ESTABILIDAD DESPUES DE AVERIAS:

INTRODUCCIÓN:

A continuación se comprobará que el buque cumple todos los criterios de estabilidad después de averías que le son exigibles por el SOLAS. Se empleará el método determinístico, que es el recomendado para buques de pasaje y de carga líquida.

Este método se basa en suponer una avería, que origina la entrada de una cantidad de agua que inunda completamente el compartimento o compartimentos afectados, traduciéndose en un peso “extra” embarcado que provoca una modificación del calado y del asiento.

La extensión de la avería según se establece en la Regla 8 (Capítulo II-1, Parte B) del SOLAS es la siguiente:

- Extensión Longitudinal: $3\% L_{pp} + 3 \text{ m} = 8.01 \text{ m}$
- Extensión Transversal: $B/5 = 5.64 \text{ m}$, medida hacia el interior del buque, desde el costado.
- Extensión Vertical: desde la línea base hacia arriba, hasta la cubierta principal.

En la condición final después de la avería anterior, el buque deberá cumplir con los criterios de estabilidad:

- Especificados en la Regla 8 (Capítulo II-1, Parte B) de SOLAS:
 - 8.2.3.1
 - 8.2.3.2
 - 8.2.3.3
 - 8.2.4.a
 - 8.2.4.b
 - 8.6.1
 - 8.6.2
 - 8.6.3

3.- ESTABILIDAD DESPUES DE AVERIAS:

INTRODUCCIÓN:

Para la realización de los cálculos se adoptan las siguientes permeabilidades:

- Tanques: 0,95
- Compartimentos: 0,95

La avería anterior se podrá producir en cualquier punto de la eslora L del buque (por ejemplo en un mamparo estanco), por lo tanto, teniendo en cuenta la situación de los mamparos establecida en el Cuaderno 4, la inundación afectará siempre a dos compartimentos.

Para el cálculo de cada situación de avería se ha utilizado el programa Maxsurf 20, que realiza el estudio determinístico de la estabilidad después de avería por el método del peso añadido.

Se han estudiado para cada condición de carga 7 casos posibles de inundación, los compartimentos/tanques afectados en cada caso se muestran a continuación.

3.- ESTABILIDAD DESPUES DE AVERIAS:

DISPOSICIÓN AVERIAS

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	Room	Intact	CASO 1	CASO 2	CASO 3	CASO 4	CASO 5	CASO 6	CASO 7	CASO 8
1	LASTRE 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	ESPACIO VACIO 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	LASTRE 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	LASTRE 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	ESPACIO VACIO 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	ESPACIO VACIO 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	ESPACIO VACIO 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	LASTRE 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	ESPACIO VACIO 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	ESPACIO VACIO 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	LASTRE 5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	ESPACIO VACIO 7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	ESPACIO VACIO 8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	LASTRE 6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	ESPACIO VACIO 9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	ESPACIO VACIO 10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	LASTRE 7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	ESPACIO VACIO 11	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	ESPACIO VACIO 12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	LASTRE 8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	ESPACIO VACIO 13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	ESPACIO VACIO 14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	LASTRE 9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	ESPACIO VACIO 15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	ESPACIO VACIO 16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	REBOSE D.O.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	REBOSE F.O.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	LASTRE 10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	LASTRE 11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
30	ESPACIO VACIO 17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
31	ESPACIO VACIO 18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	LASTRE 12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	LODOS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	LASTRE 13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
35	ESPACIO VACIO 19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
36	ALMACEN ACEITE 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	ALMACEN ACEITE 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	AGUAS CILINDRICAS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	ACEITE SUCIO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	ALMACEN ACEITE 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41	AGUAS ACEITOSAS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	DERRAME BANDEJA F.O.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	DERRAME BANDEJA ACEITE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44	ESPACIO VACIO 20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45	ESPACIO VACIO 21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
46	ESPACIO VACIO 22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
47	ESPACIO VACIO 23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48	ESPACIO VACIO 24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Room	Intact	CASO 1	CASO 2	CASO 3	CASO 4	CASO 5	CASO 6	CASO 7	CASO 8
49	ESPACIO VACIO 25	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
50	ESPACIO VACIO 26	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51	ESPACIO VACIO 27	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
52	ESPACIO VACIO 28	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
53	ESPACIO VACIO 29	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54	ESPACIO VACIO 30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55	ESPACIO VACIO 31	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56	AGUA DULCE 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57	ESPACIO VACIO 32	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58	ESPACIO VACIO 33	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59	ESPACIO VACIO 34	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60	ESPACIO VACIO 35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61	ESPACIO VACIO 36	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62	ESPACIO VACIO 37	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
63	ESPACIO VACIO 38	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
64	ESPACIO VACIO 39	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
65	ESPACIO VACIO 40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
66	ESPACIO VACIO 41	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
67	ESPACIO VACIO 42	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
68	ESPACIO VACIO 43	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
69	ESPACIO VACIO 44	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
70	ESPACIO VACIO 45	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
71	ESPACIO VACIO 46	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
72	ESPACIO VACIO 47	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
73	ESPACIO VACIO 48	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
74	ESPACIO VACIO 49	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
75	ALMACEN F.O. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
76	DECANTACION F.O. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
77	ESPACIO VACIO 50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
78	ESPACIO VACIO 51	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
79	ESPACIO VACIO 52	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
80	ESPACIO VACIO 53	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
81	ESPACIO VACIO 54	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
82	ALMACEN F.O. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
83	ALMACEN D.O.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
84	ESPACIO VACIO 55	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
85	AGUA TECNICA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
86	ESPACIO VACIO 56	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
87	ESPACIO VACIO 57	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
88	ESPACIO VACIO 58	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
89	ESPACIO VACIO 59	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
90	ESPACIO VACIO 60	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
91	ESPACIO VACIO 61	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
92	ESPACIO VACIO 62	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
93	ESPACIO VACIO 63	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
94	ESPACIO VACIO 64	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
95	ESPACIO VACIO 65	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
96	LASTRE 14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Academic Version

	Room	Intact	CASO 1	CASO 2	CASO 3	CASO 4	CASO 5	CASO 6	CASO 7	CASO 8
97	ESPACIO VACIO 66	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
98	ESPACIO VACIO 67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99	ESPACIO VACIO 68	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100	ESPACIO VACIO 69	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
101	ESPACIO VACIO 70	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
102	ESPACIO VACIO 71	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
103	ESPACIO VACIO 72	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
104	ESPACIO VACIO 73	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
105	ESPACIO VACIO 74	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
106	ESPACIO VACIO 75	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
107	AGUA DULCE 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
108	ESPACIO VACIO 76	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
109	ESPACIO VACIO 77	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
110	ESPACIO VACIO 78	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
111	ESPACIO VACIO 79	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
112	ESPACIO VACIO 80	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
113	ESPACIO VACIO 81	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
114	ESPACIO VACIO 82	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
115	ESPACIO VACIO 83	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
116	TANQUE ANTIESCORRA 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
117	TANQUE ANTIESCORRA 2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
118	ESPACIO VACIO 84	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
119	ESPACIO VACIO 85	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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122	ESPACIO VACIO 88	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
123	ESPACIO VACIO 89	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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125	ESPACIO VACIO 91	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
126	ALMACEN F.O. 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
127	DECANTACION F.O. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
128	U.D. F.O. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
129	U.D. F.O. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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133	ESPACIO VACIO 93	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
134	ESPACIO VACIO 94	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
135	ESPACIO VACIO 95	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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138	ALMACEN F.O. 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
139	AGUA DULCE 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
140	ESPACIO VACIO 97	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
141	AGUA DULCE 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
142	ESPACIO VACIO 98	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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144	LASTRE 15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

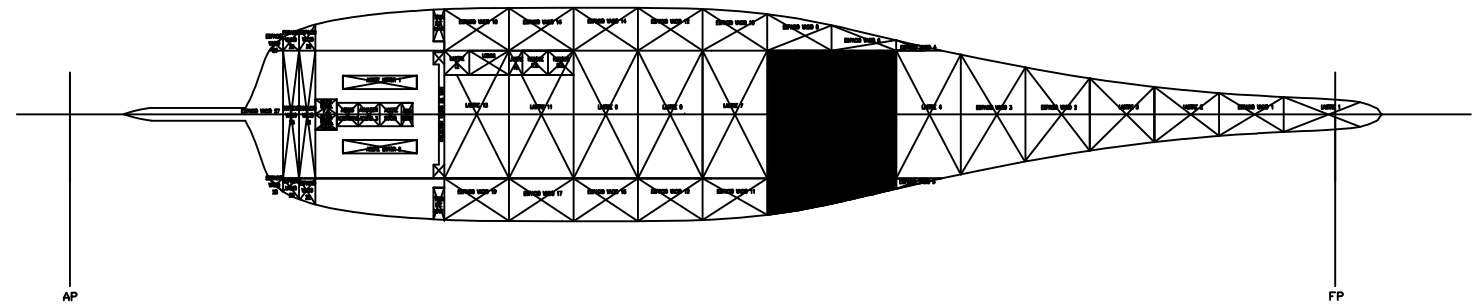
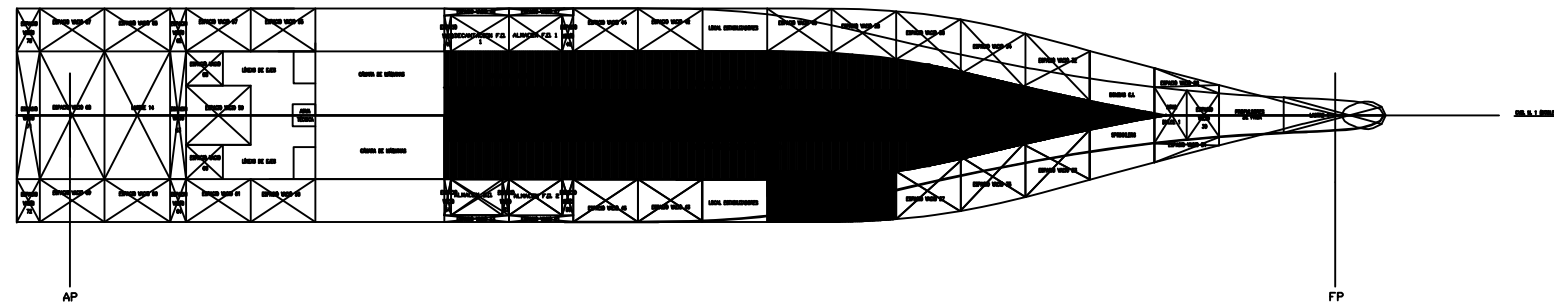
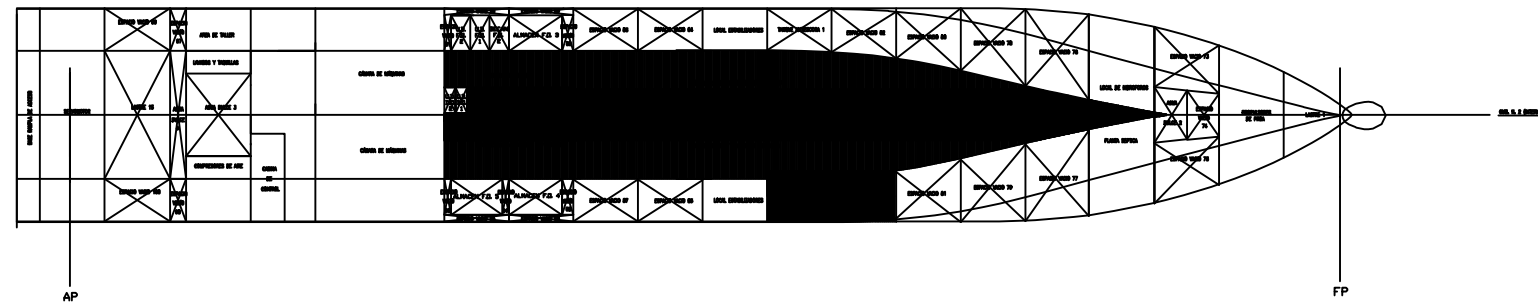
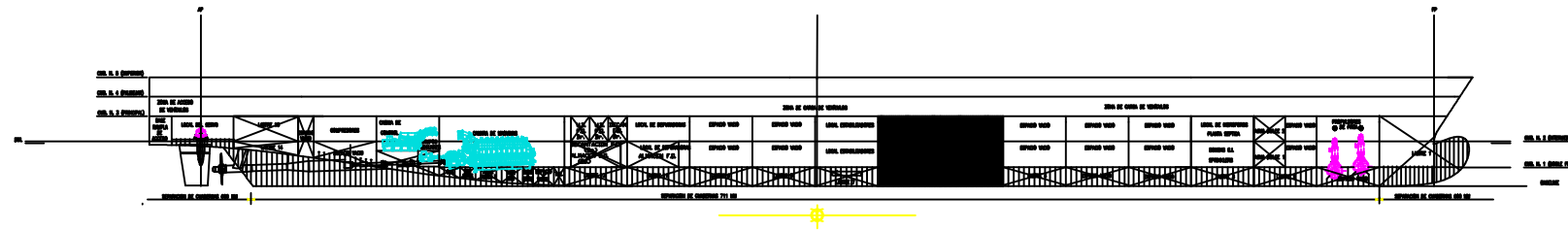
Academic Version

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146	PROPULSORES PROA 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
147	PROPULSORES PROA 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
148	BOMBAS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
149	SPRINKLES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
150	LOCAL HIDROFOROS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
151	PLANTA SEPTICA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
152	LOCAL ESTABILIZADORES BR 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
153	LOCAL ESTABILIZADORES ES 0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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156	LOCAL DEPURADORAS - GARAJE	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
157	CAMARA DE MAQUINAS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
158	FONDO CAMARA DE MAQUINAS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
159	EJES - CONTROL - AUXILIARES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
160	AREA TALLER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
161	LAVABOS Y TAQUILLAS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
162	COMPRESORES DE AIRE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
163	SERVOMOTOR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
164	BASE RAMPLA DE ACCESO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


3.- ESTABILIDAD DESPUES DE AVERIAS:

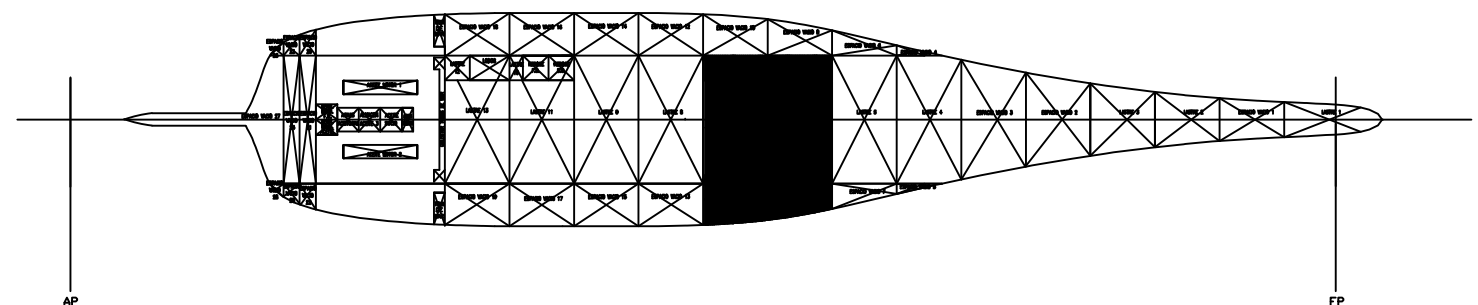
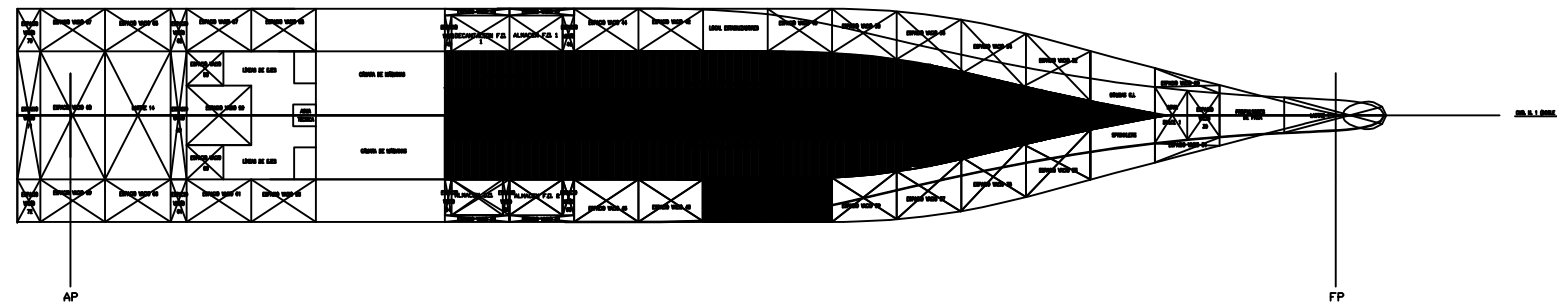
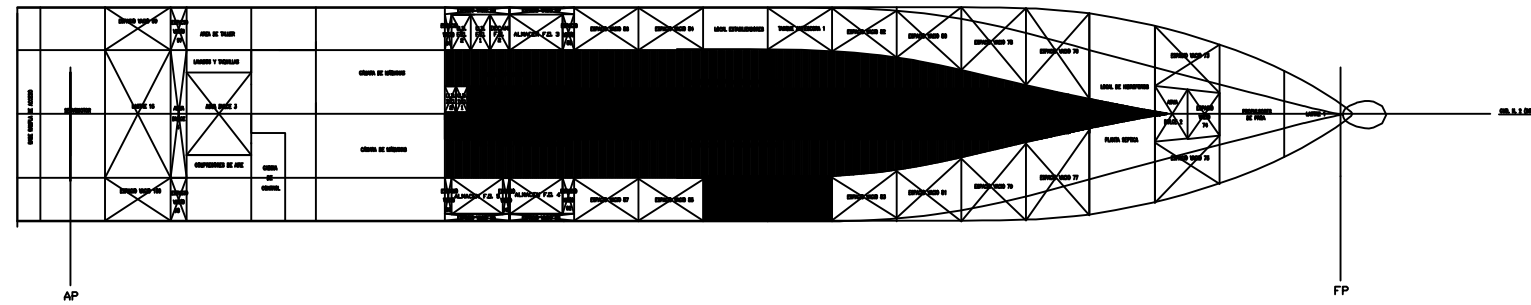
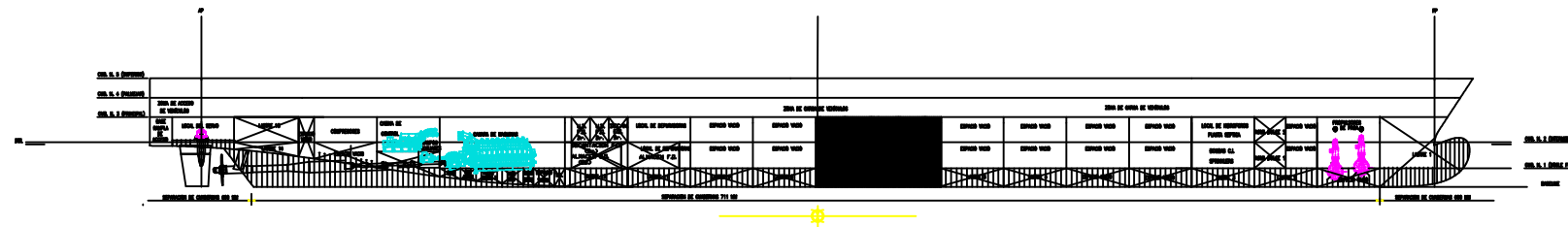
PLANOS

AVERIAS




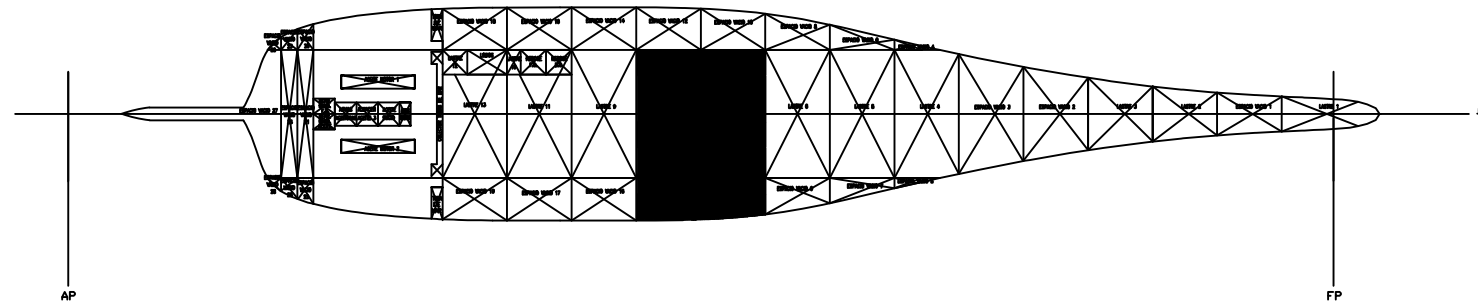
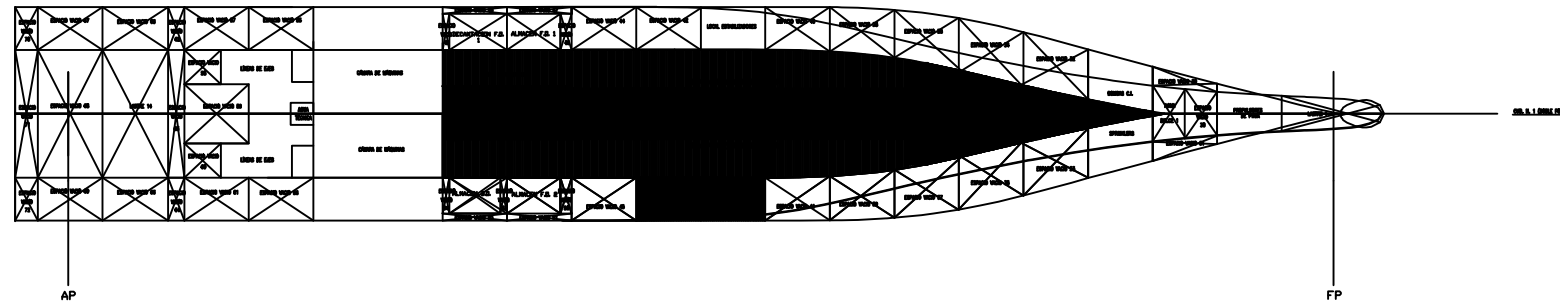
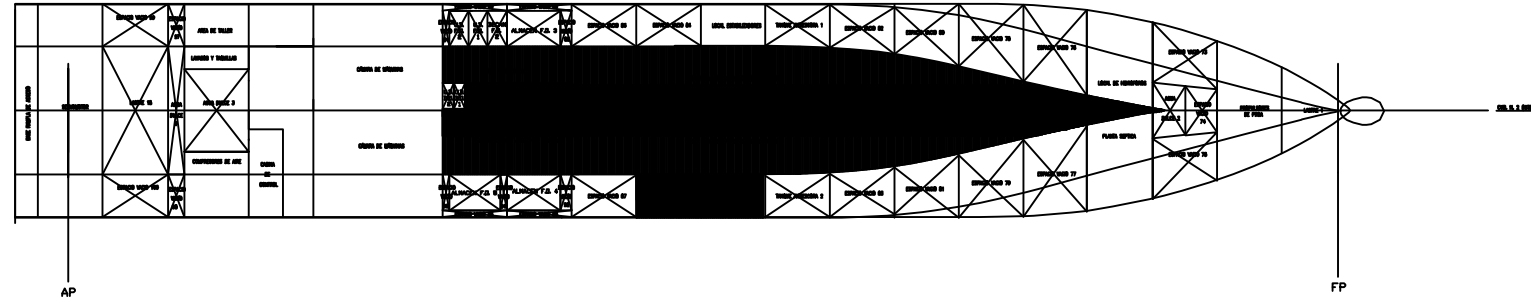
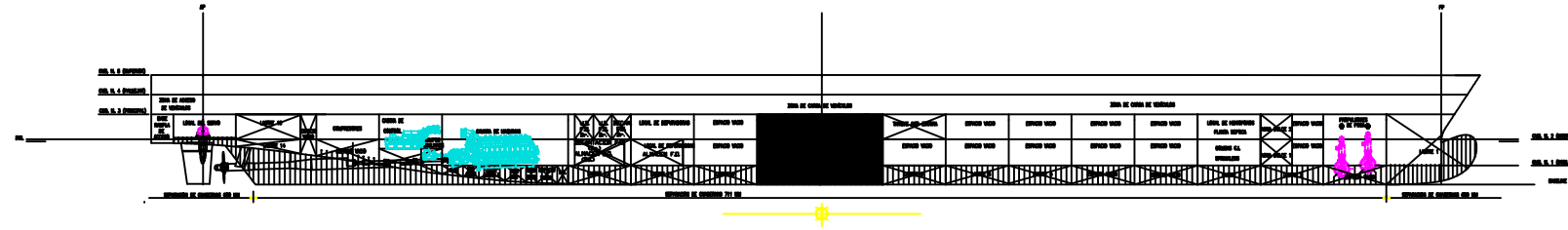
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 MANGA DE TRAZADO..... 28.2 m
 PUNTAL A LA CUBIERTA PRINCIPAL.. 9.53 m
 PUNTAL A LA CUBIERTA SUPERIOR.. 14.83 m
 CALADO DE ESCANTILLONADO..... 6.09 m
 PASAJE..... 950 personas
 TRIPULACIÓN..... 50 personas

 UNIVERSIDADE DA CORUÑA	E.P.S. GRADO EN ARQUITECTURA NAVAL	TRABAJO FIN DE GRADO NÚMERO: 14 - 105
	TÍTULO DEL PROYECTO: RO - RO 1000 PAX.	
TÍTULO DEL PLANO: CASO Nº:1		FECHA: SEPTIEMBRE 2014
AUTOR: MARÍA DE LA LUZ MURAS CASAS	FIRMA:	ESCALA: 1:1000
		PLANO Nº: 01 / 08




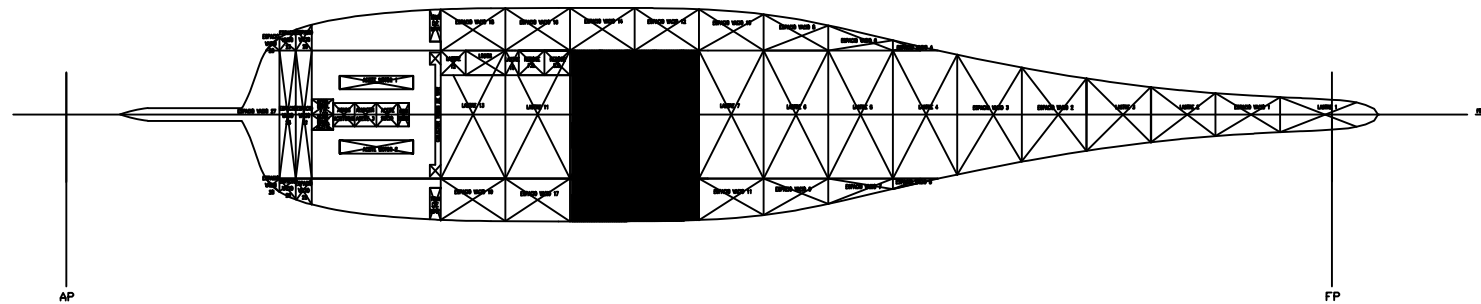
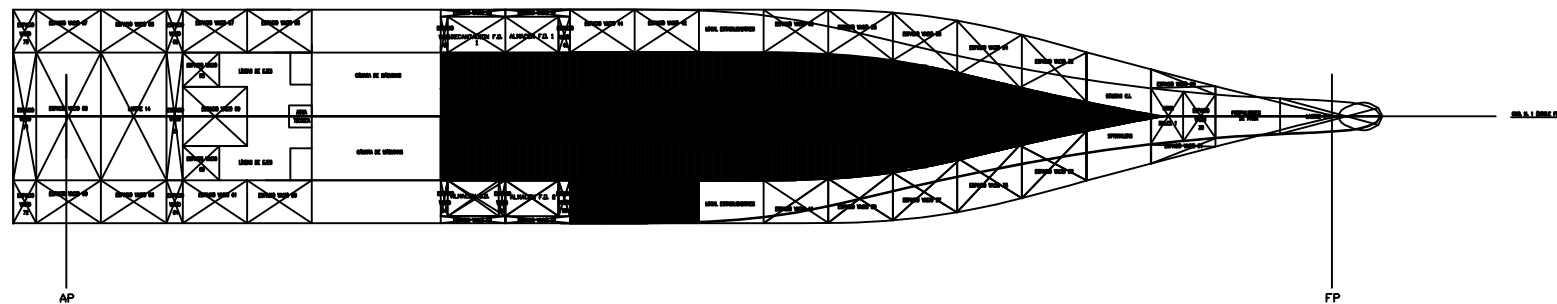
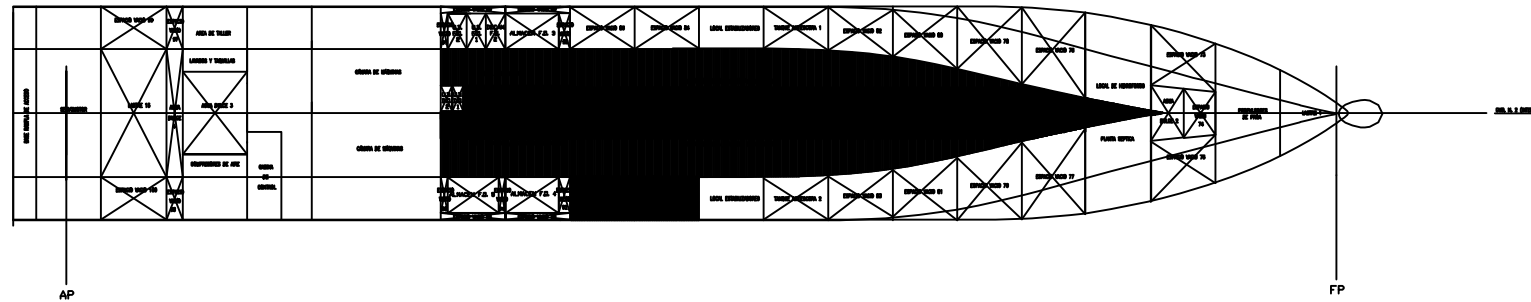
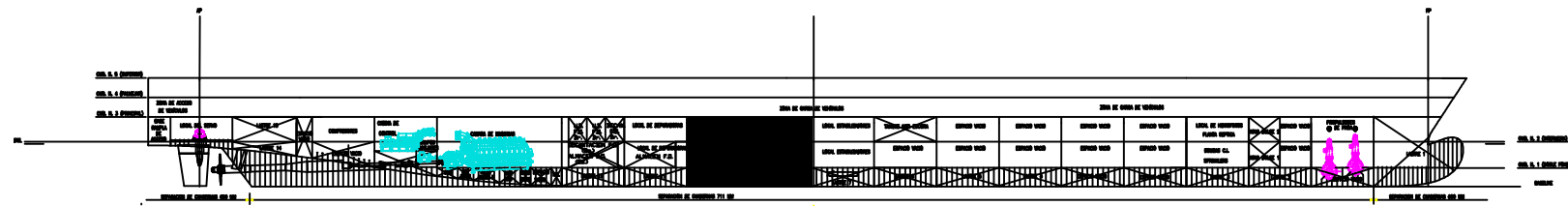
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 MANGA DE TRAZADO..... 28.2 m
 PUNTAL A LA CUBIERTA PRINCIPAL.. 9.53 m
 PUNTAL A LA CUBIERTA SUPERIOR.. 14.83 m
 CALADO DE ESCANTILLONADO..... 6.09 m
 PASAJE..... 950 personas
 TRIPULACIÓN..... 50 personas

 UNIVERSIDADE DA CORUÑA	E.P.S. GRADO EN ARQUITECTURA NAVAL	TRABAJO FIN DE GRADO NÚMERO: 14 - 105
	TÍTULO DEL PROYECTO: RO - RO 1000 PAX.	
TÍTULO DEL PLANO: CASO Nº:2		FECHA: SEPTIEMBRE 2014
AUTOR: MARÍA DE LA LUZ MURAS CASAS	FIRMA:	ESCALA: 1:1000
		PLANO Nº: 02 / 08




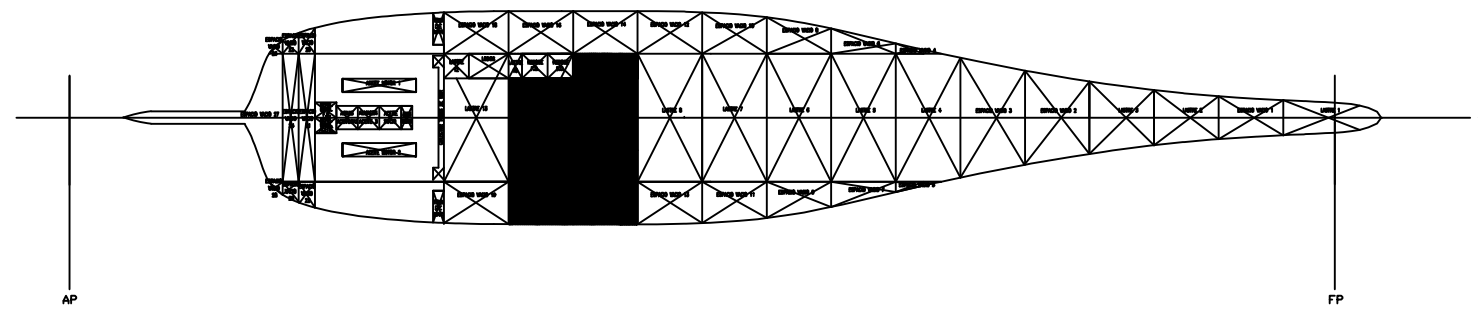
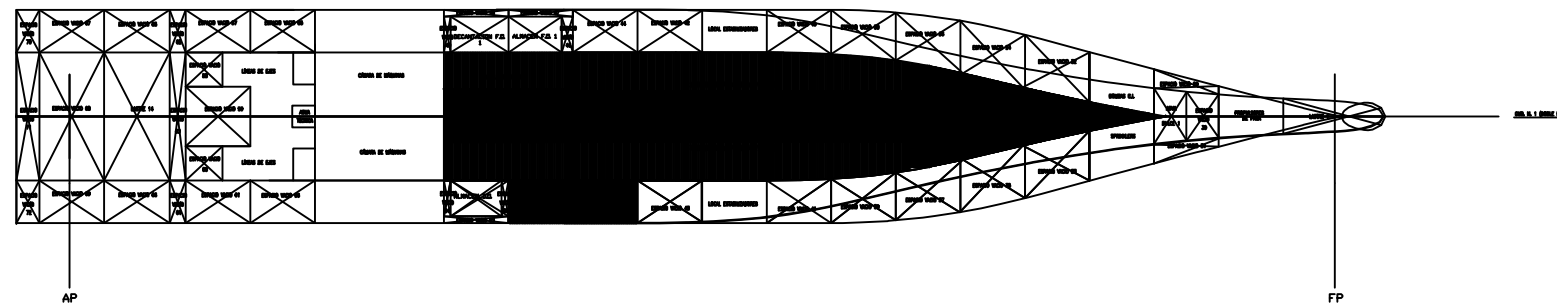
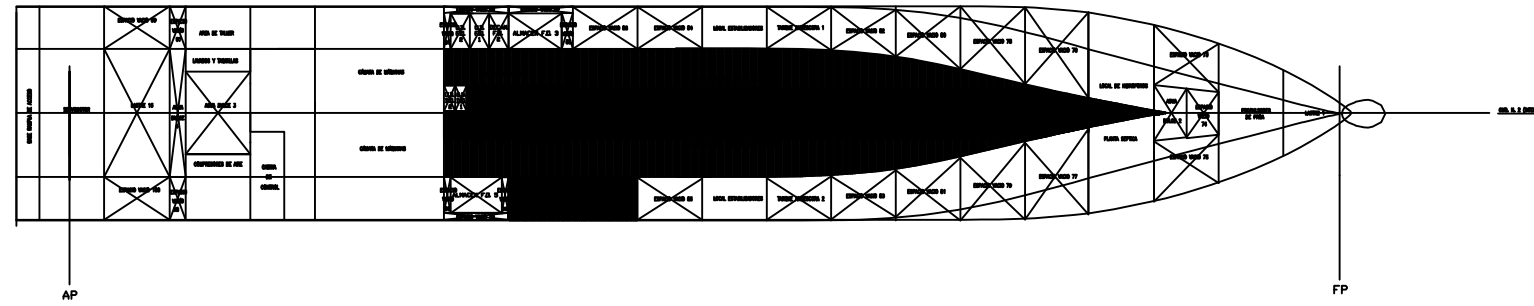
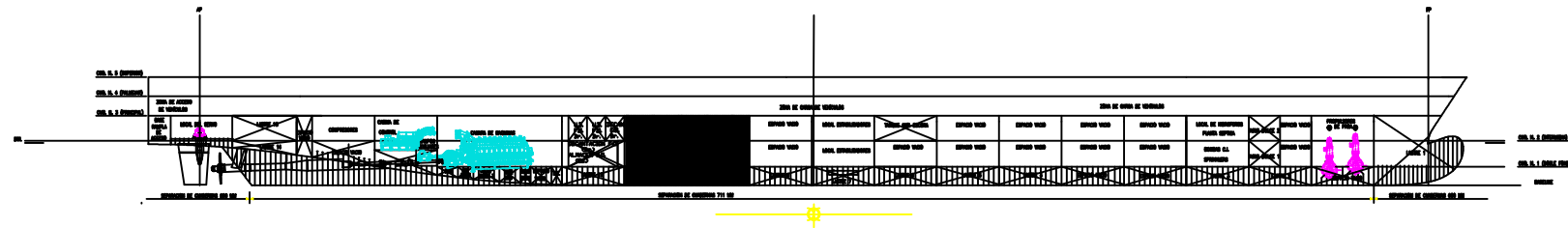
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 MANGA DE TRAZADO..... 28.2 m
 PUNTA A LA CUBIERTA PRINCIPAL.. 9.53 m
 PUNTA A LA CUBIERTA SUPERIOR.. 14.83 m
 CALADO DE ESCANTILLONADO..... 6.09 m
 PASAJE..... 950 personas
 TRIPULACIÓN..... 50 personas

 UNIVERSIDADE DA CORUÑA	E.P.S.	TRABAJO FIN DE GRADO
	GRADO EN ARQUITECTURA NAVAL	NÚMERO: 14 - 105
TÍTULO DEL PROYECTO:		
RO - RO 1000 PAX.		
TÍTULO DEL PLANO:		FECHA: SEPTIEMBRE 2014
CASO Nº:3		ESCALA: 1:1000
AUTOR:	FIRMA:	PLANO Nº: 03 / 08
MARÍA DE LA LUZ MURAS CASAS		




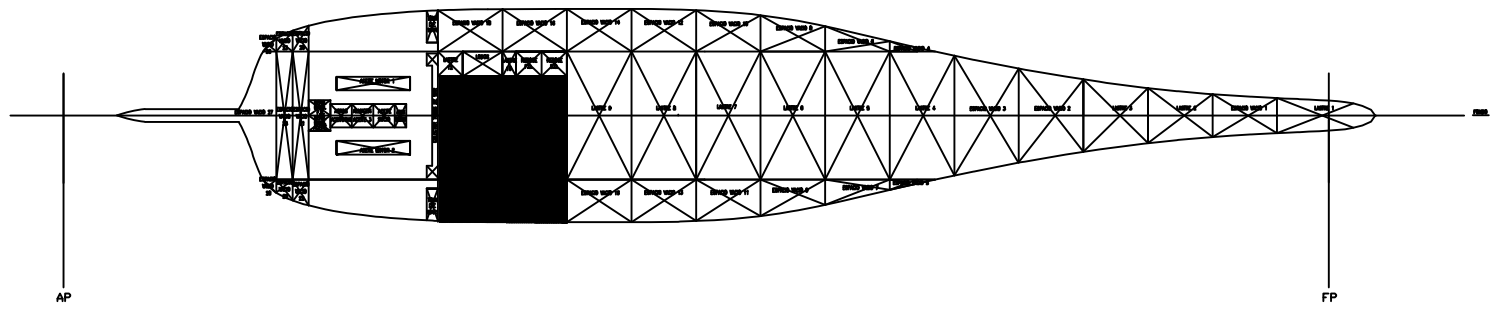
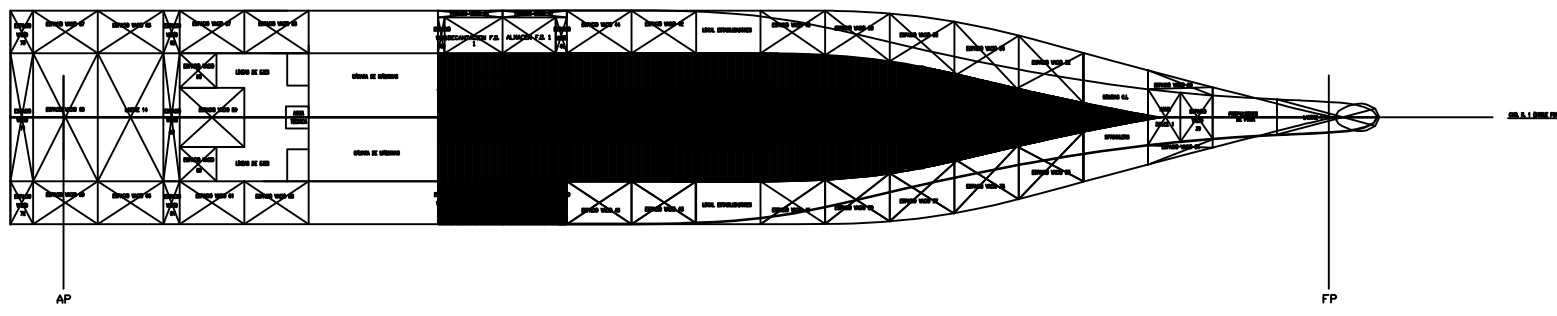
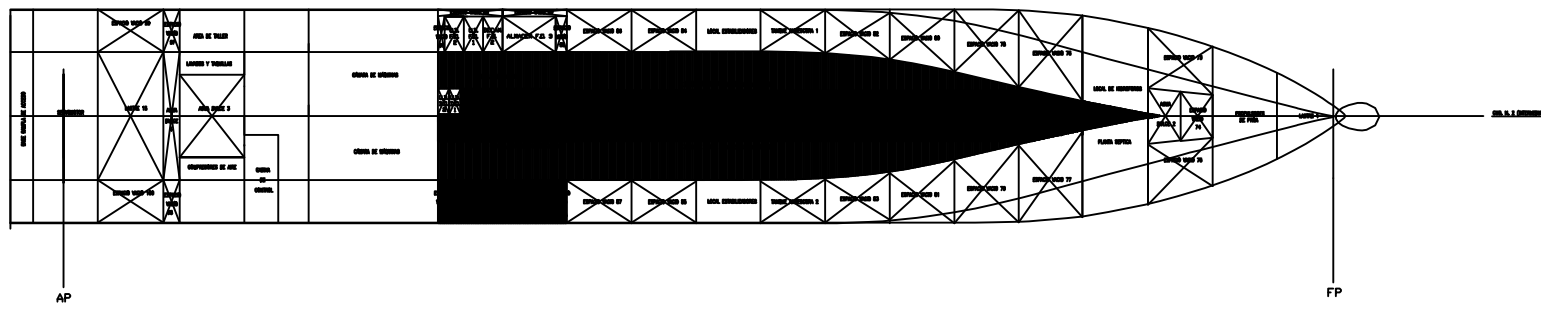
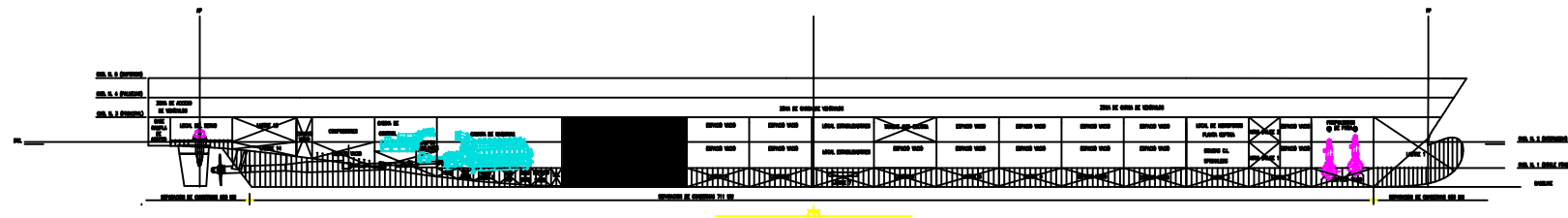
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 MANGA DE TRAZADO..... 28.2 m
 PUNTAL A LA CUBIERTA PRINCIPAL.. 9.53 m
 PUNTAL A LA CUBIERTA SUPERIOR.. 14.83 m
 CALADO DE ESCANTILLONADO..... 6.09 m
 PASAJE..... 950 personas
 TRIPULACIÓN..... 50 personas

 UNIVERSIDADE DA CORUÑA	E.P.S.	TRABAJO FIN DE GRADO
	GRADO EN ARQUITECTURA NAVAL	NÚMERO: 14 - 105
TÍTULO DEL PROYECTO:		
RO - RO 1000 PAX.		
TÍTULO DEL PLANO:		FECHA: SEPTIEMBRE 2014
CASO Nº:4		ESCALA: 1:1000
AUTOR:	FIRMA:	PLANO Nº: 04 / 08
MARÍA DE LA LUZ MURAS CASAS		




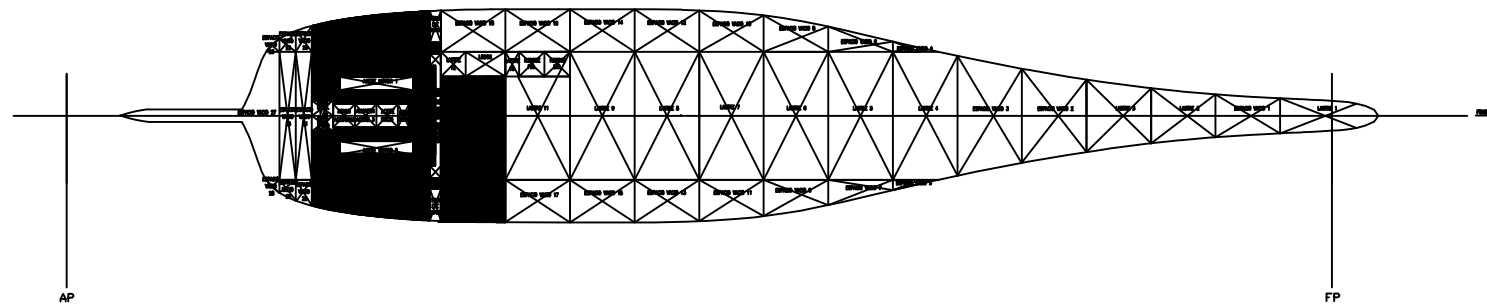
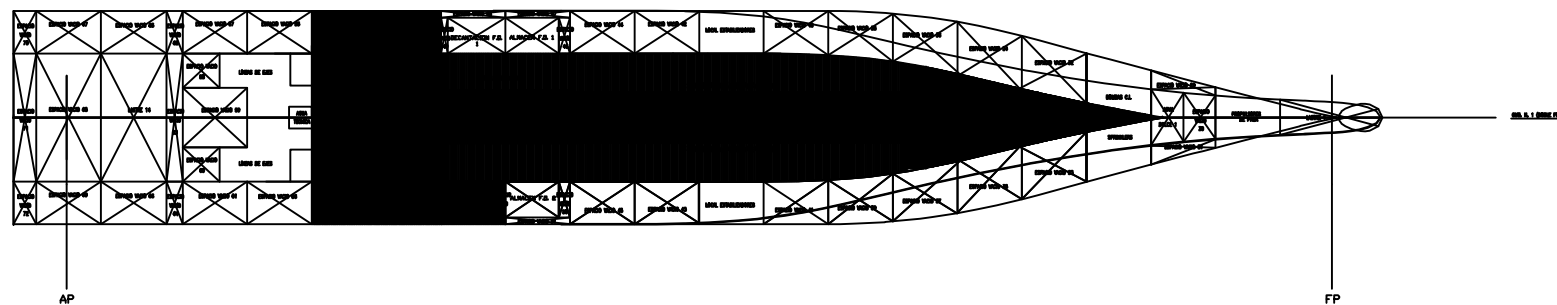
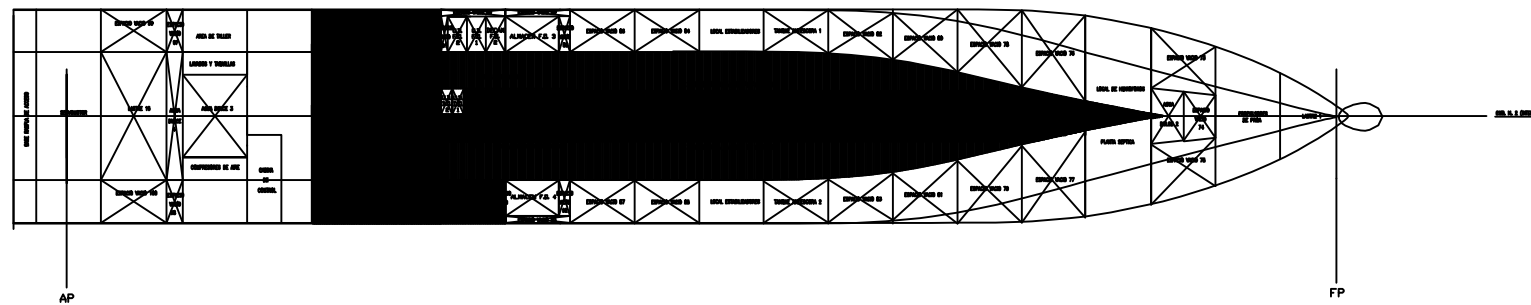
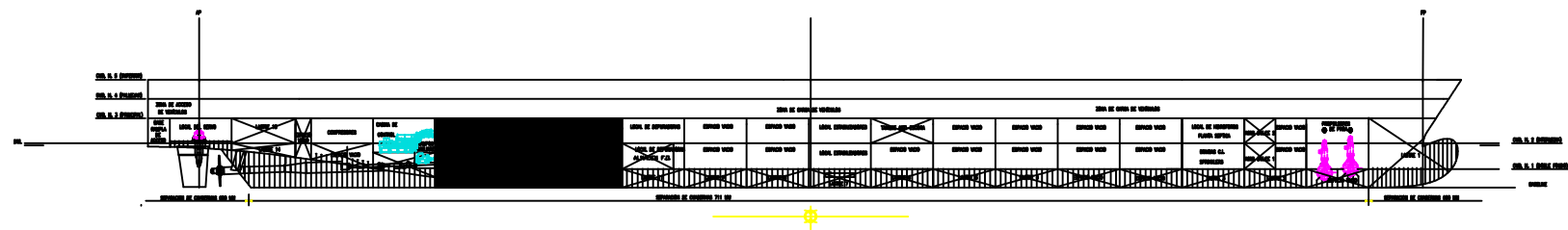
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 MANGA DE TRAZADO..... 28.2 m
 PUNTAL A LA CUBIERTA PRINCIPAL.. 9.53 m
 PUNTAL A LA CUBIERTA SUPERIOR.. 14.83 m
 CALADO DE ESCANTILLONADO..... 6.09 m
 PASAJE..... 950 personas
 TRIPULACIÓN..... 50 personas

 UNIVERSIDADE DA CORUÑA	E.P.S. GRADO EN ARQUITECTURA NAVAL	TRABAJO FIN DE GRADO NÚMERO: 14 - 105
	TÍTULO DEL PROYECTO: RO - RO 1000 PAX.	
TÍTULO DEL PLANO: CASO Nº:5		FECHA: SEPTIEMBRE 2014
AUTOR: MARÍA DE LA LUZ MURAS CASAS	FIRMA:	ESCALA: 1:1000
		PLANO Nº: 05 / 08



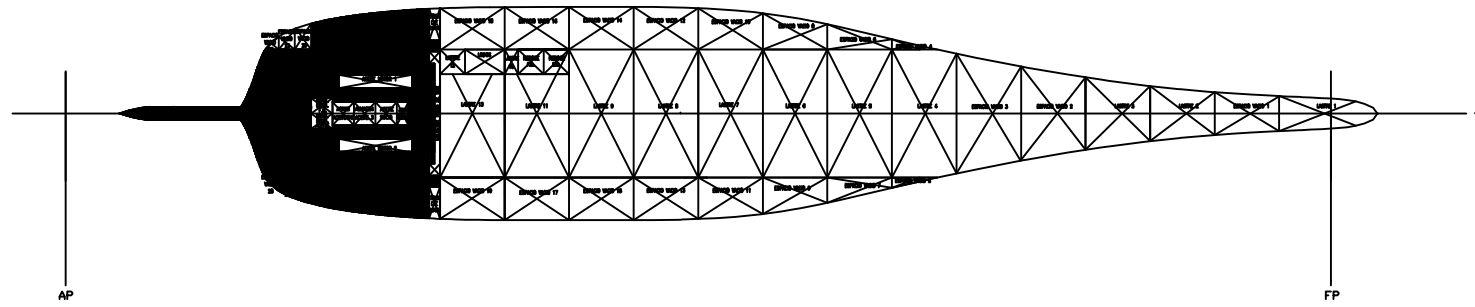
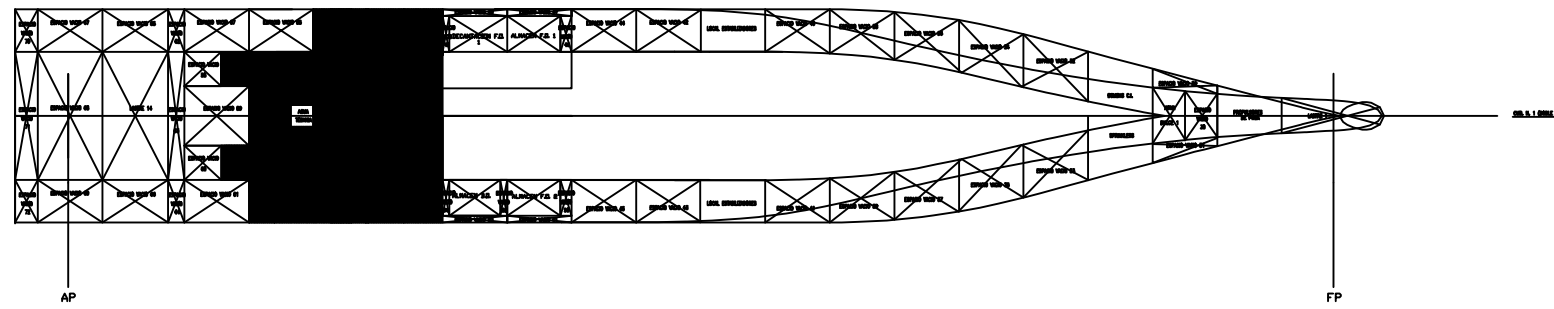
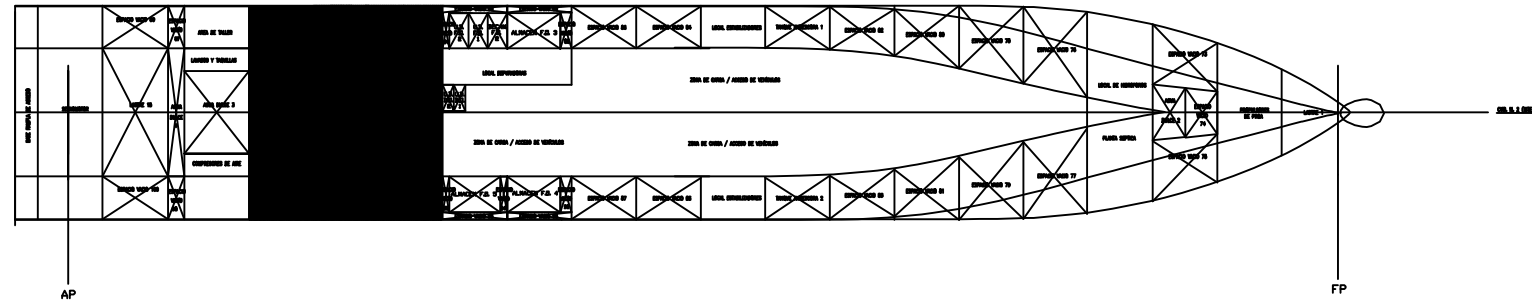
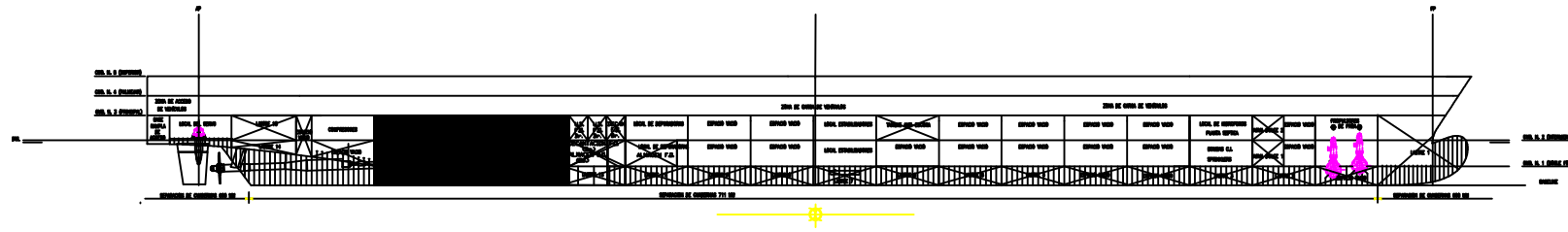
ESLORA TOTAL.....180.28 m
 MANGA DE TRAZADO..... 28.2 m
 PUNTAL A LA CUBIERTA PRINCIPAL.. 9.53 m
 PUNTAL A LA CUBIERTA SUPERIOR.. 14.83 m
 CALADO DE ESCANTILLONADO..... 6.09 m
 PASAJE..... 950 personas
 TRIPULACIÓN..... 50 personas

 UNIVERSIDADE DA CORUÑA	E.P.S. GRADO EN ARQUITECTURA NAVAL	TRABAJO FIN DE GRADO NÚMERO: 14 - 105
	TÍTULO DEL PROYECTO: RO - RO 1000 PAX.	
TÍTULO DEL PLANO: CASO Nº:6		FECHA: SEPTIEMBRE 2014
AUTOR: MARÍA DE LA LUZ MURAS CASAS	FIRMA:	ESCALA: 1:1000
		PLANO Nº: 06 / 08




ESLORA TOTAL.....180.28 m
 MANGA DE TRAZADO..... 28.2 m
 PUNTAL A LA CUBIERTA PRINCIPAL.. 9.53 m
 PUNTAL A LA CUBIERTA SUPERIOR.. 14.83 m
 CALADO DE ESCANTILLONADO..... 6.09 m
 PASAJE..... 950 personas
 TRIPULACIÓN..... 50 personas

 UNIVERSIDADE DA CORUÑA	E.P.S. GRADO EN ARQUITECTURA NAVAL	TRABAJO FIN DE GRADO NÚMERO: 14 - 105
	TÍTULO DEL PROYECTO: RO - RO 1000 PAX.	
TÍTULO DEL PLANO: CASO Nº:7		FECHA: SEPTIEMBRE 2014
AUTOR: MARÍA DE LA LUZ MURAS CASAS	FIRMA:	ESCALA: 1:1000 PLANO Nº: 07 / 08



ESLORA TOTAL.....180.28 m
 MANGA DE TRAZADO..... 28.2 m
 PUNTAL A LA CUBIERTA PRINCIPAL.. 9.53 m
 PUNTAL A LA CUBIERTA SUPERIOR.. 14.83 m
 CALADO DE ESCANTILLONADO..... 6.09 m
 PASAJE..... 950 personas
 TRIPULACIÓN..... 50 personas

 UNIVERSIDADE DA CORUÑA	E.P.S. GRADO EN ARQUITECTURA NAVAL	TRABAJO FIN DE GRADO NÚMERO: 14 - 105
	TÍTULO DEL PROYECTO: RO - RO 1000 PAX.	
TÍTULO DEL PLANO: CASO Nº:8		FECHA: SEPTIEMBRE 2014
AUTOR: MARÍA DE LA LUZ MURAS CASAS	FIRMA:	ESCALA: 1:1000
		PLANO Nº: 08 / 08

3.- ESTABILIDAD DESPUES DE AVERIAS:

RESULTADOS AVERIAS

CONDICION N°:1

AVERIA

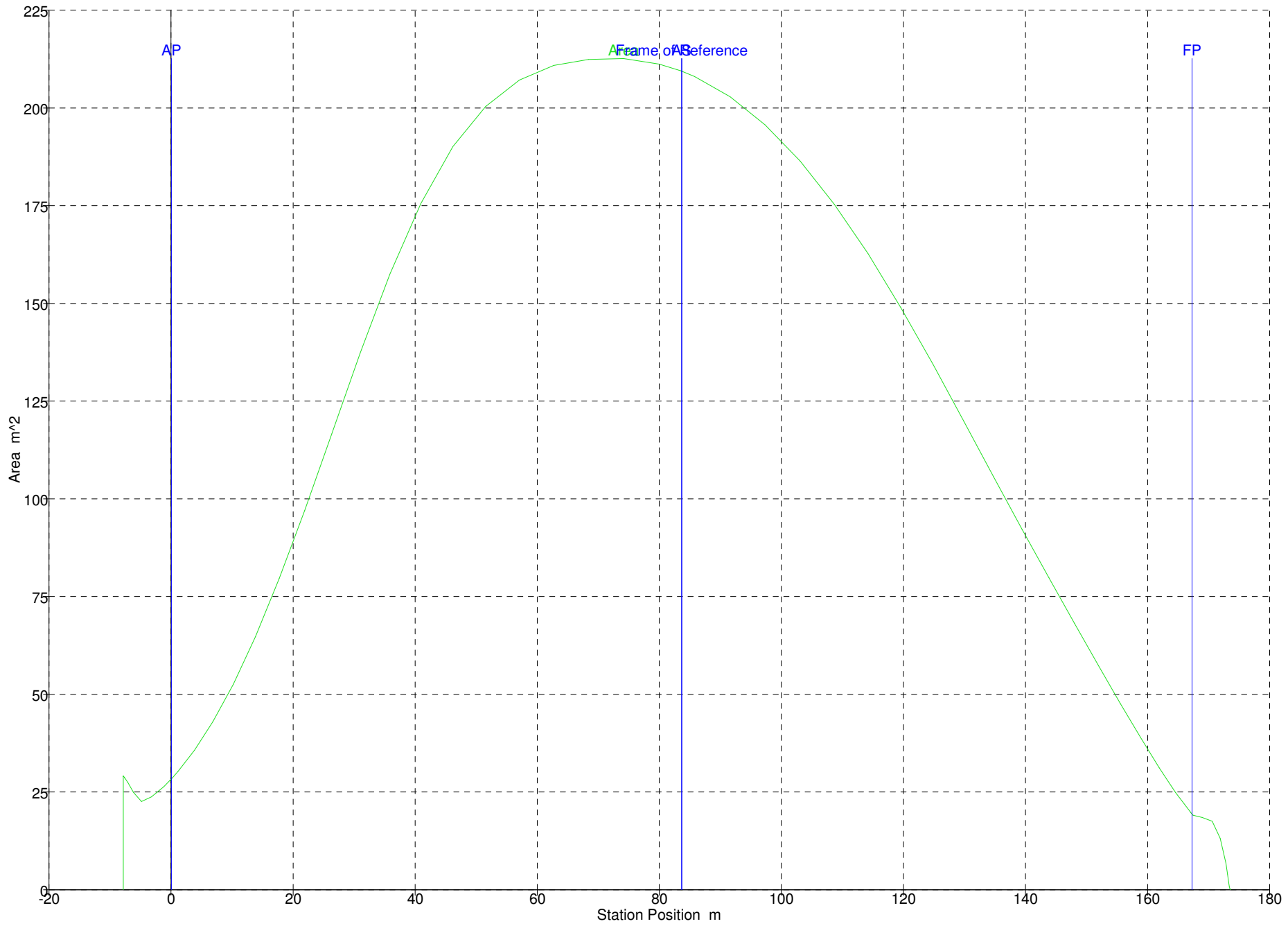
CASO N°:1

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	151.952	0.164	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	143.408	0.296	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5 (Damaged)	Damaged									
14	LASTRE 8	0%	360.197	0.000	351.411	0.000	83.632	8.369	0.000	0.000	IMO A.749(18)
15	LASTRE 9	0%	360.202	0.000	351.416	0.000	75.091	8.458	0.000	0.000	IMO A.749(18)
16	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.956	-6.779	0.129	7.499	IMO A.749(18)
17	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.586	-6.779	0.129	8.430	IMO A.749(18)
18	LODOS	10%	22.464	2.246	24.604	2.460	51.336	-6.684	0.263	7.593	IMO A.749(18)
19	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
20	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
21	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
22	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.648	0.060	0.481	5.575	IMO A.749(18)
23	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
24	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.204	0.071	0.945	5.129	IMO A.749(18)
25	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.510	-0.874	1.266	1.332	IMO A.749(18)
26	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.521	0.941	1.266	1.298	IMO A.749(18)
27	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
28	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
29	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
30	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
31	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
32	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
33	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
34	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
35	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
36	TANQUE ANTIESCORRA 2 (Da	Damaged									
37	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
38	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
39	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
40	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
41	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)
42	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
44	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
45	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
46	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
47	LASTRE 6 (Damaged)	Damaged									

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
49	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.850	-5.212	0.000	0.000	IMO A.749(18)
50	LASTRE 11	0%	290.990	0.000	283.893	0.000	66.551	8.458	0.000	0.000	IMO A.749(18)
51	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
52	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			16283.865	4971.116	3658.094	73.911	-0.130	7.571	36.857	
55	FS correction								0.002		
56	VCG fluid								7.573		

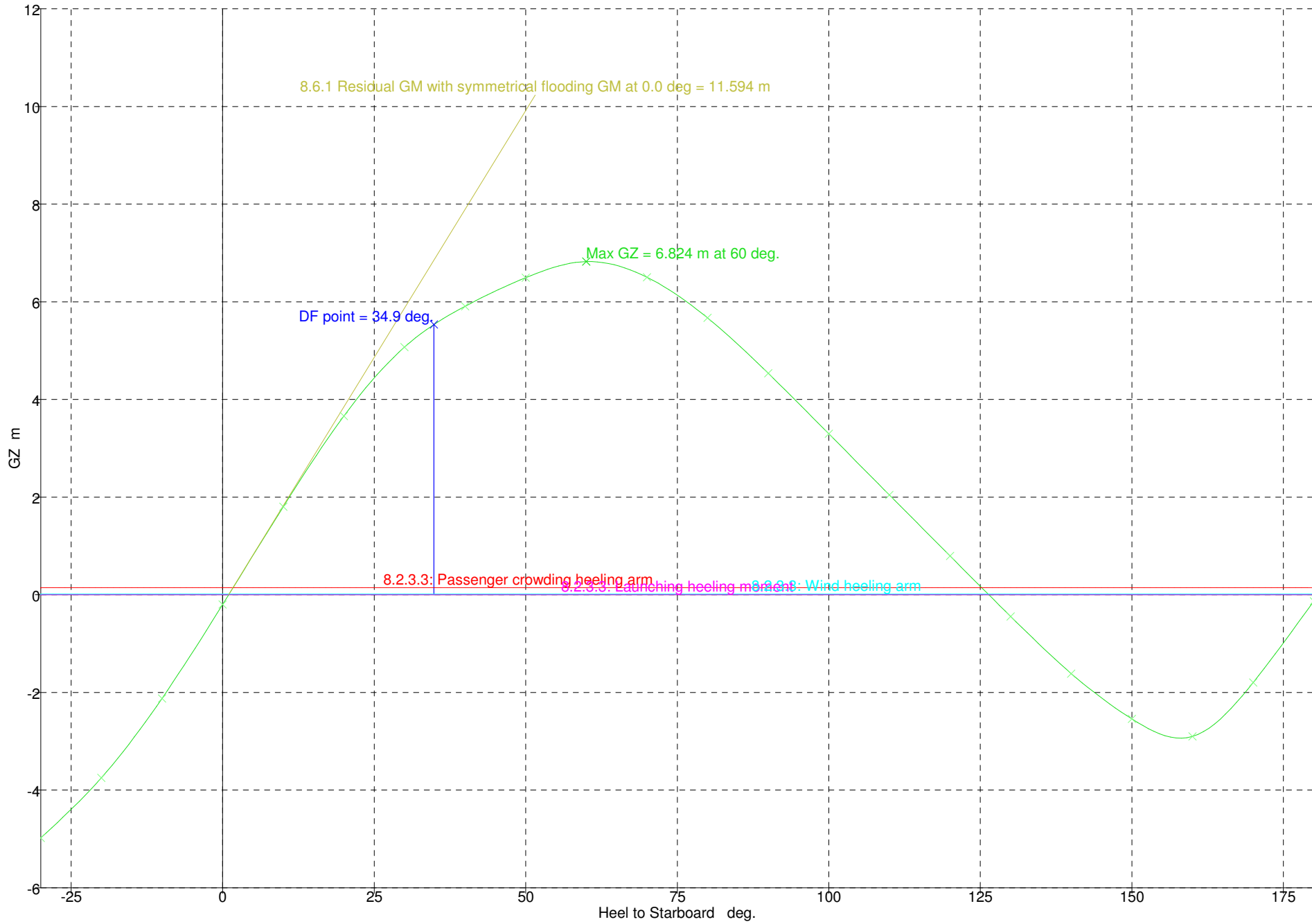
Academic Version

1	Draft Amidships m	7.817
2	Displacement t	16284
3	Heel deg	0.9
4	Draft at FP m	8.743
5	Draft at AP m	6.891
6	Draft at LCF m	7.604
7	Trim (+ve by stern) m	-1.852
8	WL Length m	176.162
9	Beam max extents on WL m	28.208
10	Wetted Area m ²	5981.90
11	Waterpl. Area m ²	3154.96
12	Prismatic coeff. (Cp)	0.424
13	Block coeff. (Cb)	0.367
14	Max Sect. area coeff. (Cm)	0.957
15	Waterpl. area coeff. (Cwp)	0.635
16	LCB from zero pt. (+ve fwd) m	73.940
17	LCF from zero pt. (+ve fwd) m	64.384
18	KB m	4.314
19	KG fluid m	7.573
20	BMt m	14.869
21	BML m	597.108
22	GMt corrected m	11.609
23	GML m	593.848
24	KMt m	19.179
25	KML m	601.305
26	Immersion (TPc) tonne/cm	32.338
27	MTc tonne.m	578.265
28	RM at 1deg = GMt.Disp.sin(1) t	3299.15
29	Max deck inclination deg	1.1324
30	Trim angle (+ve by stern) deg	-0.6345



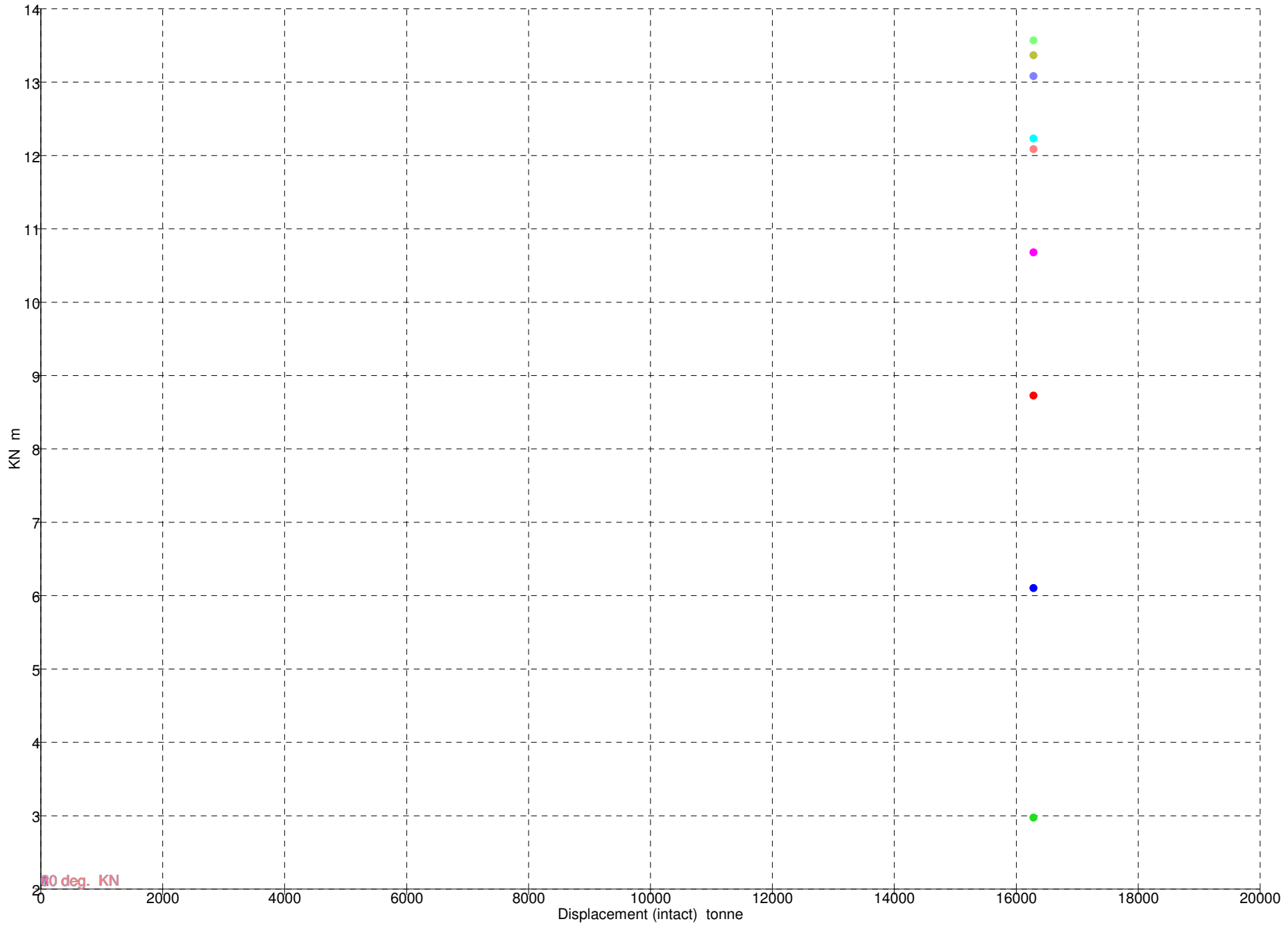
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.977	-3.747	-2.121	-0.199	1.803	3.661	5.072	5.908	6.494	6.824	6.503	5.670	4.537	3.297	2.044	0.794	-0.443
2	Area under GZ curve from zero heel	85.2690	41.4322	11.7525	-0.3612	8.0367	35.5960	79.7472	135.010	197.149	264.135	331.307	392.500	443.695	482.899	509.606	523.792	525.529
3	Displacement t	16284	16284	16284	16284	16284	16284	16284	16284	16283	16284	16284	16284	16284	16285	16284	16284	16284
4	Draft at FP m	6.768	7.834	8.433	8.731	8.693	8.241	7.271	5.770	3.623	0.373	-6.102	-26.094	n/a	-52.780	-32.512	-25.615	-22.119
5	Draft at AP m	5.684	6.465	6.829	6.890	6.843	6.497	5.735	4.273	1.640	-3.087	-11.927	-36.947	n/a	-59.376	-34.265	-25.624	-21.227
6	WL Length m	180.521	175.619	175.968	176.155	176.131	175.851	179.631	181.225	181.112	178.452	174.578	175.176	175.688	176.413	177.186	177.888	178.521
7	Beam max extents on WL m	28.559	29.906	28.640	28.205	28.640	29.944	29.006	26.328	25.808	23.094	21.283	20.308	20.000	20.308	21.128	21.296	20.009
8	Wetted Area m^2	5466.99	5648.45	5809.78	5978.93	5872.03	5740.84	5592.01	5366.33	5246.76	5148.05	4936.32	4830.92	4764.94	4738.69	4750.16	4779.45	4791.42
9	Waterpl. Area m^2	2908.18	2931.62	2979.69	3153.87	3092.44	3079.35	2974.42	3056.61	3245.25	3084.32	2723.53	2534.80	2495.73	2734.20	2841.67	2951.98	3053.78
10	Prismatic coeff. (Cp)	0.503	0.464	0.434	0.424	0.427	0.451	0.488	0.531	0.569	0.609	0.656	0.692	0.735	0.778	0.822	0.876	0.881
11	Block coeff. (Cb)	0.272	0.285	0.338	0.368	0.333	0.280	0.264	0.285	0.301	0.371	0.463	0.571	0.645	0.549	0.476	0.446	0.443
12	LCB from zero pt. (+ve fwd) m	73.926	73.938	73.937	73.939	73.956	73.960	73.961	73.935	73.963	73.985	74.010	74.020	74.016	73.993	73.958	73.916	73.872
13	LCF from zero pt. (+ve fwd) m	72.942	70.358	67.177	64.340	68.696	71.965	73.635	77.518	80.107	80.070	76.763	75.270	75.057	73.896	73.463	73.263	73.389
14	Max deck inclination deg	30.0016	20.0047	10.0145	0.6308	10.0193	20.0076	30.0031	40.0016	50.0014	60.0018	70.0015	80.0006	90.0000	99.9998	109.999	120.000	129.999
15	Trim angle (+ve by stern) deg	-0.3717	-0.4692	-0.5496	-0.6308	-0.6336	-0.5976	-0.5262	-0.5129	-0.6793	-1.1856	-1.9949	-3.7136	-90.000	-2.2589	-0.6006	-0.0029	0.3056



Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16284	5.919	-0.635 (fixed)	80.005	0.000	0.000	2.972	6.102	8.725	10.677	12.231	13.365	13.567	13.079	12.083



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.146		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.0	deg	1.0		
32		<i>to the lesser of</i>					
33		first downflooding angle	34.9	deg	34.9		
34		angle of vanishing stability	126.4	deg			
35		shall not be less than (>=)	15.0	deg	33.9	Pass	+125.83
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.0	deg	1.0		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	34.9	deg			
43		angle of vanishing stability	126.4	deg			
44		shall not be less than (>=)	0.8590	m.deg	43.3469	Pass	+4946.21
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.0	deg			
53		angle of equilibrium with heel arm	1.7, 1.0, 1.1	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(34.9), (34.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.0, 60.0,	deg			
58		first flooding angle of the DownfloodingPoints	34.9	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.388	Pass	+13370.00
61		8.2.3.3: Launching heeling moment	0.040	m	5.534	Pass	+13735.00
62		8.2.3.3: Wind heeling arm	0.040	m	5.518	Pass	+13695.00
63		<i>Intermediate values</i>					
64		GZ(34.9 deg) heel arm A.		m	5.534		
65		HA(34.9 deg) heel arm A.		m	0.146		
66		GZ(34.9 deg) heel arm B.		m	5.534		
67		HA(34.9 deg) heel arm B.		m	0.000		
68		GZ(34.9 deg) heel arm C.		m	5.534		
69		HA(34.9 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.0	deg	1.0		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.0	deg			
78		first downflooding angle	34.9	deg	34.9		
79		shall not be less than (>=)	0.100	m	5.534	Pass	+5434.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	34.9		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.0	deg	1.0		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.0	deg	60.0		
89		shall be greater than (>)	0.050	m	6.824	Pass	+13548.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.0		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.0	deg	1.0		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	126.4	deg	126.4		
99		shall be greater than (>)	7.0	deg	125.4	Pass	+1691.49
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	11.594	Pass	+23088.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.0	Pass	+85.80
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	3.8	deg	3.8		
110		shall be less than (<)	100.00	%	25.86	Pass	+74.14
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.0		
113							

CONDICION N°:1

AVERIA

CASO N°:2

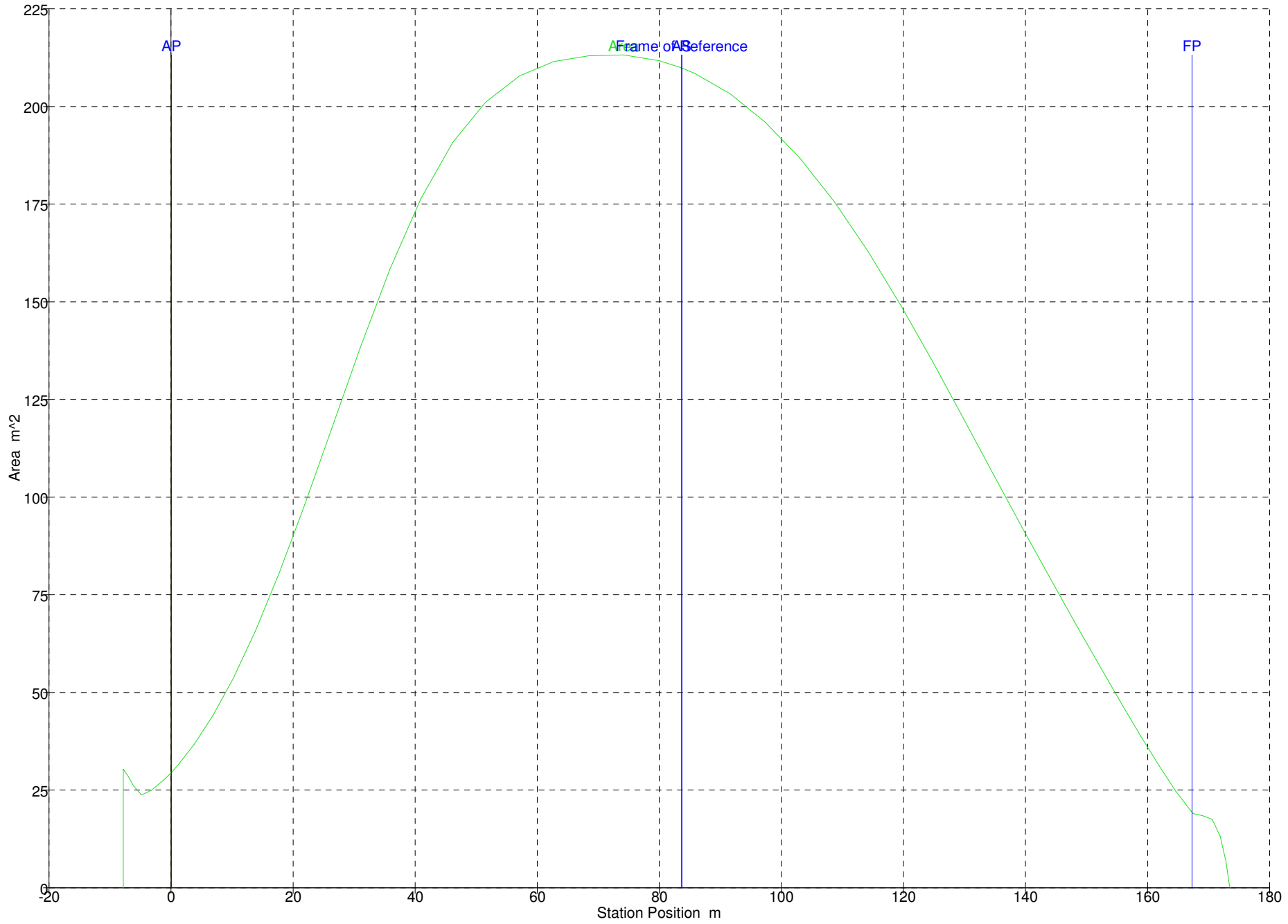
Academic Version

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
15	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
16	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.500	IMO A.749(18)
17	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.431	IMO A.749(18)
18	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.594	IMO A.749(18)
19	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
20	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
21	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
22	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.576	IMO A.749(18)
23	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
24	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.129	IMO A.749(18)
25	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.332	IMO A.749(18)
26	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
27	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
28	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
29	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
30	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
31	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
32	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
33	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
34	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
35	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
36	TANQUE ANTIESCORRA 2 (Da	Damaged									
37	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
38	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
39	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
40	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
41	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)
42	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
44	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
45	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
46	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
47	LASTRE 6 (Damaged)	Damaged									

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	LASTRE 7 (Damaged)	Damaged									
49	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
50	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
51	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
52	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			16240.784	4929.086	3616.064	74.204	-0.131	7.590	36.860	
55	FS correction								0.002		
56	VCG fluid								7.592		

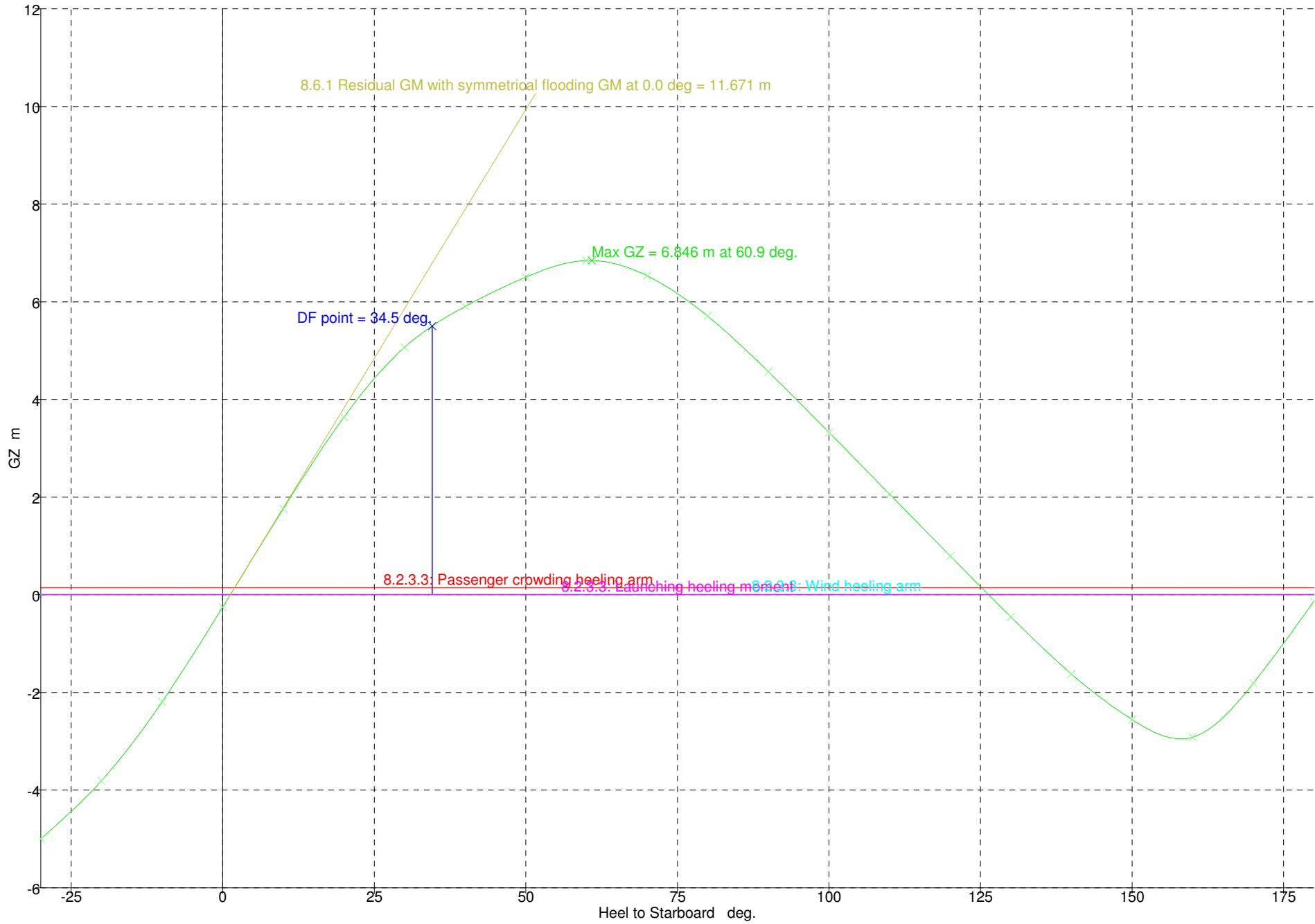
Academic Version

1	Draft Amidships m	7.834
2	Displacement t	16241
3	Heel deg	1.2
4	Draft at FP m	8.735
5	Draft at AP m	6.932
6	Draft at LCF m	7.629
7	Trim (+ve by stern) m	-1.803
8	WL Length m	176.157
9	Beam max extents on WL m	28.211
10	Wetted Area m ²	5989.28
11	Waterpl. Area m ²	3158.57
12	Prismatic coeff. (Cp)	0.422
13	Block coeff. (Cb)	0.367
14	Max Sect. area coeff. (Cm)	0.951
15	Waterpl. area coeff. (Cwp)	0.636
16	LCB from zero pt. (+ve fwd) m	74.232
17	LCF from zero pt. (+ve fwd) m	64.666
18	KB m	4.351
19	KG fluid m	7.592
20	BMt m	14.930
21	BML m	600.938
22	GMt corrected m	11.689
23	GML m	597.696
24	KMt m	19.277
25	KML m	605.120
26	Immersion (TPc) tonne/cm	32.375
27	MTc tonne.m	580.472
28	RM at 1deg = GMt.Disp.sin(1) t	3313.07
29	Max deck inclination deg	1.3588
30	Trim angle (+ve by stern) deg	-0.6178



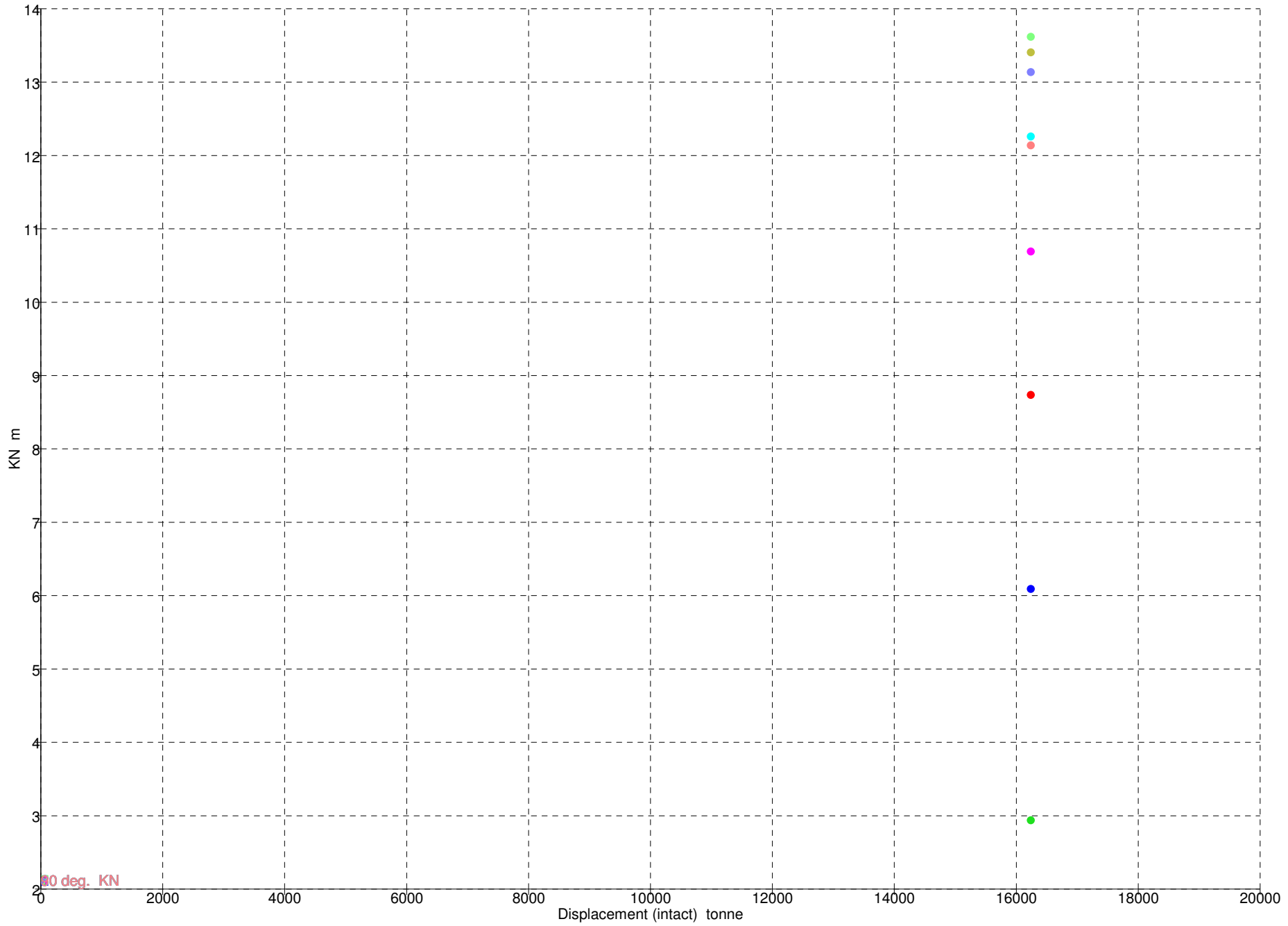
Academic Version

	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.996	-3.806	-2.192	-0.252	1.763	3.640	5.070	5.906	6.506	6.846	6.533	5.706	4.571	3.326	2.061	0.796	-0.452
2	Area under GZ curve from zero heel	86.9835	42.7444	12.3844	-0.4582	7.5743	34.8186	78.8613	134.102	196.279	263.439	330.872	392.398	443.947	483.472	510.412	524.691	526.391
3	Displacement t	16241	16241	16241	16241	16241	16241	16241	16241	16240	16241	16241	16241	16241	16241	16241	16241	16241
4	Draft at FP m	6.773	7.856	8.449	8.724	8.666	8.211	7.238	5.738	3.602	0.365	-6.086	-25.999	n/a	-52.609	-32.415	-25.549	-22.064
5	Draft at AP m	5.683	6.480	6.859	6.929	6.900	6.561	5.808	4.339	1.701	-3.025	-11.854	-36.849	n/a	-59.405	-34.331	-25.700	-21.305
6	WL Length m	180.516	175.629	175.978	176.150	176.114	175.831	179.744	181.233	181.102	178.430	174.584	175.193	175.707	176.434	177.206	177.906	178.539
7	Beam max extents on WL m	28.562	29.910	28.640	28.205	28.640	29.949	29.061	26.346	25.814	23.094	21.283	20.308	20.000	20.308	21.127	21.281	19.958
8	Wetted Area m^2	5468.06	5656.80	5823.10	5985.87	5884.47	5750.86	5601.72	5372.89	5254.09	5156.36	4943.06	4837.76	4770.19	4742.92	4751.48	4777.30	4786.50
9	Waterpl. Area m^2	2892.56	2926.04	2987.32	3157.60	3094.89	3087.91	2979.73	3057.19	3250.72	3086.07	2723.90	2533.75	2488.68	2732.83	2826.98	2937.65	3046.77
10	Prismatic coeff. (Cp)	0.502	0.462	0.432	0.422	0.425	0.449	0.485	0.528	0.566	0.606	0.652	0.689	0.731	0.774	0.820	0.875	0.887
11	Block coeff. (Cb)	0.271	0.284	0.336	0.367	0.332	0.279	0.262	0.283	0.300	0.369	0.461	0.568	0.642	0.545	0.473	0.444	0.445
12	LCB from zero pt. (+ve fwd) m	74.218	74.231	74.230	74.232	74.242	74.253	74.252	74.226	74.254	74.277	74.303	74.314	74.315	74.287	74.255	74.215	74.171
13	LCF from zero pt. (+ve fwd) m	72.961	70.471	67.411	64.621	68.483	71.801	73.554	77.513	80.166	80.254	76.912	75.414	75.123	74.298	73.748	73.529	73.677
14	Max deck inclination deg	30.0016	20.0047	10.0142	0.6150	10.0176	20.0068	30.0027	40.0014	50.0013	60.0017	70.0015	80.0006	90.0000	99.9997	109.999	120.000	129.999
15	Trim angle (+ve by stern) deg	-0.3735	-0.4713	-0.5448	-0.6150	-0.6050	-0.5653	-0.4900	-0.4792	-0.6515	-1.1615	-1.9755	-3.7124	-90.000	-2.3271	-0.6566	-0.0516	0.2603



Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16241	5.907	-0.618 (fixed)	79.983	0.000	0.000	2.934	6.087	8.734	10.688	12.257	13.404	13.616	13.135	12.136



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.146		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.2	deg	1.2		
32		<i>to the lesser of</i>					
33		first downflooding angle	34.5	deg	34.5		
34		angle of vanishing stability	126.4	deg			
35		shall not be less than (>=)	15.0	deg	33.3	Pass	+122.00
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.2	deg	1.2		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	34.5	deg			
43		angle of vanishing stability	126.4	deg			
44		shall not be less than (>=)	0.8590	m.deg	42.5897	Pass	+4858.05
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.2	deg			
53		angle of equilibrium with heel arm	2.0, 1.2, 1.3	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(34.5), (34.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.9,	deg			
58		first flooding angle of the DownfloodingPoints	34.5	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.359	Pass	+13297.50
61		8.2.3.3: Launching heeling moment	0.040	m	5.506	Pass	+13665.00
62		8.2.3.3: Wind heeling arm	0.040	m	5.490	Pass	+13625.00
63		<i>Intermediate values</i>					
64		GZ(34.5 deg) heel arm A.		m	5.506		
65		HA(34.5 deg) heel arm A.		m	0.146		
66		GZ(34.5 deg) heel arm B.		m	5.506		
67		HA(34.5 deg) heel arm B.		m	0.000		
68		GZ(34.5 deg) heel arm C.		m	5.506		
69		HA(34.5 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.2	deg	1.2		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	34.5	deg	34.5		
79		shall not be less than (>=)	0.100	m	5.506	Pass	+5406.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	34.5		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.2	deg	1.2		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	6.846	Pass	+13592.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.2	deg	1.2		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	126.4	deg	126.4		
99		shall be greater than (>)	7.0	deg	125.1	Pass	+1687.20
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	11.671	Pass	+23242.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.3	Pass	+82.14
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	3.9	deg	3.9		
110		shall be less than (<)	100.00	%	32.10	Pass	+67.90
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.2		
113							

CONDICION N°:1

AVERIA

CASO N°:3

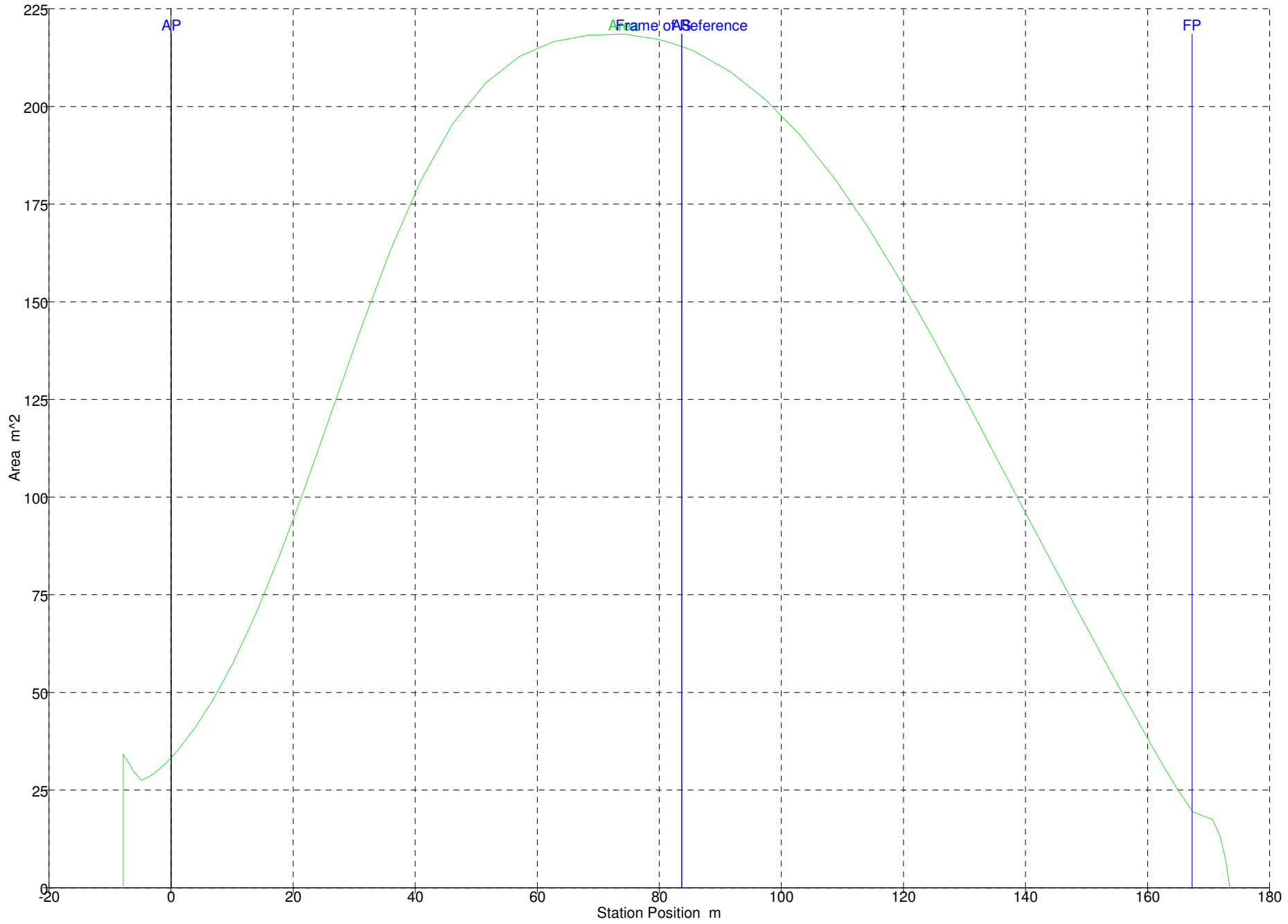
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 8 (Damaged)	Damaged									
15	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
16	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.503	IMO A.749(18)
17	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.434	IMO A.749(18)
18	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.597	IMO A.749(18)
19	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
20	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
21	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
22	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.578	IMO A.749(18)
23	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
24	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.131	IMO A.749(18)
25	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.333	IMO A.749(18)
26	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.299	IMO A.749(18)
27	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
28	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
29	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
30	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
31	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
32	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
33	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
34	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
35	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
36	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
37	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
38	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
39	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
40	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
41	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)
42	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
44	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
45	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
46	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
47	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	LASTRE 7 (Damaged)	Damaged									
49	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
50	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
51	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
52	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			16746.864	5071.412	4109.801	74.877	-0.020	7.462	36.875	
55	FS correction								0.002		
56	VCG fluid								7.464		

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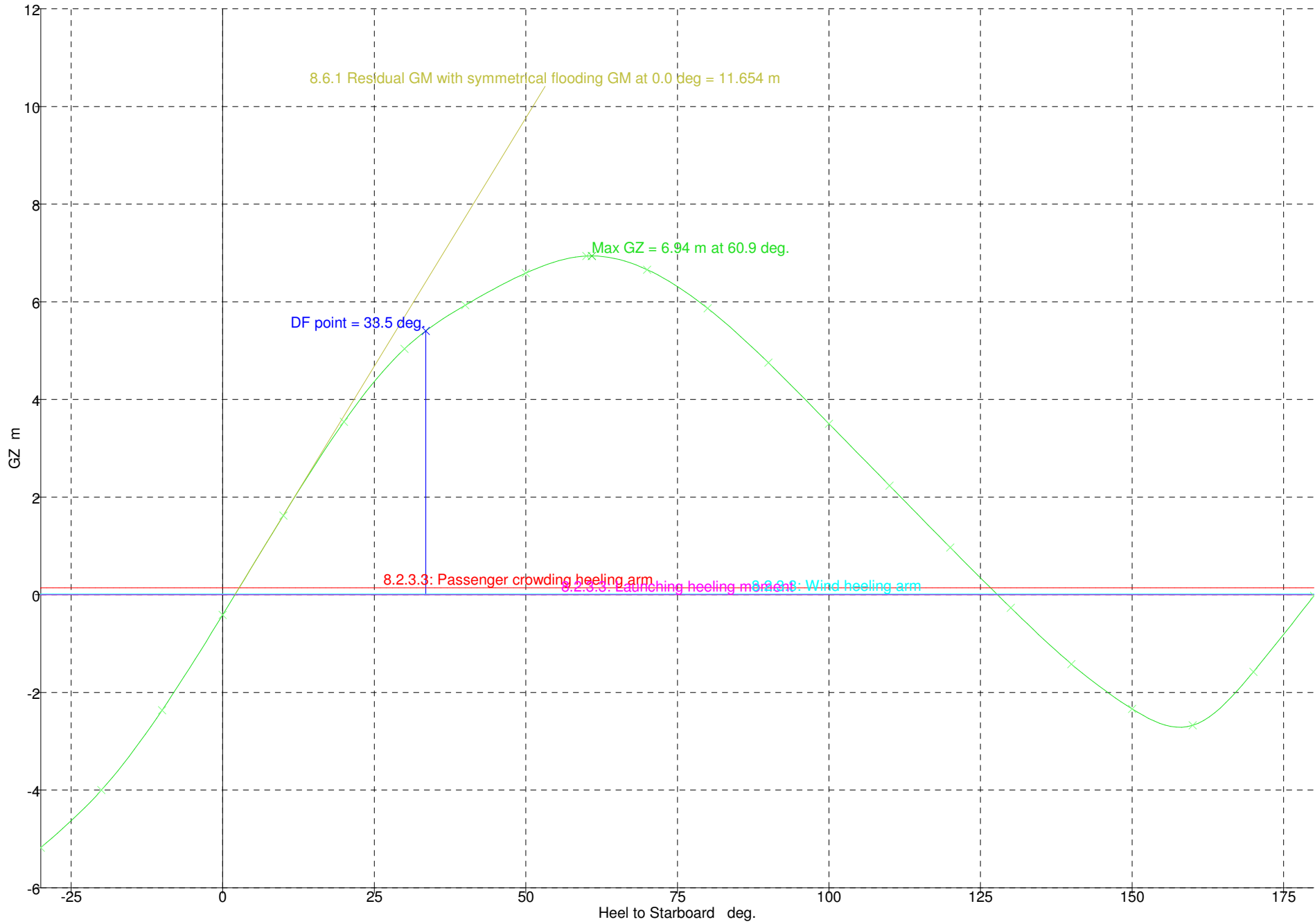
1	Draft Amidships m	8.030
2	Displacement t	16747
3	Heel deg	2.0
4	Draft at FP m	8.991
5	Draft at AP m	7.068
6	Draft at LCF m	7.823
7	Trim (+ve by stern) m	-1.923
8	WL Length m	176.316
9	Beam max extents on WL m	28.222
10	Wetted Area m ²	6076.50
11	Waterpl. Area m ²	3189.05
12	Prismatic coeff. (Cp)	0.424
13	Block coeff. (Cb)	0.367
14	Max Sect. area coeff. (Cm)	0.936
15	Waterpl. area coeff. (Cwp)	0.641
16	LCB from zero pt. (+ve fwd) m	74.904
17	LCF from zero pt. (+ve fwd) m	65.668
18	KB m	4.496
19	KG fluid m	7.464
20	BMt m	14.656
21	BML m	596.540
22	GMt corrected m	11.686
23	GML m	593.570
24	KMt m	19.142
25	KML m	600.633
26	Immersion (TPc) tonne/cm	32.688
27	MTc tonne.m	594.428
28	RM at 1deg = GMt.Disp.sin(1) t	3415.63
29	Max deck inclination deg	2.1067
30	Trim angle (+ve by stern) deg	-0.6588

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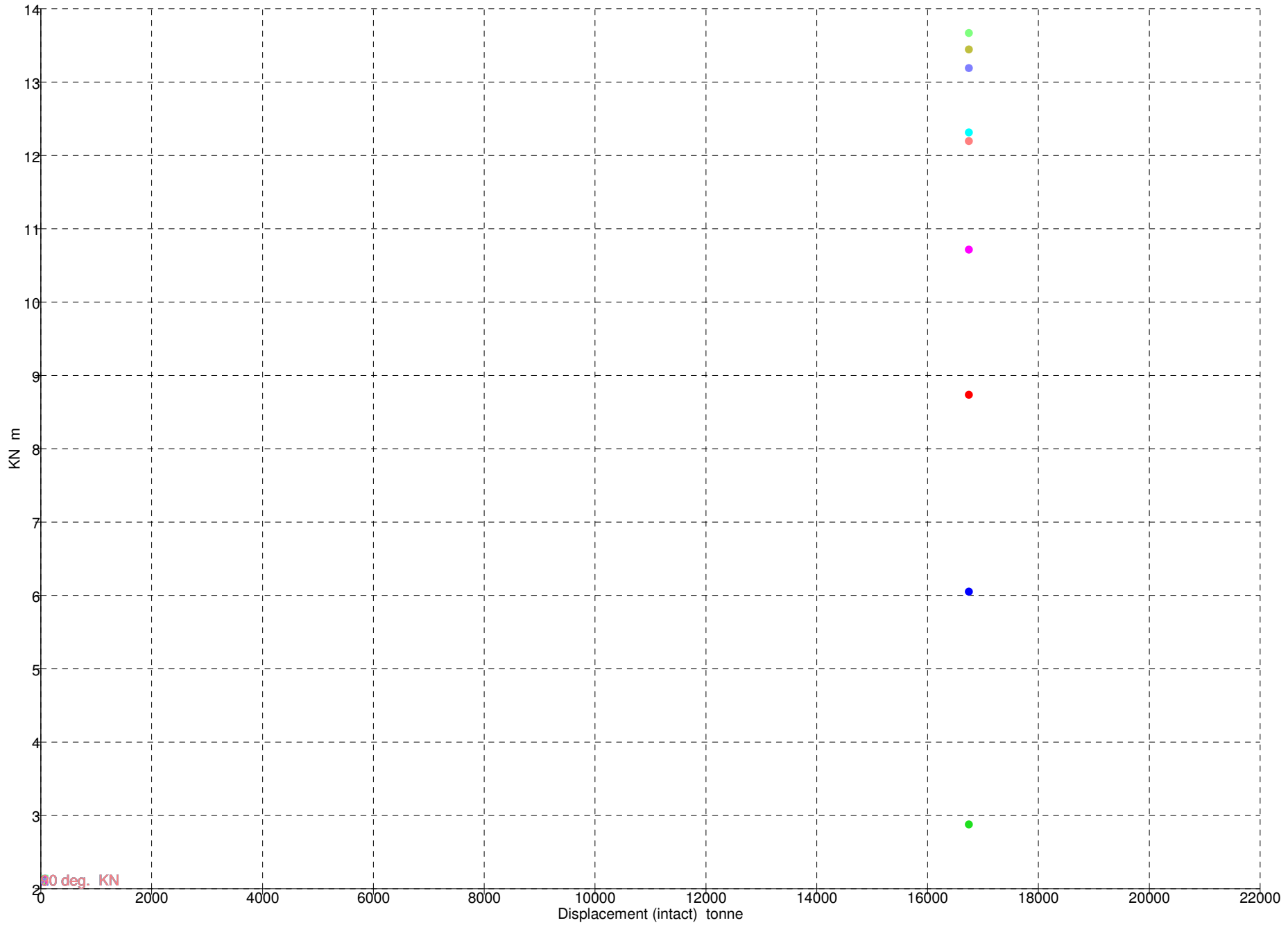
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.178	-4.000	-2.364	-0.410	1.624	3.543	5.038	5.930	6.588	6.938	6.659	5.865	4.755	3.503	2.236	0.970	-0.267
2	Area under GZ curve from zero heel	92.3620	46.2189	14.0199	-0.7446	6.0779	32.1217	75.5240	130.724	193.455	261.497	330.002	392.958	446.240	487.578	516.269	532.287	535.763
3	Displacement t	16746	16747	16747	16747	16747	16747	16747	16748	16746	16747	16747	16747	16747	16748	16748	16747	16748
4	Draft at FP m	7.069	8.146	8.726	8.980	8.897	8.426	7.467	5.970	3.859	0.731	-5.378	-24.359	n/a	-50.901	-31.537	-24.956	-21.612
5	Draft at AP m	5.816	6.615	6.994	7.060	7.058	6.744	6.023	4.588	1.984	-2.654	-11.330	-35.852	n/a	-58.665	-34.044	-25.553	-21.211
6	WL Length m	180.247	175.790	176.150	176.310	176.257	175.964	175.459	181.161	181.215	179.163	174.848	175.465	175.982	176.637	177.384	178.066	178.682
7	Beam max extents on WL m	28.937	29.951	28.640	28.205	28.640	29.979	29.450	26.712	26.100	23.094	21.283	20.308	20.000	20.308	21.169	21.482	20.199
8	Wetted Area m^2	5566.12	5751.07	5927.86	6071.49	5985.72	5841.49	5699.23	5474.78	5352.87	5247.35	5034.08	4930.59	4859.02	4822.20	4826.33	4850.48	4864.61
9	Waterpl. Area m^2	2931.02	3001.71	3040.90	3188.00	3164.39	3178.77	3046.25	3112.73	3294.05	3087.28	2732.05	2551.09	2500.37	2684.86	2827.88	2948.15	3078.13
10	Prismatic coeff. (Cp)	0.504	0.463	0.433	0.425	0.427	0.450	0.497	0.529	0.567	0.605	0.651	0.685	0.726	0.770	0.816	0.871	0.906
11	Block coeff. (Cb)	0.272	0.287	0.339	0.368	0.335	0.282	0.269	0.284	0.301	0.372	0.464	0.569	0.635	0.543	0.472	0.440	0.451
12	LCB from zero pt. (+ve fwd) m	74.904	74.906	74.904	74.905	74.924	74.925	74.925	74.901	74.924	74.947	74.975	74.991	74.997	74.971	74.942	74.904	74.858
13	LCF from zero pt. (+ve fwd) m	73.195	71.200	68.032	65.609	68.812	72.145	73.694	77.579	79.979	80.506	77.257	76.011	75.601	74.834	74.372	74.110	74.218
14	Max deck inclination deg	30.0021	20.0058	10.0169	0.6578	10.0190	20.0070	30.0028	40.0014	50.0012	60.0017	70.0015	80.0007	90.0000	99.9997	109.999	119.999	129.999
15	Trim angle (+ve by stern) deg	-0.4291	-0.5243	-0.5935	-0.6578	-0.6301	-0.5766	-0.4946	-0.4734	-0.6421	-1.1598	-2.0384	-3.9317	-90.000	-2.6585	-0.8588	-0.2047	0.1371



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16747	6.038	-0.659 (fixed)	79.867	0.000	0.000	2.873	6.050	8.734	10.714	12.310	13.443	13.666	13.190	12.192



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.142		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.015		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	2.0	deg	2.0		
32		<i>to the lesser of</i>					
33		first downflooding angle	33.5	deg	33.5		
34		angle of vanishing stability	127.8	deg			
35		shall not be less than (>=)	15.0	deg	31.5	Pass	+109.83
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	2.0	deg	2.0		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	33.5	deg			
43		angle of vanishing stability	127.8	deg			
44		shall not be less than (>=)	0.8590	m.deg	39.9683	Pass	+4552.88
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	2.0	deg			
53		angle of equilibrium with heel arm	2.7, 2.0, 2.1	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(33.5), (33.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.9,	deg			
58		first flooding angle of the DownfloodingPoints	33.5	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.261	Pass	+13052.50
61		8.2.3.3: Launching heeling moment	0.040	m	5.402	Pass	+13405.00
62		8.2.3.3: Wind heeling arm	0.040	m	5.387	Pass	+13367.50
63		<i>Intermediate values</i>					
64		GZ(33.5 deg) heel arm A.		m	5.402		
65		HA(33.5 deg) heel arm A.		m	0.142		
66		GZ(33.5 deg) heel arm B.		m	5.402		
67		HA(33.5 deg) heel arm B.		m	0.000		
68		GZ(33.5 deg) heel arm C.		m	5.402		
69		HA(33.5 deg) heel arm C.		m	0.015		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	2.0	deg	2.0		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	33.5	deg	33.5		
79		shall not be less than (>=)	0.100	m	5.402	Pass	+5302.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	33.5		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	2.0	deg	2.0		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	6.940	Pass	+13780.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	2.0	deg	2.0		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	127.8	deg	127.8		
99		shall be greater than (>)	7.0	deg	125.8	Pass	+1697.04
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	11.654	Pass	+23208.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	2.0	Pass	+71.20
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	2.8	deg	2.8		
110		shall be less than (<)	100.00	%	70.97	Pass	+29.03
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	2.0		
113							

CONDICION N°:1

AVERIA

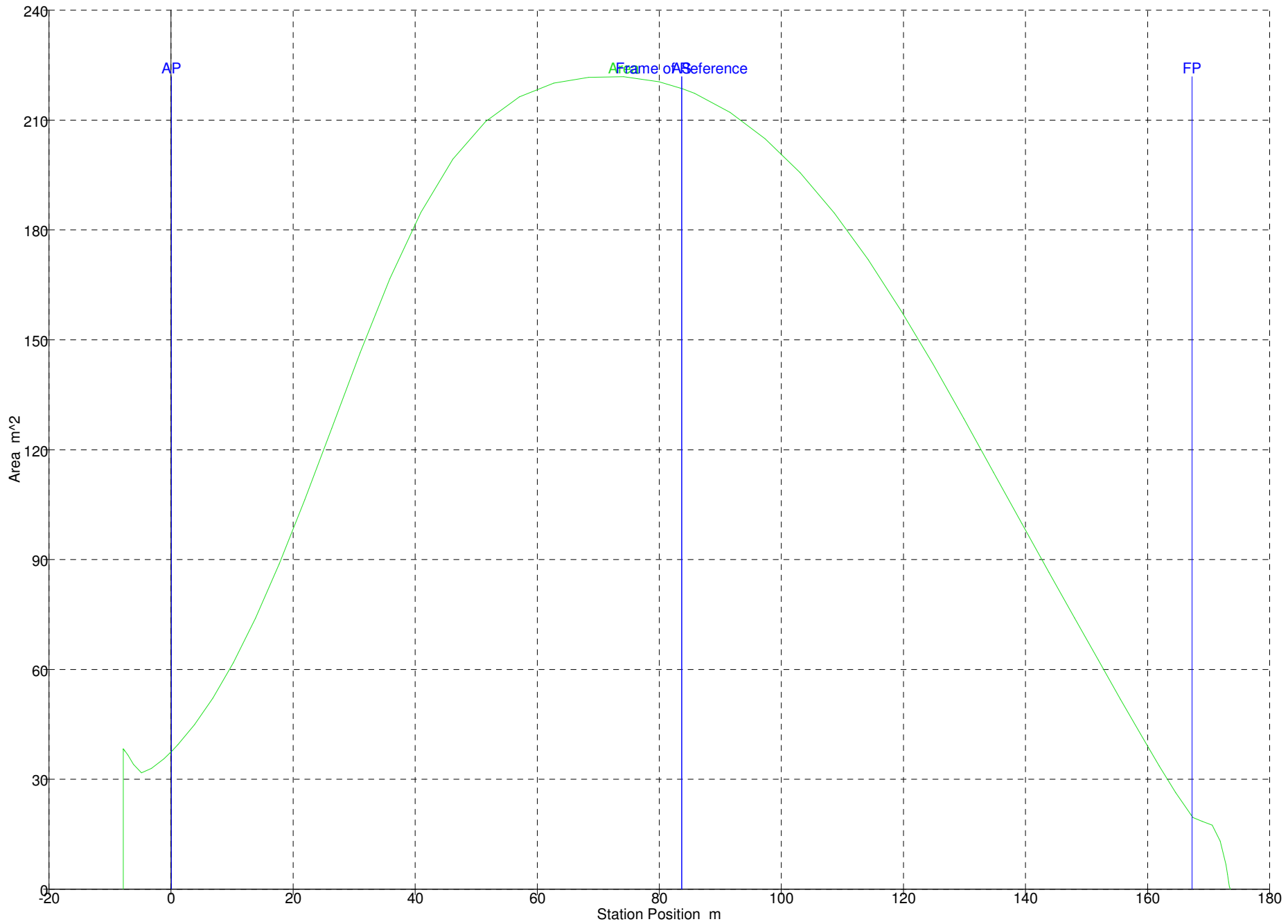
CASO N°:4

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 8 (Damaged)	Damaged									
15	LASTRE 9 (Damaged)	Damaged									
16	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.503	IMO A.749(18)
17	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.434	IMO A.749(18)
18	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.597	IMO A.749(18)
19	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
20	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
21	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
22	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.578	IMO A.749(18)
23	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
24	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.131	IMO A.749(18)
25	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.333	IMO A.749(18)
26	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.299	IMO A.749(18)
27	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
28	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
29	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
30	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
31	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
32	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
33	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
34	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
35	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
36	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
37	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
38	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
39	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
40	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
41	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)
42	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
44	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
45	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
46	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
47	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
49	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
50	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
51	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
52	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			17105.439	5069.825	4459.630	75.151	-0.020	7.332	36.876	
55	FS correction								0.002		
56	VCG fluid								7.334		

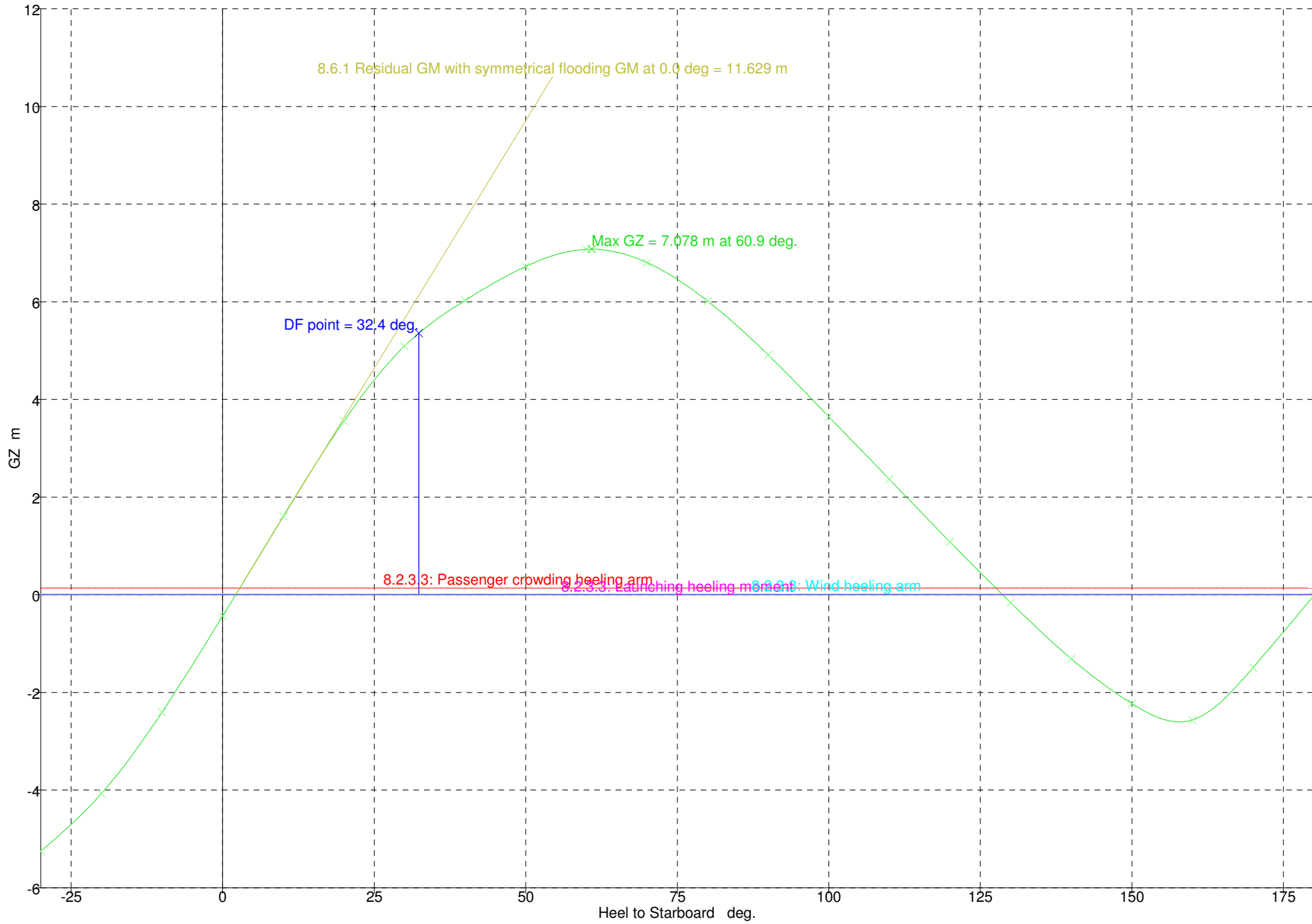
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1	Draft Amidships m	8.144
2	Displacement t	17105
3	Heel deg	2.1
4	Draft at FP m	9.071
5	Draft at AP m	7.218
6	Draft at LCF m	7.951
7	Trim (+ve by stern) m	-1.853
8	WL Length m	176.364
9	Beam max extents on WL m	28.223
10	Wetted Area m ²	6126.89
11	Waterpl. Area m ²	3200.47
12	Prismatic coeff. (Cp)	0.426
13	Block coeff. (Cb)	0.372
14	Max Sect. area coeff. (Cm)	0.936
15	Waterpl. area coeff. (Cwp)	0.643
16	LCB from zero pt. (+ve fwd) m	75.174
17	LCF from zero pt. (+ve fwd) m	66.155
18	KB m	4.584
19	KG fluid m	7.334
20	BMt m	14.420
21	BML m	588.892
22	GMt corrected m	11.668
23	GML m	586.141
24	KMt m	18.994
25	KML m	593.055
26	Immersion (TPc) tonne/cm	32.805
27	MTc tonne.m	599.556
28	RM at 1deg = GMt.Disp.sin(1) t	3483.30
29	Max deck inclination deg	2.1667
30	Trim angle (+ve by stern) deg	-0.6348



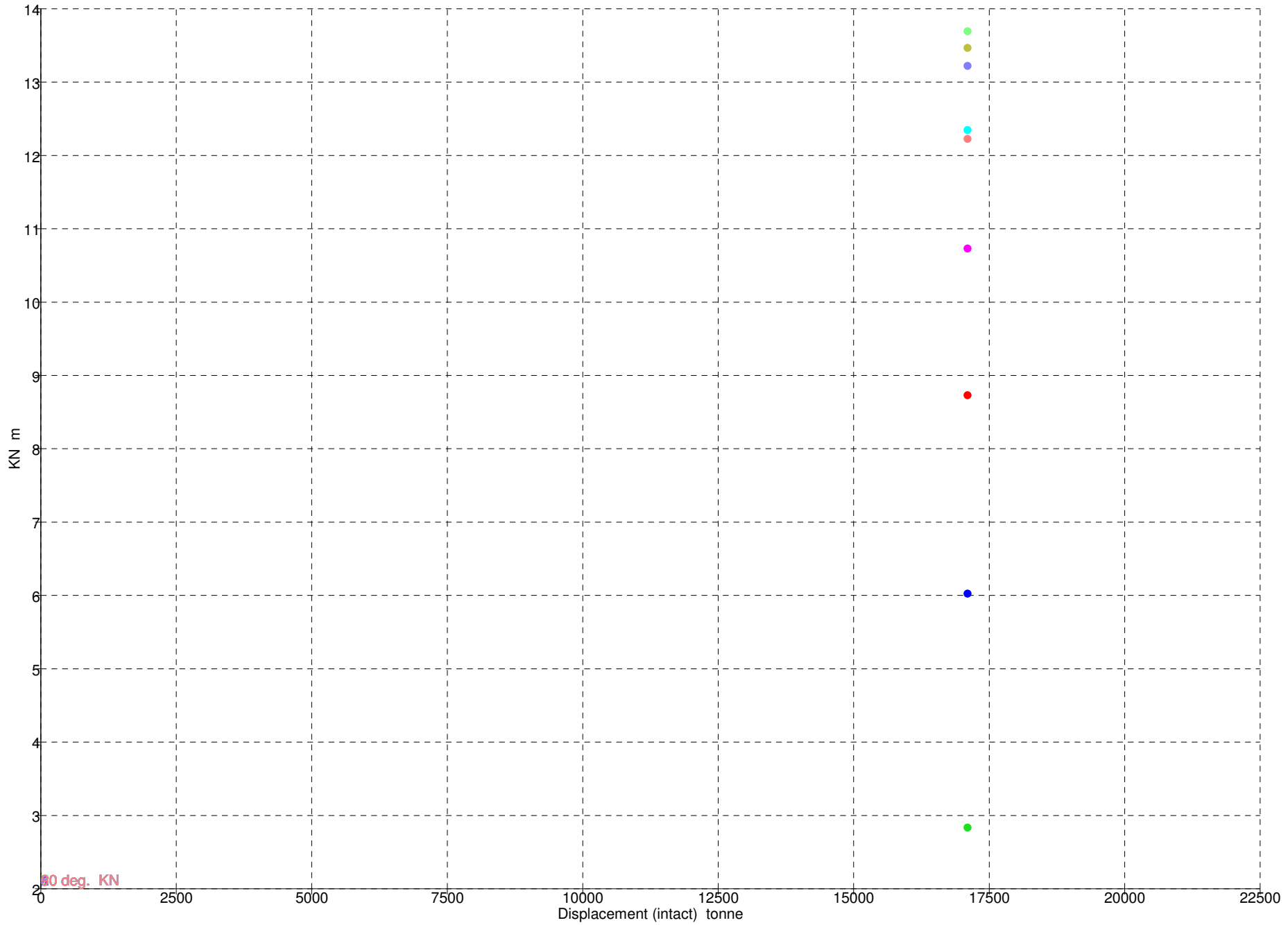
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.251	-4.070	-2.402	-0.436	1.608	3.556	5.093	6.029	6.725	7.076	6.803	6.018	4.913	3.648	2.366	1.082	-0.160
2	Area under GZ curve from zero heel	93.9539	47.0741	14.3262	-0.7916	5.8617	31.8778	75.6160	131.585	195.521	264.954	334.861	399.307	454.157	497.020	527.089	544.315	548.878
3	Displacement t	17104	17104	17105	17105	17107	17107	17107	17107	17105	17105	17105	17105	17106	17106	17106	17107	17106
4	Draft at FP m	7.194	8.256	8.824	9.064	8.956	8.468	7.509	6.023	3.928	0.843	-5.140	-23.764	n/a	-50.194	-31.143	-24.661	-21.363
5	Draft at AP m	5.966	6.769	7.144	7.207	7.232	6.944	6.257	4.848	2.275	-2.268	-10.755	-34.726	n/a	-57.728	-33.665	-25.353	-21.093
6	WL Length m	179.902	175.857	176.210	176.360	176.291	175.988	175.476	181.135	181.240	179.303	174.935	175.558	176.084	176.720	177.462	178.145	178.760
7	Beam max extents on WL m	29.200	29.973	28.640	28.205	28.640	29.995	29.703	26.936	26.108	23.094	21.283	20.308	20.000	20.308	21.195	21.621	20.404
8	Wetted Area m^2	5628.92	5812.73	5998.01	6121.88	6055.41	5900.80	5761.37	5538.59	5417.98	5307.24	5095.92	4991.51	4919.03	4877.13	4877.75	4900.60	4918.19
9	Waterpl. Area m^2	2959.26	3053.52	3084.02	3199.12	3220.51	3234.99	3089.24	3150.73	3324.67	3086.63	2737.37	2558.59	2507.41	2648.21	2820.22	2952.38	3099.41
10	Prismatic coeff. (Cp)	0.506	0.463	0.435	0.427	0.429	0.451	0.498	0.530	0.567	0.605	0.651	0.684	0.723	0.767	0.813	0.868	0.909
11	Block coeff. (Cb)	0.273	0.289	0.342	0.372	0.338	0.284	0.269	0.284	0.304	0.375	0.467	0.570	0.637	0.546	0.474	0.440	0.453
12	LCB from zero pt. (+ve fwd) m	75.176	75.178	75.176	75.176	75.182	75.181	75.180	75.161	75.191	75.212	75.242	75.259	75.257	75.241	75.214	75.179	75.153
13	LCF from zero pt. (+ve fwd) m	73.344	71.536	68.208	66.106	68.676	71.993	73.526	77.395	79.710	80.649	77.546	76.329	75.904	75.236	74.897	74.613	74.626
14	Max deck inclination deg	30.0020	20.0055	10.0159	0.6361	10.0167	20.0058	30.0021	40.0010	50.0010	60.0014	70.0014	80.0007	90.0000	99.9997	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	-0.4207	-0.5096	-0.5755	-0.6361	-0.5905	-0.5220	-0.4292	-0.4024	-0.5661	-1.0658	-1.9233	-3.7505	-90.000	-2.5797	-0.8640	-0.2373	0.0928



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	17105	6.126	-0.635 (fixed)	79.640	0.000	0.000	2.832	6.021	8.729	10.730	12.346	13.464	13.692	13.220	12.225



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.139		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.015		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	2.1	deg	2.1		
32		<i>to the lesser of</i>					
33		first downflooding angle	32.4	deg	32.4		
34		angle of vanishing stability	128.7	deg			
35		shall not be less than (>=)	15.0	deg	30.2	Pass	+101.49
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	2.1	deg	2.1		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	32.4	deg			
43		angle of vanishing stability	128.7	deg			
44		shall not be less than (>=)	0.8590	m.deg	39.8105	Pass	+4534.52
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	2.1	deg			
53		angle of equilibrium with heel arm	2.8, 2.1, 2.2	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(32.4), (32.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.9,	deg			
58		first flooding angle of the DownfloodingPoints	32.4	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.219	Pass	+12947.50
61		8.2.3.3: Launching heeling moment	0.040	m	5.358	Pass	+13295.00
62		8.2.3.3: Wind heeling arm	0.040	m	5.343	Pass	+13257.50
63		<i>Intermediate values</i>					
64		GZ(32.4 deg) heel arm A.		m	5.358		
65		HA(32.4 deg) heel arm A.		m	0.139		
66		GZ(32.4 deg) heel arm B.		m	5.358		
67		HA(32.4 deg) heel arm B.		m	0.000		
68		GZ(32.4 deg) heel arm C.		m	5.358		
69		HA(32.4 deg) heel arm C.		m	0.015		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	2.1	deg	2.1		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	32.4	deg	32.4		
79		shall not be less than (>=)	0.100	m	5.358	Pass	+5258.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	32.4		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	2.1	deg	2.1		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.078	Pass	+14056.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	2.1	deg	2.1		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	128.7	deg	128.7		
99		shall be greater than (>)	7.0	deg	126.5	Pass	+1707.86
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	11.629	Pass	+23158.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	2.1	Pass	+69.47
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	2.5	deg	2.5		
110		shall be less than (<)	100.00	%	85.94	Pass	+14.06
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	2.1		
113							

CONDICION N°:1

AVERIA

CASO N°:5

Academic Version

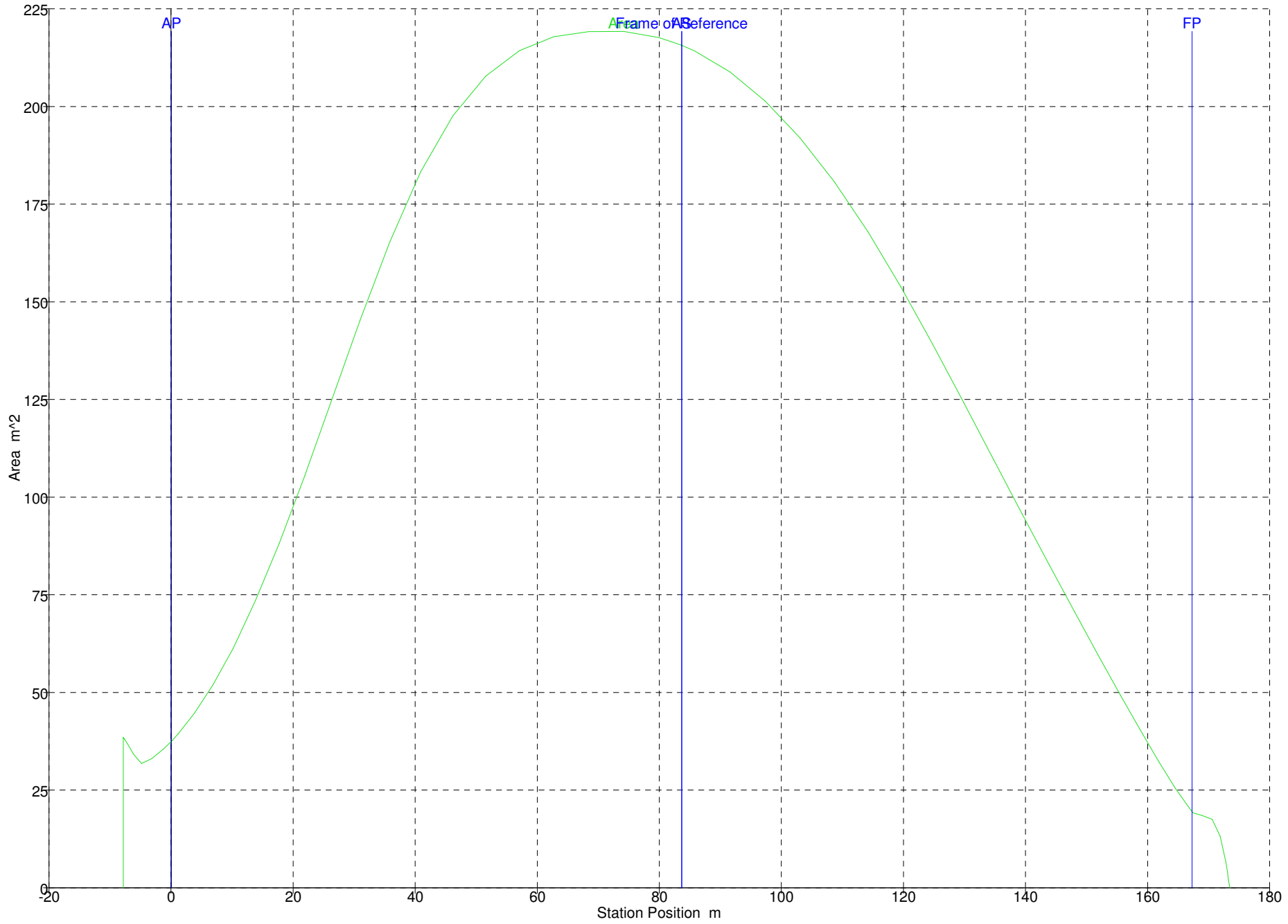
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
15	LASTRE 9 (Damaged)	Damaged									
16	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.502	IMO A.749(18)
17	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.432	IMO A.749(18)
18	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.595	IMO A.749(18)
19	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
20	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
21	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
22	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.577	IMO A.749(18)
23	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
24	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.130	IMO A.749(18)
25	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.333	IMO A.749(18)
26	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
27	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
28	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
29	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
30	ALMACEN F.O. 2 (Damaged)	Damaged									
31	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
32	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
33	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
34	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
35	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
36	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
37	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
38	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
39	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
40	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
41	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)
42	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 4 (Damaged)	Damaged									
44	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
45	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
46	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
47	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
49	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
50	LASTRE 11 (Damaged)	Damaged									
51	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
52	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			16896.493	4916.072	4238.359	75.319	-0.154	7.348	36.868	
55	FS correction								0.002		
56	VCG fluid								7.350		

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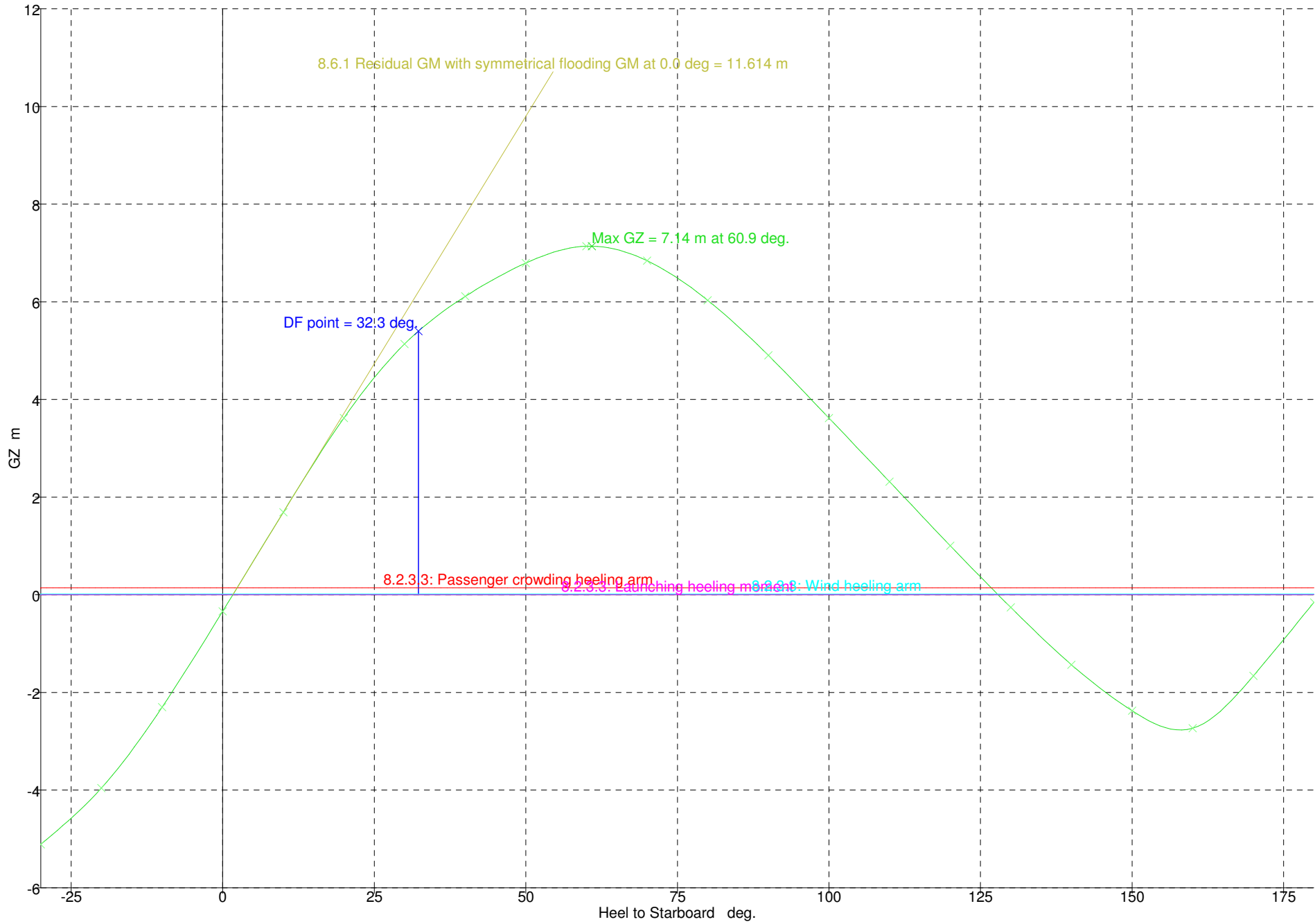
1	Draft Amidships m	8.038
2	Displacement t	16895
3	Heel deg	1.7
4	Draft at FP m	8.861
5	Draft at AP m	7.215
6	Draft at LCF m	7.863
7	Trim (+ve by stern) m	-1.646
8	WL Length m	176.232
9	Beam max extents on WL m	28.217
10	Wetted Area m ²	6080.06
11	Waterpl. Area m ²	3178.17
12	Prismatic coeff. (Cp)	0.427
13	Block coeff. (Cb)	0.376
14	Max Sect. area coeff. (Cm)	0.943
15	Waterpl. area coeff. (Cwp)	0.639
16	LCB from zero pt. (+ve fwd) m	75.340
17	LCF from zero pt. (+ve fwd) m	65.825
18	KB m	4.514
19	KG fluid m	7.350
20	BMt m	14.478
21	BML m	586.960
22	GMt corrected m	11.640
23	GML m	584.122
24	KMt m	18.984
25	KML m	591.194
26	Immersion (TPc) tonne/cm	32.576
27	MTc tonne.m	590.134
28	RM at 1deg = GMt.Disp.sin(1) t	3432.00
29	Max deck inclination deg	1.7703
30	Trim angle (+ve by stern) deg	-0.5639

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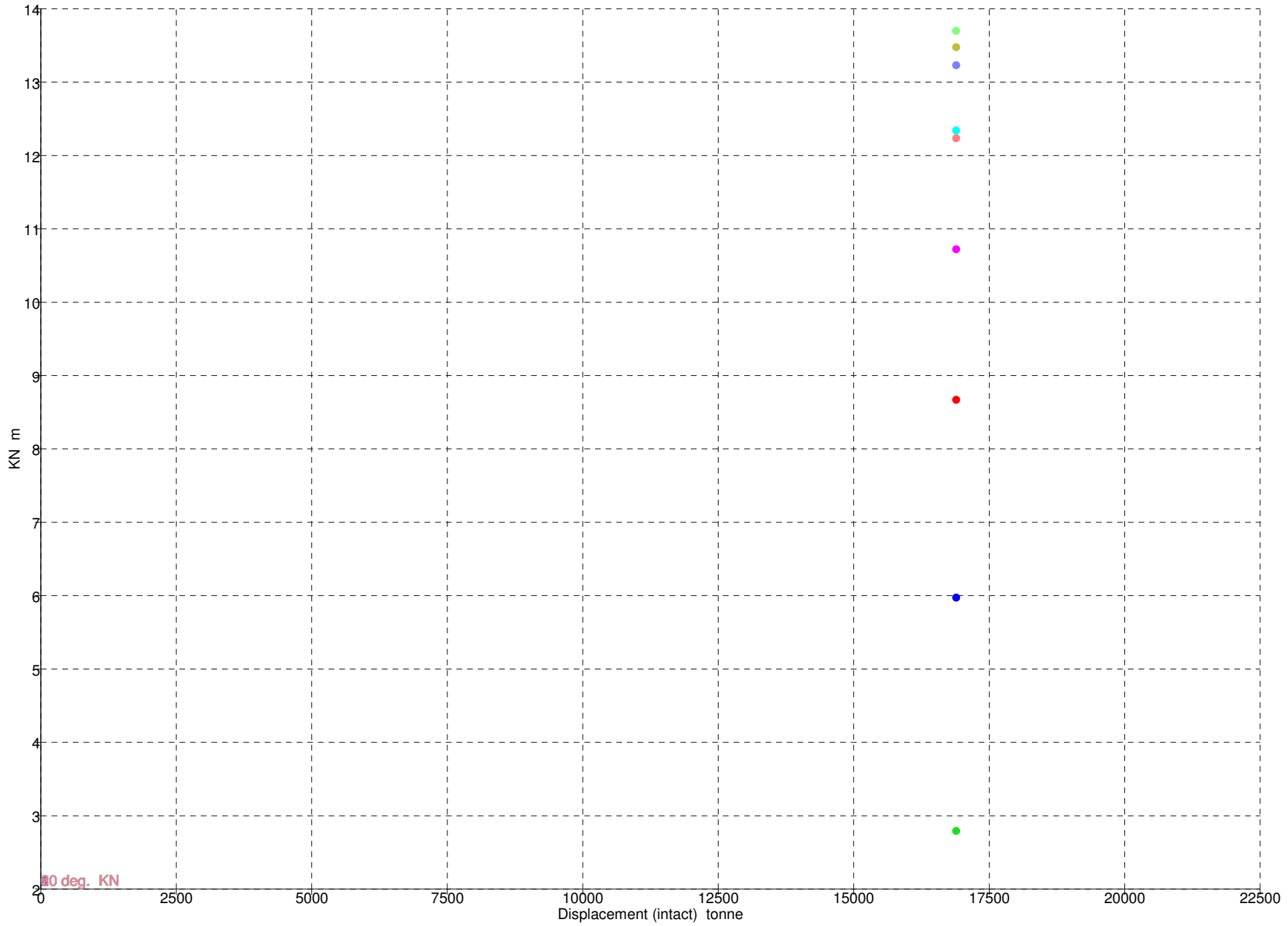
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.110	-3.957	-2.302	-0.338	1.691	3.622	5.136	6.110	6.793	7.139	6.842	6.032	4.904	3.619	2.316	1.005	-0.259
2	Area under GZ curve from zero heel	90.6477	45.0303	13.3319	-0.6137	6.7706	33.5399	77.7809	134.362	199.073	269.163	339.592	404.295	459.171	501.843	531.521	548.114	551.799
3	Displacement t	16896	16895	16897	16896	16896	16898	16898	16896	16896	16896	16897	16896	16896	16897	16896	16897	16897
4	Draft at FP m	7.040	8.091	8.634	8.858	8.739	8.251	7.276	5.825	3.731	0.599	-5.559	-24.620	n/a	-50.935	-31.428	-24.801	-21.442
5	Draft at AP m	5.895	6.733	7.129	7.205	7.244	6.961	6.271	4.869	2.286	-2.277	-10.773	-34.795	n/a	-57.885	-33.806	-25.491	-21.214
6	WL Length m	180.275	175.754	176.090	176.230	176.155	175.852	179.656	181.215	181.149	178.929	174.778	175.421	175.956	176.631	177.405	178.107	178.736
7	Beam max extents on WL m	29.007	29.961	28.640	28.205	28.640	29.988	29.563	26.785	26.100	23.094	21.283	20.308	20.000	20.308	21.182	21.540	20.263
8	Wetted Area m^2	5578.61	5769.48	5951.76	6076.52	6012.57	5860.16	5717.95	5505.85	5381.21	5273.29	5061.36	4959.50	4888.48	4848.56	4850.05	4872.02	4887.80
9	Waterpl. Area m^2	2926.50	3008.90	3053.30	3177.74	3163.56	3190.30	3070.37	3148.00	3316.30	3084.43	2729.37	2550.66	2500.83	2654.43	2814.43	2940.91	3087.30
10	Prismatic coeff. (Cp)	0.506	0.464	0.435	0.427	0.429	0.451	0.486	0.527	0.565	0.604	0.649	0.683	0.723	0.767	0.814	0.869	0.911
11	Block coeff. (Cb)	0.273	0.288	0.341	0.376	0.337	0.283	0.262	0.283	0.301	0.373	0.464	0.569	0.641	0.547	0.474	0.440	0.454
12	LCB from zero pt. (+ve fwd) m	75.328	75.344	75.342	75.342	75.349	75.347	75.343	75.340	75.355	75.377	75.406	75.421	75.429	75.403	75.391	75.360	75.320
13	LCF from zero pt. (+ve fwd) m	73.466	71.405	67.937	65.803	67.922	71.395	73.174	77.394	79.751	80.665	77.444	76.264	75.876	75.548	75.311	75.002	74.913
14	Max deck inclination deg	30.0017	20.0046	10.0127	0.5663	10.0126	20.0041	30.0013	40.0007	50.0007	60.0012	70.0012	80.0006	90.0000	99.9997	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	-0.3922	-0.4653	-0.5155	-0.5663	-0.5123	-0.4421	-0.3443	-0.3278	-0.4951	-0.9853	-1.7856	-3.4819	-90.000	-2.3798	-0.8147	-0.2362	0.0781



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16895	6.069	-0.564 (fixed)	79.560	0.000	0.000	2.791	5.971	8.669	10.718	12.339	13.472	13.699	13.228	12.233



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.141		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.015		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.7	deg	1.7		
32		<i>to the lesser of</i>					
33		first downflooding angle	32.3	deg	32.3		
34		angle of vanishing stability	127.9	deg			
35		shall not be less than (>=)	15.0	deg	30.6	Pass	+104.13
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.7	deg	1.7		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	32.3	deg			
43		angle of vanishing stability	127.9	deg			
44		shall not be less than (>=)	0.8590	m.deg	41.4123	Pass	+4720.99
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.7	deg			
53		angle of equilibrium with heel arm	2.4, 1.7, 1.7	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(32.3), (32.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.9,	deg			
58		first flooding angle of the DownfloodingPoints	32.3	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.258	Pass	+13045.00
61		8.2.3.3: Launching heeling moment	0.040	m	5.399	Pass	+13397.50
62		8.2.3.3: Wind heeling arm	0.040	m	5.384	Pass	+13360.00
63		<i>Intermediate values</i>					
64		GZ(32.3 deg) heel arm A.		m	5.399		
65		HA(32.3 deg) heel arm A.		m	0.141		
66		GZ(32.3 deg) heel arm B.		m	5.399		
67		HA(32.3 deg) heel arm B.		m	0.000		
68		GZ(32.3 deg) heel arm C.		m	5.399		
69		HA(32.3 deg) heel arm C.		m	0.015		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.7	deg	1.7		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	32.3	deg	32.3		
79		shall not be less than (>=)	0.100	m	5.399	Pass	+5299.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	32.3		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.7	deg	1.7		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.140	Pass	+14180.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.7	deg	1.7		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	127.9	deg	127.9		
99		shall be greater than (>)	7.0	deg	126.3	Pass	+1703.57
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	11.614	Pass	+23128.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.7	Pass	+76.20
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	3.4	deg	3.4		
110		shall be less than (<)	100.00	%	49.54	Pass	+50.46
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.7		
113							

CONDICION N°:1

AVERIA

CASO N°:6

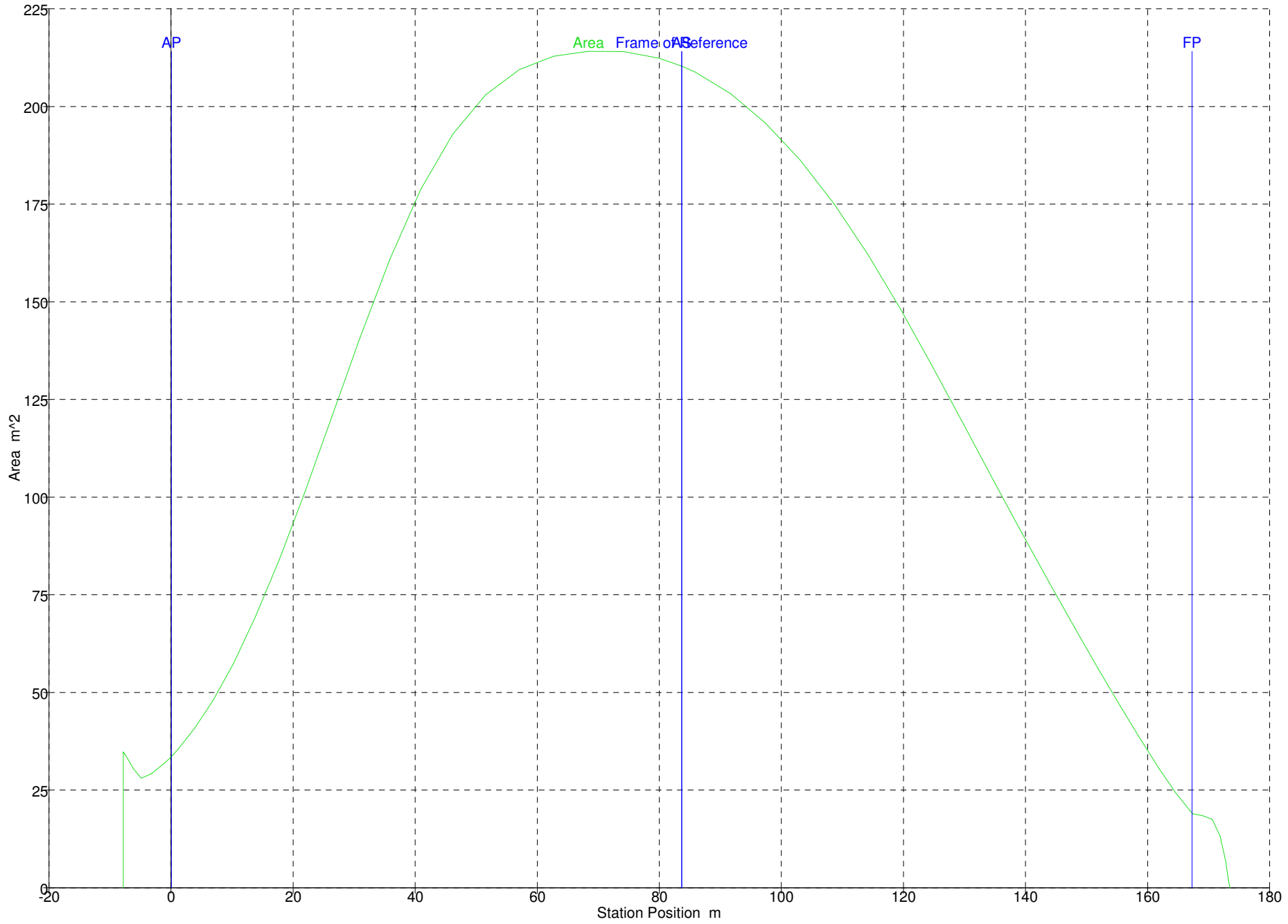
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	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
15	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
16	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.500	IMO A.749(18)
17	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.430	IMO A.749(18)
18	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.593	IMO A.749(18)
19	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
20	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
21	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
22	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.576	IMO A.749(18)
23	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
24	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.129	IMO A.749(18)
25	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.332	IMO A.749(18)
26	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
27	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
28	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
29	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
30	ALMACEN F.O. 2 (Damaged)	Damaged									
31	ALMACEN D.O. (Damaged)	Damaged									
32	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
33	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
34	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
35	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
36	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
37	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
38	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
39	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
40	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
41	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)
42	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 4 (Damaged)	Damaged									
44	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
45	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
46	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
47	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
49	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
50	LASTRE 11 (Damaged)	Damaged									
51	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
52	LASTRE 13 (Damaged)	Damaged									
53	ALMACEN F.O. 5 (Damaged)	Damaged									
54	Total Loadcase			16421.845	4776.861	3747.731	75.940	-0.311	7.467	36.858	
55	FS correction								0.002		
56	VCG fluid								7.470		

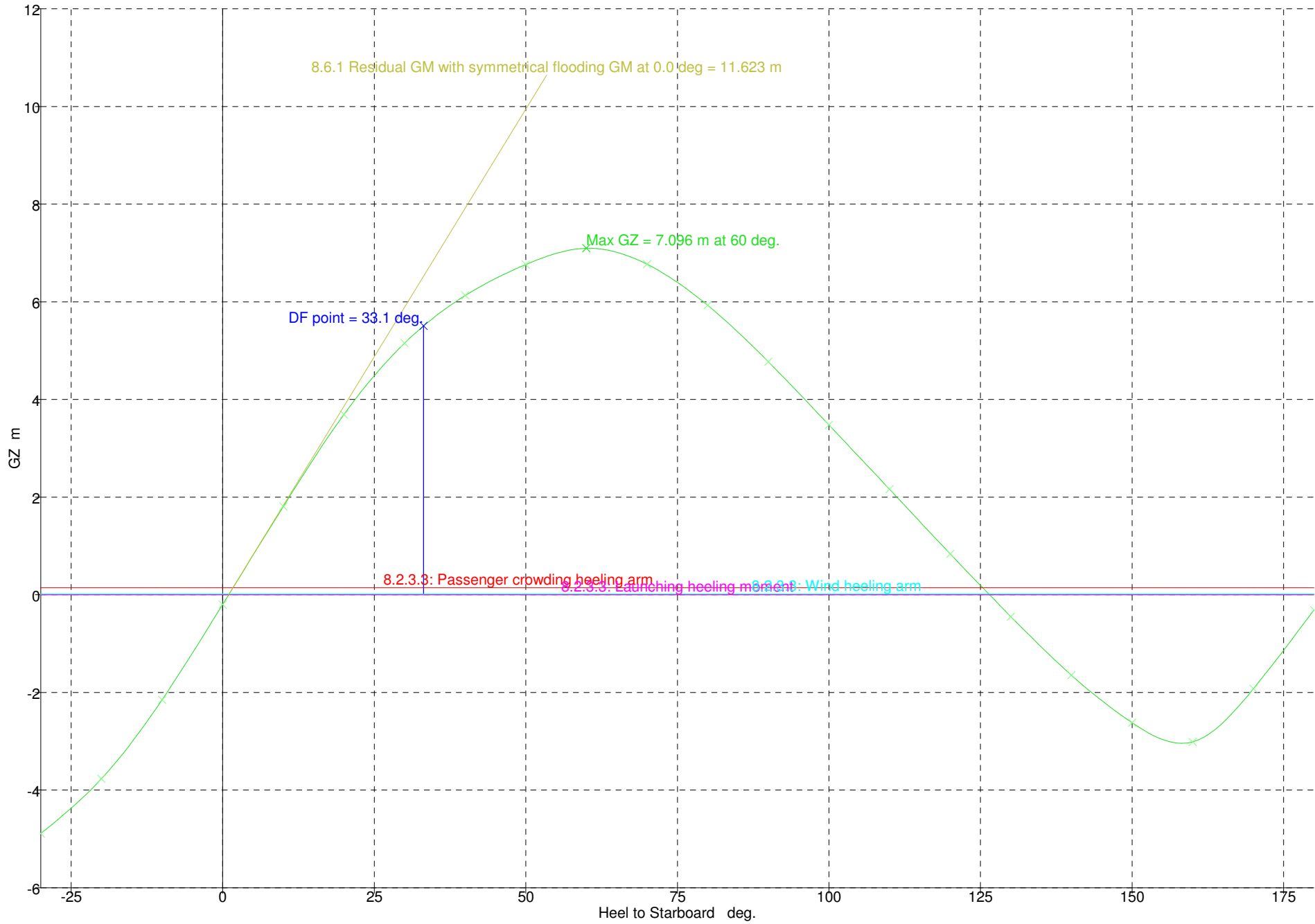
Academic Version

1	Draft Amidships m	7.850
2	Displacement t	16422
3	Heel deg	1.1
4	Draft at FP m	8.622
5	Draft at AP m	7.078
6	Draft at LCF m	7.681
7	Trim (+ve by stern) m	-1.544
8	WL Length m	176.084
9	Beam max extents on WL m	28.209
10	Wetted Area m ²	5996.33
11	Waterpl. Area m ²	3149.56
12	Prismatic coeff. (Cp)	0.425
13	Block coeff. (Cb)	0.376
14	Max Sect. area coeff. (Cm)	0.960
15	Waterpl. area coeff. (Cwp)	0.634
16	LCB from zero pt. (+ve fwd) m	75.960
17	LCF from zero pt. (+ve fwd) m	65.358
18	KB m	4.378
19	KG fluid m	7.470
20	BMt m	14.731
21	BML m	591.201
22	GMt corrected m	11.638
23	GML m	588.109
24	KMt m	19.106
25	KML m	595.454
26	Immersion (TPc) tonne/cm	32.283
27	MTc tonne.m	577.529
28	RM at 1deg = GMt.Disp.sin(1) t	3335.54
29	Max deck inclination deg	1.1788
30	Trim angle (+ve by stern) deg	-0.5291



Academic Version

	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.889	-3.767	-2.151	-0.198	1.807	3.693	5.154	6.128	6.762	7.096	6.768	5.928	4.773	3.477	2.161	0.838	-0.446
2	Area under GZ curve from zero heel	85.4398	41.8855	11.8853	-0.3596	8.0680	35.7943	80.4439	137.209	201.869	271.569	341.433	405.247	458.943	500.245	528.440	543.423	545.343
3	Displacement t	16421	16422	16422	16422	16422	16423	16423	16423	16421	16422	16422	16421	16423	16421	16422	16422	16422
4	Draft at FP m	6.897	7.916	8.420	8.621	8.494	8.019	7.035	5.618	3.537	0.360	-5.968	-25.477	n/a	-51.595	-31.682	-24.922	-21.506
5	Draft at AP m	5.622	6.518	6.963	7.070	7.110	6.810	6.093	4.672	2.028	-2.659	-11.381	-36.080	n/a	-59.243	-34.499	-25.971	-21.587
6	WL Length m	180.401	175.655	175.958	176.083	176.003	175.709	180.284	181.261	181.065	178.400	174.627	175.285	175.827	176.555	177.356	178.078	178.718
7	Beam max extents on WL m	28.596	29.921	28.640	28.205	28.640	29.964	29.219	26.476	25.885	23.094	21.283	20.308	20.000	20.308	21.142	21.324	19.922
8	Wetted Area m^2	5482.01	5678.90	5850.41	5993.95	5914.99	5774.16	5623.82	5418.25	5302.19	5198.01	4988.11	4883.59	4815.68	4780.24	4785.08	4807.19	4818.74
9	Waterpl. Area m^2	2872.50	2926.64	3001.54	3149.18	3084.45	3105.37	3027.05	3104.32	3283.34	3084.56	2727.51	2540.59	2492.97	2682.66	2813.25	2928.52	3060.49
10	Prismatic coeff. (Cp)	0.506	0.464	0.434	0.425	0.427	0.450	0.484	0.525	0.563	0.603	0.649	0.684	0.725	0.770	0.817	0.872	0.917
11	Block coeff. (Cb)	0.273	0.286	0.338	0.376	0.334	0.280	0.261	0.282	0.299	0.369	0.460	0.566	0.637	0.540	0.466	0.435	0.458
12	LCB from zero pt. (+ve fwd) m	75.968	75.967	75.966	75.965	75.972	75.969	75.965	75.953	75.979	76.007	76.036	76.052	76.050	76.047	76.021	75.991	75.953
13	LCF from zero pt. (+ve fwd) m	73.920	71.505	68.092	65.344	67.729	70.987	73.087	77.519	80.284	80.739	77.550	76.139	75.820	75.996	75.739	75.424	75.306
14	Max deck inclination deg	30.0022	20.0049	10.0120	0.5314	10.0108	20.0036	30.0012	40.0006	50.0008	60.0013	70.0013	80.0006	90.0000	99.9997	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	-0.4369	-0.4787	-0.4994	-0.5314	-0.4740	-0.4140	-0.3227	-0.3242	-0.5172	-1.0342	-1.8539	-3.6278	-90.000	-2.6188	-0.9648	-0.3593	-0.0276



8.6.1 Residual GM with symmetrical flooding GM at 0.0 deg = 11.623 m

Max GZ = 7.096 m at 60 deg.

DF point = 33.1 deg.

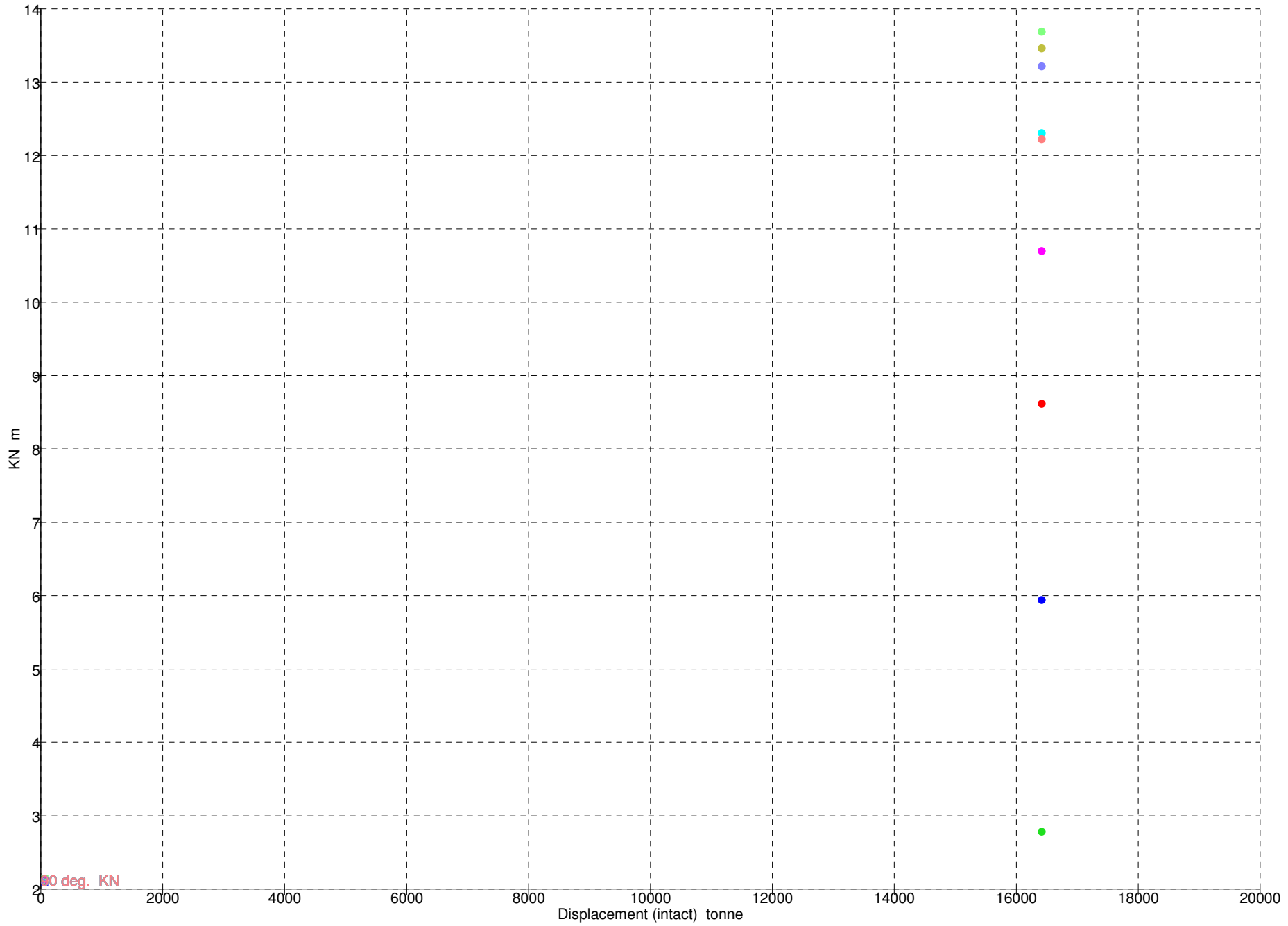
8.2.3.3: Passenger crowding heeling arm

8.2.3.3: Launching heeling arm

8.2.3.3: Wind heeling arm

Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16422	5.947	-0.529 (fixed)	79.689	0.000	0.000	2.779	5.938	8.612	10.694	12.303	13.460	13.684	13.213	12.219



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.145		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.0	deg	1.0		
32		<i>to the lesser of</i>					
33		first downflooding angle	33.1	deg	33.1		
34		angle of vanishing stability	126.5	deg			
35		shall not be less than (>=)	15.0	deg	32.2	Pass	+114.41
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.0	deg	1.0		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	33.1	deg			
43		angle of vanishing stability	126.5	deg			
44		shall not be less than (>=)	0.8590	m.deg	43.6118	Pass	+4977.05
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.0	deg			
53		angle of equilibrium with heel arm	1.7, 1.0, 1.1	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(33.1), (33.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.0, 60.0,	deg			
58		first flooding angle of the DownfloodingPoints	33.1	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.363	Pass	+13307.50
61		8.2.3.3: Launching heeling moment	0.040	m	5.507	Pass	+13667.50
62		8.2.3.3: Wind heeling arm	0.040	m	5.492	Pass	+13630.00
63		<i>Intermediate values</i>					
64		GZ(33.1 deg) heel arm A.		m	5.507		
65		HA(33.1 deg) heel arm A.		m	0.145		
66		GZ(33.1 deg) heel arm B.		m	5.507		
67		HA(33.1 deg) heel arm B.		m	0.000		
68		GZ(33.1 deg) heel arm C.		m	5.507		
69		HA(33.1 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.0	deg	1.0		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.0	deg			
78		first downflooding angle	33.1	deg	33.1		
79		shall not be less than (>=)	0.100	m	5.507	Pass	+5407.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	33.1		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.0	deg	1.0		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.0	deg	60.0		
89		shall be greater than (>)	0.050	m	7.096	Pass	+14092.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.0		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.0	deg	1.0		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	126.5	deg	126.5		
99		shall be greater than (>)	7.0	deg	125.5	Pass	+1692.87
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	11.623	Pass	+23146.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.0	Pass	+85.96
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	4.4	deg	4.4		
110		shall be less than (<)	100.00	%	22.56	Pass	+77.44
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.0		
113							

CONDICION N°:1

AVERIA

CASO N°:7

Academic Version

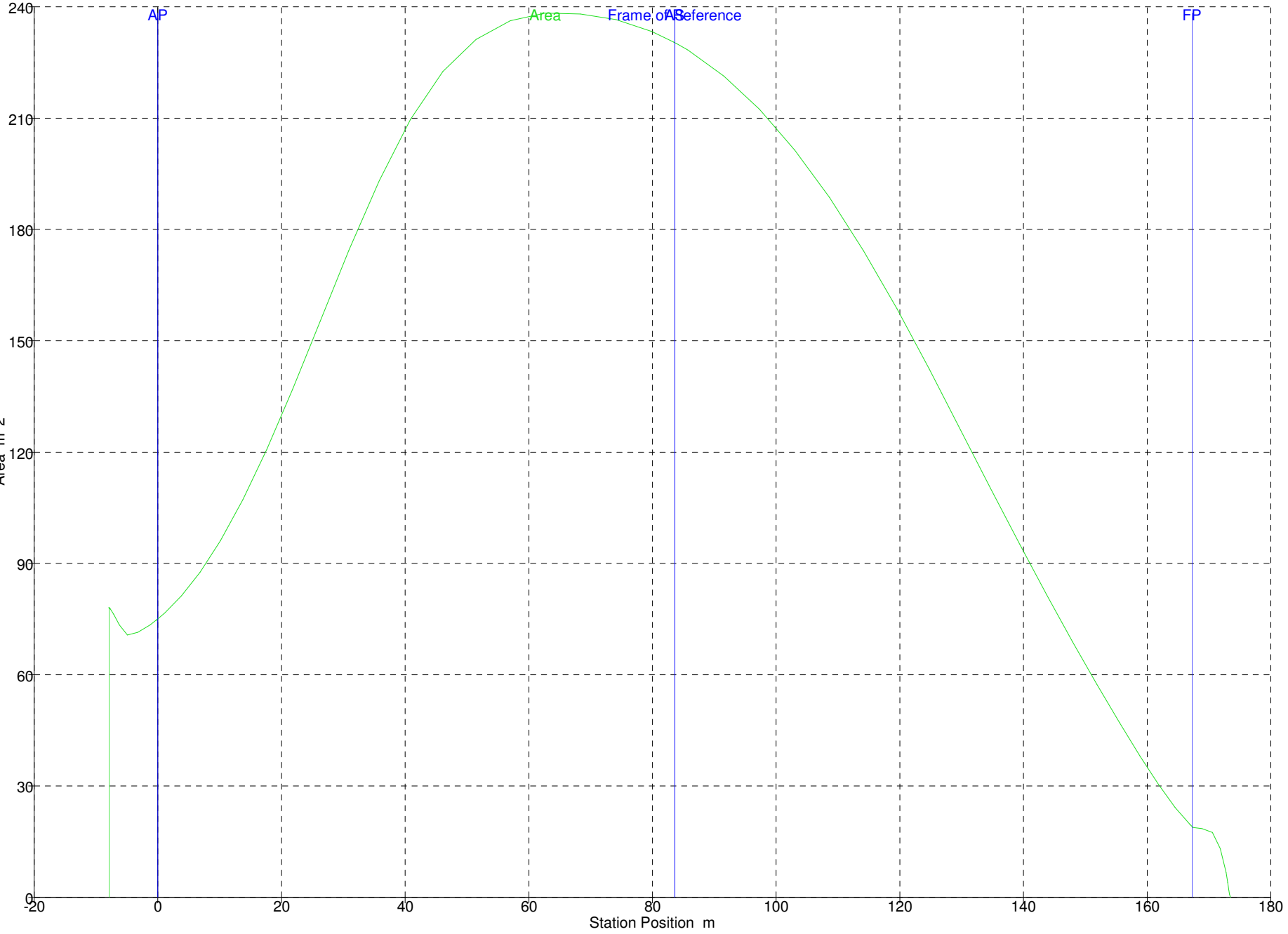
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
15	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
16	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.499	IMO A.749(18)
17	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.429	IMO A.749(18)
18	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.593	IMO A.749(18)
19	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
20	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
21	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
22	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.575	IMO A.749(18)
23	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
24	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.128	IMO A.749(18)
25	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.332	IMO A.749(18)
26	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
27	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
28	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
29	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
30	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
31	ALMACEN D.O. (Damaged)	Damaged									
32	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
33	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
34	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
35	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
36	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
37	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
38	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
39	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
40	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
41	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)
42	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
44	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
45	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
46	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
47	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
49	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
50	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
51	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
52	LASTRE 13 (Damaged)	Damaged									
53	ALMACEN F.O. 5 (Damaged)	Damaged									
54	Total Loadcase			16630.791	5282.024	3969.002	75.760	-0.171	7.449	36.854	
55	FS correction								0.002		
56	VCG fluid								7.452		

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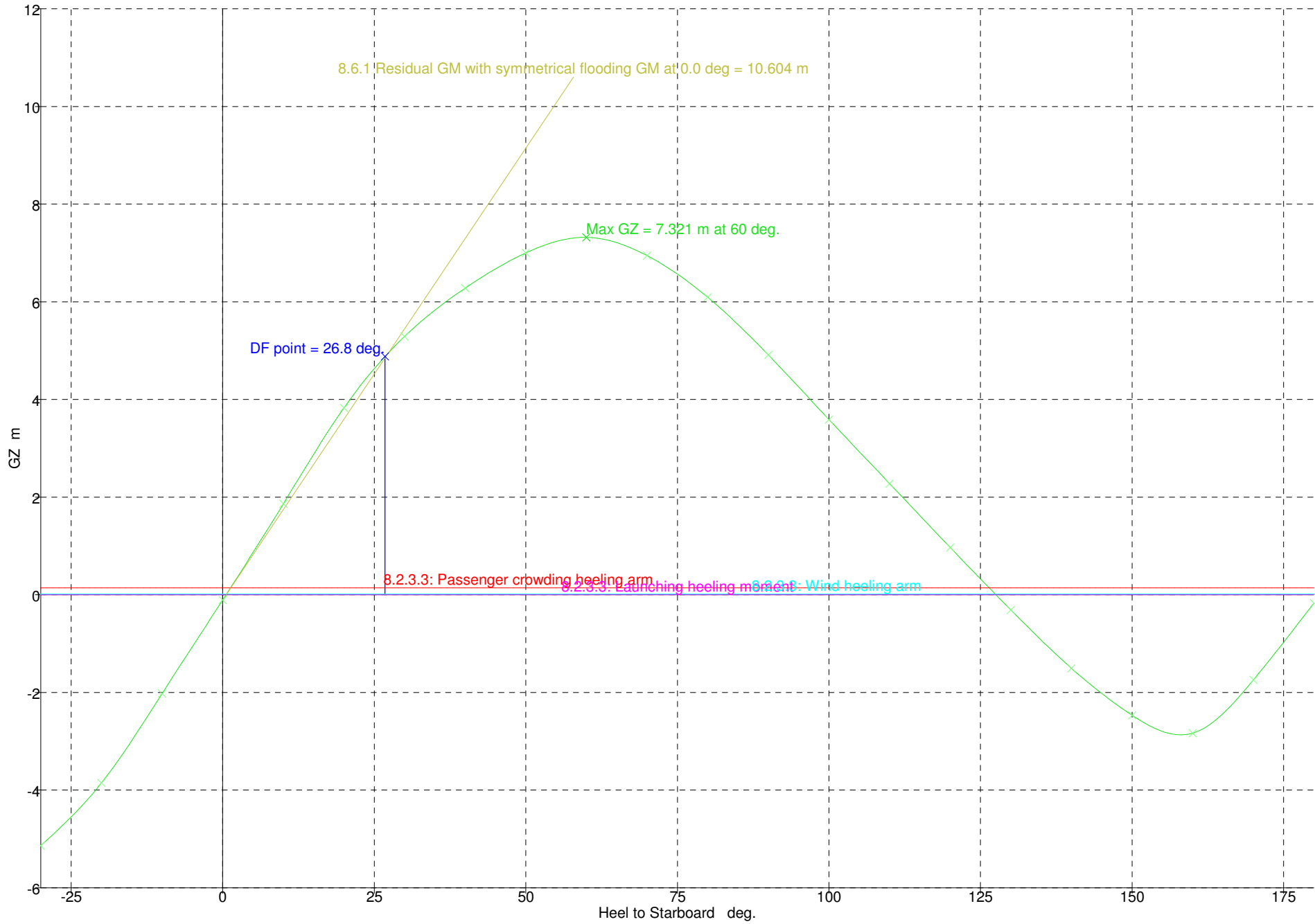
1	Draft Amidships m	8.560
2	Displacement t	16631
3	Heel deg	0.6
4	Draft at FP m	8.574
5	Draft at AP m	8.546
6	Draft at LCF m	8.558
7	Trim (+ve by stern) m	-0.028
8	WL Length m	176.041
9	Beam max extents on WL m	28.206
10	Wetted Area m ²	6309.00
11	Waterpl. Area m ²	2759.08
12	Prismatic coeff. (Cp)	0.387
13	Block coeff. (Cb)	0.377
14	Max Sect. area coeff. (Cm)	0.975
15	Waterpl. area coeff. (Cwp)	0.556
16	LCB from zero pt. (+ve fwd) m	75.754
17	LCF from zero pt. (+ve fwd) m	69.762
18	KB m	4.829
19	KG fluid m	7.452
20	BMt m	13.233
21	BML m	572.672
22	GMt corrected m	10.610
23	GML m	570.049
24	KMt m	18.061
25	KML m	577.470
26	Immersion (TPc) tonne/cm	28.281
27	MTc tonne.m	566.916
28	RM at 1deg = GMt.Disp.sin(1) t	3079.62
29	Max deck inclination deg	0.5999
30	Trim angle (+ve by stern) deg	-0.0094

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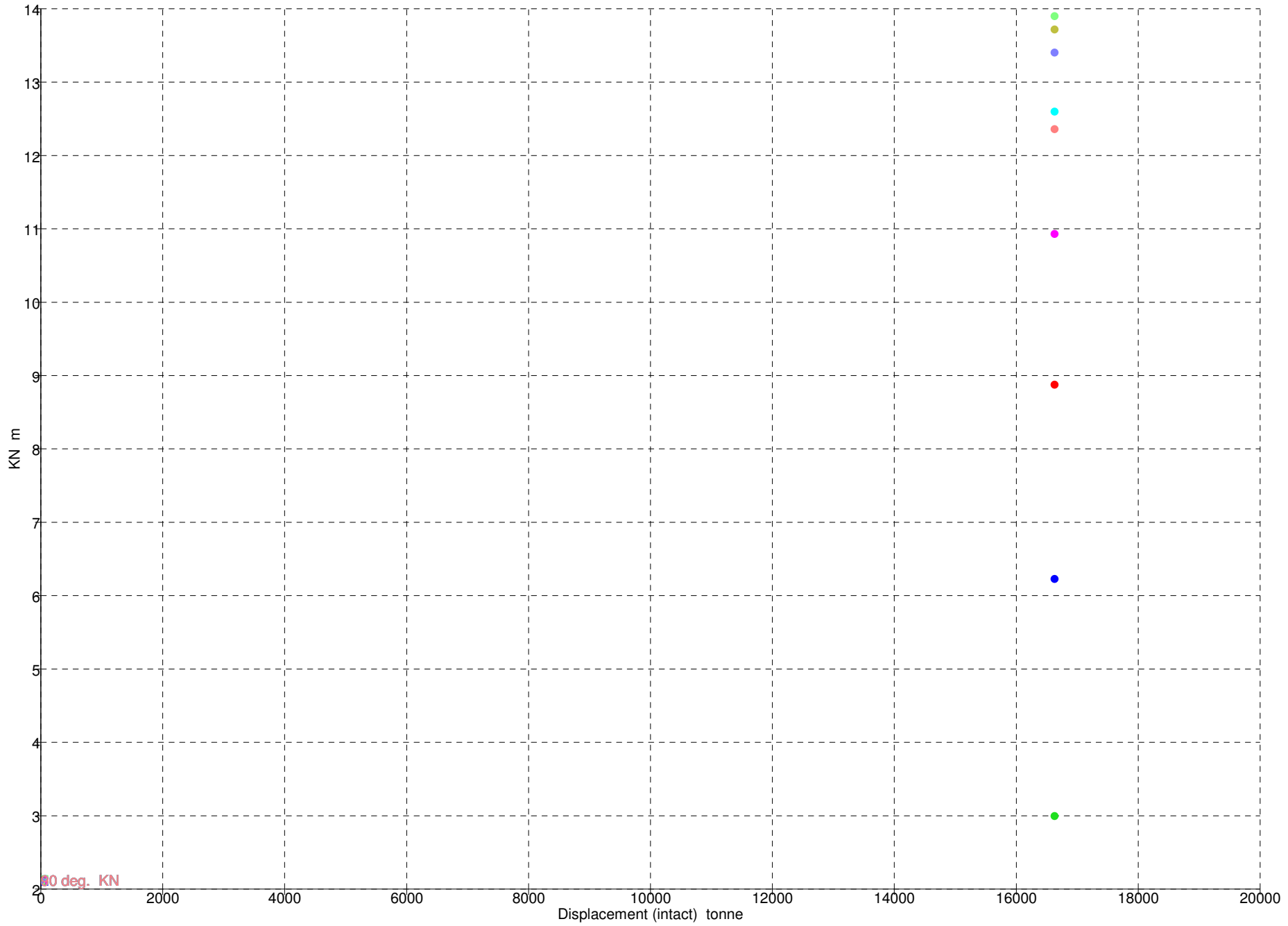
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.136	-3.855	-2.023	-0.106	1.863	3.827	5.291	6.282	7.002	7.321	6.945	6.092	4.912	3.588	2.278	0.968	-0.310
2	Area under GZ curve from zero heel	85.6391	40.3344	10.6332	-0.1925	8.6967	37.3610	83.4275	141.573	208.211	280.315	352.170	417.677	472.902	515.435	544.750	560.976	564.234
3	Displacement t	16631	16632	16631	16631	16631	16631	16631	16631	16631	16631	16631	16631	16631	16631	16631	16631	16631
4	Draft at FP m	6.722	7.738	8.358	8.572	8.381	7.768	6.764	5.333	3.238	-0.006	-6.537	-26.513	n/a	-52.354	-31.940	-25.003	-21.509
5	Draft at AP m	7.219	8.110	8.468	8.545	8.533	8.249	7.466	5.974	3.336	-1.054	-9.204	-32.227	n/a	-56.798	-33.531	-25.475	-21.322
6	WL Length m	180.607	175.570	175.909	176.040	175.923	175.583	180.576	181.335	180.905	177.333	174.411	175.094	175.681	176.459	177.299	178.053	178.716
7	Beam max extents on WL m	30.138	30.015	28.640	28.205	28.640	30.015	30.383	27.339	26.108	23.094	21.283	20.308	20.000	20.308	21.180	21.501	20.138
8	Wetted Area m^2	5814.41	6052.01	6270.02	6308.09	6289.54	6094.74	5880.56	5629.49	5485.87	5332.72	5106.14	4985.53	4898.10	4842.30	4837.88	4854.60	4861.08
9	Waterpl. Area m^2	2861.19	2991.83	3008.96	2758.65	3081.18	3082.18	2933.02	3069.25	3247.05	2945.31	2607.17	2414.32	2372.92	2571.71	2758.95	2885.35	3025.55
10	Prismatic coeff. (Cp)	0.454	0.417	0.393	0.387	0.391	0.412	0.444	0.491	0.534	0.580	0.626	0.663	0.707	0.755	0.804	0.863	0.908
11	Block coeff. (Cb)	0.245	0.267	0.313	0.381	0.312	0.265	0.240	0.264	0.289	0.362	0.450	0.552	0.654	0.553	0.474	0.438	0.453
12	LCB from zero pt. (+ve fwd) m	75.762	75.759	75.755	75.745	75.761	75.756	75.756	75.733	75.748	75.785	75.798	75.812	75.817	75.819	75.806	75.784	75.757
13	LCF from zero pt. (+ve fwd) m	74.355	71.684	68.567	69.754	68.427	71.251	73.843	77.596	80.513	82.082	79.039	77.931	77.638	77.339	76.942	76.500	76.132
14	Max deck inclination deg	30.0003	20.0003	10.0001	0.0093	10.0001	20.0006	30.0007	40.0003	50.0000	60.0002	70.0003	80.0002	90.0000	99.9999	109.999	120.000	130.000
15	Trim angle (+ve by stern) deg	0.1702	0.1277	0.0378	-0.0093	0.0518	0.1649	0.2408	0.2194	0.0336	-0.3591	-0.9137	-1.9570	-90.000	-1.5223	-0.5451	-0.1616	0.0638



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16631	5.959	-0.009 (fixed)	78.223	0.000	0.000	2.994	6.225	8.873	10.928	12.597	13.717	13.898	13.400	12.355



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.143		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.015		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.6	deg	0.6		
32		<i>to the lesser of</i>					
33		first downflooding angle	26.8	deg	26.8		
34		angle of vanishing stability	127.5	deg			
35		shall not be less than (>=)	15.0	deg	26.2	Pass	+74.91
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.6	deg	0.6		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	26.8	deg			
43		angle of vanishing stability	127.5	deg			
44		shall not be less than (>=)	0.8590	m.deg	45.3883	Pass	+5183.85
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.6	deg			
53		angle of equilibrium with heel arm	1.3, 0.6, 0.6	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(26.8), (26.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.0, 60.0,	deg			
58		first flooding angle of the DownfloodingPoints	26.8	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	4.739	Pass	+11747.50
61		8.2.3.3: Launching heeling moment	0.040	m	4.882	Pass	+12105.00
62		8.2.3.3: Wind heeling arm	0.040	m	4.866	Pass	+12065.00
63		<i>Intermediate values</i>					
64		GZ(26.8 deg) heel arm A.		m	4.882		
65		HA(26.8 deg) heel arm A.		m	0.143		
66		GZ(26.8 deg) heel arm B.		m	4.882		
67		HA(26.8 deg) heel arm B.		m	0.000		
68		GZ(26.8 deg) heel arm C.		m	4.882		
69		HA(26.8 deg) heel arm C.		m	0.015		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.6	deg	0.6		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.0	deg			
78		first downflooding angle	26.8	deg	26.8		
79		shall not be less than (>=)	0.100	m	4.882	Pass	+4782.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	26.8		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.6	deg	0.6		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.0	deg	60.0		
89		shall be greater than (>)	0.050	m	7.321	Pass	+14542.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.0		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.6	deg	0.6		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	127.5	deg	127.5		
99		shall be greater than (>)	7.0	deg	127.0	Pass	+1714.23
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	10.604	Pass	+21108.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.6	Pass	+92.14
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	4.0	deg	4.0		
110		shall be less than (<)	100.00	%	13.72	Pass	+86.28
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.6		
113							

CONDICION N°:1

AVERIA

CASO N°:8

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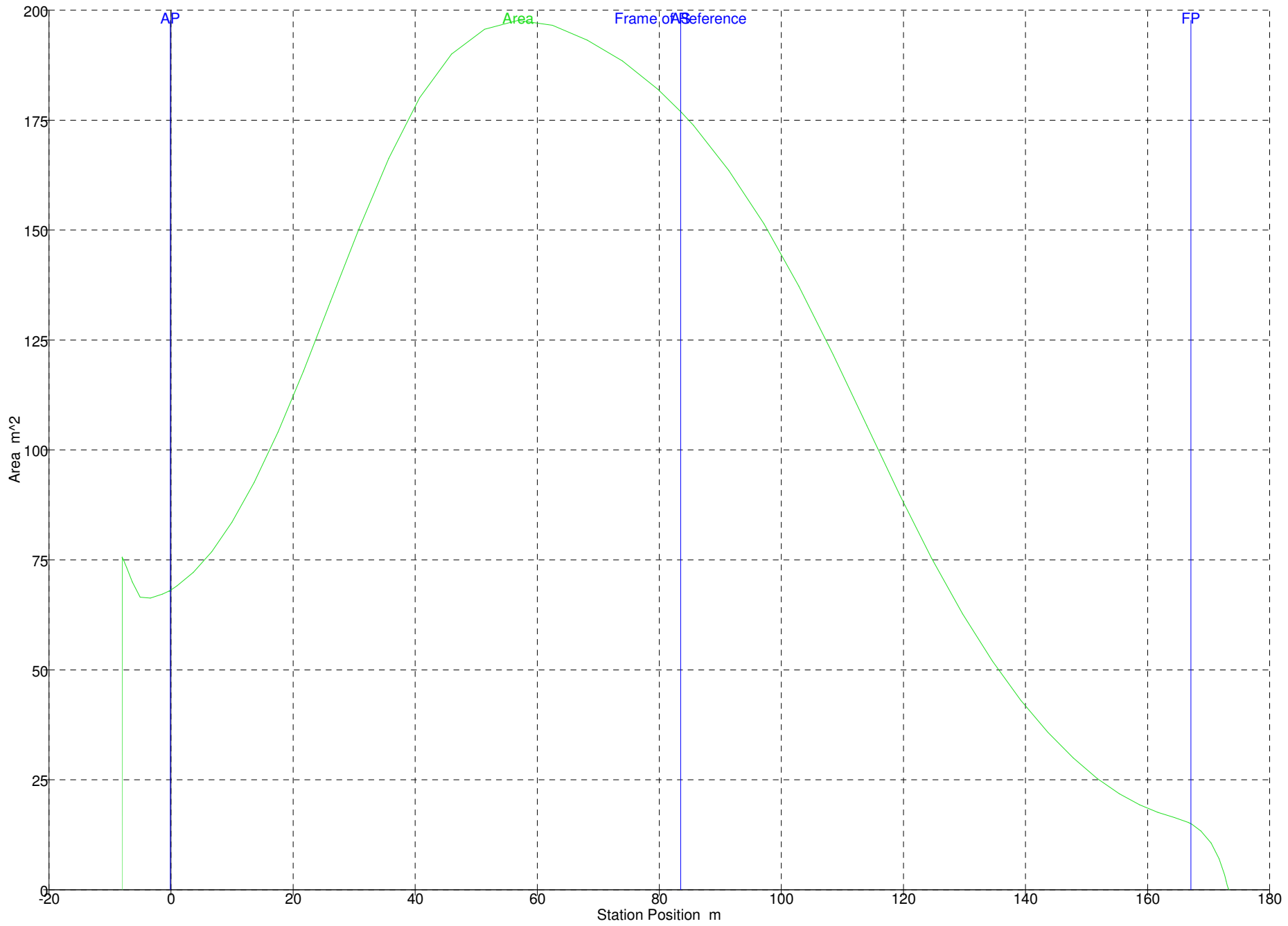
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
15	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
16	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.498	IMO A.749(18)
17	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.429	IMO A.749(18)
18	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.592	IMO A.749(18)
19	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
20	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
21	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
22	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.575	IMO A.749(18)
23	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
24	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.128	IMO A.749(18)
25	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.332	IMO A.749(18)
26	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
27	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
28	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
29	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
30	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
31	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
32	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
33	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
34	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
35	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
36	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
37	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
38	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
39	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
40	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
41	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)
42	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
44	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
45	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
46	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
47	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
49	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
50	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
51	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
52	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			17105.439	5772.652	4459.630	75.151	-0.020	7.332	36.853	
55	FS correction								0.002		
56	VCG fluid								7.334		

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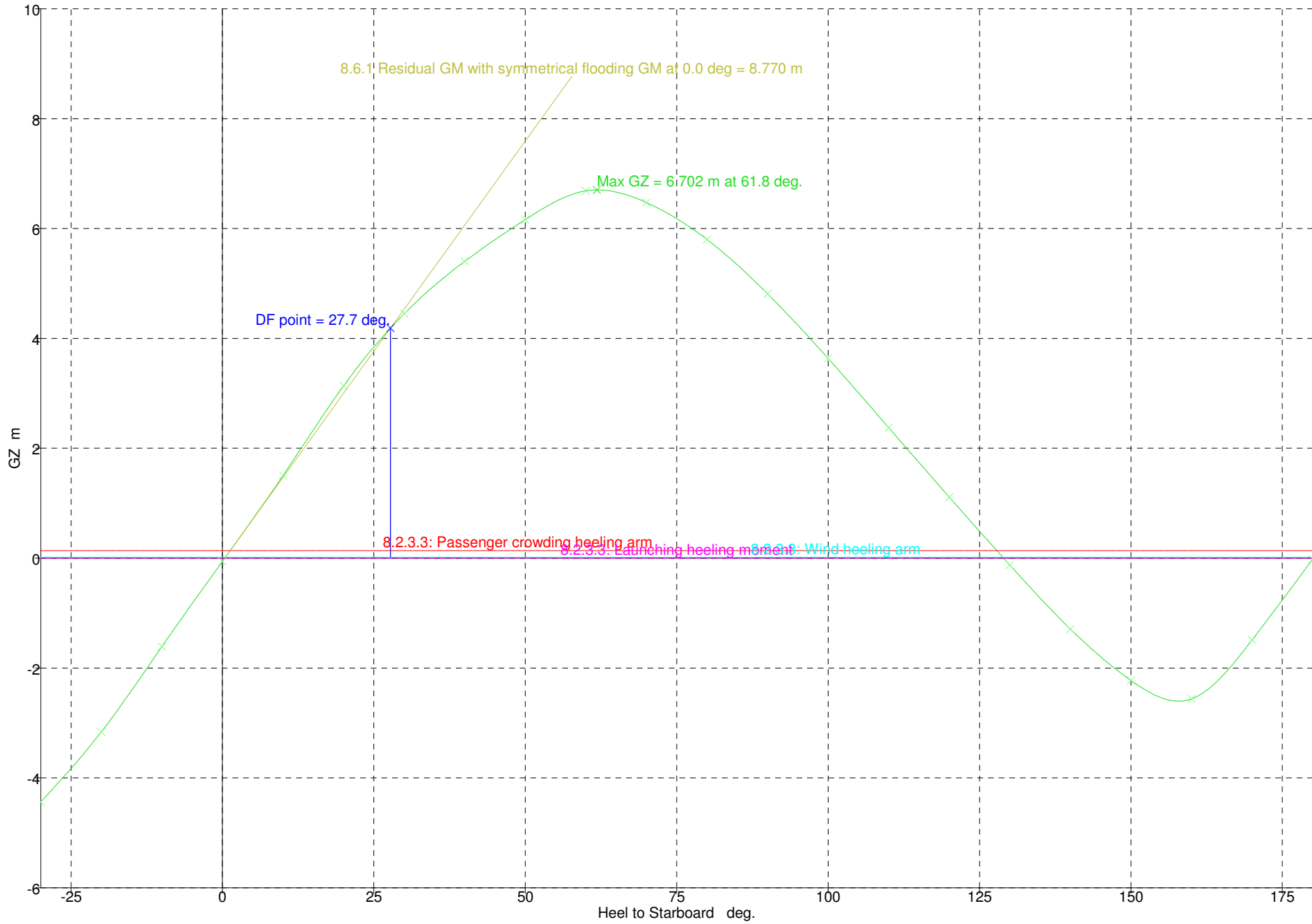
1	Draft Amidships m	6.667
2	Displacement t	17105
3	Heel deg	0.4
4	Draft at FP m	5.034
5	Draft at AP m	8.301
6	Draft at LCF m	6.880
7	Trim (+ve by stern) m	3.267
8	WL Length m	181.410
9	Beam max extents on WL m	28.205
10	Wetted Area m ²	5448.16
11	Waterpl. Area m ²	3465.87
12	Prismatic coeff. (Cp)	0.465
13	Block coeff. (Cb)	0.449
14	Max Sect. area coeff. (Cm)	0.971
15	Waterpl. area coeff. (Cwp)	0.677
16	LCB from zero pt. (+ve fwd) m	75.090
17	LCF from zero pt. (+ve fwd) m	72.748
18	KB m	4.027
19	KG fluid m	7.334
20	BMt m	12.080
21	BML m	451.645
22	GMt corrected m	8.771
23	GML m	448.337
24	KMt m	16.104
25	KML m	455.577
26	Immersion (TPc) tonne/cm	35.525
27	MTc tonne.m	458.599
28	RM at 1deg = GMt.Disp.sin(1) t	2618.54
29	Max deck inclination deg	1.1751
30	Trim angle (+ve by stern) deg	1.1193

Academic Version



Academic Version

	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.438	-3.162	-1.608	-0.058	1.506	3.137	4.451	5.403	6.163	6.686	6.473	5.801	4.813	3.637	2.376	1.112	-0.124
2	Area under GZ curve from zero heel	70.4612	32.2742	8.2845	-0.1060	7.1515	30.4581	68.7375	118.240	176.167	240.849	307.200	368.857	422.140	464.493	494.586	512.008	516.922
3	Displacement t	17104	17104	17105	17105	17105	17105	17105	17106	17105	17105	17105	17105	17105	17105	17106	17106	17106
4	Draft at FP m	4.244	4.649	4.898	5.032	4.893	4.613	4.203	3.325	1.652	-1.635	-8.565	-29.412	n/a	-53.047	-32.167	-25.094	-21.527
5	Draft at AP m	7.022	7.941	8.310	8.302	8.323	8.024	7.133	5.590	3.002	-1.283	-9.159	-31.487	n/a	-54.921	-32.569	-24.842	-20.870
6	WL Length m	181.287	181.353	181.393	181.410	181.392	181.350	181.283	180.879	179.653	172.344	173.623	174.579	175.427	176.373	177.250	178.025	178.707
7	Beam max extents on WL m	28.247	29.826	28.640	28.205	28.640	29.840	28.355	25.900	25.256	23.094	21.283	20.308	20.000	20.308	21.212	21.710	20.540
8	Wetted Area m^2	5203.36	5300.49	5446.64	5448.07	5448.26	5314.96	5221.40	5129.25	5134.92	5043.62	4953.53	4916.37	4894.77	4886.97	4892.30	4916.16	4931.46
9	Waterpl. Area m^2	3560.76	3555.87	3555.95	3465.74	3594.82	3593.52	3572.32	3611.73	3735.22	3373.24	3019.49	2805.65	2713.20	2715.40	2785.74	2914.73	3051.56
10	Prismatic coeff. (Cp)	0.534	0.491	0.468	0.465	0.468	0.488	0.530	0.567	0.600	0.651	0.674	0.697	0.726	0.759	0.802	0.857	0.888
11	Block coeff. (Cb)	0.290	0.298	0.361	0.449	0.361	0.297	0.287	0.306	0.324	0.397	0.477	0.579	0.696	0.574	0.489	0.441	0.443
12	LCB from zero pt. (+ve fwd) m	75.085	75.086	75.093	75.083	75.085	75.072	75.099	75.096	75.133	75.151	75.168	75.172	75.177	75.171	75.162	75.145	75.123
13	LCF from zero pt. (+ve fwd) m	78.848	75.669	72.351	72.747	71.872	75.116	78.668	80.438	81.937	81.767	80.141	79.452	78.683	77.843	77.221	76.751	76.395
14	Max deck inclination deg	30.0103	20.0269	10.0654	1.1202	10.0660	20.0289	30.0114	40.0037	50.0006	60.0000	70.0000	80.0000	90.0000	100.000	110.000	120.000	129.999
15	Trim angle (+ve by stern) deg	0.9518	1.1279	1.1689	1.1202	1.1749	1.1685	1.0036	0.7758	0.4627	0.1207	-0.2033	-0.7107	-90.000	-0.6423	-0.1375	0.0864	0.2253



8.6.1 Residual GM with symmetrical flooding GM at 0.0 deg = 8.770 m

Max GZ = 6.702 m at 61.8 deg.

DF point = 27.7 deg.

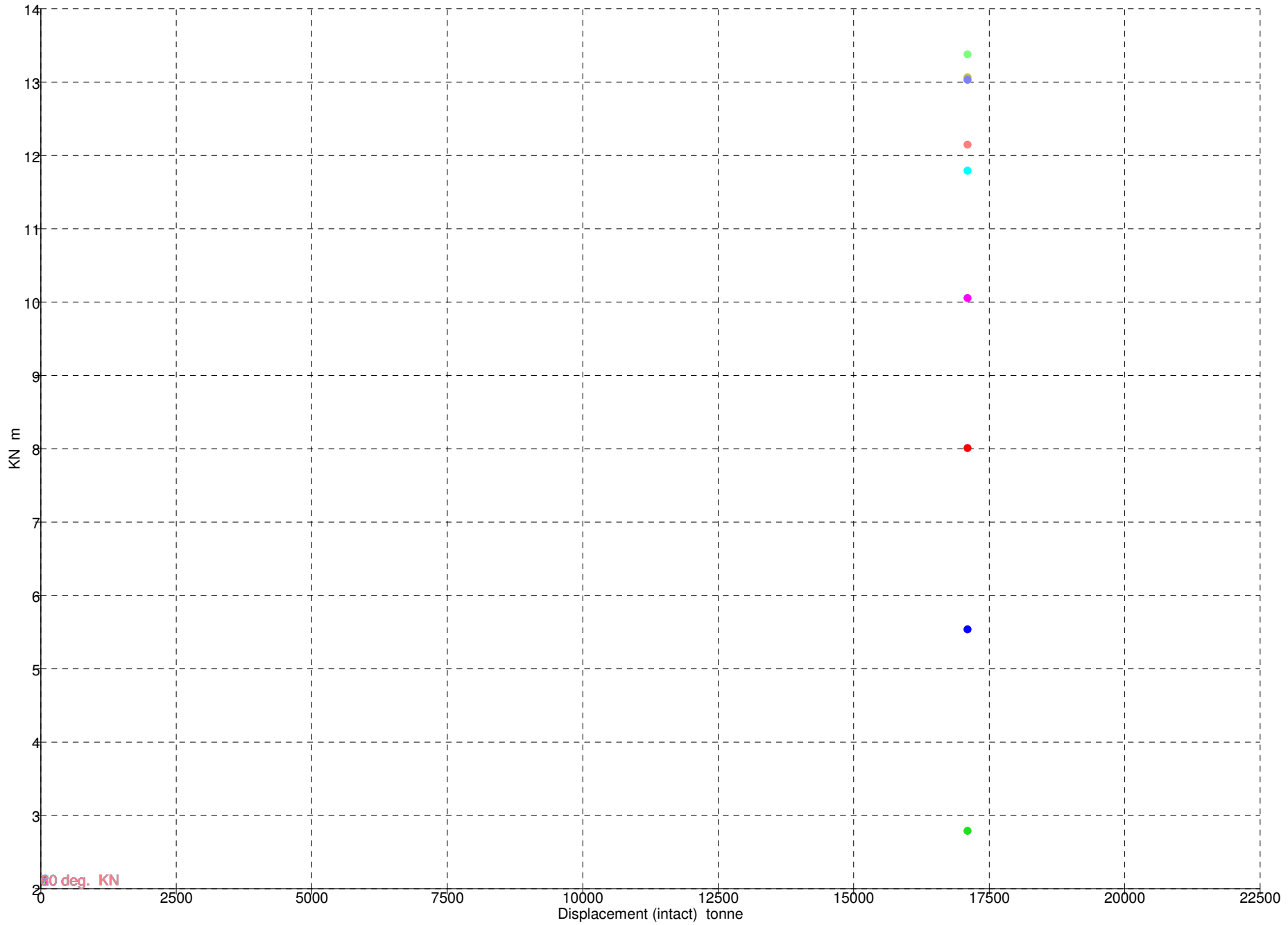
8.2.3.3: Passenger crowding heeling arm

8.2.3.3: Launching heeling arm

8.2.3.8: Wind heeling arm

Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	17105	5.961	1.119 (fixed)	74.673	0.000	0.000	2.788	5.534	8.007	10.055	11.791	13.062	13.377	13.028	12.144



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.139		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.015		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.4	deg	0.4		
32		<i>to the lesser of</i>					
33		first downflooding angle	27.7	deg	27.7		
34		angle of vanishing stability	129.0	deg			
35		shall not be less than (>=)	15.0	deg	27.3	Pass	+82.31
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.4	deg	0.4		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	27.7	deg			
43		angle of vanishing stability	129.0	deg			
44		shall not be less than (>=)	0.8590	m.deg	37.0419	Pass	+4212.21
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.4	deg			
53		angle of equilibrium with heel arm	1.3, 0.4, 0.5	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(27.7), (27.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	61.8, 61.8,	deg			
58		first flooding angle of the DownfloodingPoints	27.7	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	4.049	Pass	+10022.50
61		8.2.3.3: Launching heeling moment	0.040	m	4.187	Pass	+10367.50
62		8.2.3.3: Wind heeling arm	0.040	m	4.172	Pass	+10330.00
63		<i>Intermediate values</i>					
64		GZ(27.7 deg) heel arm A.		m	4.187		
65		HA(27.7 deg) heel arm A.		m	0.139		
66		GZ(27.7 deg) heel arm B.		m	4.187		
67		HA(27.7 deg) heel arm B.		m	0.000		
68		GZ(27.7 deg) heel arm C.		m	4.187		
69		HA(27.7 deg) heel arm C.		m	0.015		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.4	deg	0.4		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	61.8	deg			
78		first downflooding angle	27.7	deg	27.7		
79		shall not be less than (>=)	0.100	m	4.187	Pass	+4087.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	27.7		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.4	deg	0.4		
87		<i>to the lesser of</i>					
88		angle of max. GZ	61.8	deg	61.8		
89		shall be greater than (>)	0.050	m	6.702	Pass	+13304.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	61.8		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.4	deg	0.4		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	129.0	deg	129.0		
99		shall be greater than (>)	7.0	deg	128.6	Pass	+1737.17
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	8.770	Pass	+17440.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.4	Pass	+94.56
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	4.3	deg	4.3		
110		shall be less than (<)	100.00	%	8.84	Pass	+91.16
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.4		
113							

CONDICION N°:2

AVERIA

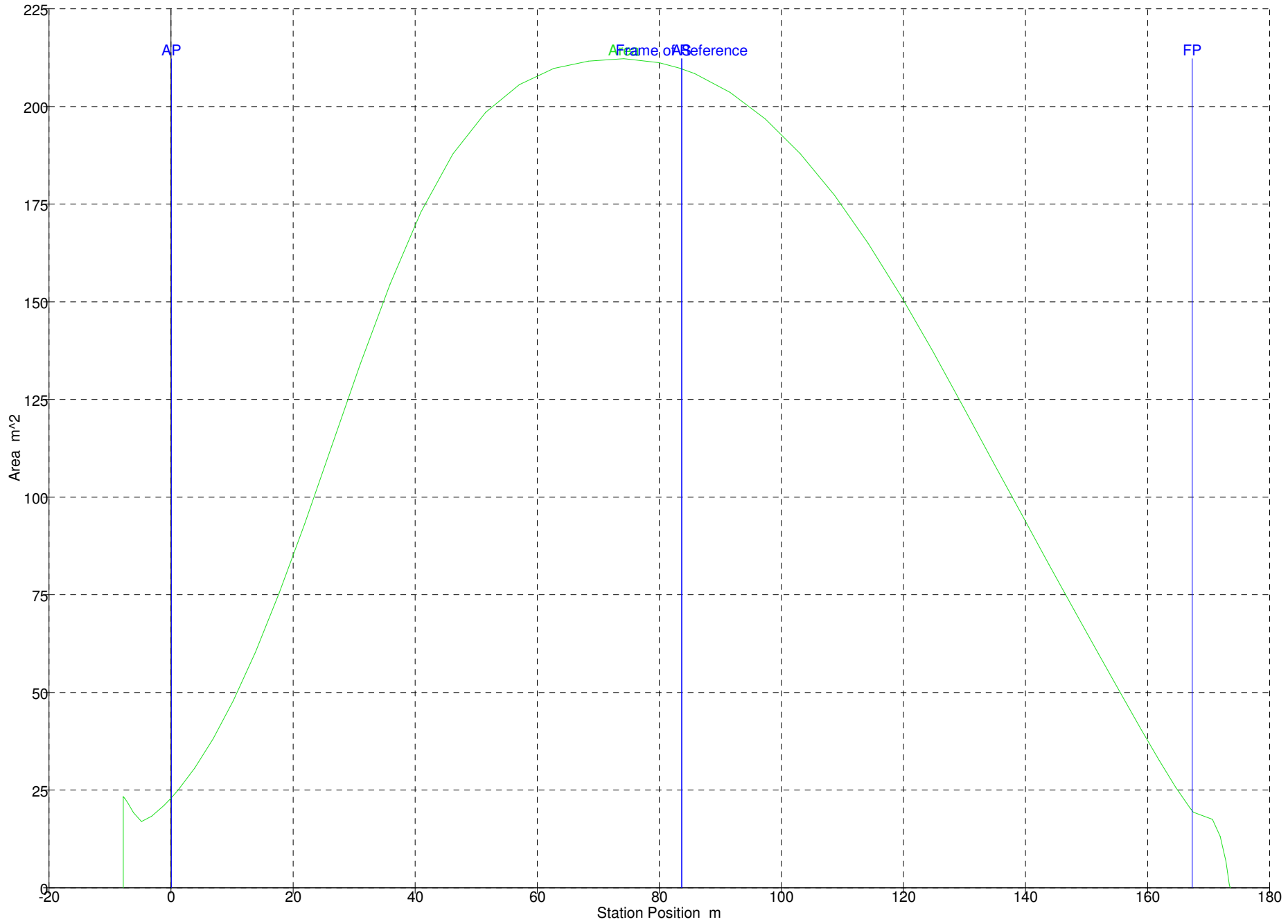
CASO N°:1

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	100%	82.930	82.930	80.907	80.907	147.503	0.000	1.552	0.000	IMO A.749(18)
11	LASTRE 3	100%	122.105	122.105	119.127	119.127	138.668	0.000	1.514	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5 (Damaged)	Damaged									
14	LASTRE 6 (Damaged)	Damaged									
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	100%	360.197	360.197	351.411	351.411	79.410	0.000	1.280	0.000	IMO A.749(18)
17	LASTRE 9	100%	360.202	360.202	351.416	351.416	70.870	0.000	1.280	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.499	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.430	IMO A.749(18)
20	LASTRE 10	100%	14.569	14.569	14.213	14.213	58.960	-6.834	1.281	0.000	IMO A.749(18)
21	LASTRE 11	100%	290.990	290.990	283.893	283.893	62.330	1.625	1.280	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.593	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.996	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.996	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.129	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.712	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.291	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.712	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.529	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.646	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2 (Da	Damaged									
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.022	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.176	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	799.955	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.306	IMO A.749(18)
54	Total Loadcase			16168.088	4971.116	3593.777	75.242	-0.147	7.036	1994.198	
55	FS correction								0.123		
56	VCG fluid								7.159		

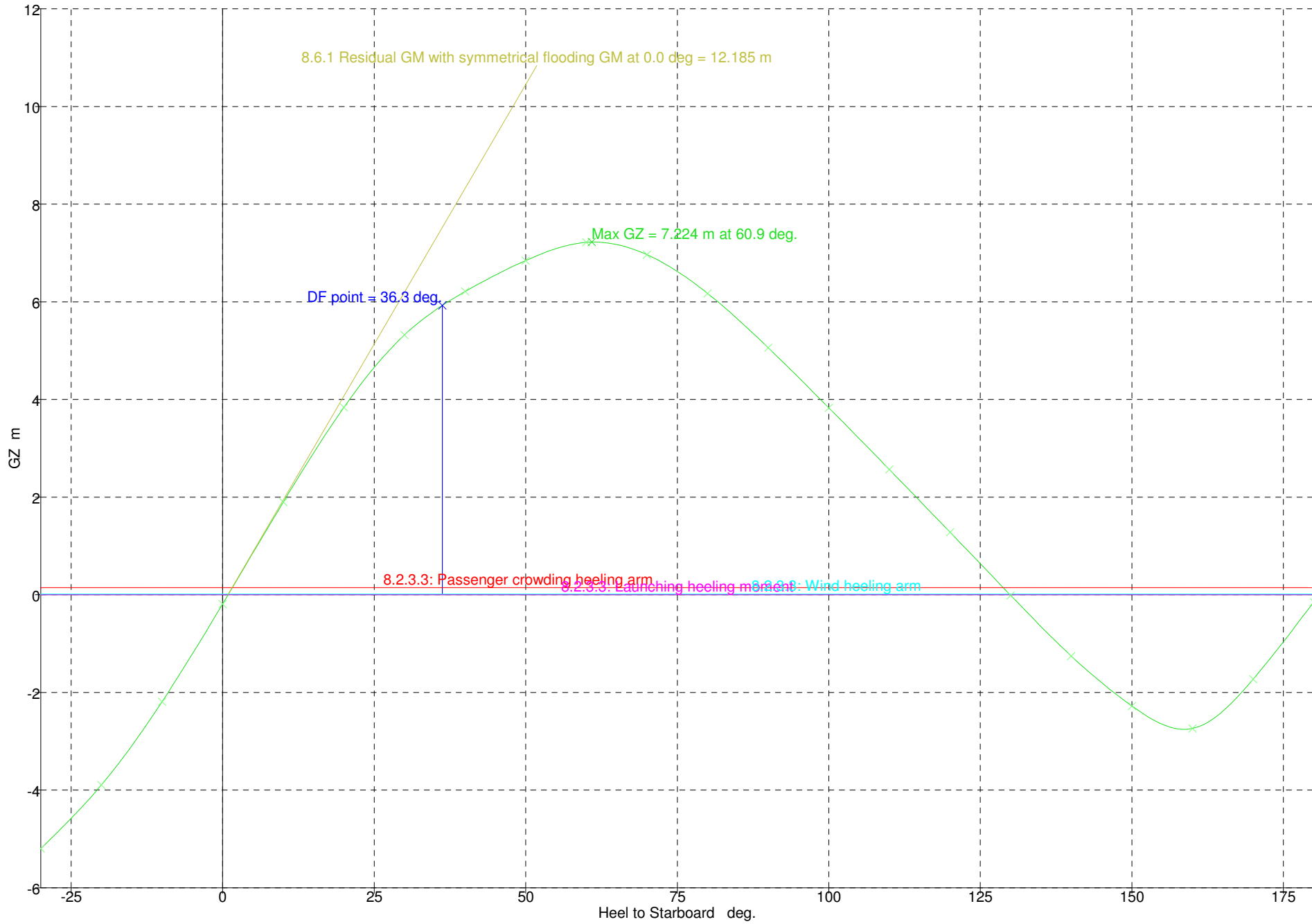
Academic Version

1	Draft Amidships m	7.826
2	Displacement t	16168
3	Heel deg	0.8
4	Draft at FP m	8.949
5	Draft at AP m	6.703
6	Draft at LCF m	7.574
7	Trim (+ve by stern) m	-2.246
8	WL Length m	176.296
9	Beam max extents on WL m	28.208
10	Wetted Area m ²	5985.57
11	Waterpl. Area m ²	3172.50
12	Prismatic coeff. (Cp)	0.422
13	Block coeff. (Cb)	0.356
14	Max Sect. area coeff. (Cm)	0.959
15	Waterpl. area coeff. (Cwp)	0.638
16	LCB from zero pt. (+ve fwd) m	75.272
17	LCF from zero pt. (+ve fwd) m	64.918
18	KB m	4.305
19	KG fluid m	7.159
20	BMt m	15.048
21	BML m	609.537
22	GMt corrected m	12.195
23	GML m	606.683
24	KMt m	19.351
25	KML m	613.722
26	Immersion (TPc) tonne/cm	32.518
27	MTc tonne.m	586.562
28	RM at 1deg = GMt.Disp.sin(1) t	3440.95
29	Max deck inclination deg	1.1362
30	Trim angle (+ve by stern) deg	-0.7695



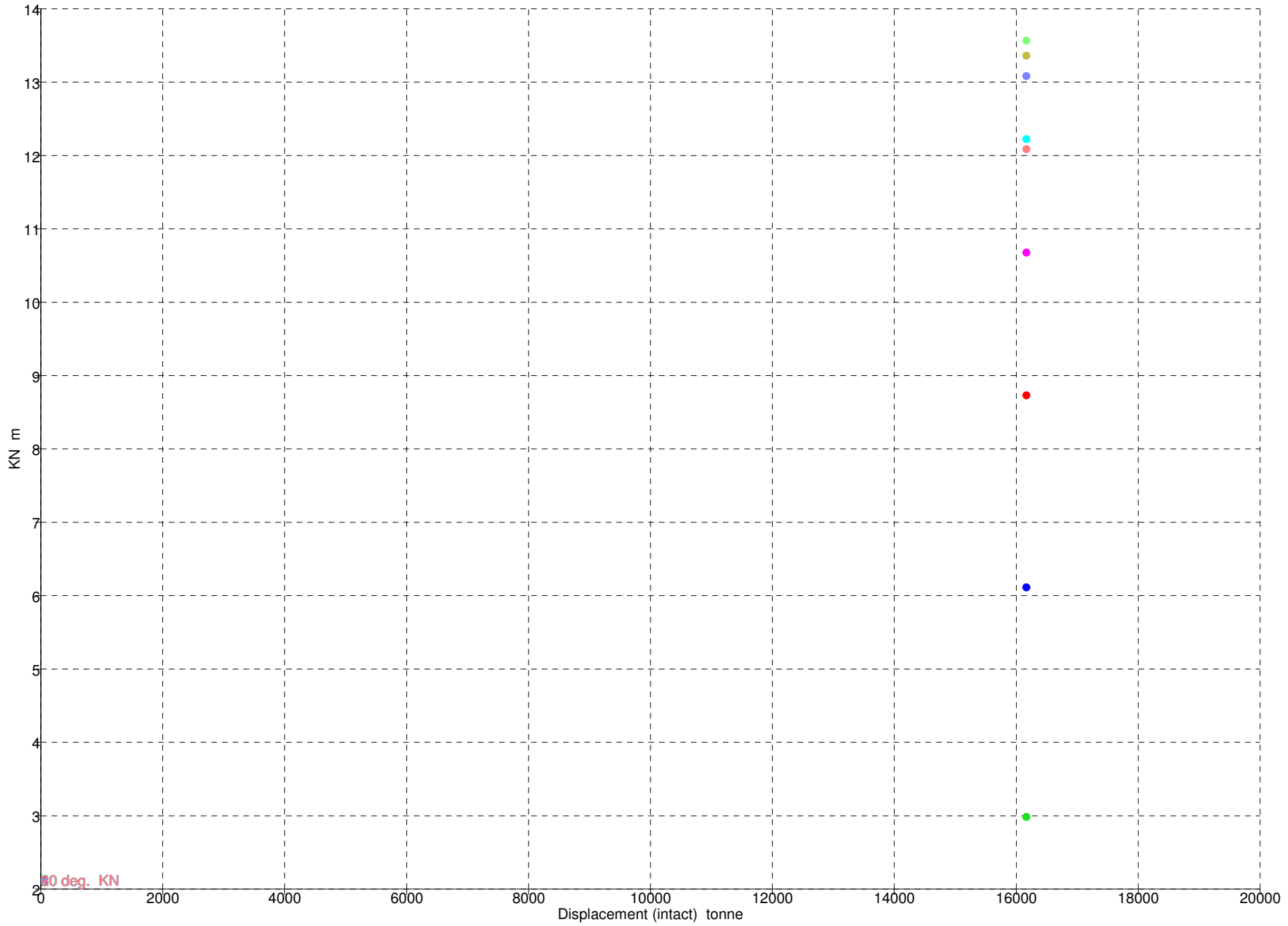
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.197	-3.895	-2.190	-0.188	1.897	3.836	5.322	6.210	6.845	7.219	6.965	6.173	5.060	3.830	2.565	1.282	-0.010
2	Area under GZ curve from zero heel	88.4855	42.8085	12.0437	-0.3409	8.5647	37.4733	83.7601	141.789	207.196	277.898	349.355	415.399	471.730	516.228	548.220	567.463	573.825
3	Displacement t	16167	16168	16168	16168	16168	16168	16168	16169	16167	16168	16168	16167	16168	16170	16168	16168	16168
4	Draft at FP m	7.038	8.085	8.663	8.939	8.911	8.479	7.532	6.037	3.918	0.766	-5.379	-24.512	n/a	-51.114	-31.683	-25.082	-21.740
5	Draft at AP m	5.392	6.209	6.607	6.702	6.626	6.245	5.449	3.950	1.263	-3.590	-12.766	-38.714	n/a	-61.118	-35.122	-26.177	-21.628
6	WL Length m	180.266	175.757	176.116	176.290	176.273	176.005	175.493	181.115	181.258	179.247	174.854	175.448	175.952	176.618	177.359	178.035	178.644
7	Beam max extents on WL m	28.488	29.890	28.640	28.205	28.640	29.931	28.897	26.328	25.917	23.094	21.283	20.308	20.000	20.308	21.107	21.194	19.773
8	Wetted Area m^2	5458.08	5636.43	5790.85	5983.18	5851.34	5727.12	5576.68	5353.20	5234.37	5143.71	4927.12	4822.61	4753.79	4729.43	4740.74	4768.91	4779.23
9	Waterpl. Area m^2	2890.54	2925.04	2969.86	3171.95	3085.89	3073.29	2964.19	3038.77	3223.03	3091.87	2730.52	2546.53	2504.09	2750.52	2847.06	2953.01	3048.65
10	Prismatic coeff. (Cp)	0.504	0.463	0.432	0.422	0.425	0.450	0.499	0.531	0.569	0.606	0.654	0.691	0.734	0.777	0.823	0.874	0.917
11	Block coeff. (Cb)	0.272	0.284	0.336	0.357	0.332	0.279	0.271	0.284	0.299	0.369	0.463	0.570	0.620	0.529	0.461	0.435	0.458
12	LCB from zero pt. (+ve fwd) m	75.276	75.276	75.274	75.273	75.278	75.296	75.302	75.282	75.308	75.337	75.370	75.390	75.388	75.365	75.340	75.296	75.246
13	LCF from zero pt. (+ve fwd) m	73.675	71.366	68.363	64.887	69.838	72.942	74.484	78.233	80.749	80.362	76.948	75.626	75.327	74.124	73.749	73.606	73.847
14	Max deck inclination deg	30.0036	20.0087	10.0238	0.7664	10.0294	20.0124	30.0058	40.0031	50.0025	60.0028	70.0024	80.0011	90.0000	99.9995	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	-0.5641	-0.6428	-0.7047	-0.7664	-0.7830	-0.7654	-0.7135	-0.7150	-0.9095	-1.4920	-2.5295	-4.8543	-90.000	-3.4236	-1.1782	-0.3752	0.0383



Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16168	5.897	-0.770 (fixed)	80.380	0.000	0.000	2.979	6.109	8.729	10.672	12.219	13.358	13.566	13.080	12.086



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.147		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.9	deg	0.9		
32		<i>to the lesser of</i>					
33		first downflooding angle	36.3	deg	36.3		
34		angle of vanishing stability	129.9	deg			
35		shall not be less than (>=)	15.0	deg	35.4	Pass	+135.67
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.9	deg	0.9		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	36.3	deg			
43		angle of vanishing stability	129.9	deg			
44		shall not be less than (>=)	0.8590	m.deg	45.5757	Pass	+5205.67
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.9	deg			
53		angle of equilibrium with heel arm	1.6, 0.9, 1.0	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(36.3), (36.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.9,	deg			
58		first flooding angle of the DownfloodingPoints	36.3	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.780	Pass	+14350.00
61		8.2.3.3: Launching heeling moment	0.040	m	5.927	Pass	+14717.50
62		8.2.3.3: Wind heeling arm	0.040	m	5.911	Pass	+14677.50
63		<i>Intermediate values</i>					
64		GZ(36.3 deg) heel arm A.		m	5.927		
65		HA(36.3 deg) heel arm A.		m	0.147		
66		GZ(36.3 deg) heel arm B.		m	5.927		
67		HA(36.3 deg) heel arm B.		m	0.000		
68		GZ(36.3 deg) heel arm C.		m	5.927		
69		HA(36.3 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.9	deg	0.9		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	36.3	deg	36.3		
79		shall not be less than (>=)	0.100	m	5.927	Pass	+5827.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	36.3		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.9	deg	0.9		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.224	Pass	+14348.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.9	deg	0.9		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	129.9	deg	129.9		
99		shall be greater than (>)	7.0	deg	129.0	Pass	+1743.17
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.185	Pass	+24270.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.9	Pass	+87.11
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	3.0	deg	3.0		
110		shall be less than (<)	100.00	%	29.77	Pass	+70.23
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.9		
113							

CONDICION N°:2

AVERIA

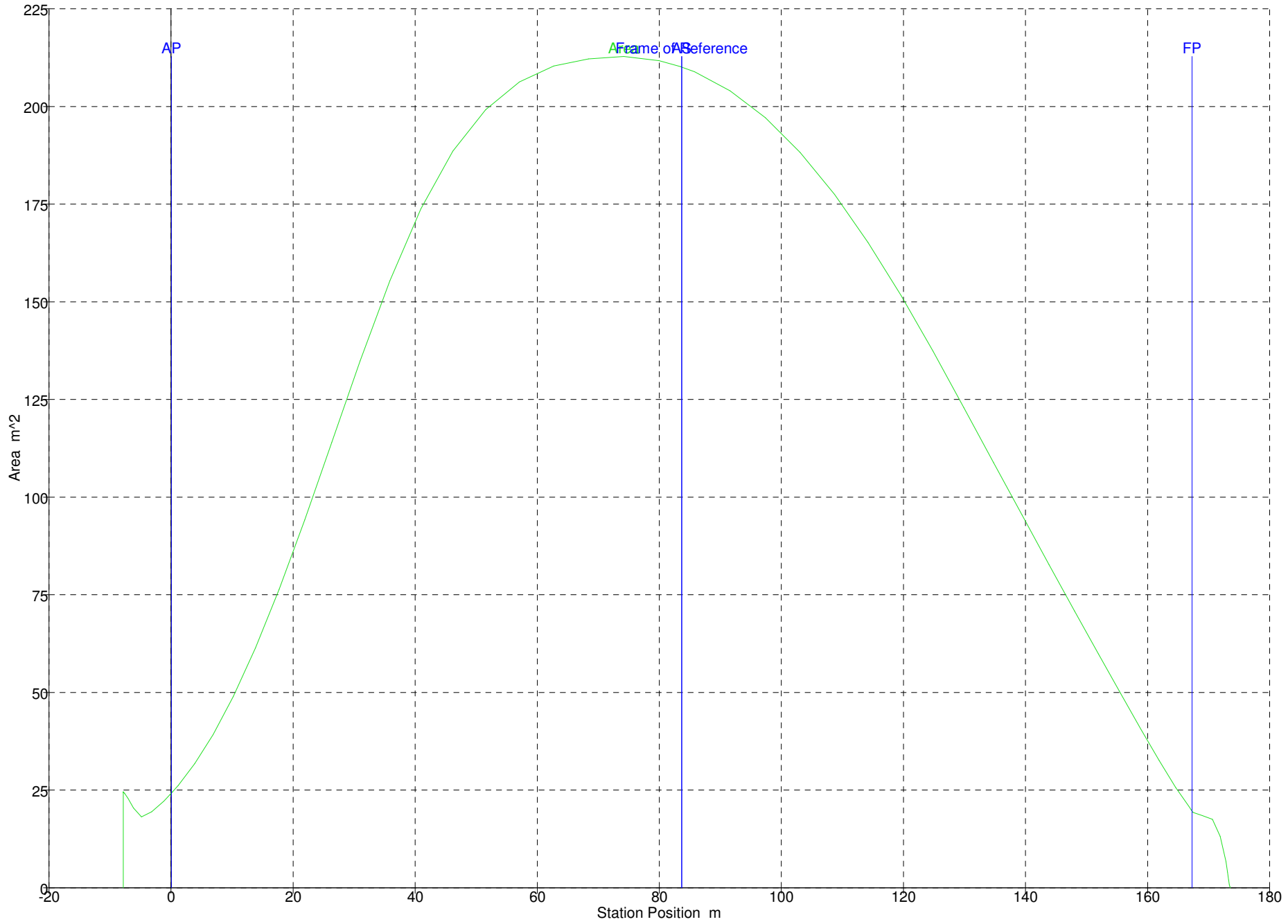
CASO N°:2

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	100%	82.930	82.930	80.907	80.907	147.503	0.000	1.552	0.000	IMO A.749(18)
11	LASTRE 3	100%	122.105	122.105	119.127	119.127	138.668	0.000	1.514	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6 (Damaged)	Damaged									
15	LASTRE 7 (Damaged)	Damaged									
16	LASTRE 8	100%	360.197	360.197	351.411	351.411	79.410	0.000	1.280	0.000	IMO A.749(18)
17	LASTRE 9	100%	360.202	360.202	351.416	351.416	70.870	0.000	1.280	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.500	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.430	IMO A.749(18)
20	LASTRE 10	100%	14.569	14.569	14.213	14.213	58.960	-6.834	1.281	0.000	IMO A.749(18)
21	LASTRE 11	100%	290.990	290.990	283.893	283.893	62.330	1.625	1.280	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.594	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.996	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.996	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.576	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.129	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.716	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.295	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.716	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.533	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.647	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2 (Da	Damaged									
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.024	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.240	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	800.015	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.310	IMO A.749(18)
54	Total Loadcase			16125.007	4929.086	3551.747	75.541	-0.148	7.053	1994.348	
55	FS correction								0.124		
56	VCG fluid								7.177		

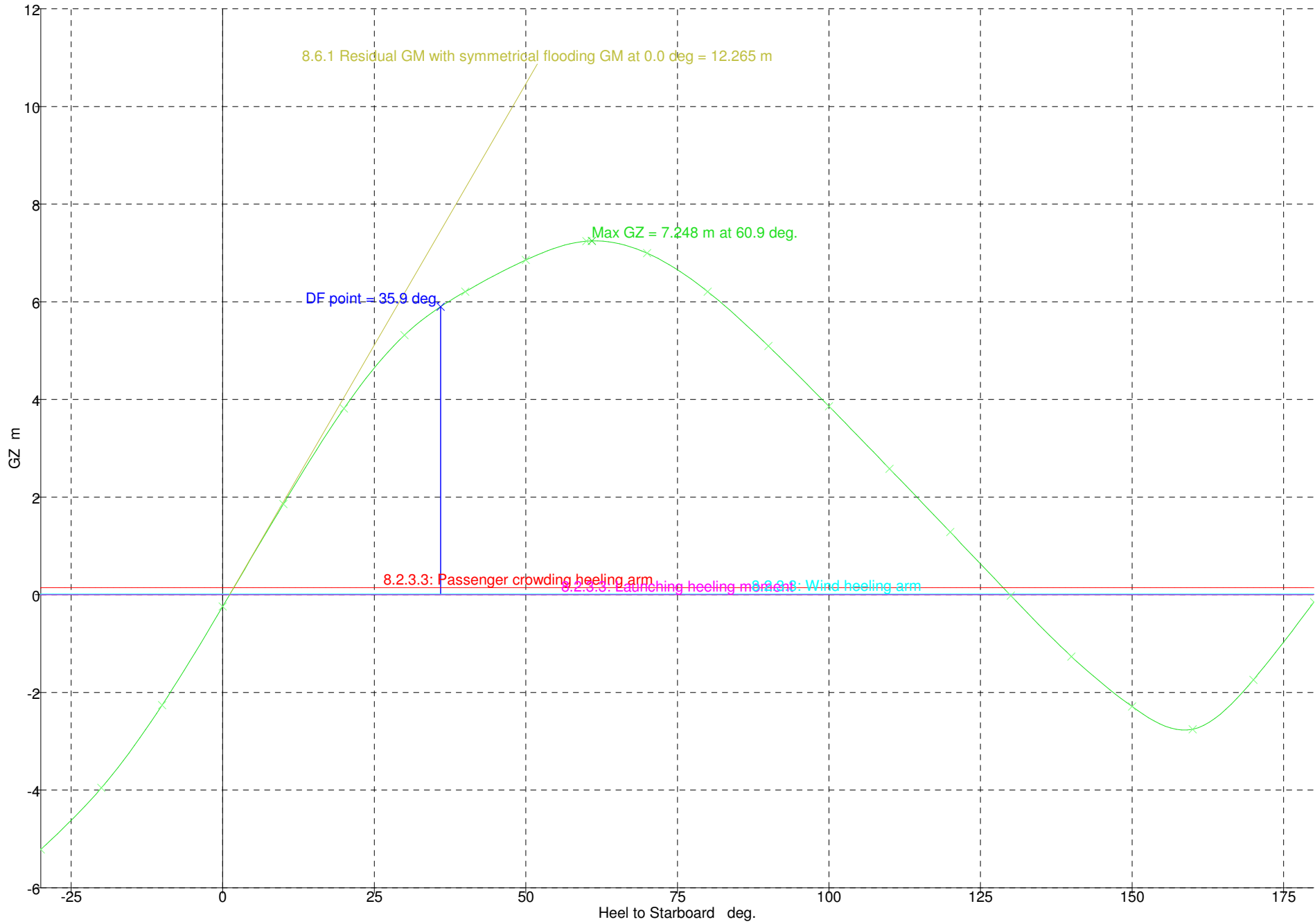
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1	Draft Amidships m	7.841
2	Displacement t	16125
3	Heel deg	1.1
4	Draft at FP m	8.939
5	Draft at AP m	6.743
6	Draft at LCF m	7.599
7	Trim (+ve by stern) m	-2.196
8	WL Length m	176.289
9	Beam max extents on WL m	28.210
10	Wetted Area m ²	5992.56
11	Waterpl. Area m ²	3175.96
12	Prismatic coeff. (Cp)	0.419
13	Block coeff. (Cb)	0.356
14	Max Sect. area coeff. (Cm)	0.954
15	Waterpl. area coeff. (Cwp)	0.639
16	LCB from zero pt. (+ve fwd) m	75.570
17	LCF from zero pt. (+ve fwd) m	65.193
18	KB m	4.342
19	KG fluid m	7.177
20	BMt m	15.110
21	BML m	613.295
22	GMt corrected m	12.275
23	GML m	610.460
24	KMt m	19.448
25	KML m	617.473
26	Immersion (TPc) tonne/cm	32.554
27	MTc tonne.m	588.642
28	RM at 1deg = GMt.Disp.sin(1) t	3454.43
29	Max deck inclination deg	1.3259
30	Trim angle (+ve by stern) deg	-0.7524



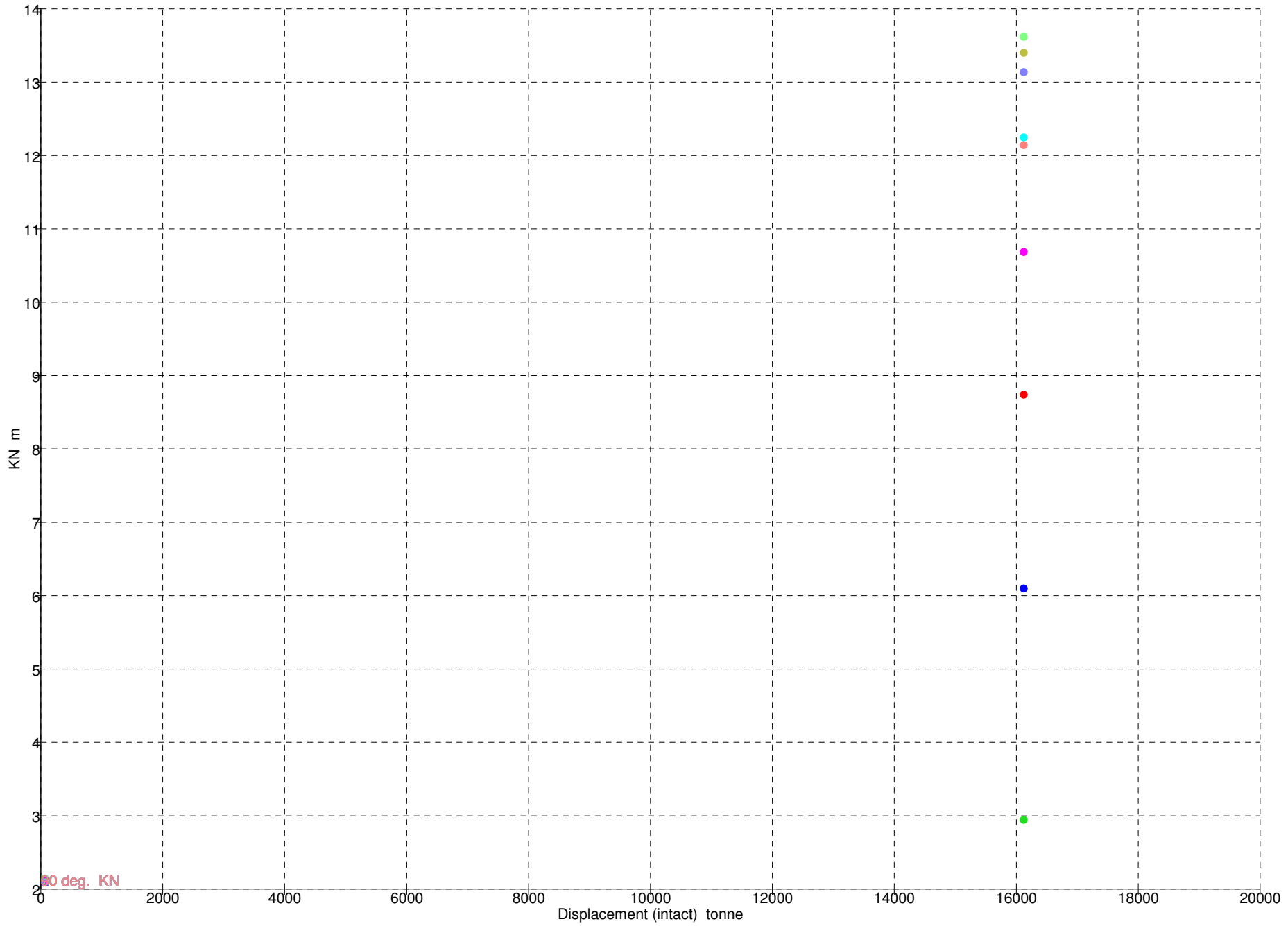
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.216	-3.954	-2.261	-0.240	1.858	3.815	5.319	6.208	6.856	7.242	6.996	6.209	5.095	3.860	2.581	1.285	-0.018
2	Area under GZ curve from zero heel	90.1871	44.1080	12.6663	-0.4359	8.1121	36.7121	82.8955	140.902	206.344	277.223	348.948	415.332	472.025	516.850	549.077	568.416	574.743
3	Displacement t	16124	16125	16125	16125	16125	16125	16125	16126	16124	16125	16125	16125	16125	16126	16126	16125	16127
4	Draft at FP m	7.043	8.105	8.677	8.930	8.887	8.449	7.498	6.004	3.896	0.757	-5.366	-24.438	n/a	-50.963	-31.594	-25.021	-21.690
5	Draft at AP m	5.392	6.225	6.638	6.741	6.681	6.311	5.523	4.017	1.324	-3.528	-12.693	-38.600	n/a	-61.146	-35.186	-26.253	-21.703
6	WL Length m	180.262	175.769	176.124	176.283	176.257	175.985	175.478	181.134	181.246	179.232	174.859	175.460	175.969	176.637	177.378	178.052	178.660
7	Beam max extents on WL m	28.491	29.895	28.640	28.205	28.640	29.937	28.941	26.346	25.919	23.094	21.283	20.308	20.000	20.308	21.106	21.177	19.724
8	Wetted Area m^2	5459.00	5644.49	5803.58	5989.78	5863.41	5737.42	5587.74	5361.27	5241.18	5149.64	4933.66	4829.21	4758.88	4733.14	4741.73	4766.31	4774.08
9	Waterpl. Area m^2	2874.43	2919.69	2977.38	3175.65	3085.97	3082.11	2968.28	3040.94	3228.13	3091.47	2730.86	2545.47	2497.25	2749.08	2832.49	2938.66	3041.69
10	Prismatic coeff. (Cp)	0.502	0.461	0.430	0.420	0.423	0.447	0.496	0.528	0.566	0.604	0.651	0.687	0.731	0.773	0.820	0.873	0.919
11	Block coeff. (Cb)	0.271	0.283	0.335	0.356	0.331	0.278	0.269	0.283	0.298	0.367	0.460	0.567	0.616	0.526	0.458	0.433	0.460
12	LCB from zero pt. (+ve fwd) m	75.575	75.575	75.573	75.572	75.587	75.594	75.600	75.579	75.604	75.634	75.668	75.676	75.687	75.666	75.641	75.600	75.542
13	LCF from zero pt. (+ve fwd) m	73.695	71.482	68.593	65.156	69.621	72.774	74.365	78.267	80.796	80.483	77.097	75.766	75.395	74.512	74.035	73.876	74.145
14	Max deck inclination deg	30.0036	20.0088	10.0234	0.7500	10.0274	20.0114	30.0052	40.0028	50.0023	60.0027	70.0023	80.0011	90.0000	99.9994	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	-0.5657	-0.6441	-0.6986	-0.7500	-0.7558	-0.7327	-0.6767	-0.6806	-0.8810	-1.4677	-2.5091	-4.8407	-90.000	-3.4846	-1.2306	-0.4220	-0.0044



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16125	5.885	-0.752 (fixed)	80.356	0.000	0.000	2.941	6.095	8.738	10.683	12.245	13.397	13.615	13.136	12.138



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.147		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.1	deg	1.1		
32		<i>to the lesser of</i>					
33		first downflooding angle	35.9	deg	35.9		
34		angle of vanishing stability	129.9	deg			
35		shall not be less than (>=)	15.0	deg	34.8	Pass	+131.96
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.1	deg	1.1		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	35.9	deg			
43		angle of vanishing stability	129.9	deg			
44		shall not be less than (>=)	0.8590	m.deg	44.8297	Pass	+5118.83
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.1	deg			
53		angle of equilibrium with heel arm	1.8, 1.1, 1.2	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(35.9), (35.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.9,	deg			
58		first flooding angle of the DownfloodingPoints	35.9	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.751	Pass	+14277.50
61		8.2.3.3: Launching heeling moment	0.040	m	5.898	Pass	+14645.00
62		8.2.3.3: Wind heeling arm	0.040	m	5.882	Pass	+14605.00
63		<i>Intermediate values</i>					
64		GZ(35.9 deg) heel arm A.		m	5.898		
65		HA(35.9 deg) heel arm A.		m	0.147		
66		GZ(35.9 deg) heel arm B.		m	5.898		
67		HA(35.9 deg) heel arm B.		m	0.000		
68		GZ(35.9 deg) heel arm C.		m	5.898		
69		HA(35.9 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.1	deg	1.1		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	35.9	deg	35.9		
79		shall not be less than (>=)	0.100	m	5.898	Pass	+5798.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	35.9		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.1	deg	1.1		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.248	Pass	+14396.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.1	deg	1.1		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	129.9	deg	129.9		
99		shall be greater than (>)	7.0	deg	128.7	Pass	+1738.83
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.265	Pass	+24430.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.1	Pass	+83.69
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	3.1	deg	3.1		
110		shall be less than (<)	100.00	%	37.16	Pass	+62.84
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.1		
113							

CONDICION N°:2

AVERIA

CASO N°:3

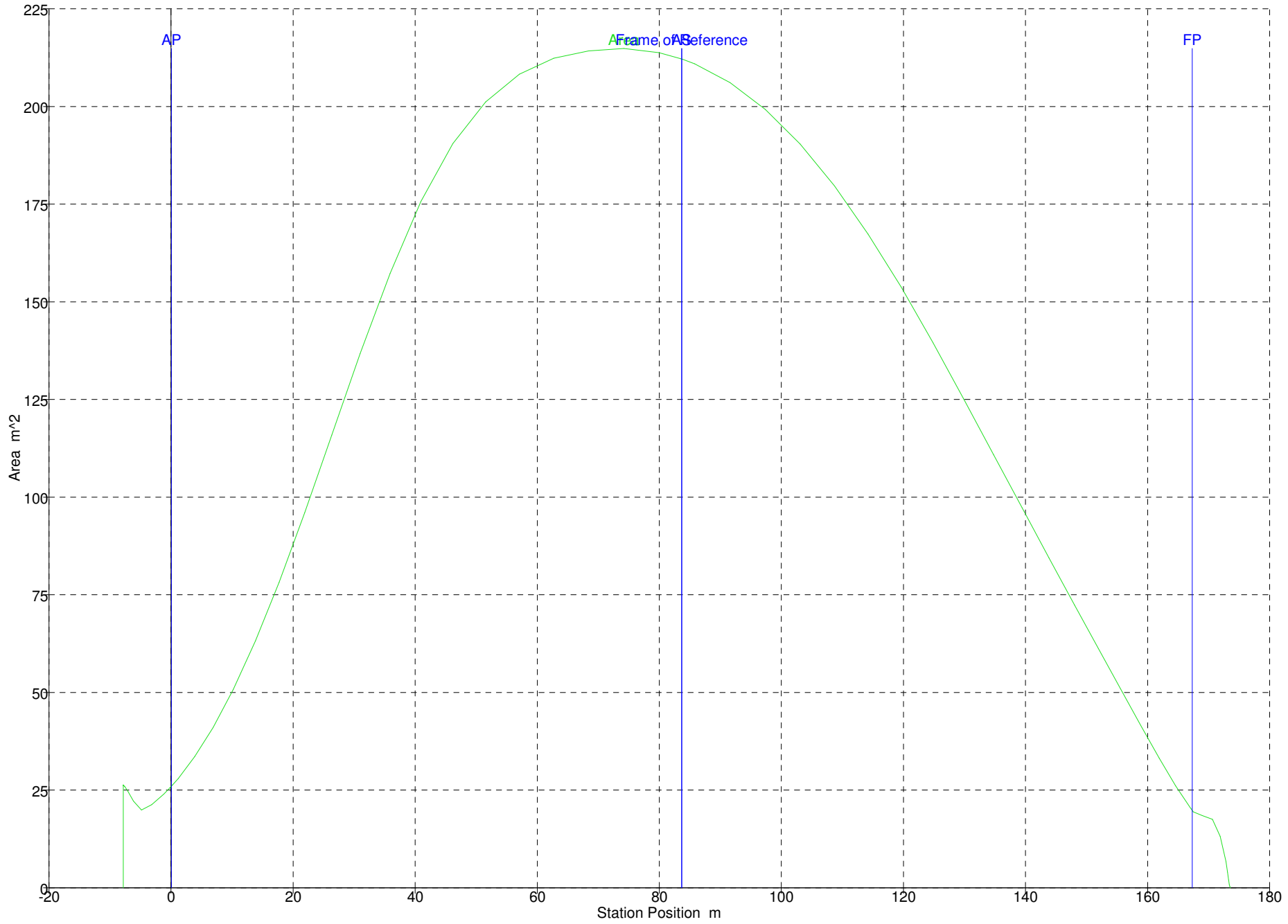
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	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	100%	82.930	82.930	80.907	80.907	147.503	0.000	1.552	0.000	IMO A.749(18)
11	LASTRE 3	100%	122.105	122.105	119.127	119.127	138.668	0.000	1.514	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7 (Damaged)	Damaged									
16	LASTRE 8 (Damaged)	Damaged									
17	LASTRE 9	100%	360.202	360.202	351.416	351.416	70.870	0.000	1.280	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.502	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.433	IMO A.749(18)
20	LASTRE 10	100%	14.569	14.569	14.213	14.213	58.960	-6.834	1.281	0.000	IMO A.749(18)
21	LASTRE 11	100%	290.990	290.990	283.893	283.893	62.330	1.625	1.280	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.596	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.997	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.997	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.577	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.131	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.299	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.733	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.314	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.733	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.547	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.648	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.030	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.506	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	800.262	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.327	IMO A.749(18)
54	Total Loadcase			16270.891	5071.412	3694.073	76.106	-0.037	7.066	1994.965	
55	FS correction								0.123		
56	VCG fluid								7.189		

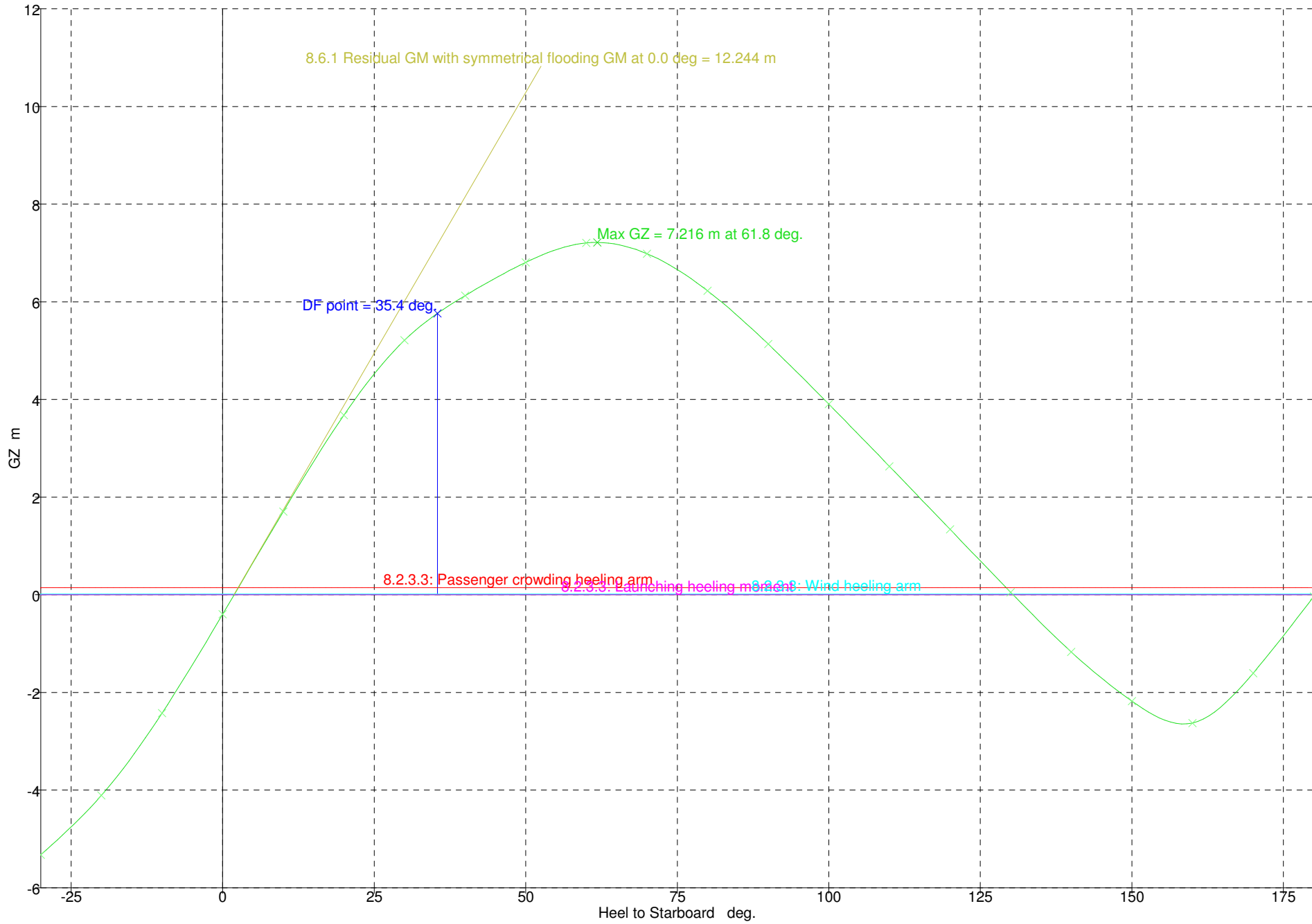
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1	Draft Amidships m	7.915
2	Displacement t	16271
3	Heel deg	1.8
4	Draft at FP m	9.024
5	Draft at AP m	6.806
6	Draft at LCF m	7.677
7	Trim (+ve by stern) m	-2.218
8	WL Length m	176.342
9	Beam max extents on WL m	28.219
10	Wetted Area m ²	6025.42
11	Waterpl. Area m ²	3186.14
12	Prismatic coeff. (Cp)	0.419
13	Block coeff. (Cb)	0.356
14	Max Sect. area coeff. (Cm)	0.939
15	Waterpl. area coeff. (Cwp)	0.640
16	LCB from zero pt. (+ve fwd) m	76.135
17	LCF from zero pt. (+ve fwd) m	65.703
18	KB m	4.411
19	KG fluid m	7.189
20	BMt m	15.042
21	BML m	613.432
22	GMt corrected m	12.263
23	GML m	610.653
24	KMt m	19.444
25	KML m	617.488
26	Immersion (TPc) tonne/cm	32.658
27	MTc tonne.m	594.155
28	RM at 1deg = GMt.Disp.sin(1) t	3482.31
29	Max deck inclination deg	1.9495
30	Trim angle (+ve by stern) deg	-0.7598



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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.323	-4.108	-2.423	-0.398	1.703	3.679	5.213	6.126	6.806	7.207	6.986	6.226	5.134	3.904	2.632	1.340	0.054
2	Area under GZ curve from zero heel	94.7321	47.3201	14.2695	-0.7243	6.5400	33.6739	78.6475	135.709	200.495	270.957	342.452	408.869	465.852	511.102	543.801	563.669	570.625
3	Displacement t	16269	16271	16271	16271	16273	16271	16272	16272	16270	16271	16271	16271	16271	16270	16272	16271	16272
4	Draft at FP m	7.161	8.224	8.780	9.013	8.952	8.509	7.558	6.074	3.987	0.901	-5.068	-23.708	n/a	-50.158	-31.179	-24.732	-21.457
5	Draft at AP m	5.413	6.266	6.692	6.799	6.763	6.403	5.633	4.130	1.440	-3.392	-12.519	-38.314	n/a	-61.059	-35.195	-26.298	-21.760
6	WL Length m	179.961	175.843	176.189	176.335	176.297	176.021	175.503	181.097	181.269	179.427	174.970	175.577	176.095	176.734	177.463	178.131	178.735
7	Beam max extents on WL m	28.598	29.911	28.640	28.205	28.640	29.952	29.112	26.483	26.029	23.094	21.283	20.308	20.000	20.308	21.121	21.233	19.846
8	Wetted Area m^2	5490.55	5679.34	5843.18	6021.20	5903.16	5772.88	5625.67	5397.62	5279.42	5184.61	4969.92	4864.69	4793.01	4761.20	4766.80	4788.88	4797.53
9	Waterpl. Area m^2	2877.61	2940.49	2997.51	3186.04	3103.80	3117.39	2992.82	3059.21	3245.31	3092.08	2736.45	2552.49	2500.91	2722.39	2825.84	2934.86	3051.34
10	Prismatic coeff. (Cp)	0.503	0.460	0.429	0.420	0.422	0.446	0.495	0.527	0.565	0.602	0.648	0.684	0.727	0.770	0.818	0.869	0.914
11	Block coeff. (Cb)	0.272	0.284	0.335	0.356	0.331	0.278	0.268	0.282	0.298	0.368	0.460	0.566	0.611	0.522	0.456	0.430	0.455
12	LCB from zero pt. (+ve fwd) m	76.142	76.143	76.139	76.138	76.145	76.159	76.149	76.136	76.167	76.198	76.234	76.253	76.257	76.253	76.207	76.166	76.121
13	LCF from zero pt. (+ve fwd) m	73.914	71.891	68.983	65.637	69.606	72.804	74.371	78.267	80.802	80.667	77.399	76.090	75.680	74.865	74.527	74.334	74.607
14	Max deck inclination deg	30.0041	20.0095	10.0245	0.7586	10.0270	20.0110	30.0049	40.0027	50.0023	60.0027	70.0024	80.0012	90.0000	99.9994	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	-0.5988	-0.6710	-0.7154	-0.7586	-0.7501	-0.7216	-0.6595	-0.6660	-0.8725	-1.4702	-2.5511	-4.9917	-90.000	-3.7295	-1.3755	-0.5364	-0.1038



8.6.1 Residual GM with symmetrical flooding GM at 0.0 deg = 12.244 m

Max GZ = 7.216 m at 61.8 deg.

DF point = 35.4 deg

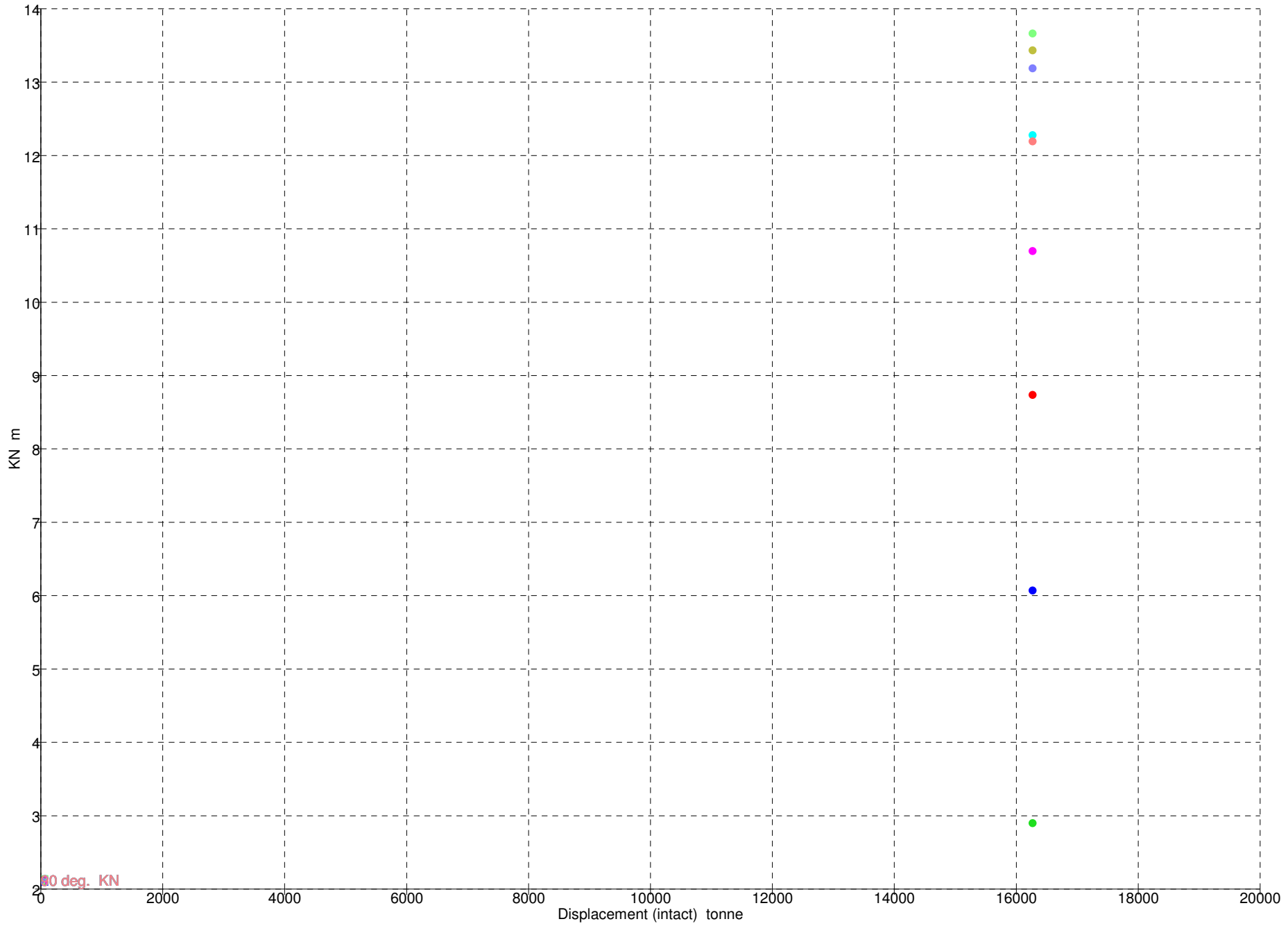
8.2.3.3: Passenger crowding heeling arm

8.2.3.3: Launching heeling arm

8.2.3.3: Wind heeling arm

Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16271	5.923	-0.760 (fixed)	80.313	0.000	0.000	2.894	6.067	8.735	10.695	12.276	13.433	13.660	13.187	12.190



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.146		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.9	deg	1.9		
32		<i>to the lesser of</i>					
33		first downflooding angle	35.4	deg	35.4		
34		angle of vanishing stability	130.4	deg			
35		shall not be less than (>=)	15.0	deg	33.5	Pass	+123.55
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.9	deg	1.9		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	35.4	deg			
43		angle of vanishing stability	130.4	deg			
44		shall not be less than (>=)	0.8590	m.deg	41.7663	Pass	+4762.20
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.9	deg			
53		angle of equilibrium with heel arm	2.6, 1.9, 2.0	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(35.4), (35.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	61.8, 61.8,	deg			
58		first flooding angle of the DownfloodingPoints	35.4	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.617	Pass	+13942.50
61		8.2.3.3: Launching heeling moment	0.040	m	5.762	Pass	+14305.00
62		8.2.3.3: Wind heeling arm	0.040	m	5.747	Pass	+14267.50
63		<i>Intermediate values</i>					
64		GZ(35.4 deg) heel arm A.		m	5.762		
65		HA(35.4 deg) heel arm A.		m	0.146		
66		GZ(35.4 deg) heel arm B.		m	5.762		
67		HA(35.4 deg) heel arm B.		m	0.000		
68		GZ(35.4 deg) heel arm C.		m	5.762		
69		HA(35.4 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.9	deg	1.9		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	61.8	deg			
78		first downflooding angle	35.4	deg	35.4		
79		shall not be less than (>=)	0.100	m	5.762	Pass	+5662.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	35.4		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.9	deg	1.9		
87		<i>to the lesser of</i>					
88		angle of max. GZ	61.8	deg	61.8		
89		shall be greater than (>)	0.050	m	7.216	Pass	+14332.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	61.8		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.9	deg	1.9		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	130.4	deg	130.4		
99		shall be greater than (>)	7.0	deg	128.5	Pass	+1736.09
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.244	Pass	+24388.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.9	Pass	+72.94
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	2.7	deg	2.7		
110		shall be less than (<)	100.00	%	69.19	Pass	+30.81
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.9		
113							

CONDICION N°:2

AVERIA

CASO N°:4

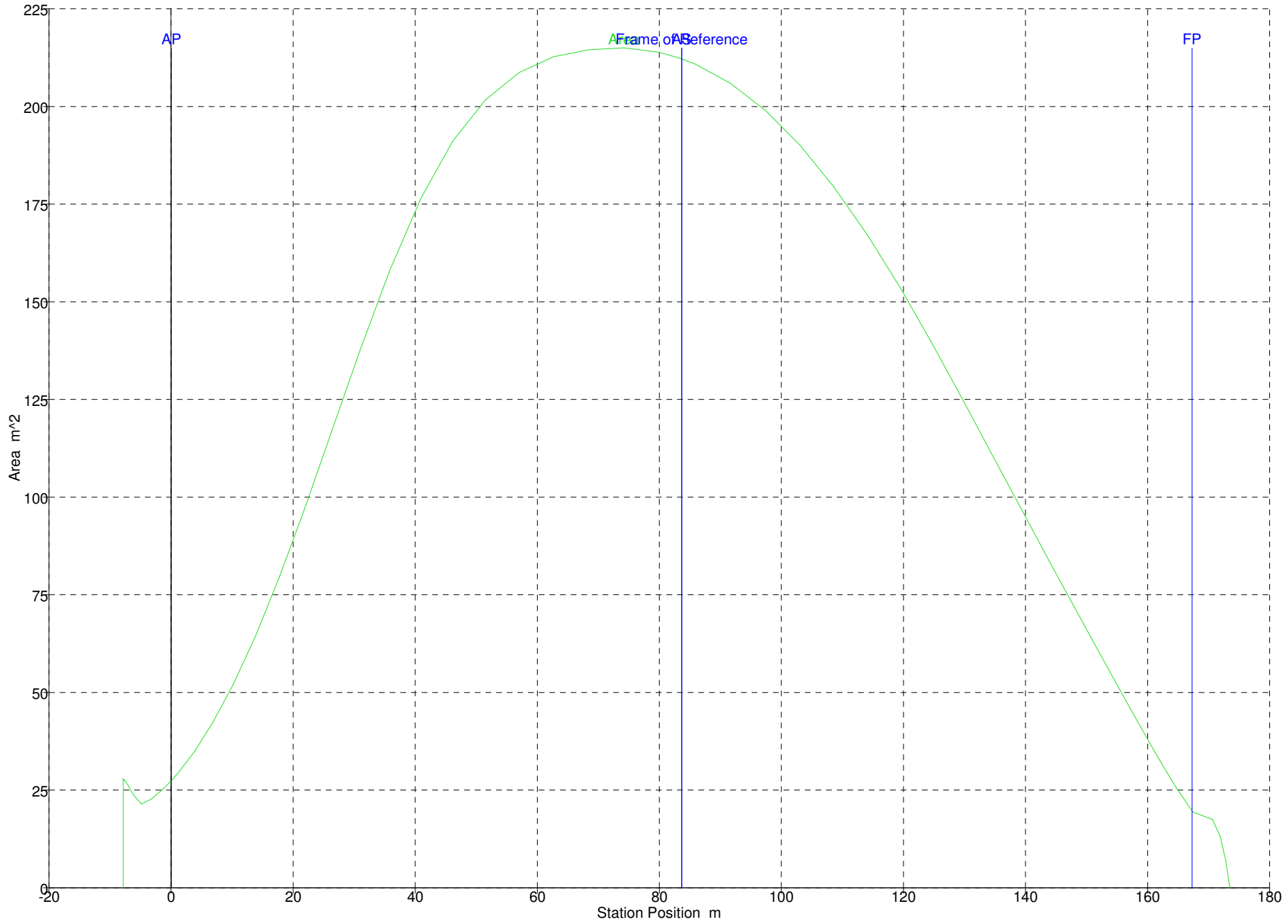
Academic Version

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	100%	82.930	82.930	80.907	80.907	147.503	0.000	1.552	0.000	IMO A.749(18)
11	LASTRE 3	100%	122.105	122.105	119.127	119.127	138.668	0.000	1.514	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8 (Damaged)	Damaged									
17	LASTRE 9 (Damaged)	Damaged									
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.503	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.434	IMO A.749(18)
20	LASTRE 10	100%	14.569	14.569	14.213	14.213	58.960	-6.834	1.281	0.000	IMO A.749(18)
21	LASTRE 11	100%	290.990	290.990	283.893	283.893	62.330	1.625	1.280	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.597	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.997	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.997	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.578	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.131	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.299	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.739	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.320	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.739	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.552	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.649	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.032	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.593	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	800.343	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.332	IMO A.749(18)
54	Total Loadcase			16269.264	5069.825	3692.486	76.483	-0.037	7.067	1995.167	
55	FS correction								0.123		
56	VCG fluid								7.189		

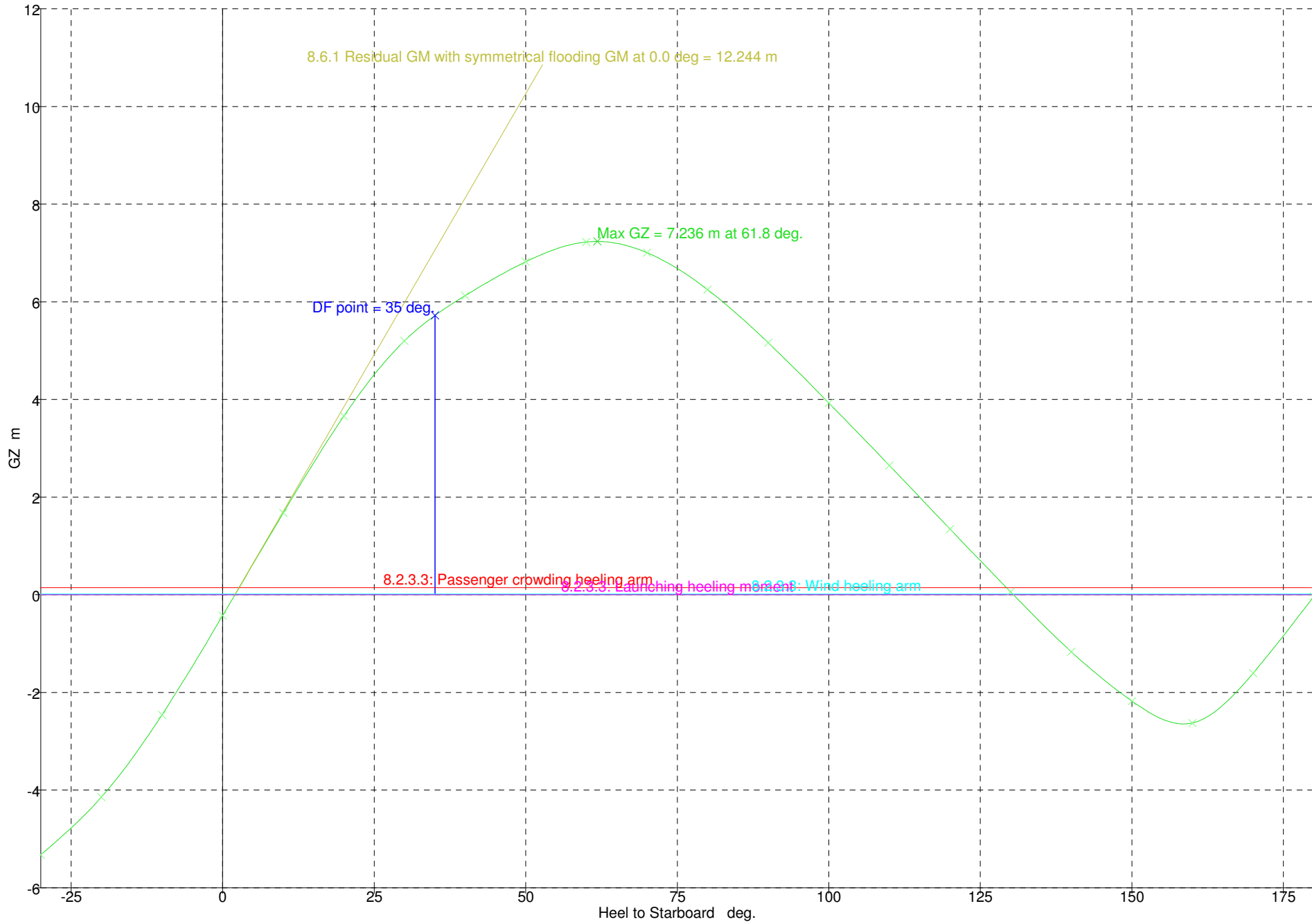
Academic Version

1	Draft Amidships m	7.916
2	Displacement t	16269
3	Heel deg	2.0
4	Draft at FP m	8.974
5	Draft at AP m	6.858
6	Draft at LCF m	7.691
7	Trim (+ve by stern) m	-2.116
8	WL Length m	176.309
9	Beam max extents on WL m	28.221
10	Wetted Area m ²	6026.08
11	Waterpl. Area m ²	3182.09
12	Prismatic coeff. (Cp)	0.419
13	Block coeff. (Cb)	0.357
14	Max Sect. area coeff. (Cm)	0.936
15	Waterpl. area coeff. (Cwp)	0.640
16	LCB from zero pt. (+ve fwd) m	76.509
17	LCF from zero pt. (+ve fwd) m	65.824
18	KB m	4.428
19	KG fluid m	7.189
20	BMt m	15.029
21	BML m	612.232
22	GMt corrected m	12.266
23	GML m	609.469
24	KMt m	19.447
25	KML m	616.248
26	Immersion (TPc) tonne/cm	32.616
27	MTc tonne.m	592.944
28	RM at 1deg = GMt.Disp.sin(1) t	3482.79
29	Max deck inclination deg	2.1004
30	Trim angle (+ve by stern) deg	-0.7250



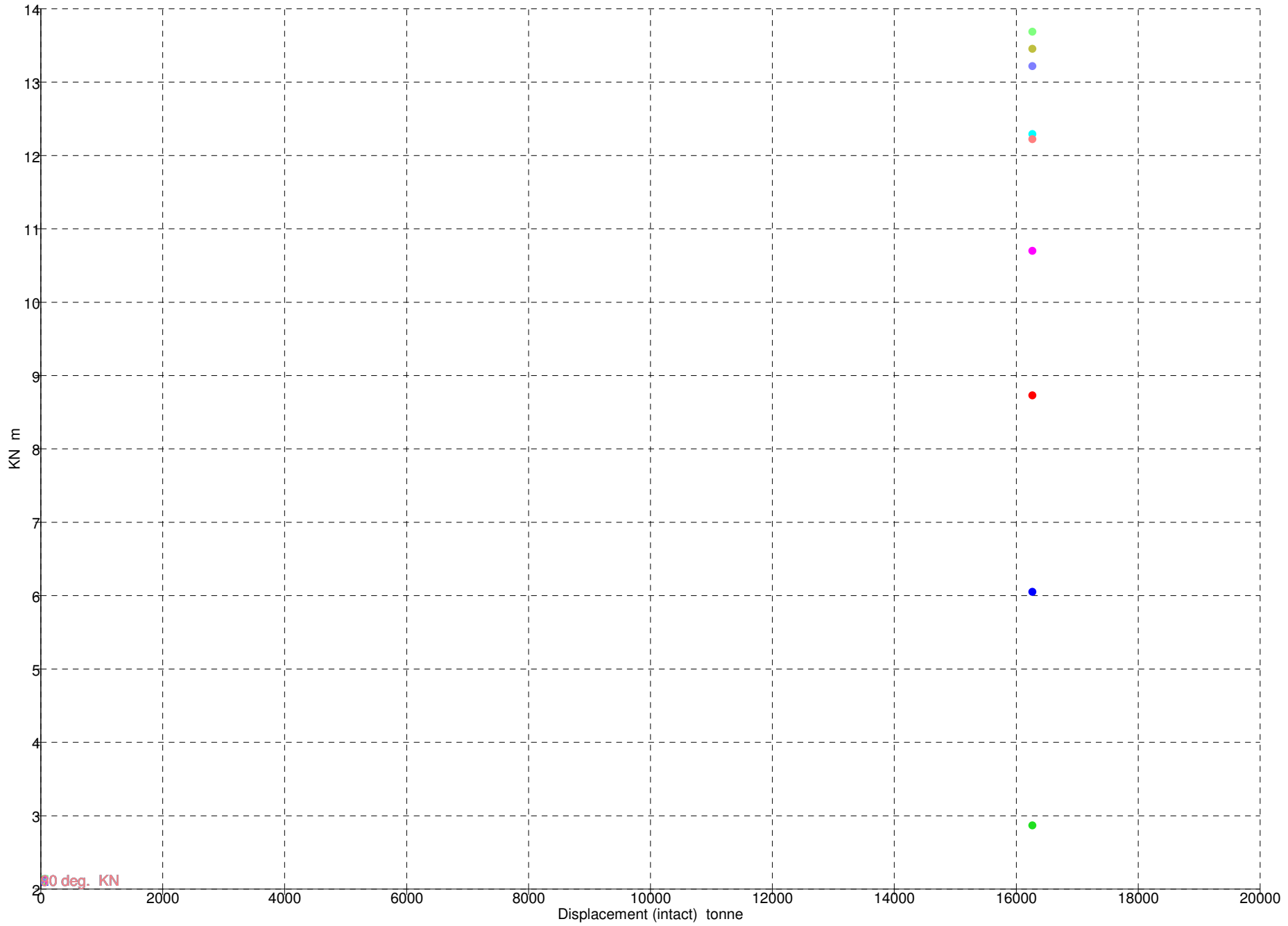
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.324	-4.143	-2.457	-0.427	1.676	3.659	5.201	6.126	6.819	7.226	7.007	6.250	5.162	3.928	2.649	1.346	0.058
2	Area under GZ curve from zero heel	95.6020	47.9889	14.5738	-0.7753	6.2618	33.1497	77.9575	134.957	199.807	270.432	342.132	408.777	466.030	511.542	544.448	564.424	571.423
3	Displacement t	16268	16268	16269	16269	16269	16269	16270	16270	16269	16269	16269	16269	16269	16268	16270	16271	16270
4	Draft at FP m	7.161	8.214	8.750	8.967	8.891	8.442	7.484	6.016	3.940	0.859	-5.115	-23.732	n/a	-50.085	-31.088	-24.639	-21.358
5	Draft at AP m	5.413	6.293	6.734	6.848	6.830	6.483	5.722	4.214	1.522	-3.303	-12.401	-38.129	n/a	-61.008	-35.240	-26.373	-21.843
6	WL Length m	179.961	175.837	176.169	176.305	176.257	175.977	175.469	181.130	181.260	179.365	174.952	175.572	176.098	176.743	177.482	178.158	178.767
7	Beam max extents on WL m	28.598	29.914	28.640	28.205	28.640	29.956	29.153	26.492	26.022	23.094	21.283	20.308	20.000	20.308	21.121	21.229	19.867
8	Wetted Area m^2	5490.54	5684.09	5849.85	6021.72	5911.06	5779.05	5632.39	5404.52	5285.17	5189.29	4975.08	4870.47	4798.98	4765.29	4769.26	4789.50	4797.79
9	Waterpl. Area m^2	2868.61	2937.85	3000.96	3182.24	3097.87	3121.08	2994.65	3066.38	3251.18	3091.31	2735.73	2552.61	2501.04	2707.78	2817.73	2927.58	3051.93
10	Prismatic coeff. (Cp)	0.503	0.459	0.429	0.419	0.422	0.445	0.494	0.526	0.563	0.601	0.647	0.682	0.725	0.769	0.817	0.868	0.911
11	Block coeff. (Cb)	0.272	0.283	0.335	0.358	0.330	0.278	0.267	0.282	0.297	0.367	0.460	0.565	0.610	0.521	0.454	0.428	0.452
12	LCB from zero pt. (+ve fwd) m	76.518	76.519	76.515	76.514	76.530	76.535	76.523	76.511	76.541	76.572	76.608	76.638	76.633	76.628	76.587	76.548	76.522
13	LCF from zero pt. (+ve fwd) m	74.116	72.066	69.054	65.762	69.303	72.523	74.197	78.319	80.813	80.771	77.515	76.231	75.828	75.245	74.999	74.782	74.995
14	Max deck inclination deg	30.0041	20.0092	10.0229	0.7261	10.0239	20.0095	30.0041	40.0023	50.0021	60.0026	70.0023	80.0011	90.0000	99.9994	109.999	119.999	129.999
15	Trim angle (+ve by stern) deg	-0.5989	-0.6583	-0.6905	-0.7261	-0.7060	-0.6711	-0.6037	-0.6174	-0.8287	-1.4255	-2.4946	-4.9204	-90.000	-3.7371	-1.4222	-0.5942	-0.1660



Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16269	5.921	-0.725 (fixed)	80.230	0.000	0.000	2.866	6.049	8.727	10.697	12.290	13.452	13.684	13.215	12.221



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.146		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	2.0	deg	2.0		
32		<i>to the lesser of</i>					
33		first downflooding angle	35.0	deg	35.0		
34		angle of vanishing stability	130.5	deg			
35		shall not be less than (>=)	15.0	deg	33.0	Pass	+120.01
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	2.0	deg	2.0		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	35.0	deg			
43		angle of vanishing stability	130.5	deg			
44		shall not be less than (>=)	0.8590	m.deg	41.2567	Pass	+4702.88
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	2.0	deg			
53		angle of equilibrium with heel arm	2.7, 2.0, 2.1	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(35.0), (35.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	61.8, 61.8,	deg			
58		first flooding angle of the DownfloodingPoints	35.0	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.575	Pass	+13837.50
61		8.2.3.3: Launching heeling moment	0.040	m	5.721	Pass	+14202.50
62		8.2.3.3: Wind heeling arm	0.040	m	5.705	Pass	+14162.50
63		<i>Intermediate values</i>					
64		GZ(35.0 deg) heel arm A.		m	5.721		
65		HA(35.0 deg) heel arm A.		m	0.146		
66		GZ(35.0 deg) heel arm B.		m	5.721		
67		HA(35.0 deg) heel arm B.		m	0.000		
68		GZ(35.0 deg) heel arm C.		m	5.721		
69		HA(35.0 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	2.0	deg	2.0		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	61.8	deg			
78		first downflooding angle	35.0	deg	35.0		
79		shall not be less than (>=)	0.100	m	5.721	Pass	+5621.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	35.0		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	2.0	deg	2.0		
87		<i>to the lesser of</i>					
88		angle of max. GZ	61.8	deg	61.8		
89		shall be greater than (>)	0.050	m	7.236	Pass	+14372.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	61.8		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	2.0	deg	2.0		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	130.5	deg	130.5		
99		shall be greater than (>)	7.0	deg	128.4	Pass	+1734.73
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.244	Pass	+24388.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	2.0	Pass	+71.06
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	2.9	deg	2.9		
110		shall be less than (<)	100.00	%	69.04	Pass	+30.96
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	2.0		
113							

CONDICION N°:2

AVERIA

CASO N°:5

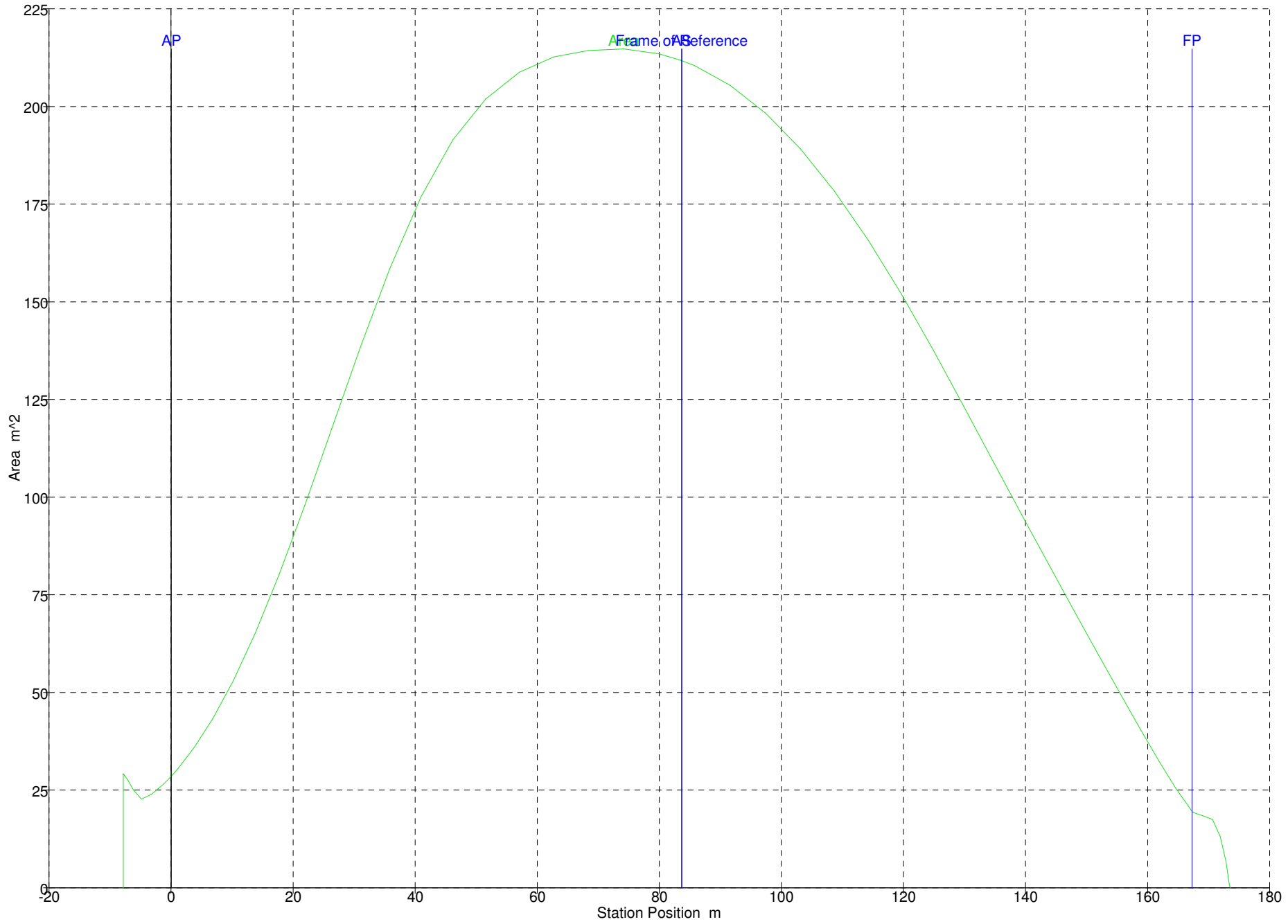
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	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	100%	82.930	82.930	80.907	80.907	147.503	0.000	1.552	0.000	IMO A.749(18)
11	LASTRE 3	100%	122.105	122.105	119.127	119.127	138.668	0.000	1.514	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	100%	360.197	360.197	351.411	351.411	79.410	0.000	1.280	0.000	IMO A.749(18)
17	LASTRE 9 (Damaged)	Damaged									
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.503	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.434	IMO A.749(18)
20	LASTRE 10	100%	14.569	14.569	14.213	14.213	58.960	-6.834	1.281	0.000	IMO A.749(18)
21	LASTRE 11 (Damaged)	Damaged									
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.597	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.997	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.997	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.578	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.131	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.299	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.740	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.321	IMO A.749(18)
36	ALMACEN F.O. 2 (Damaged)	Damaged									
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.552	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.649	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.032	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4 (Damaged)	Damaged									
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.605	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	800.355	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.333	IMO A.749(18)
54	Total Loadcase			16317.306	4916.072	3737.591	76.819	-0.079	7.047	1940.456	
55	FS correction								0.119		
56	VCG fluid								7.166		

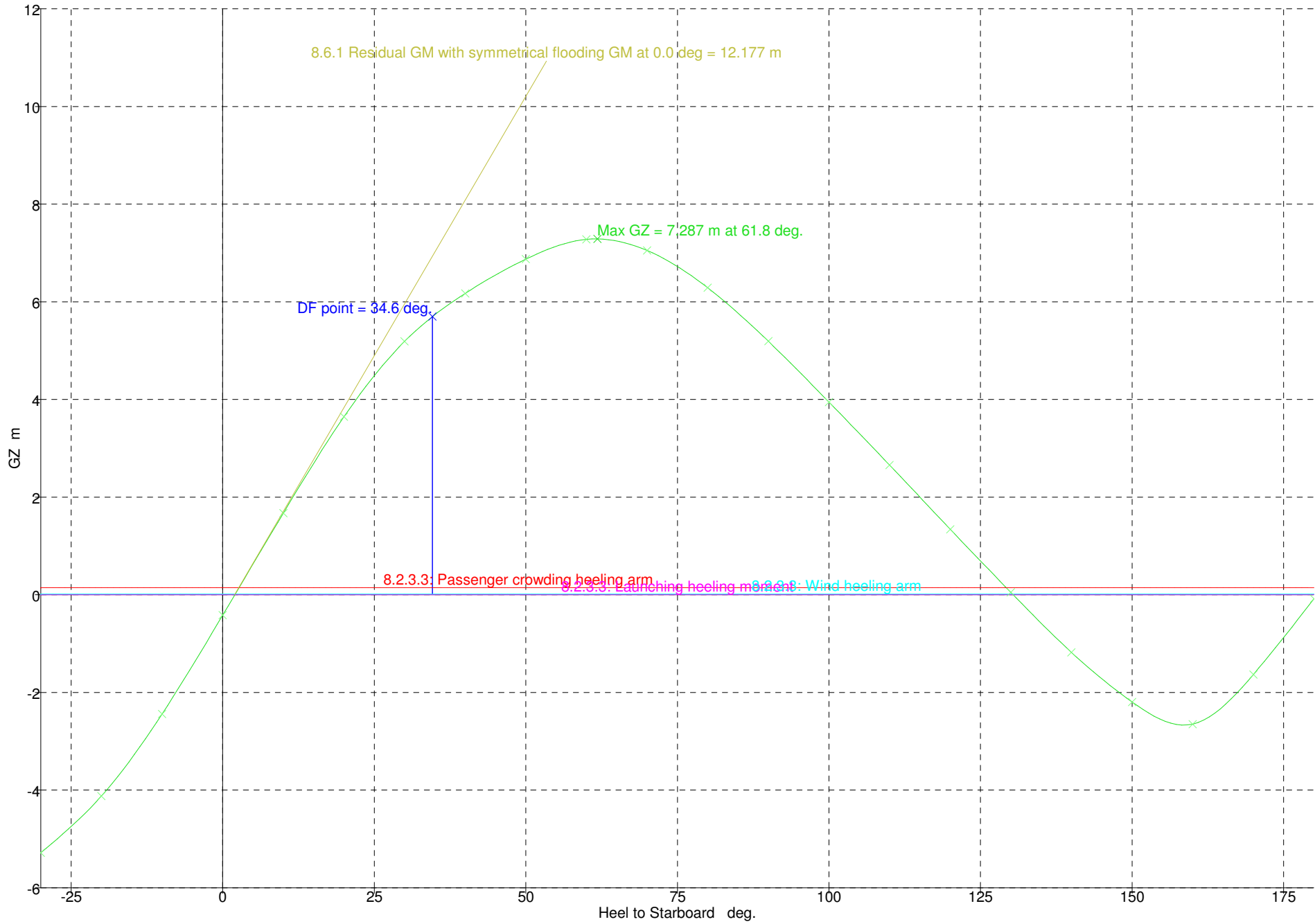
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1	Draft Amidships m	7.900
2	Displacement t	16317
3	Heel deg	2.0
4	Draft at FP m	8.902
5	Draft at AP m	6.898
6	Draft at LCF m	7.688
7	Trim (+ve by stern) m	-2.004
8	WL Length m	176.263
9	Beam max extents on WL m	28.222
10	Wetted Area m ²	6019.21
11	Waterpl. Area m ²	3175.41
12	Prismatic coeff. (Cp)	0.421
13	Block coeff. (Cb)	0.361
14	Max Sect. area coeff. (Cm)	0.935
15	Waterpl. area coeff. (Cwp)	0.638
16	LCB from zero pt. (+ve fwd) m	76.843
17	LCF from zero pt. (+ve fwd) m	65.877
18	KB m	4.414
19	KG fluid m	7.166
20	BMt m	14.954
21	BML m	607.335
22	GMt corrected m	12.199
23	GML m	604.581
24	KMt m	19.358
25	KML m	611.337
26	Immersion (TPc) tonne/cm	32.548
27	MTc tonne.m	589.925
28	RM at 1deg = GMt.Disp.sin(1) t	3474.08
29	Max deck inclination deg	2.1097
30	Trim angle (+ve by stern) deg	-0.6866



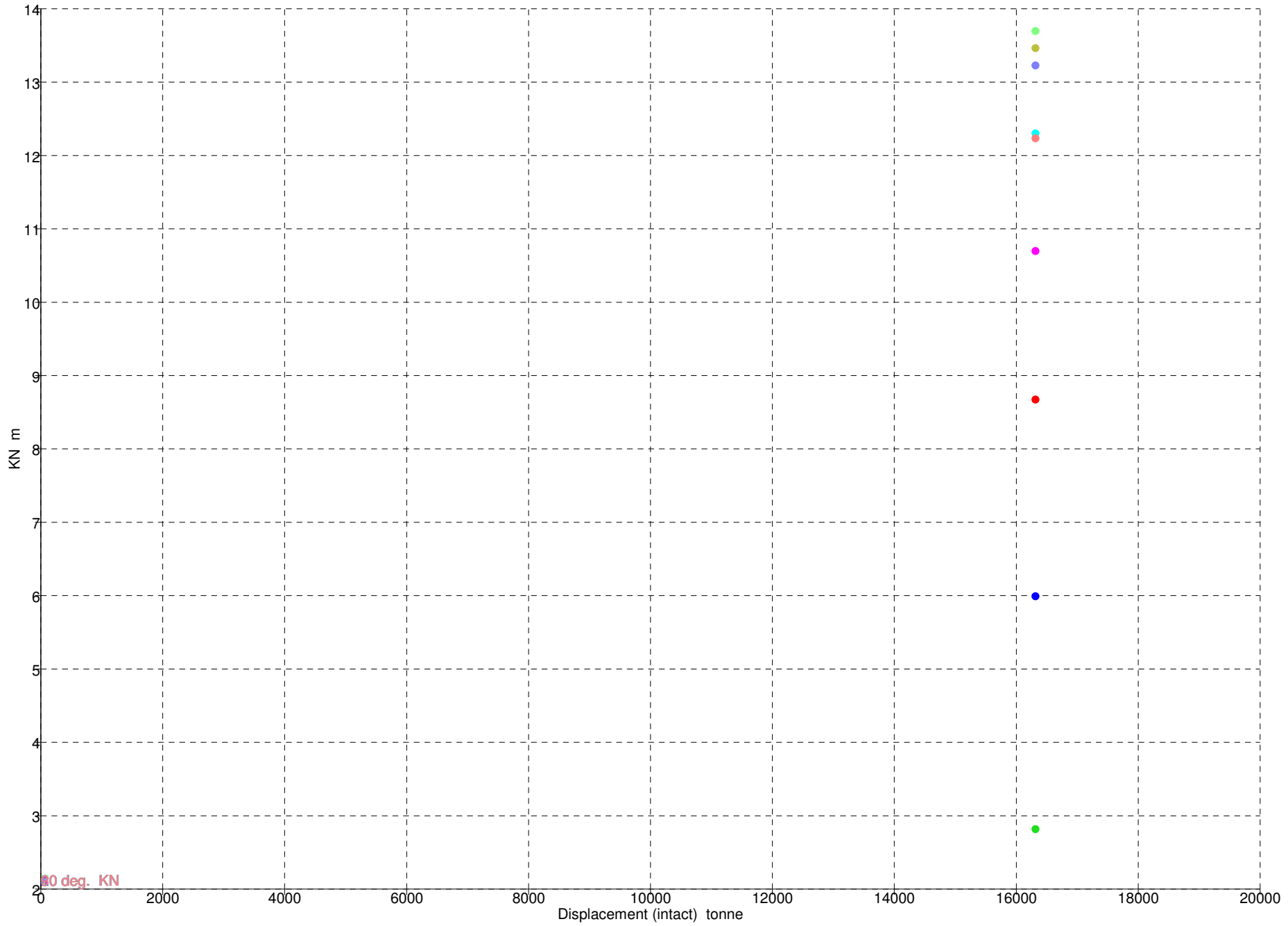
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.283	-4.121	-2.442	-0.418	1.671	3.645	5.188	6.173	6.873	7.278	7.051	6.287	5.193	3.946	2.658	1.343	0.050
2	Area under GZ curve from zero heel	95.0025	47.6934	14.4523	-0.7602	6.2813	33.0805	77.7124	134.881	200.278	271.433	343.614	410.658	468.253	514.011	547.053	567.057	573.996
3	Displacement t	16316	16316	16317	16317	16319	16319	16319	16318	16317	16317	16317	16318	16317	16317	16317	16318	16318
4	Draft at FP m	7.155	8.186	8.698	8.899	8.804	8.349	7.389	5.952	3.885	0.805	-5.182	-23.824	n/a	-50.040	-30.987	-24.532	-21.252
5	Draft at AP m	5.399	6.307	6.764	6.885	6.889	6.553	5.800	4.317	1.630	-3.178	-12.225	-37.803	n/a	-60.845	-35.235	-26.408	-21.888
6	WL Length m	179.979	175.819	176.135	176.261	176.200	175.918	175.427	181.167	181.235	179.286	174.926	175.556	176.094	176.748	177.503	178.187	178.802
7	Beam max extents on WL m	28.581	29.914	28.640	28.205	28.640	29.958	29.166	26.510	26.018	23.094	21.283	20.308	20.000	20.308	21.125	21.244	19.915
8	Wetted Area m^2	5485.80	5681.70	5847.79	6015.07	5911.02	5777.38	5632.07	5414.77	5294.04	5196.63	4983.00	4879.03	4807.75	4772.41	4775.95	4795.82	4805.31
9	Waterpl. Area m^2	2862.90	2932.92	2999.93	3175.83	3087.48	3116.52	3008.92	3082.68	3259.33	3090.31	2734.79	2552.39	2501.39	2694.94	2815.32	2926.66	3055.90
10	Prismatic coeff. (Cp)	0.505	0.461	0.430	0.421	0.423	0.447	0.495	0.525	0.563	0.601	0.647	0.682	0.724	0.769	0.816	0.867	0.908
11	Block coeff. (Cb)	0.273	0.284	0.336	0.362	0.332	0.278	0.268	0.282	0.297	0.367	0.460	0.565	0.612	0.522	0.454	0.427	0.449
12	LCB from zero pt. (+ve fwd) m	76.855	76.855	76.850	76.849	76.854	76.854	76.856	76.854	76.873	76.905	76.941	76.963	76.966	76.961	76.939	76.890	76.862
13	LCF from zero pt. (+ve fwd) m	74.372	72.245	69.103	65.828	69.000	72.181	73.958	78.299	80.782	80.866	77.624	76.361	75.970	75.691	75.513	75.262	75.366
14	Max deck inclination deg	30.0041	20.0088	10.0210	0.6899	10.0206	20.0080	30.0034	40.0019	50.0018	60.0023	70.0022	80.0011	90.0000	99.9994	109.999	119.999	129.999
15	Trim angle (+ve by stern) deg	-0.6017	-0.6440	-0.6625	-0.6899	-0.6559	-0.6154	-0.5445	-0.5600	-0.7728	-1.3646	-2.4114	-4.7784	-90.000	-3.6969	-1.4552	-0.6428	-0.2177



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16317	5.931	-0.687 (fixed)	80.117	0.000	0.000	2.815	5.990	8.669	10.696	12.298	13.461	13.693	13.225	12.232



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.146		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	2.0	deg	2.0		
32		<i>to the lesser of</i>					
33		first downflooding angle	34.6	deg	34.6		
34		angle of vanishing stability	130.4	deg			
35		shall not be less than (>=)	15.0	deg	32.6	Pass	+117.43
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	2.0	deg	2.0		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	34.6	deg			
43		angle of vanishing stability	130.4	deg			
44		shall not be less than (>=)	0.8590	m.deg	41.1427	Pass	+4689.61
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	2.0	deg			
53		angle of equilibrium with heel arm	2.7, 2.0, 2.1	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(34.6), (34.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	61.8, 61.8,	deg			
58		first flooding angle of the DownfloodingPoints	34.6	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.552	Pass	+13780.00
61		8.2.3.3: Launching heeling moment	0.040	m	5.698	Pass	+14145.00
62		8.2.3.3: Wind heeling arm	0.040	m	5.682	Pass	+14105.00
63		<i>Intermediate values</i>					
64		GZ(34.6 deg) heel arm A.		m	5.698		
65		HA(34.6 deg) heel arm A.		m	0.146		
66		GZ(34.6 deg) heel arm B.		m	5.698		
67		HA(34.6 deg) heel arm B.		m	0.000		
68		GZ(34.6 deg) heel arm C.		m	5.698		
69		HA(34.6 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	2.0	deg	2.0		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	61.8	deg			
78		first downflooding angle	34.6	deg	34.6		
79		shall not be less than (>=)	0.100	m	5.698	Pass	+5598.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	34.6		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	2.0	deg	2.0		
87		<i>to the lesser of</i>					
88		angle of max. GZ	61.8	deg	61.8		
89		shall be greater than (>)	0.050	m	7.287	Pass	+14474.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	61.8		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	2.0	deg	2.0		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	130.4	deg	130.4		
99		shall be greater than (>)	7.0	deg	128.4	Pass	+1734.24
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.177	Pass	+24254.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	2.0	Pass	+71.46
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	3.2	deg	3.2		
110		shall be less than (<)	100.00	%	61.81	Pass	+38.19
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	2.0		
113							

CONDICION N°:2

AVERIA

CASO N°:6

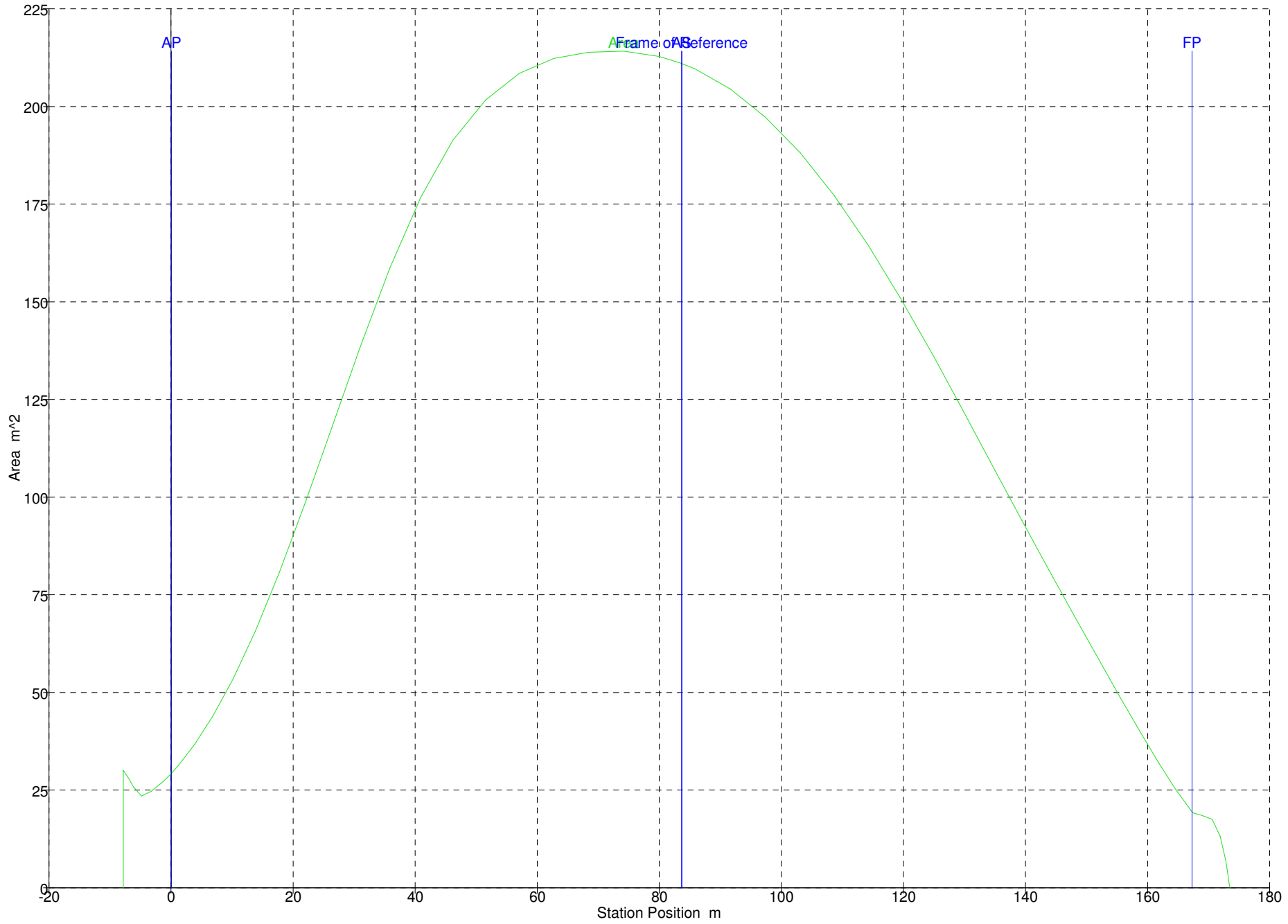
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	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	100%	82.930	82.930	80.907	80.907	147.503	0.000	1.552	0.000	IMO A.749(18)
11	LASTRE 3	100%	122.105	122.105	119.127	119.127	138.668	0.000	1.514	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	100%	360.197	360.197	351.411	351.411	79.410	0.000	1.280	0.000	IMO A.749(18)
17	LASTRE 9	100%	360.202	360.202	351.416	351.416	70.870	0.000	1.280	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.502	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.433	IMO A.749(18)
20	LASTRE 10	100%	14.569	14.569	14.213	14.213	58.960	-6.834	1.281	0.000	IMO A.749(18)
21	LASTRE 11 (Damaged)	Damaged									
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.596	IMO A.749(18)
24	LASTRE 13 (Damaged)	Damaged									
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.997	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.997	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.578	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.131	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.299	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.736	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.317	IMO A.749(18)
36	ALMACEN F.O. 2 (Damaged)	Damaged									
37	ALMACEN D.O. (Damaged)	Damaged									
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.649	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.031	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4 (Damaged)	Damaged									
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.545	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	800.299	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5 (Damaged)	Damaged									
54	Total Loadcase			16362.726	4776.861	3778.326	77.131	-0.126	7.024	1841.442	
55	FS correction								0.113		
56	VCG fluid								7.137		

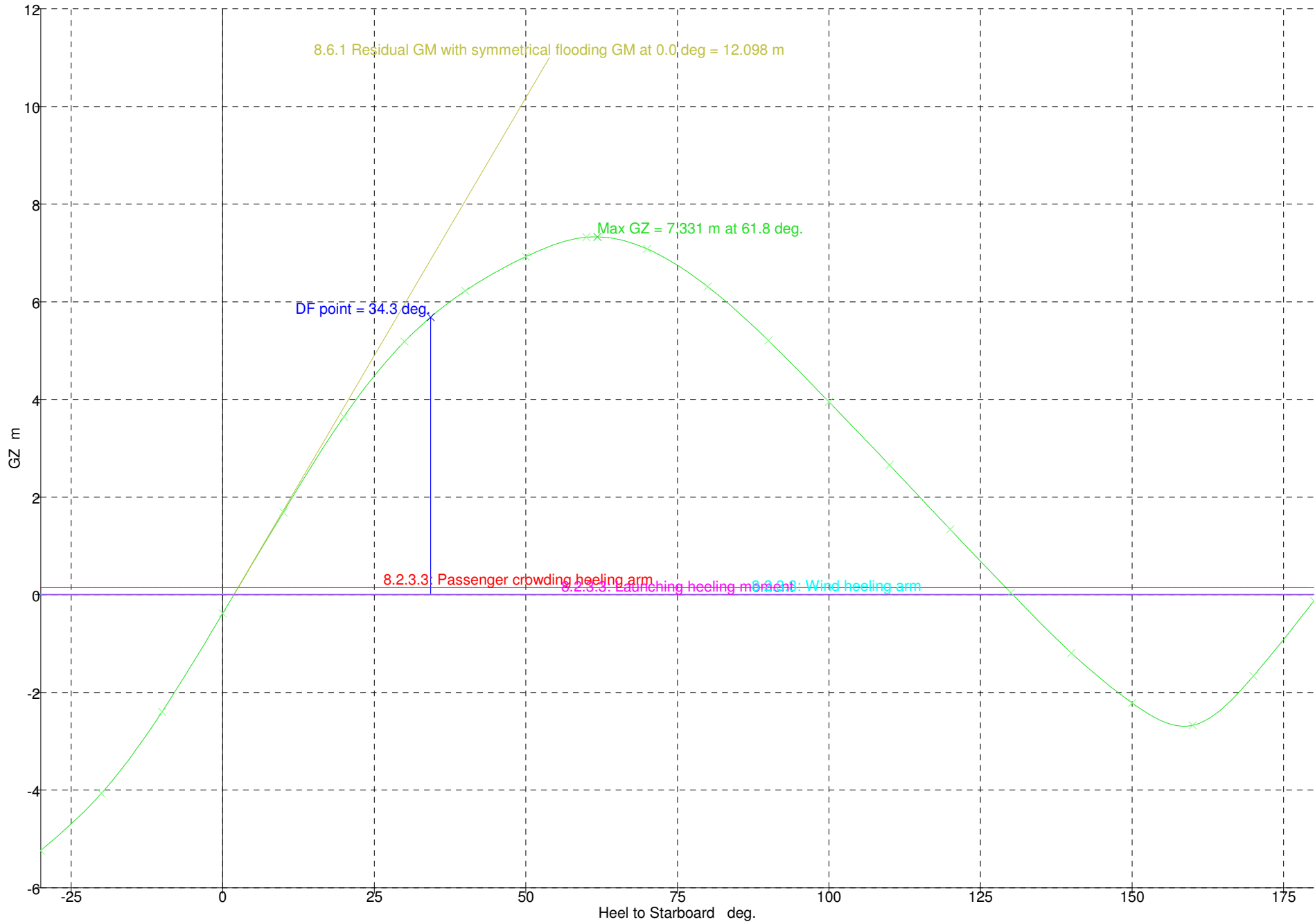
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1	Draft Amidships m	7.873
2	Displacement t	16363
3	Heel deg	1.9
4	Draft at FP m	8.823
5	Draft at AP m	6.923
6	Draft at LCF m	7.672
7	Trim (+ve by stern) m	-1.900
8	WL Length m	176.213
9	Beam max extents on WL m	28.220
10	Wetted Area m ²	6007.22
11	Waterpl. Area m ²	3167.57
12	Prismatic coeff. (Cp)	0.423
13	Block coeff. (Cb)	0.366
14	Max Sect. area coeff. (Cm)	0.937
15	Waterpl. area coeff. (Cwp)	0.637
16	LCB from zero pt. (+ve fwd) m	77.153
17	LCF from zero pt. (+ve fwd) m	65.901
18	KB m	4.383
19	KG fluid m	7.137
20	BMt m	14.872
21	BML m	601.363
22	GMt corrected m	12.117
23	GML m	598.607
24	KMt m	19.247
25	KML m	605.385
26	Immersion (TPc) tonne/cm	32.468
27	MTc tonne.m	585.722
28	RM at 1deg = GMt.Disp.sin(1) t	3460.28
29	Max deck inclination deg	1.9858
30	Trim angle (+ve by stern) deg	-0.6509



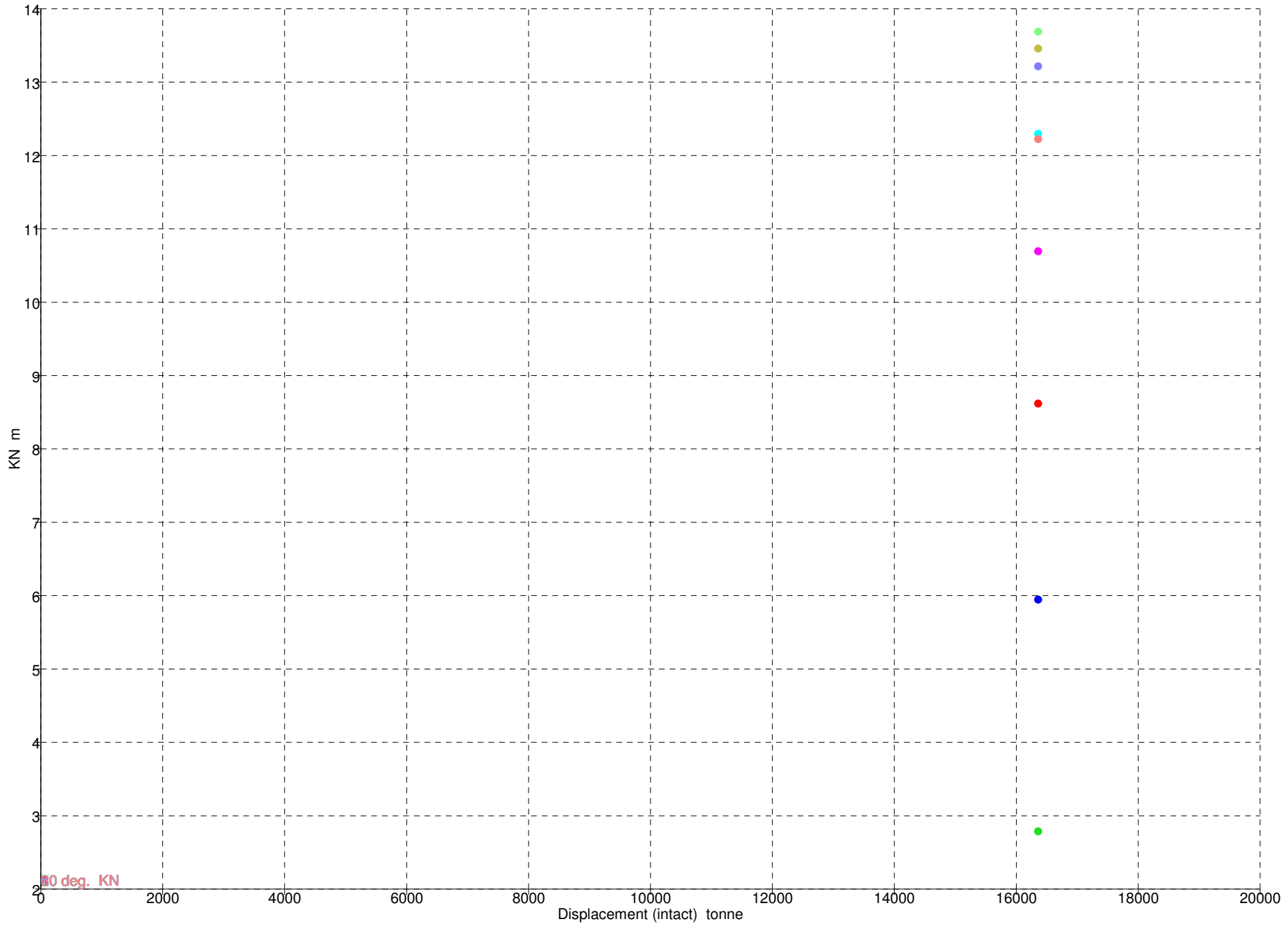
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.236	-4.066	-2.395	-0.382	1.691	3.649	5.186	6.223	6.924	7.324	7.083	6.311	5.208	3.949	2.656	1.339	0.043
2	Area under GZ curve from zero heel	93.5430	46.7584	14.0354	-0.6942	6.5643	33.4851	78.0841	135.493	201.435	273.069	345.643	412.964	470.755	516.602	549.646	569.627	576.517
3	Displacement t	16361	16361	16363	16363	16363	16364	16364	16364	16362	16363	16363	16364	16363	16362	16363	16363	16363
4	Draft at FP m	7.152	8.153	8.637	8.823	8.709	8.251	7.286	5.874	3.816	0.733	-5.284	-23.981	n/a	-50.059	-30.922	-24.431	-21.155
5	Draft at AP m	5.375	6.301	6.779	6.909	6.930	6.603	5.858	4.403	1.717	-3.080	-12.088	-37.564	n/a	-60.749	-35.238	-26.447	-21.929
6	WL Length m	179.988	175.798	176.097	176.213	176.140	175.856	179.592	181.202	181.200	179.182	174.886	175.530	176.076	176.745	177.516	178.215	178.833
7	Beam max extents on WL m	28.556	29.910	28.640	28.205	28.640	29.957	29.153	26.504	25.995	23.094	21.283	20.308	20.000	20.308	21.127	21.256	19.954
8	Wetted Area m^2	5479.27	5673.55	5839.11	6003.53	5903.45	5769.66	5624.45	5419.16	5296.60	5198.30	4985.17	4882.17	4811.44	4775.19	4779.78	4801.17	4812.21
9	Waterpl. Area m^2	2861.55	2927.02	2995.51	3168.20	3073.99	3106.27	3020.51	3095.66	3264.88	3089.42	2733.42	2551.92	2501.79	2686.24	2819.01	2931.67	3059.85
10	Prismatic coeff. (Cp)	0.507	0.463	0.433	0.423	0.426	0.449	0.486	0.526	0.563	0.602	0.648	0.683	0.725	0.770	0.817	0.866	0.905
11	Block coeff. (Cb)	0.275	0.285	0.337	0.366	0.333	0.280	0.263	0.282	0.298	0.368	0.460	0.565	0.615	0.524	0.454	0.426	0.447
12	LCB from zero pt. (+ve fwd) m	77.167	77.166	77.148	77.159	77.165	77.165	77.165	77.171	77.181	77.213	77.249	77.271	77.275	77.269	77.248	77.220	77.178
13	LCF from zero pt. (+ve fwd) m	74.636	72.431	69.168	65.868	68.785	71.849	73.701	78.291	80.773	80.951	77.707	76.467	76.087	76.177	75.996	75.722	75.724
14	Max deck inclination deg	30.0042	20.0085	10.0194	0.6559	10.0178	20.0068	30.0027	40.0015	50.0016	60.0021	70.0020	80.0010	90.0000	99.9994	109.999	119.999	129.999
15	Trim angle (+ve by stern) deg	-0.6087	-0.6344	-0.6366	-0.6559	-0.6097	-0.5648	-0.4891	-0.5039	-0.7190	-1.3063	-2.3300	-4.6434	-90.000	-3.6577	-1.4782	-0.6905	-0.2652



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16363	5.940	-0.651 (fixed)	80.012	0.000	0.000	2.784	5.943	8.615	10.691	12.294	13.454	13.684	13.214	12.222



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.145		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.8	deg	1.8		
32		<i>to the lesser of</i>					
33		first downflooding angle	34.3	deg	34.3		
34		angle of vanishing stability	130.3	deg			
35		shall not be less than (>=)	15.0	deg	32.5	Pass	+116.35
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.8	deg	1.8		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	34.3	deg			
43		angle of vanishing stability	130.3	deg			
44		shall not be less than (>=)	0.8590	m.deg	41.4837	Pass	+4729.30
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.8	deg			
53		angle of equilibrium with heel arm	2.5, 1.8, 1.9	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(34.3), (34.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	61.8, 61.8,	deg			
58		first flooding angle of the DownfloodingPoints	34.3	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.540	Pass	+13750.00
61		8.2.3.3: Launching heeling moment	0.040	m	5.685	Pass	+14112.50
62		8.2.3.3: Wind heeling arm	0.040	m	5.669	Pass	+14072.50
63		<i>Intermediate values</i>					
64		GZ(34.3 deg) heel arm A.		m	5.685		
65		HA(34.3 deg) heel arm A.		m	0.145		
66		GZ(34.3 deg) heel arm B.		m	5.685		
67		HA(34.3 deg) heel arm B.		m	0.000		
68		GZ(34.3 deg) heel arm C.		m	5.685		
69		HA(34.3 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.8	deg	1.8		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	61.8	deg			
78		first downflooding angle	34.3	deg	34.3		
79		shall not be less than (>=)	0.100	m	5.685	Pass	+5585.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	34.3		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.8	deg	1.8		
87		<i>to the lesser of</i>					
88		angle of max. GZ	61.8	deg	61.8		
89		shall be greater than (>)	0.050	m	7.331	Pass	+14562.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	61.8		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.8	deg	1.8		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	130.3	deg	130.3		
99		shall be greater than (>)	7.0	deg	128.5	Pass	+1735.71
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.098	Pass	+24096.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.8	Pass	+73.76
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	3.6	deg	3.6		
110		shall be less than (<)	100.00	%	51.48	Pass	+48.52
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.8		
113							

CONDICION N°:2

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CASO N°:7

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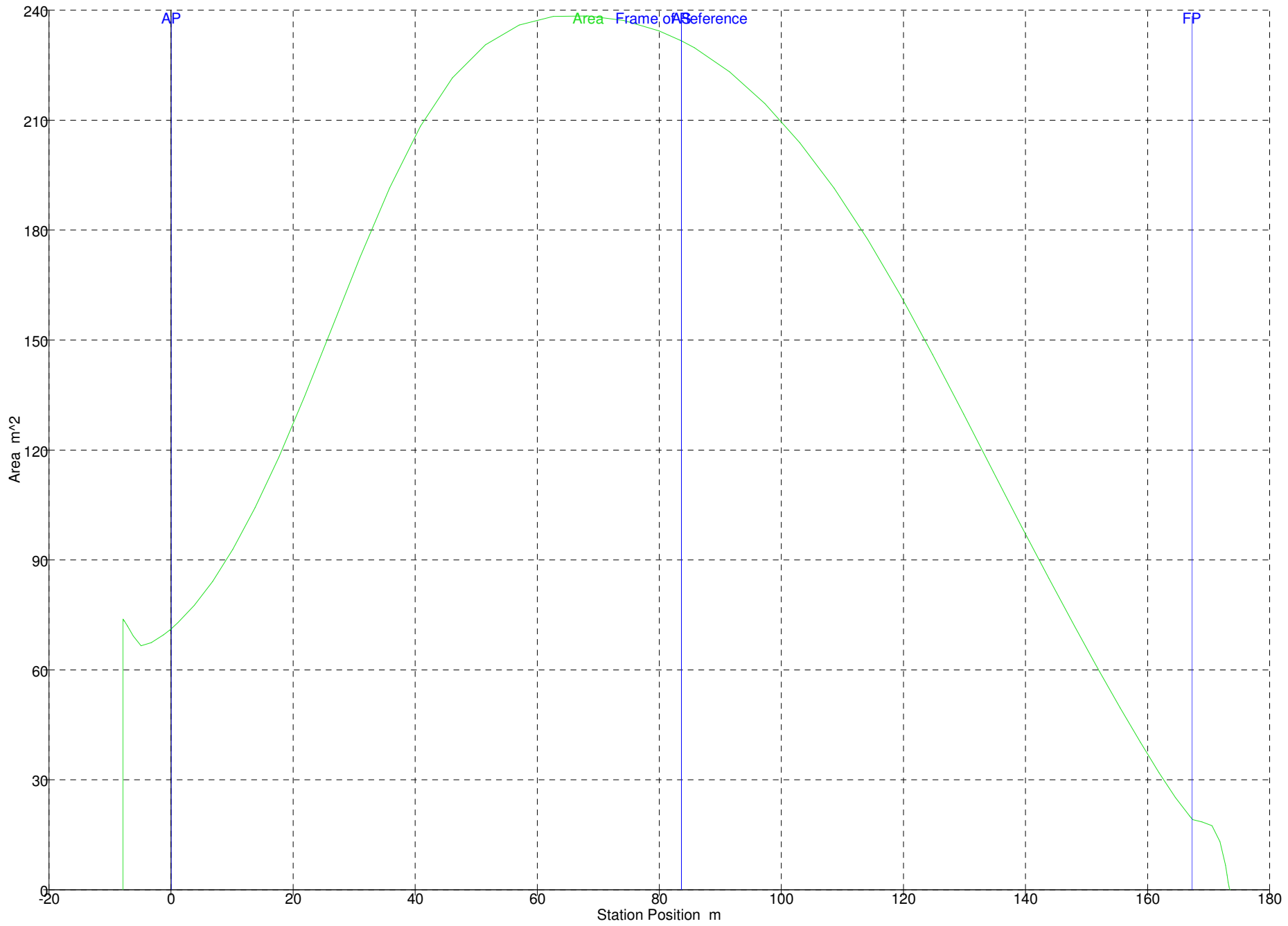
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	100%	82.930	82.930	80.907	80.907	147.503	0.000	1.552	0.000	IMO A.749(18)
11	LASTRE 3	100%	122.105	122.105	119.127	119.127	138.668	0.000	1.514	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	100%	360.197	360.197	351.411	351.411	79.410	0.000	1.280	0.000	IMO A.749(18)
17	LASTRE 9	100%	360.202	360.202	351.416	351.416	70.870	0.000	1.280	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.499	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.430	IMO A.749(18)
20	LASTRE 10	100%	14.569	14.569	14.213	14.213	58.960	-6.834	1.281	0.000	IMO A.749(18)
21	LASTRE 11	100%	290.990	290.990	283.893	283.893	62.330	1.625	1.280	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.593	IMO A.749(18)
24	LASTRE 13 (Damaged)	Damaged									
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.996	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.996	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.129	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.714	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.293	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.714	IMO A.749(18)
37	ALMACEN D.O. (Damaged)	Damaged									
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.647	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.023	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.208	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	799.985	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5 (Damaged)	Damaged									
54	Total Loadcase			16674.881	5282.024	4084.632	76.853	-0.082	6.919	1895.434	
55	FS correction								0.114		
56	VCG fluid								7.032		

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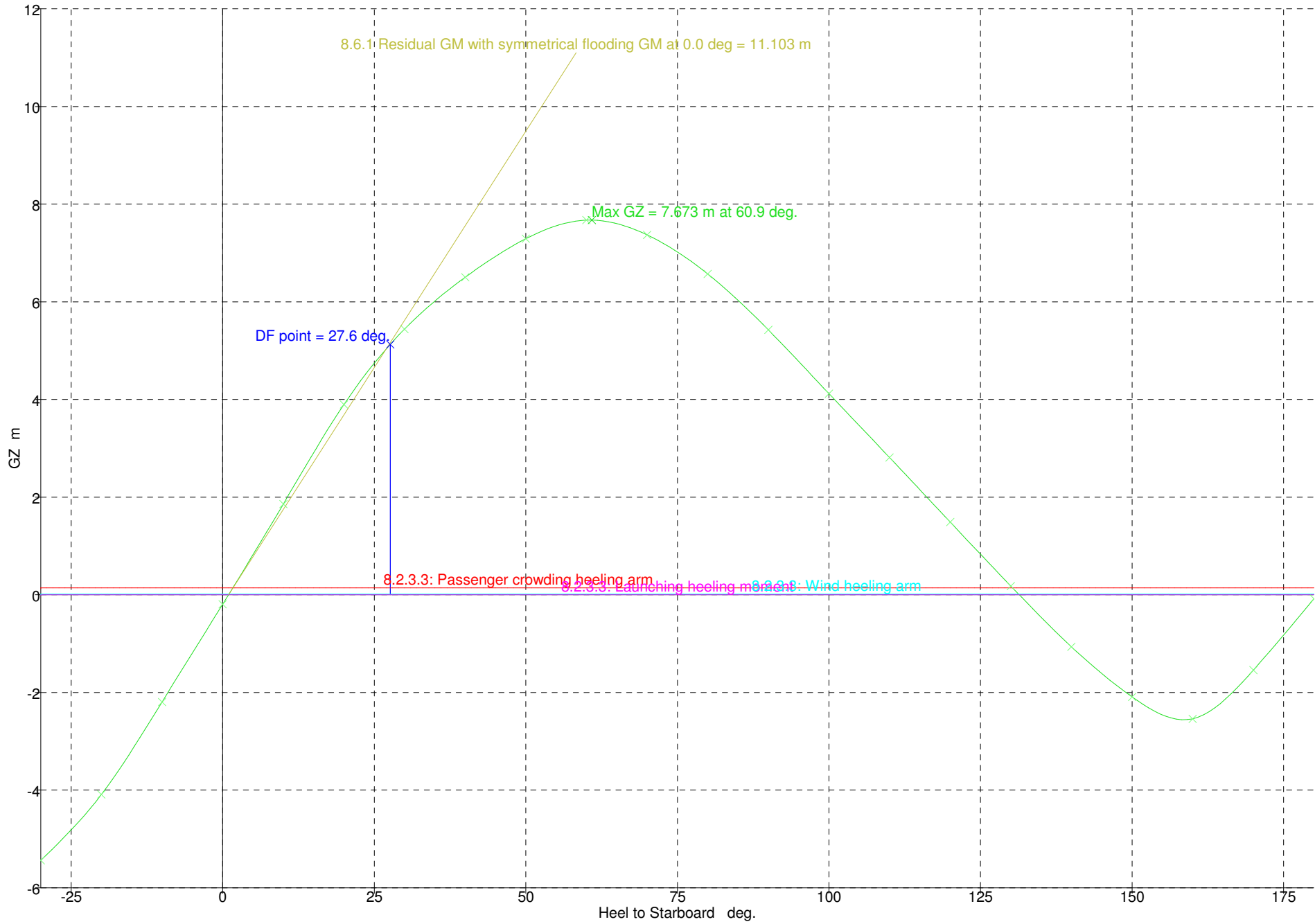
1	Draft Amidships m	8.606
2	Displacement t	16675
3	Heel deg	1.0
4	Draft at FP m	8.801
5	Draft at AP m	8.410
6	Draft at LCF m	8.575
7	Trim (+ve by stern) m	-0.391
8	WL Length m	176.182
9	Beam max extents on WL m	28.209
10	Wetted Area m ²	6329.22
11	Waterpl. Area m ²	2780.97
12	Prismatic coeff. (Cp)	0.387
13	Block coeff. (Cb)	0.372
14	Max Sect. area coeff. (Cm)	0.965
15	Waterpl. area coeff. (Cwp)	0.560
16	LCB from zero pt. (+ve fwd) m	76.851
17	LCF from zero pt. (+ve fwd) m	70.372
18	KB m	4.841
19	KG fluid m	7.032
20	BMt m	13.309
21	BML m	579.501
22	GMt corrected m	11.118
23	GML m	577.310
24	KMt m	18.148
25	KML m	584.257
26	Immersion (TPc) tonne/cm	28.505
27	MTc tonne.m	575.660
28	RM at 1deg = GMt.Disp.sin(1) t	3235.48
29	Max deck inclination deg	0.9825
30	Trim angle (+ve by stern) deg	-0.1339

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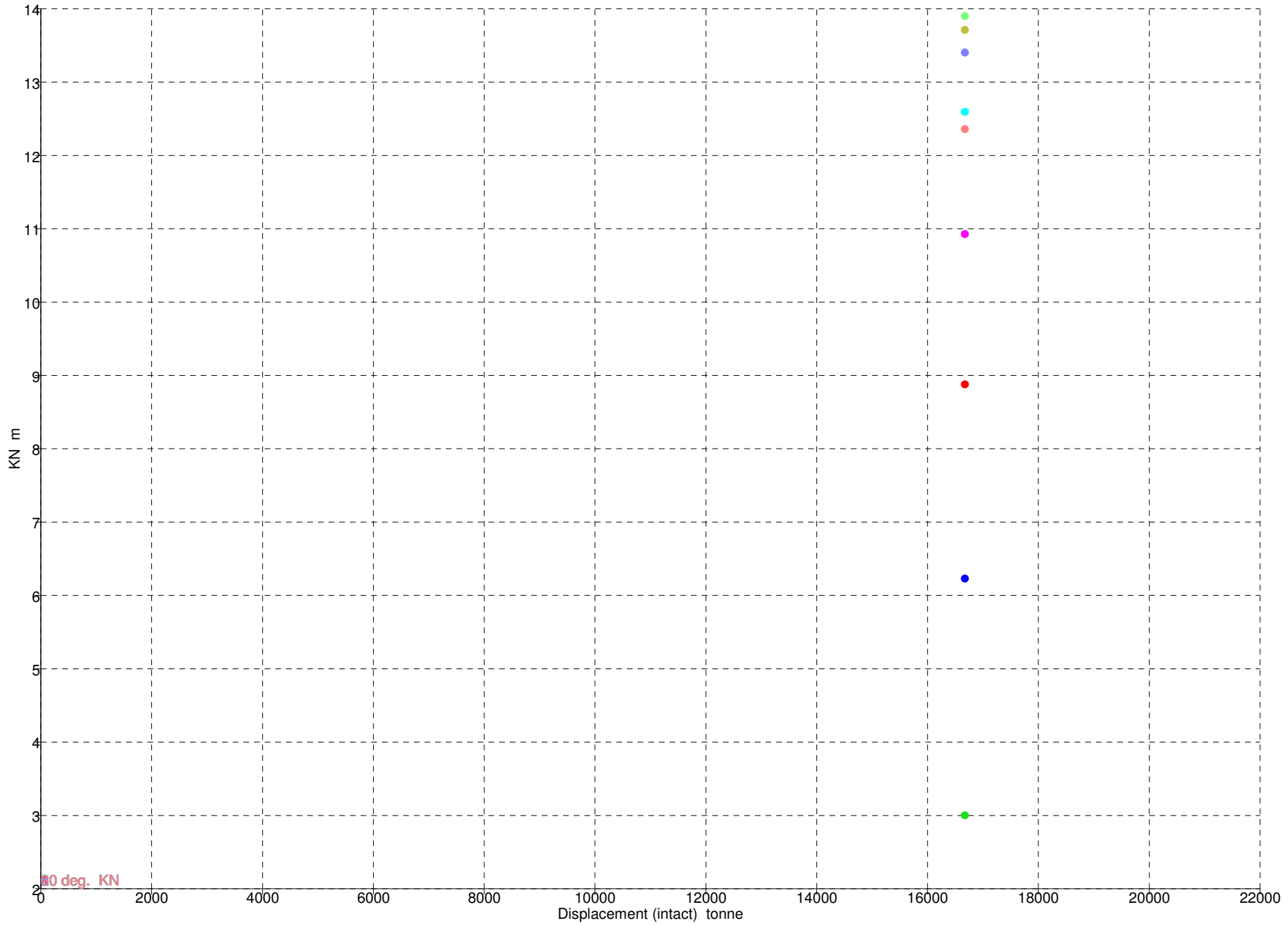
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.439	-4.089	-2.194	-0.194	1.860	3.897	5.442	6.502	7.290	7.672	7.371	6.571	5.426	4.119	2.812	1.488	0.180
2	Area under GZ curve from zero heel	91.6436	43.6628	11.9352	-0.3517	8.2536	37.2509	84.4218	144.434	213.623	288.924	364.668	434.715	494.913	542.685	577.338	598.844	607.164
3	Displacement t	16674	16676	16675	16675	16675	16676	16675	16674	16675	16675	16675	16675	16674	16675	16675	16675	16675
4	Draft at FP m	6.989	7.987	8.587	8.800	8.610	8.016	7.033	5.606	3.535	0.399	-5.789	-24.877	n/a	-50.675	-31.119	-24.473	-21.129
5	Draft at AP m	7.034	7.948	8.331	8.407	8.397	8.090	7.282	5.769	3.100	-1.389	-9.786	-33.467	n/a	-58.064	-34.148	-25.868	-21.600
6	WL Length m	180.351	175.683	176.051	176.181	176.064	175.700	180.317	181.271	181.044	178.429	174.690	175.377	175.948	176.663	177.470	178.199	178.839
7	Beam max extents on WL m	30.115	30.015	28.640	28.205	28.640	30.015	30.363	27.289	26.108	23.094	21.283	20.308	20.000	20.308	21.175	21.472	20.163
8	Wetted Area m^2	5831.45	6060.70	6288.53	6327.79	6308.23	6103.73	5897.82	5645.35	5493.58	5350.87	5122.00	4998.34	4907.18	4850.33	4844.94	4861.46	4868.93
9	Waterpl. Area m^2	2863.37	3006.36	3039.78	2780.20	3112.27	3096.99	2935.99	3073.89	3241.25	2952.94	2621.81	2428.33	2383.23	2571.33	2764.25	2893.18	3033.33
10	Prismatic coeff. (Cp)	0.457	0.418	0.394	0.387	0.391	0.413	0.447	0.494	0.536	0.580	0.627	0.664	0.708	0.757	0.806	0.861	0.906
11	Block coeff. (Cb)	0.247	0.268	0.314	0.373	0.312	0.265	0.242	0.266	0.291	0.362	0.451	0.553	0.632	0.538	0.463	0.429	0.449
12	LCB from zero pt. (+ve fwd) m	76.848	76.858	76.853	76.842	76.860	76.855	76.859	76.840	76.853	76.878	76.915	76.935	76.944	76.950	76.934	76.913	76.882
13	LCF from zero pt. (+ve fwd) m	74.947	72.658	69.416	70.361	69.242	72.190	74.446	78.192	80.576	82.483	79.435	78.343	77.937	77.523	77.186	76.781	76.502
14	Max deck inclination deg	30.0000	20.0000	10.0004	0.1346	10.0003	20.0000	30.0001	40.0000	50.0001	60.0005	70.0007	80.0004	90.0000	99.9997	109.999	119.999	129.999
15	Trim angle (+ve by stern) deg	0.0152	-0.0135	-0.0877	-0.1346	-0.0730	0.0254	0.0853	0.0562	-0.1489	-0.6125	-1.3691	-2.9406	-90.000	-2.5300	-1.0375	-0.4777	-0.1612



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16675	5.981	-0.134 (fixed)	78.540	0.000	0.000	2.998	6.226	8.876	10.926	12.592	13.711	13.898	13.401	12.357



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.142		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.015		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.0	deg	1.0		
32		<i>to the lesser of</i>					
33		first downflooding angle	27.6	deg	27.6		
34		angle of vanishing stability	131.4	deg			
35		shall not be less than (>=)	15.0	deg	26.7	Pass	+77.83
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.0	deg	1.0		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	27.6	deg			
43		angle of vanishing stability	131.4	deg			
44		shall not be less than (>=)	0.8590	m.deg	45.4972	Pass	+5196.53
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.0	deg			
53		angle of equilibrium with heel arm	1.7, 1.0, 1.0	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(27.6), (27.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.9,	deg			
58		first flooding angle of the DownfloodingPoints	27.6	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	4.985	Pass	+12362.50
61		8.2.3.3: Launching heeling moment	0.040	m	5.127	Pass	+12717.50
62		8.2.3.3: Wind heeling arm	0.040	m	5.112	Pass	+12680.00
63		<i>Intermediate values</i>					
64		GZ(27.6 deg) heel arm A.		m	5.127		
65		HA(27.6 deg) heel arm A.		m	0.142		
66		GZ(27.6 deg) heel arm B.		m	5.127		
67		HA(27.6 deg) heel arm B.		m	0.000		
68		GZ(27.6 deg) heel arm C.		m	5.127		
69		HA(27.6 deg) heel arm C.		m	0.015		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.0	deg	1.0		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	27.6	deg	27.6		
79		shall not be less than (>=)	0.100	m	5.127	Pass	+5027.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	27.6		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.0	deg	1.0		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.673	Pass	+15246.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.0	deg	1.0		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	131.4	deg	131.4		
99		shall be greater than (>)	7.0	deg	130.4	Pass	+1763.31
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	11.103	Pass	+22106.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.0	Pass	+86.27
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	3.3	deg	3.3		
110		shall be less than (<)	100.00	%	28.81	Pass	+71.19
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.0		
113							

CONDICION N°:2

AVERIA

CASO N°:8

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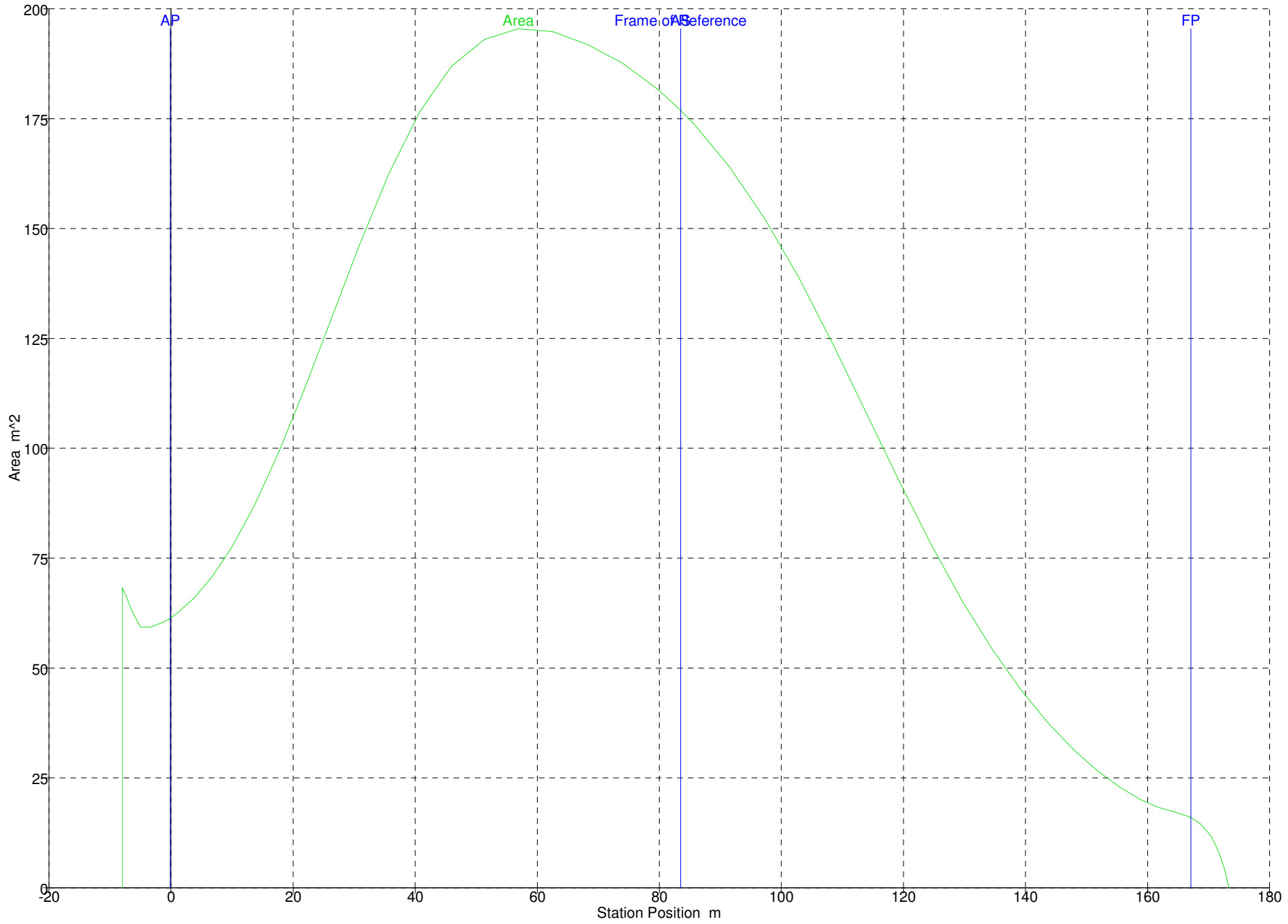
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	1	142.500	142.500			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	1	100.000	100.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	1	200.000	200.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	1	200.000	200.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	100%	82.930	82.930	80.907	80.907	147.503	0.000	1.552	0.000	IMO A.749(18)
11	LASTRE 3	100%	122.105	122.105	119.127	119.127	138.668	0.000	1.514	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	100%	360.197	360.197	351.411	351.411	79.410	0.000	1.280	0.000	IMO A.749(18)
17	LASTRE 9	100%	360.202	360.202	351.416	351.416	70.870	0.000	1.280	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.498	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.429	IMO A.749(18)
20	LASTRE 10	100%	14.569	14.569	14.213	14.213	58.960	-6.834	1.281	0.000	IMO A.749(18)
21	LASTRE 11	100%	290.990	290.990	283.893	283.893	62.330	1.625	1.280	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.592	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.996	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.996	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.128	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.707	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.285	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.707	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.525	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.646	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.020	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.093	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	799.877	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.301	IMO A.749(18)
54	Total Loadcase			16989.663	5772.652	4395.313	76.426	-0.035	6.821	1994.005	
55	FS correction								0.117		
56	VCG fluid								6.939		

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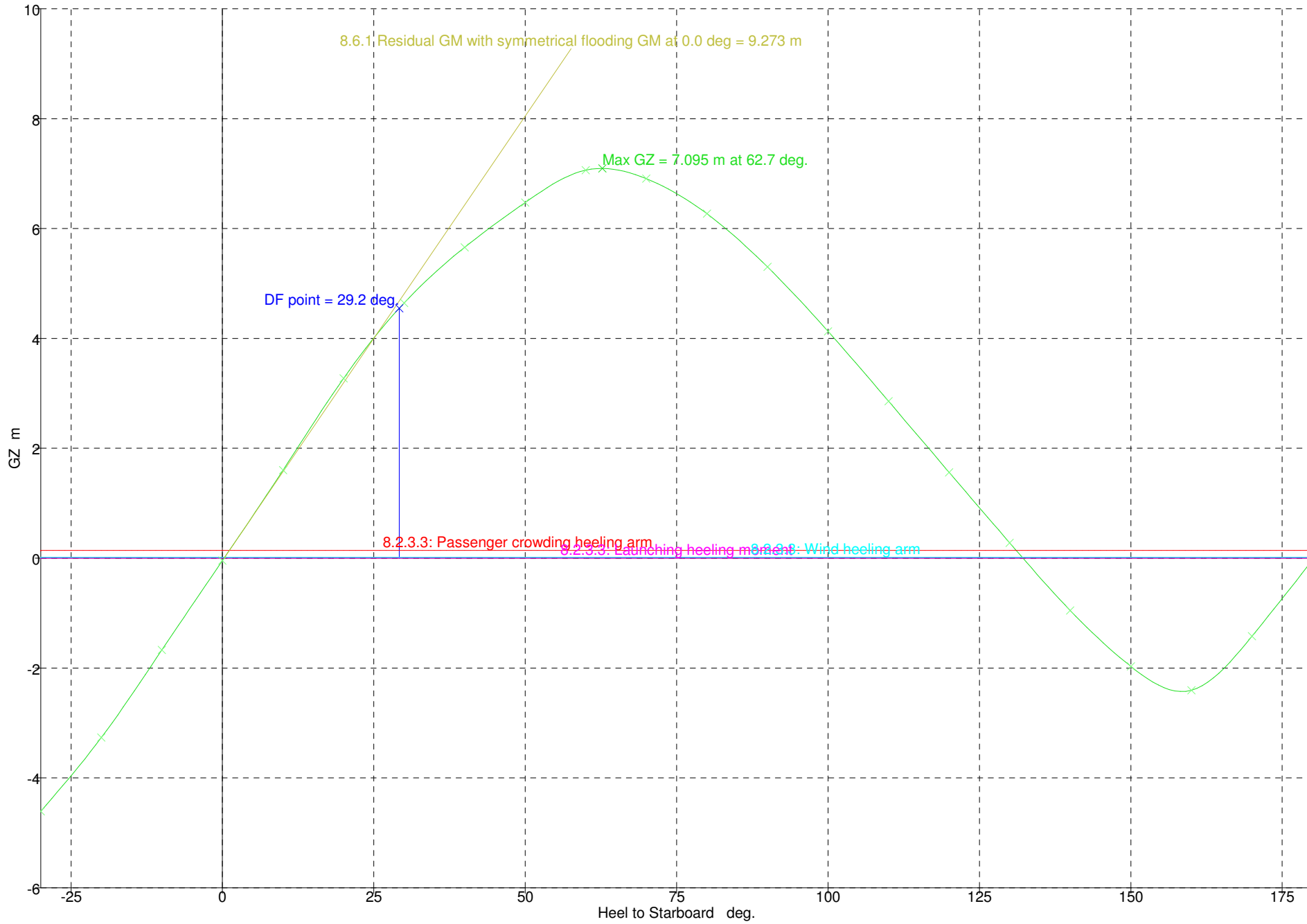
1	Draft Amidships m	6.665
2	Displacement t	16990
3	Heel deg	0.3
4	Draft at FP m	5.269
5	Draft at AP m	8.062
6	Draft at LCF m	6.845
7	Trim (+ve by stern) m	2.792
8	WL Length m	181.391
9	Beam max extents on WL m	28.205
10	Wetted Area m ²	5447.99
11	Waterpl. Area m ²	3475.48
12	Prismatic coeff. (Cp)	0.467
13	Block coeff. (Cb)	0.452
14	Max Sect. area coeff. (Cm)	0.972
15	Waterpl. area coeff. (Cwp)	0.679
16	LCB from zero pt. (+ve fwd) m	76.381
17	LCF from zero pt. (+ve fwd) m	72.876
18	KB m	3.984
19	KG fluid m	6.939
20	BMt m	12.228
21	BML m	455.573
22	GMt corrected m	9.274
23	GML m	452.618
24	KMt m	16.211
25	KML m	459.489
26	Immersion (TPc) tonne/cm	35.624
27	MTc tonne.m	459.844
28	RM at 1deg = GMt.Disp.sin(1) t	2749.74
29	Max deck inclination deg	0.9902
30	Trim angle (+ve by stern) deg	0.9566

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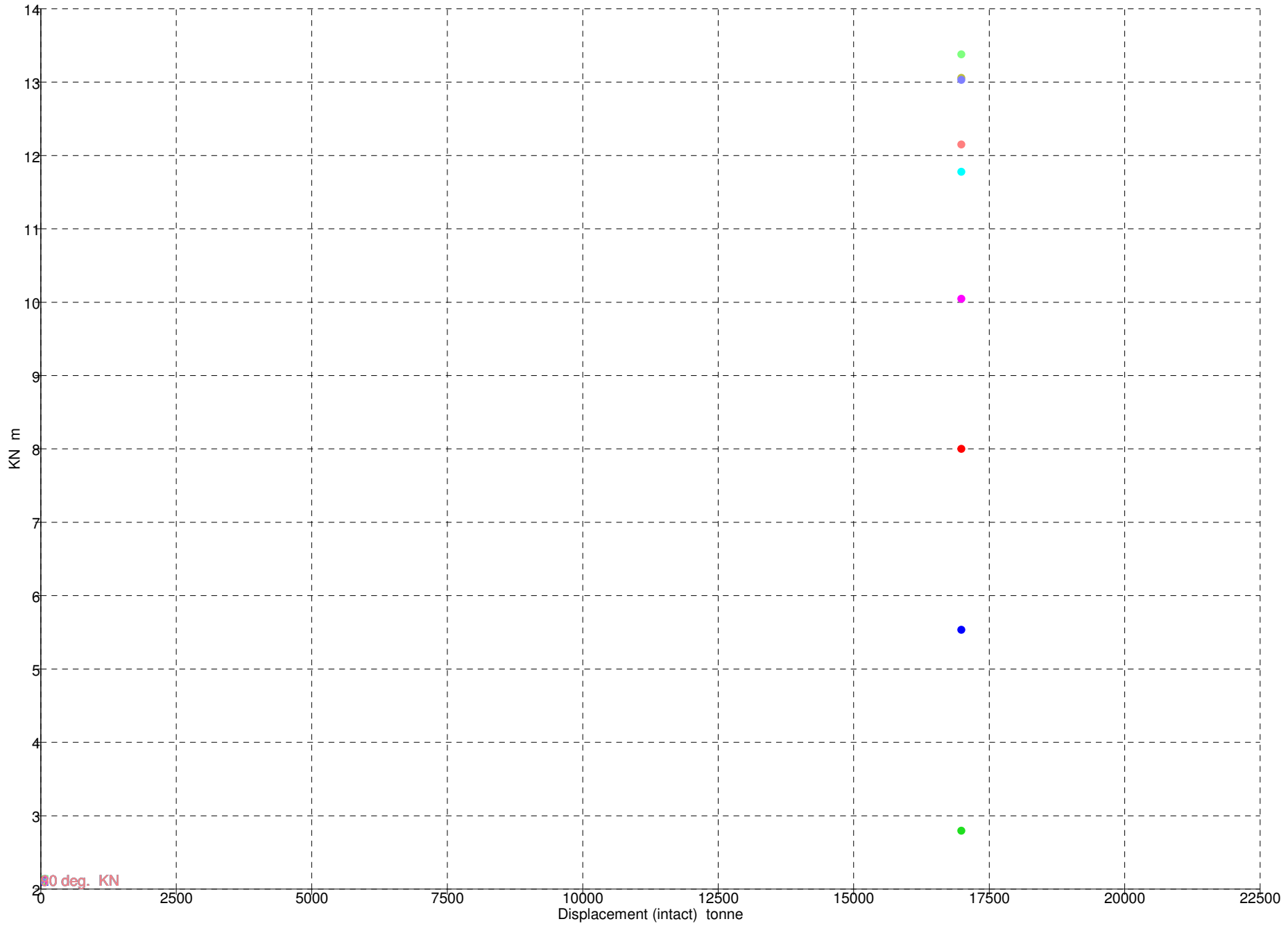
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.607	-3.266	-1.671	-0.044	1.601	3.273	4.646	5.659	6.475	7.064	6.907	6.270	5.301	4.130	2.856	1.564	0.279
2	Area under GZ curve from zero heel	72.9039	33.3762	8.5524	-0.0793	7.7299	32.2041	72.1210	123.885	184.648	252.778	323.211	389.402	447.483	494.757	529.733	551.830	561.032
3	Displacement t	16989	16988	16989	16990	16990	16989	16990	16990	16990	16990	16990	16990	16988	16990	16990	16990	16990
4	Draft at FP m	4.508	4.906	5.133	5.268	5.126	4.868	4.465	3.603	1.951	-1.186	-7.801	-27.775	n/a	-51.354	-31.336	-24.564	-21.154
5	Draft at AP m	6.716	7.664	8.073	8.063	8.090	7.753	6.829	5.251	2.619	-1.846	-10.074	-33.412	n/a	-56.845	-33.503	-25.436	-21.291
6	WL Length m	181.320	181.383	181.419	181.392	181.418	181.379	181.315	181.021	180.052	172.630	173.941	174.870	175.694	176.579	177.422	178.172	178.829
7	Beam max extents on WL m	28.061	29.799	28.640	28.205	28.640	29.814	28.171	25.700	25.059	23.094	21.283	20.308	20.000	20.308	21.196	21.613	20.342
8	Wetted Area m^2	5185.16	5284.45	5442.71	5447.91	5445.18	5299.49	5203.79	5111.08	5120.69	5041.13	4943.47	4899.02	4879.94	4872.05	4877.30	4900.71	4915.15
9	Waterpl. Area m^2	3544.22	3534.05	3539.11	3475.43	3584.81	3569.43	3556.46	3595.11	3726.49	3387.53	3034.40	2812.20	2722.80	2724.16	2793.35	2918.93	3051.91
10	Prismatic coeff. (Cp)	0.539	0.495	0.470	0.467	0.469	0.491	0.534	0.572	0.603	0.654	0.676	0.700	0.729	0.762	0.807	0.862	0.909
11	Block coeff. (Cb)	0.292	0.298	0.361	0.452	0.360	0.297	0.289	0.309	0.326	0.397	0.478	0.579	0.667	0.554	0.474	0.435	0.453
12	LCB from zero pt. (+ve fwd) m	76.378	76.379	76.385	76.373	76.376	76.363	76.386	76.400	76.417	76.448	76.472	76.484	76.493	76.491	76.482	76.463	76.437
13	LCF from zero pt. (+ve fwd) m	79.453	76.499	72.897	72.875	72.323	75.962	79.277	81.088	82.715	82.321	80.493	79.584	78.929	78.082	77.468	77.027	76.770
14	Max deck inclination deg	30.0065	20.0189	10.0486	0.9576	10.0494	20.0207	30.0074	40.0019	50.0002	60.0001	70.0002	80.0002	90.0000	99.9998	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	0.7564	0.9449	1.0071	0.9576	1.0156	0.9886	0.8101	0.5648	0.2289	-0.2258	-0.7786	-1.9306	-90.000	-1.8808	-0.7422	-0.2988	-0.0471



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16990	5.951	0.957 (fixed)	75.205	0.000	0.000	2.794	5.531	8.000	10.043	11.774	13.056	13.376	13.030	12.147



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II-1	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.140		
9							
10	SOLAS, II-1	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II-1	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.015		
28							
29	SOLAS, II-1	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.3	deg	0.3		
32		<i>to the lesser of</i>					
33		first downflooding angle	29.2	deg	29.2		
34		angle of vanishing stability	132.2	deg			
35		shall not be less than (>=)	15.0	deg	28.9	Pass	+92.81
36							
37	SOLAS, II-1	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.3	deg	0.3		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	29.2	deg			
43		angle of vanishing stability	132.2	deg			
44		shall not be less than (>=)	0.8590	m.deg	39.0638	Pass	+4447.59
45							
46	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.3	deg			
53		angle of equilibrium with heel arm	1.1, 0.3, 0.4	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(29.2), (29.		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	62.7, 62.7,	deg			
58		first flooding angle of the DownfloodingPoints	29.2	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	4.409	Pass	+10922.50
61		8.2.3.3: Launching heeling moment	0.040	m	4.549	Pass	+11272.50
62		8.2.3.3: Wind heeling arm	0.040	m	4.534	Pass	+11235.00
63		<i>Intermediate values</i>					
64		GZ(29.2 deg) heel arm A.		m	4.549		
65		HA(29.2 deg) heel arm A.		m	0.140		
66		GZ(29.2 deg) heel arm B.		m	4.549		
67		HA(29.2 deg) heel arm B.		m	0.000		
68		GZ(29.2 deg) heel arm C.		m	4.549		
69		HA(29.2 deg) heel arm C.		m	0.015		
70							
71	SOLAS, II-1	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.3	deg	0.3		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	62.7	deg			
78		first downflooding angle	29.2	deg	29.2		
79		shall not be less than (>=)	0.100	m	4.549	Pass	+4449.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	29.2		
82							
83	SOLAS, II-1	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.3	deg	0.3		
87		<i>to the lesser of</i>					
88		angle of max. GZ	62.7	deg	62.7		
89		shall be greater than (>)	0.050	m	7.095	Pass	+14090.00
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	62.7		
92							
93	SOLAS, II-1	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.3	deg	0.3		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	132.2	deg	132.2		
99		shall be greater than (>)	7.0	deg	131.9	Pass	+1784.56
100							
101	SOLAS, II-1	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	9.273	Pass	+18446.00
104							
105	SOLAS, II-1	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.3	Pass	+96.16
107							
108	SOLAS, II-1	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	5.3	deg	5.3		
110		shall be less than (<)	100.00	%	5.05	Pass	+94.95
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.3		
113							

CONDICION N°:3

AVERIA

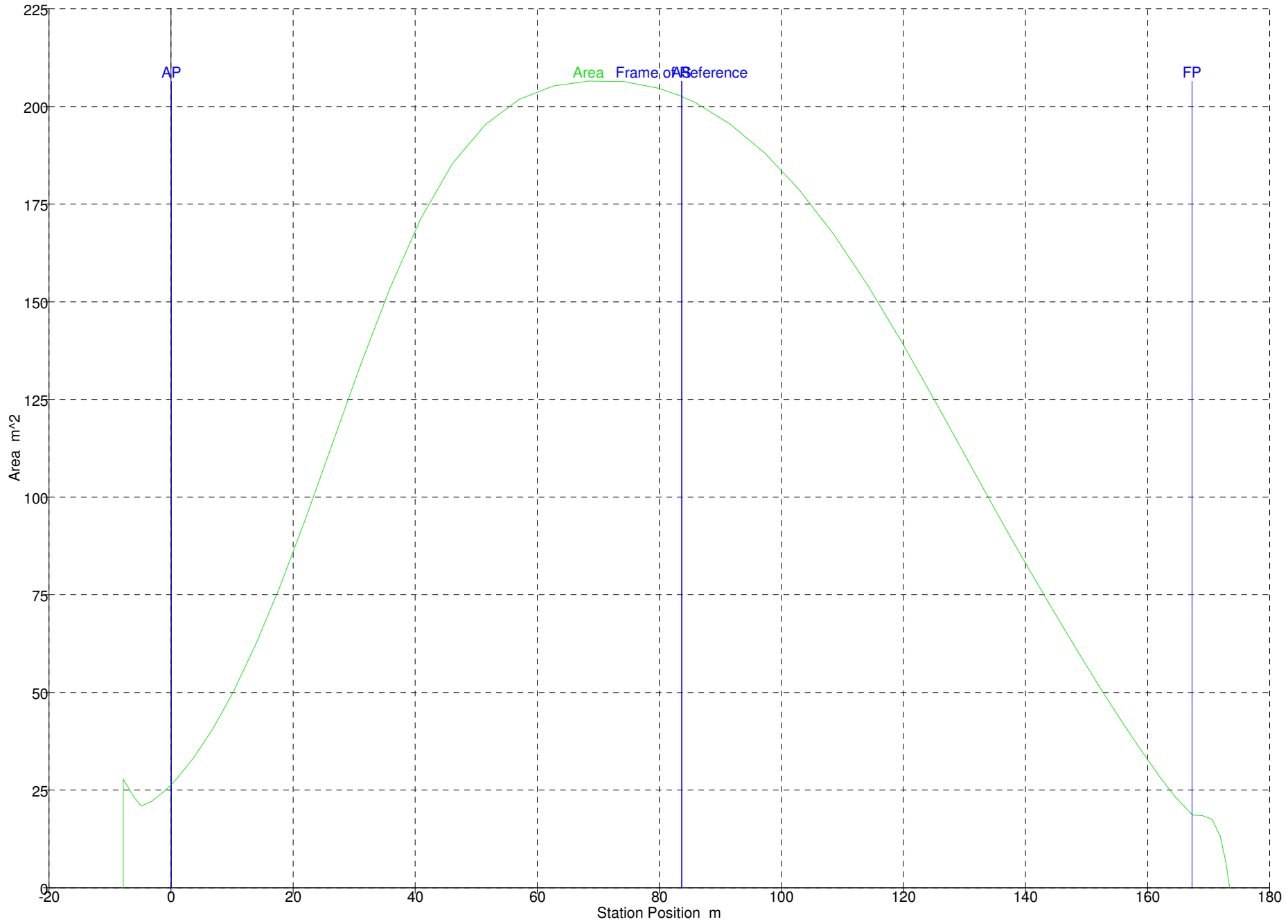
CASO N°:1

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5 (Damaged)	Damaged									
14	LASTRE 6 (Damaged)	Damaged									
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.499	IMO A.749(18)
19	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.430	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.593	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
26	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.129	IMO A.749(18)
31	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
33	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
35	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
36	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
37	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
38	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2 (Da	Damaged									
43	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
50	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
51	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			15641.365	4971.116	3658.094	73.212	-0.136	7.317	36.856	
55	FS correction								0.002		
56	VCG fluid								7.319		

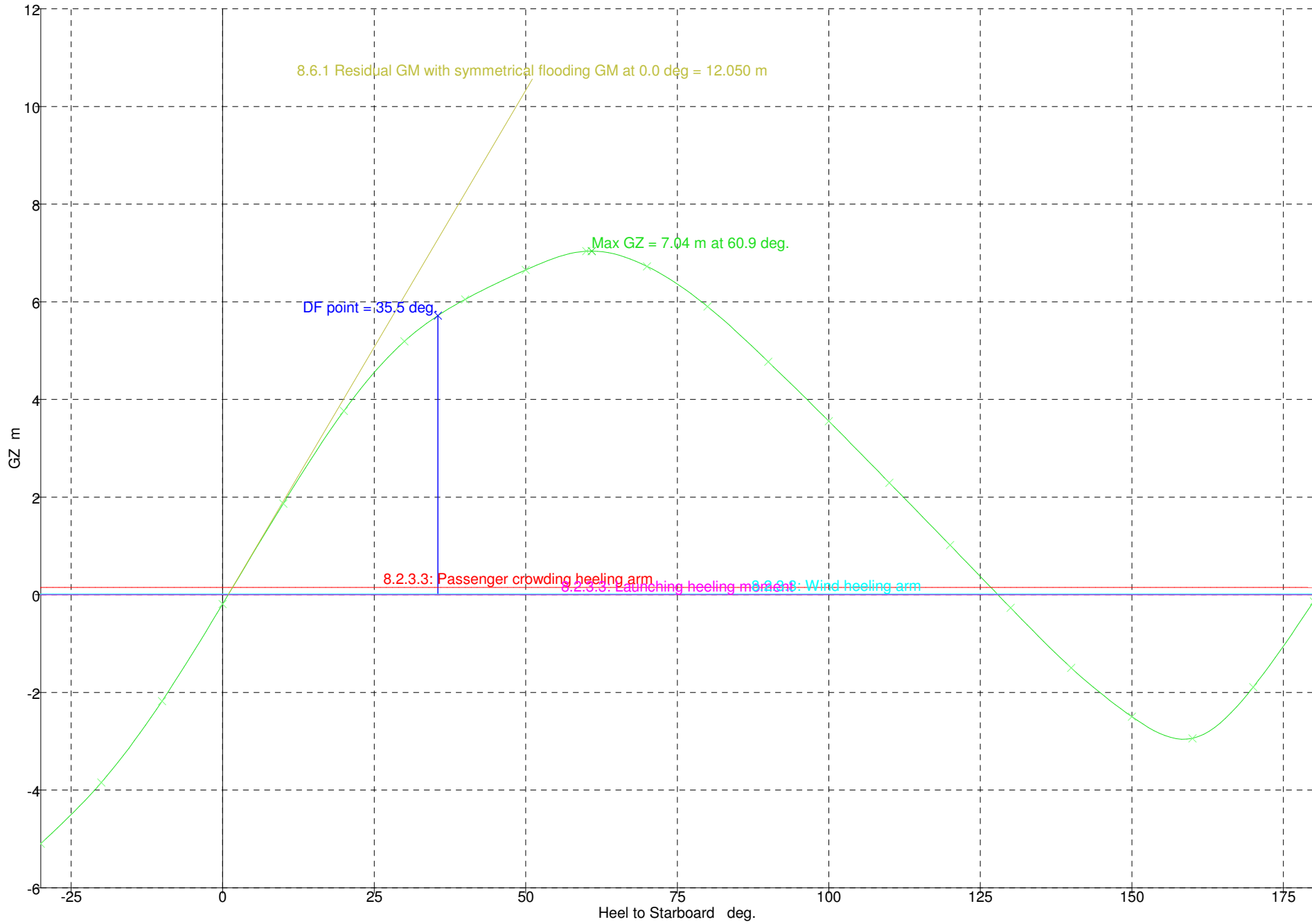
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1	Draft Amidships m	7.575
2	Displacement t	15641
3	Heel deg	0.9
4	Draft at FP m	8.326
5	Draft at AP m	6.824
6	Draft at LCF m	7.391
7	Trim (+ve by stern) m	-1.502
8	WL Length m	175.901
9	Beam max extents on WL m	28.208
10	Wetted Area m ²	5873.53
11	Waterpl. Area m ²	3106.42
12	Prismatic coeff. (Cp)	0.420
13	Block coeff. (Cb)	0.371
14	Max Sect. area coeff. (Cm)	0.963
15	Waterpl. area coeff. (Cwp)	0.626
16	LCB from zero pt. (+ve fwd) m	73.234
17	LCF from zero pt. (+ve fwd) m	63.138
18	KB m	4.171
19	KG fluid m	7.319
20	BMt m	15.215
21	BML m	599.854
22	GMt corrected m	12.067
23	GML m	596.706
24	KMt m	19.384
25	KML m	603.935
26	Immersion (TPc) tonne/cm	31.841
27	MTc tonne.m	558.122
28	RM at 1deg = GMt.Disp.sin(1) t	3294.03
29	Max deck inclination deg	0.9976
30	Trim angle (+ve by stern) deg	-0.5147



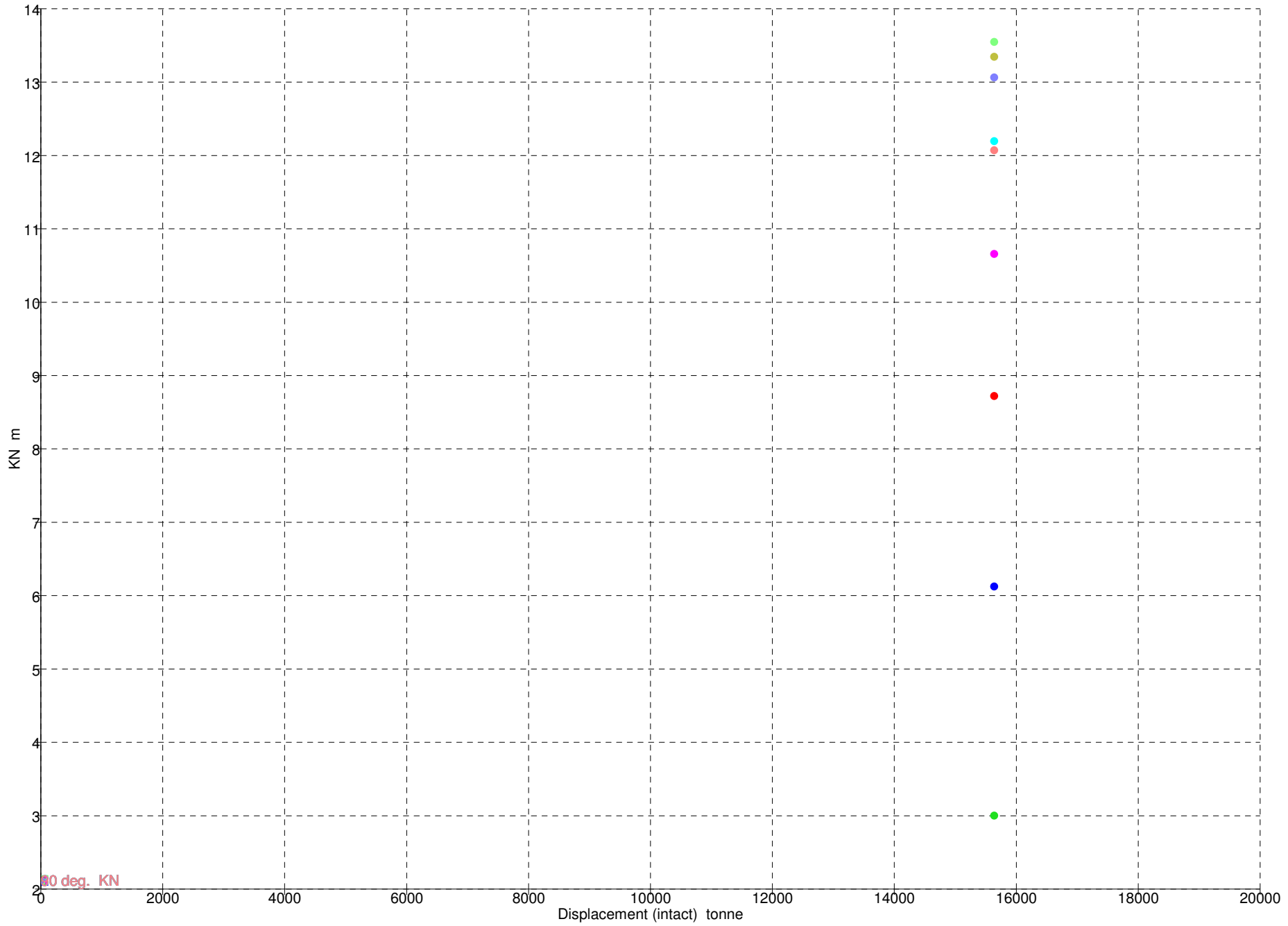
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.095	-3.842	-2.176	-0.188	1.869	3.766	5.192	6.050	6.652	7.037	6.727	5.903	4.774	3.555	2.292	1.017	-0.268
2	Area under GZ curve from zero heel	87.3346	42.4277	11.9788	-0.3412	8.4393	36.8761	82.1503	138.720	202.334	271.175	340.563	404.038	457.574	499.259	528.517	545.072	548.816
3	Displacement t	15641	15641	15641	15641	15641	15641	15641	15641	15640	15641	15641	15641	15641	15642	15641	15641	15641
4	Draft at FP m	6.346	7.408	8.007	8.314	8.294	7.852	6.862	5.376	3.210	-0.181	-7.149	-28.411	n/a	-55.090	-33.665	-26.371	-22.673
5	Draft at AP m	5.564	6.373	6.752	6.823	6.766	6.402	5.616	4.109	1.438	-3.360	-12.290	-37.651	n/a	-59.903	-34.518	-25.796	-21.368
6	WL Length m	180.873	175.432	175.702	175.894	175.882	175.628	180.433	181.312	180.925	176.794	174.187	174.761	175.314	176.116	176.917	177.657	178.339
7	Beam max extents on WL m	28.100	29.844	28.640	28.205	28.640	29.898	28.565	25.880	25.379	23.094	21.283	20.308	20.000	20.308	21.069	21.015	19.709
8	Wetted Area m^2	5341.25	5534.67	5690.30	5870.55	5758.80	5636.33	5471.83	5247.24	5139.72	5036.08	4827.45	4729.39	4664.60	4648.97	4660.74	4687.77	4693.58
9	Waterpl. Area m^2	2848.51	2825.63	2919.11	3105.00	3008.72	2976.03	2904.03	2992.96	3195.24	3070.43	2703.85	2530.48	2478.24	2756.12	2822.22	2922.35	3013.04
10	Prismatic coeff. (Cp)	0.500	0.462	0.431	0.420	0.423	0.448	0.484	0.526	0.564	0.609	0.654	0.693	0.737	0.778	0.825	0.877	0.859
11	Block coeff. (Cb)	0.269	0.280	0.333	0.372	0.328	0.275	0.261	0.283	0.299	0.366	0.457	0.568	0.658	0.553	0.479	0.438	0.436
12	LCB from zero pt. (+ve fwd) m	73.224	73.231	73.230	73.231	73.236	73.253	73.253	73.243	73.257	73.294	73.296	73.304	73.292	73.271	73.235	73.193	73.148
13	LCF from zero pt. (+ve fwd) m	72.834	69.303	66.206	63.086	67.579	71.113	73.280	77.283	80.222	79.569	76.197	75.025	74.582	73.591	73.105	72.938	73.159
14	Max deck inclination deg	30.0008	20.0027	10.0089	0.5108	10.0132	20.0052	30.0021	40.0011	50.0011	60.0015	70.0012	80.0005	90.0000	99.9999	110.000	120.000	129.999
15	Trim angle (+ve by stern) deg	-0.2679	-0.3549	-0.4302	-0.5108	-0.5237	-0.4968	-0.4267	-0.4340	-0.6070	-1.0893	-1.7609	-3.1628	-90.000	-1.6487	-0.2924	0.1971	0.4472



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	15641	5.745	-0.515 (fixed)	79.983	0.000	0.000	2.999	6.121	8.720	10.654	12.193	13.344	13.547	13.061	12.070



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = $nPass M / disp. D \cos^n(\phi)$</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.152		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = $A / disp. \cos^n(\phi)$</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: $a P A (h - H) / (g disp.) \cos^n(\phi)$</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m ²			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.9	deg	0.9		
32		<i>to the lesser of</i>					
33		first downflooding angle	35.5	deg	35.5		
34		angle of vanishing stability	127.9	deg			
35		shall not be less than (>=)	15.0	deg	34.6	Pass	+130.70
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.9	deg	0.9		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	35.5	deg			
43		angle of vanishing stability	127.9	deg			
44		shall not be less than (>=)	0.8590	m.deg	44.8268	Pass	+5118.48
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.9	deg			
53		angle of equilibrium with heel arm	1.6, 0.9,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(35.5), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.	deg			
58		first flooding angle of the DownfloodingPoints	35.5	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.566	Pass	+13815.0
61		8.2.3.3: Launching heeling moment	0.040	m	5.718	Pass	+14195.0
62		8.2.3.3: Wind heeling arm	0.040	m	5.702	Pass	+14155.0
63		<i>Intermediate values</i>					
64		GZ(35.5 deg) heel arm A.		m	5.718		
65		HA(35.5 deg) heel arm A.		m	0.152		
66		GZ(35.5 deg) heel arm B.		m	5.718		
67		HA(35.5 deg) heel arm B.		m	0.000		
68		GZ(35.5 deg) heel arm C.		m	5.718		
69		HA(35.5 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.9	deg	0.9		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	35.5	deg	35.5		
79		shall not be less than (>=)	0.100	m	5.718	Pass	+5618.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	35.5		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.9	deg	0.9		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.040	Pass	+13980.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.9	deg	0.9		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	127.9	deg	127.9		
99		shall be greater than (>)	7.0	deg	127.0	Pass	+1714.29
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.050	Pass	+24000.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.9	Pass	+87.00
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	5.4	deg	5.4		
110		shall be less than (<)	100.00	%	16.76	Pass	+83.24
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.9		
113							

CONDICION N°:3

AVERIA

CASO N°:2

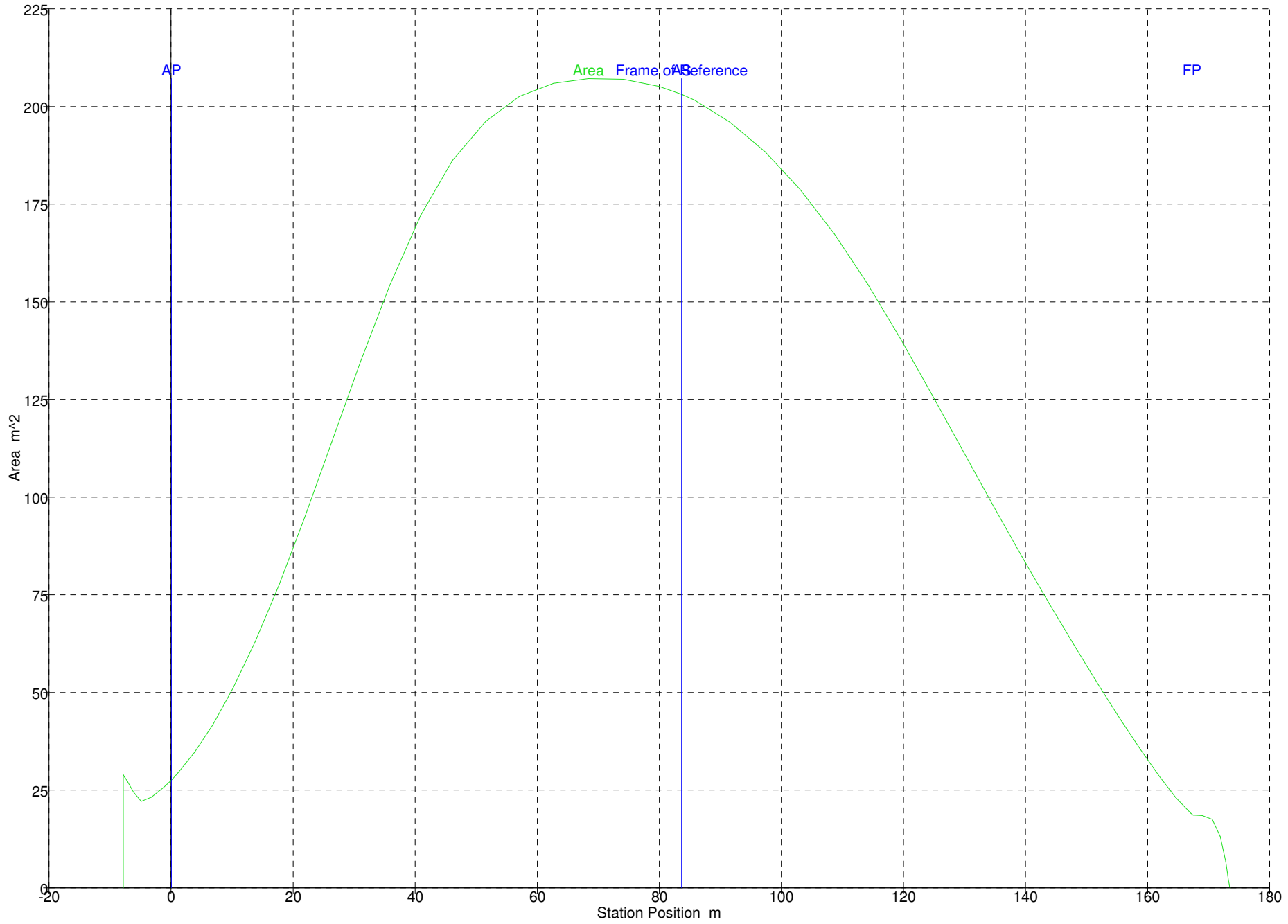
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	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6 (Damaged)	Damaged									
15	LASTRE 7 (Damaged)	Damaged									
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.500	IMO A.749(18)
19	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.431	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.594	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
26	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.576	IMO A.749(18)
29	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.129	IMO A.749(18)
31	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
33	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
35	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
36	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
37	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
38	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2 (Da	Damaged									
43	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
50	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
51	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			15598.284	4929.086	3616.064	73.515	-0.136	7.336	36.860	
55	FS correction								0.002		
56	VCG fluid								7.338		

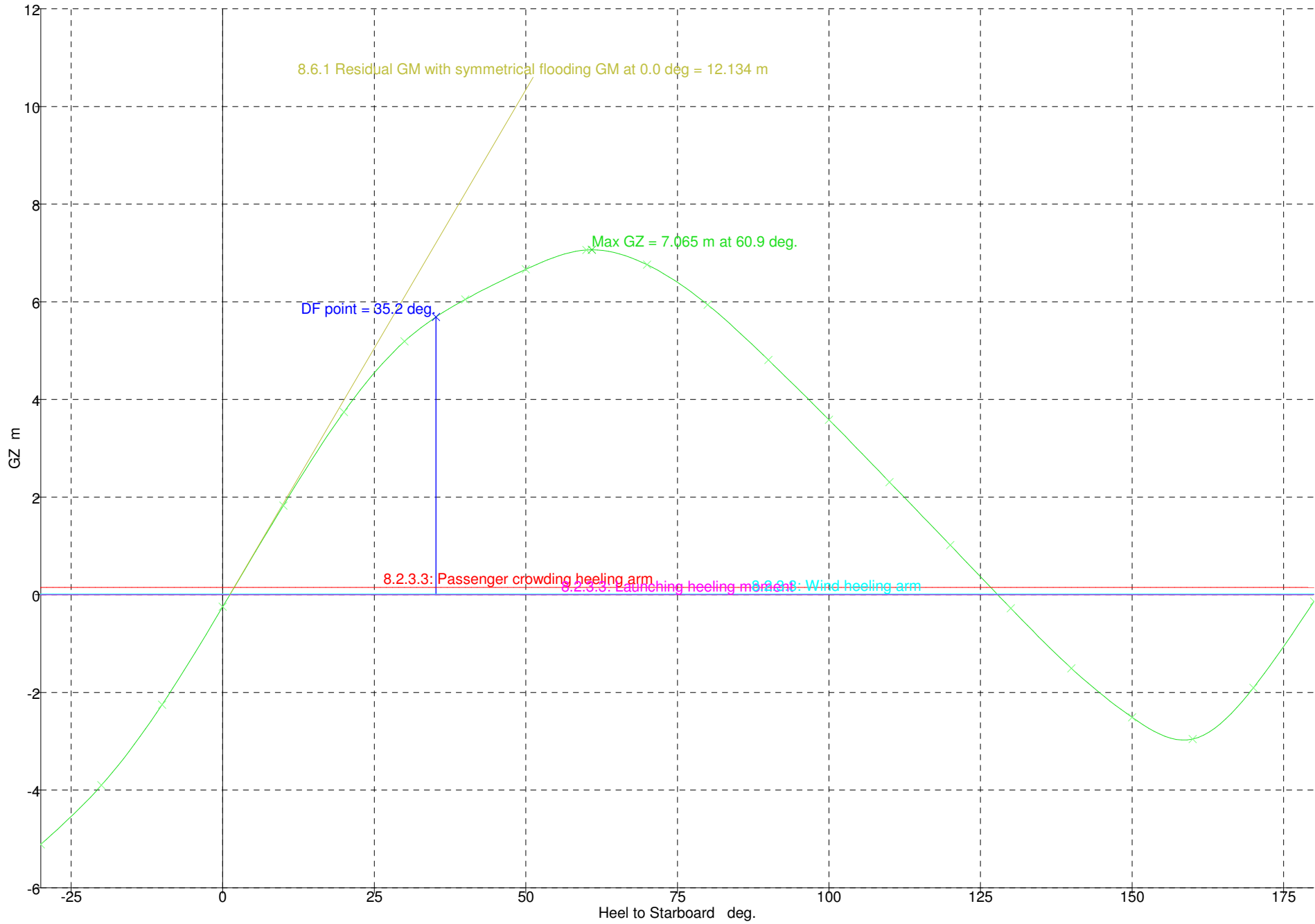
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1	Draft Amidships m	7.593
2	Displacement t	15598
3	Heel deg	1.2
4	Draft at FP m	8.323
5	Draft at AP m	6.863
6	Draft at LCF m	7.417
7	Trim (+ve by stern) m	-1.460
8	WL Length m	175.899
9	Beam max extents on WL m	28.210
10	Wetted Area m ²	5881.77
11	Waterpl. Area m ²	3110.72
12	Prismatic coeff. (Cp)	0.418
13	Block coeff. (Cb)	0.370
14	Max Sect. area coeff. (Cm)	0.956
15	Waterpl. area coeff. (Cwp)	0.627
16	LCB from zero pt. (+ve fwd) m	73.535
17	LCF from zero pt. (+ve fwd) m	63.444
18	KB m	4.210
19	KG fluid m	7.338
20	BMt m	15.285
21	BML m	604.283
22	GMt corrected m	12.155
23	GML m	601.153
24	KMt m	19.491
25	KML m	608.346
26	Immersion (TPc) tonne/cm	31.885
27	MTc tonne.m	560.733
28	RM at 1deg = GMt.Disp.sin(1) t	3309.06
29	Max deck inclination deg	1.2588
30	Trim angle (+ve by stern) deg	-0.5003



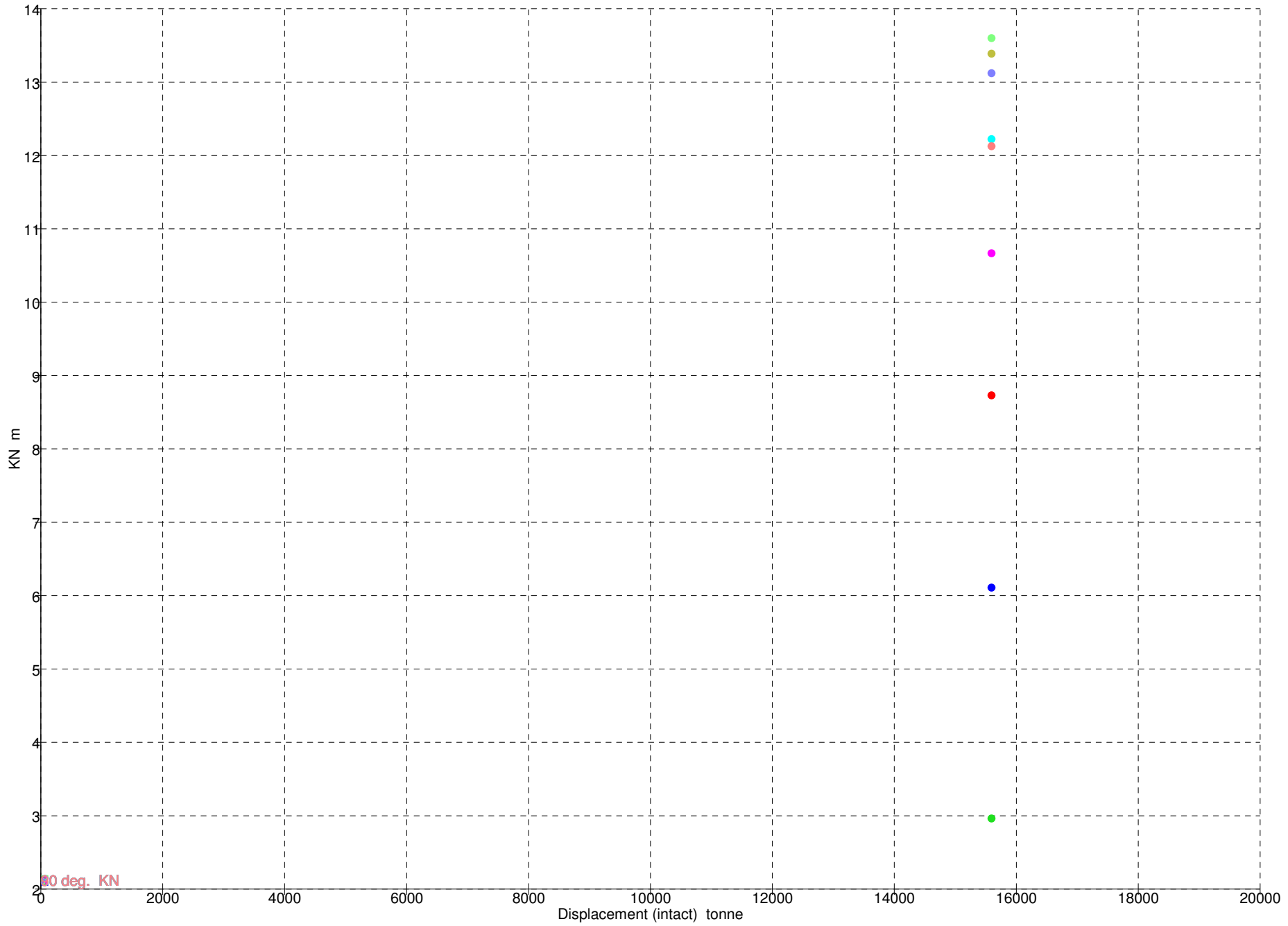
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.112	-3.900	-2.252	-0.245	1.829	3.744	5.189	6.048	6.665	7.061	6.759	5.941	4.809	3.585	2.308	1.019	-0.277
2	Area under GZ curve from zero heel	89.0989	43.8075	12.6582	-0.4456	7.9544	36.0726	81.2381	137.789	201.445	270.476	340.148	403.981	457.886	499.898	529.392	546.032	549.736
3	Displacement t	15598	15598	15598	15598	15598	15598	15598	15597	15597	15598	15598	15598	15598	15599	15598	15598	15598
4	Draft at FP m	6.350	7.431	8.029	8.312	8.271	7.822	6.829	5.340	3.191	-0.187	-7.127	-28.306	n/a	-54.889	-33.558	-26.299	-22.613
5	Draft at AP m	5.562	6.386	6.780	6.861	6.820	6.468	5.689	4.177	1.498	-3.299	-12.221	-37.561	n/a	-59.955	-34.596	-25.878	-21.449
6	WL Length m	180.869	175.442	175.716	175.892	175.866	175.614	180.465	181.321	180.915	176.767	174.195	174.780	175.333	176.142	176.942	177.681	178.363
7	Beam max extents on WL m	28.102	29.850	28.640	28.205	28.640	29.905	28.608	25.898	25.386	23.094	21.283	20.308	20.000	20.308	21.068	20.997	19.651
8	Wetted Area m^2	5341.80	5543.06	5704.23	5878.23	5770.85	5646.49	5481.74	5254.01	5147.23	5043.56	4834.34	4731.08	4669.62	4653.36	4661.83	4685.43	4688.63
9	Waterpl. Area m^2	2833.47	2819.30	2925.65	3109.31	3012.44	2984.85	2908.98	2994.69	3200.44	3071.35	2704.25	2522.23	2470.09	2743.77	2807.40	2908.16	3007.10
10	Prismatic coeff. (Cp)	0.499	0.459	0.428	0.418	0.421	0.445	0.480	0.524	0.561	0.606	0.651	0.689	0.734	0.775	0.822	0.877	0.866
11	Block coeff. (Cb)	0.269	0.279	0.331	0.371	0.326	0.273	0.259	0.281	0.298	0.365	0.455	0.565	0.654	0.550	0.476	0.439	0.438
12	LCB from zero pt. (+ve fwd) m	73.527	73.534	73.534	73.535	73.553	73.556	73.555	73.529	73.560	73.595	73.599	73.608	73.602	73.577	73.543	73.502	73.458
13	LCF from zero pt. (+ve fwd) m	72.875	69.405	66.451	63.386	67.466	70.943	73.214	77.283	80.277	79.729	76.349	74.938	74.632	73.920	73.384	73.204	73.451
14	Max deck inclination deg	30.0008	20.0027	10.0088	0.4971	10.0119	20.0046	30.0017	40.0010	50.0010	60.0014	70.0011	80.0005	90.0000	99.9999	110.000	120.000	129.999
15	Trim angle (+ve by stern) deg	-0.2701	-0.3582	-0.4278	-0.4971	-0.4972	-0.4639	-0.3905	-0.3984	-0.5801	-1.0661	-1.7447	-3.1679	-90.000	-1.7353	-0.3556	0.1442	0.3990



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	15598	5.734	-0.500 (fixed)	79.965	0.000	0.000	2.960	6.106	8.729	10.665	12.220	13.386	13.599	13.119	12.123



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.152		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.2	deg	1.2		
32		<i>to the lesser of</i>					
33		first downflooding angle	35.2	deg	35.2		
34		angle of vanishing stability	127.9	deg			
35		shall not be less than (>=)	15.0	deg	34.0	Pass	+126.75
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.2	deg	1.2		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	35.2	deg			
43		angle of vanishing stability	127.9	deg			
44		shall not be less than (>=)	0.8590	m.deg	44.0428	Pass	+5027.22
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.2	deg			
53		angle of equilibrium with heel arm	1.9, 1.2,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(35.2), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.	deg			
58		first flooding angle of the DownfloodingPoints	35.2	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.537	Pass	+13742.5
61		8.2.3.3: Launching heeling moment	0.040	m	5.689	Pass	+14122.5
62		8.2.3.3: Wind heeling arm	0.040	m	5.673	Pass	+14082.5
63		<i>Intermediate values</i>					
64		GZ(35.2 deg) heel arm A.		m	5.689		
65		HA(35.2 deg) heel arm A.		m	0.152		
66		GZ(35.2 deg) heel arm B.		m	5.689		
67		HA(35.2 deg) heel arm B.		m	0.000		
68		GZ(35.2 deg) heel arm C.		m	5.689		
69		HA(35.2 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.2	deg	1.2		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	35.2	deg	35.2		
79		shall not be less than (>=)	0.100	m	5.689	Pass	+5589.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	35.2		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.2	deg	1.2		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.065	Pass	+14030.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.2	deg	1.2		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	127.9	deg	127.9		
99		shall be greater than (>)	7.0	deg	126.7	Pass	+1709.73
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.134	Pass	+24168.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.2	Pass	+83.20
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	5.5	deg	5.5		
110		shall be less than (<)	100.00	%	21.51	Pass	+78.49
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.2		
113							

CONDICION N°:3

AVERIA

CASO N°:3

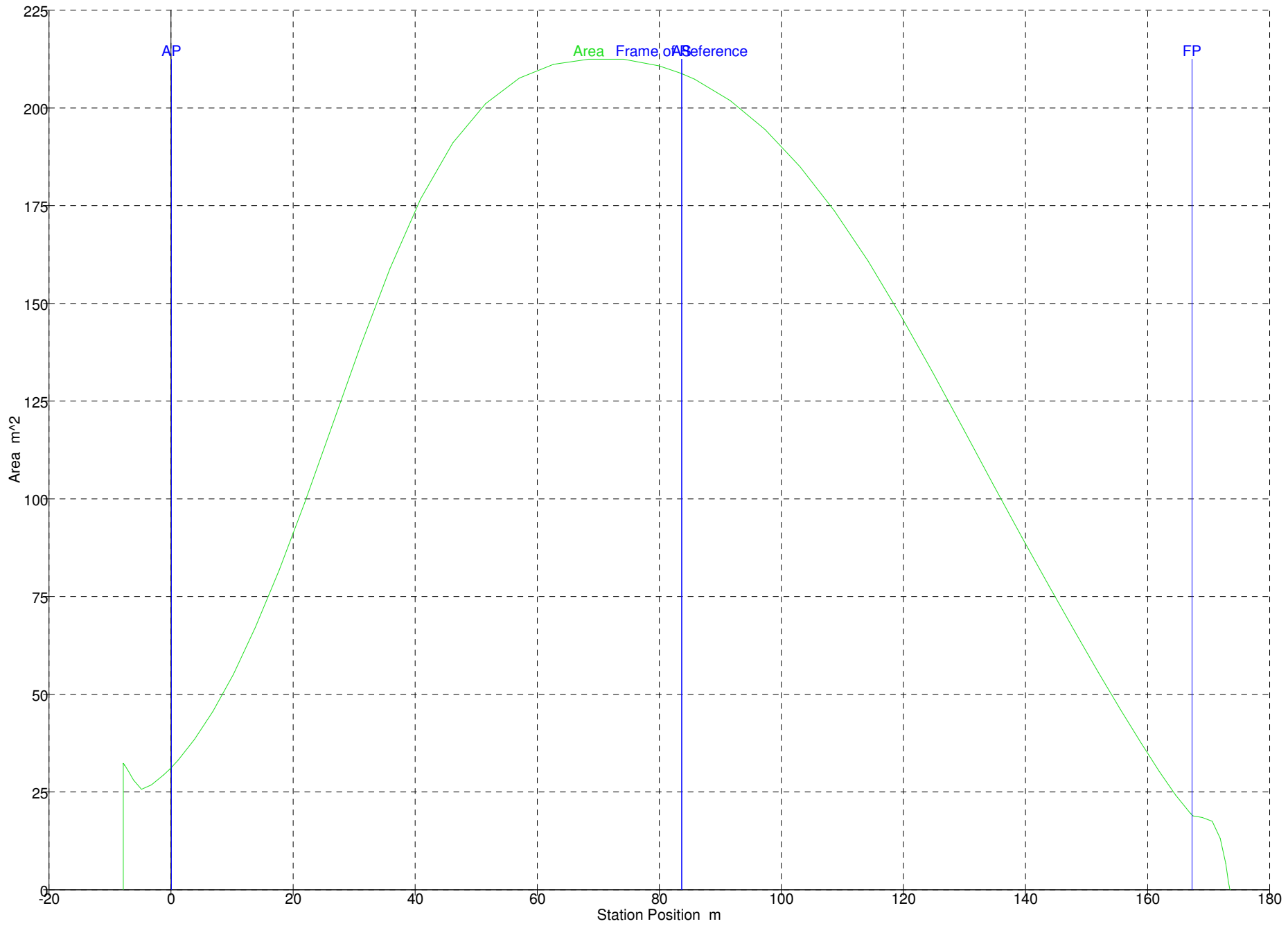
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	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7 (Damaged)	Damaged									
16	LASTRE 8 (Damaged)	Damaged									
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.502	IMO A.749(18)
19	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.433	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.596	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
26	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.578	IMO A.749(18)
29	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.131	IMO A.749(18)
31	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.299	IMO A.749(18)
33	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
35	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
36	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
37	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
38	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
50	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
51	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			16104.364	5071.412	4109.801	74.237	-0.021	7.211	36.872	
55	FS correction								0.002		
56	VCG fluid								7.213		

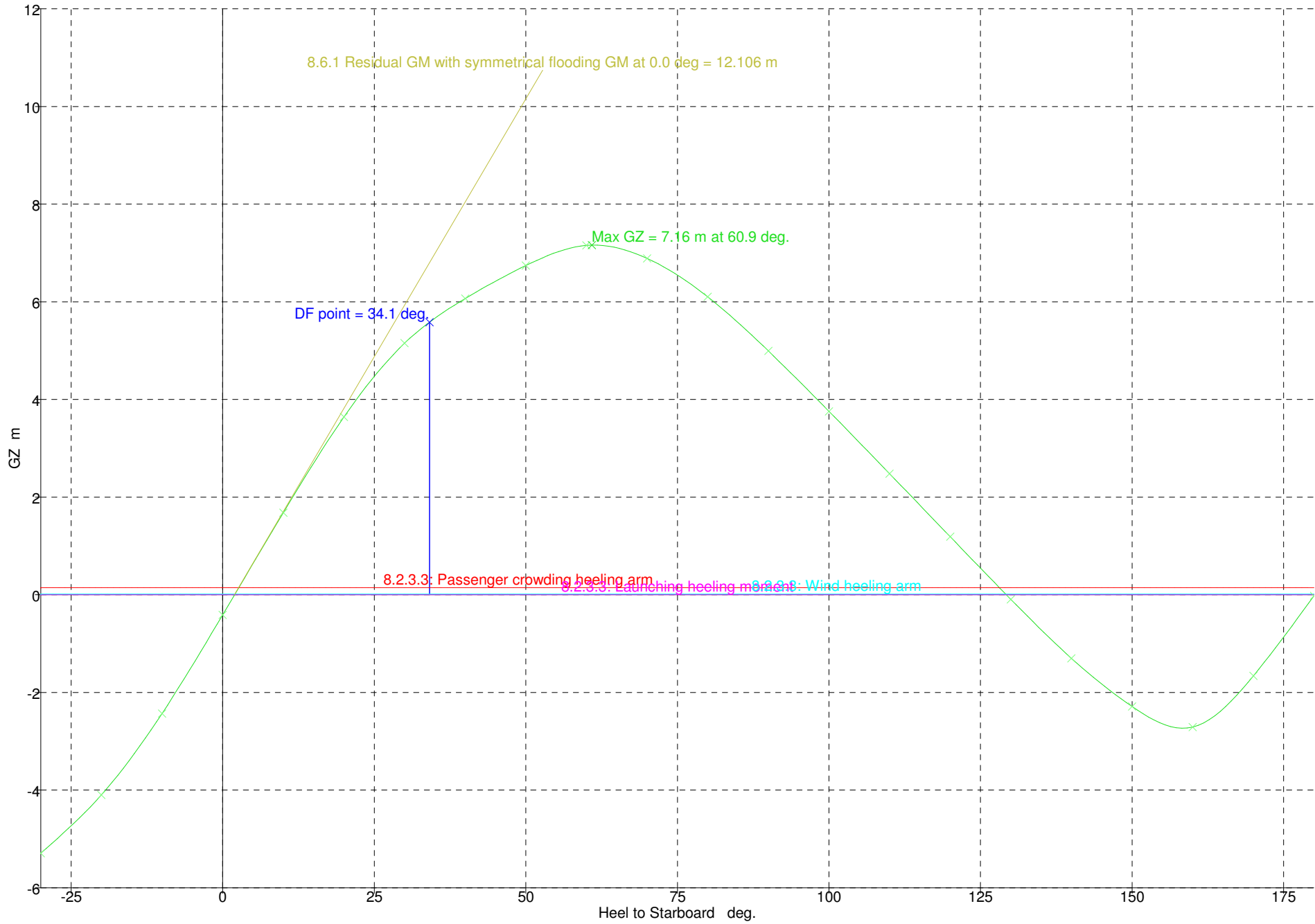
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1	Draft Amidships m	7.796
2	Displacement t	16104
3	Heel deg	1.9
4	Draft at FP m	8.598
5	Draft at AP m	6.994
6	Draft at LCF m	7.613
7	Trim (+ve by stern) m	-1.604
8	WL Length m	176.069
9	Beam max extents on WL m	28.220
10	Wetted Area m ²	5972.87
11	Waterpl. Area m ²	3144.80
12	Prismatic coeff. (Cp)	0.420
13	Block coeff. (Cb)	0.370
14	Max Sect. area coeff. (Cm)	0.941
15	Waterpl. area coeff. (Cwp)	0.633
16	LCB from zero pt. (+ve fwd) m	74.257
17	LCF from zero pt. (+ve fwd) m	64.554
18	KB m	4.355
19	KG fluid m	7.213
20	BMt m	14.998
21	BML m	601.396
22	GMt corrected m	12.139
23	GML m	598.537
24	KMt m	19.344
25	KML m	605.404
26	Immersion (TPc) tonne/cm	32.234
27	MTc tonne.m	576.406
28	RM at 1deg = GMt.Disp.sin(1) t	3411.75
29	Max deck inclination deg	1.9492
30	Trim angle (+ve by stern) deg	-0.5494



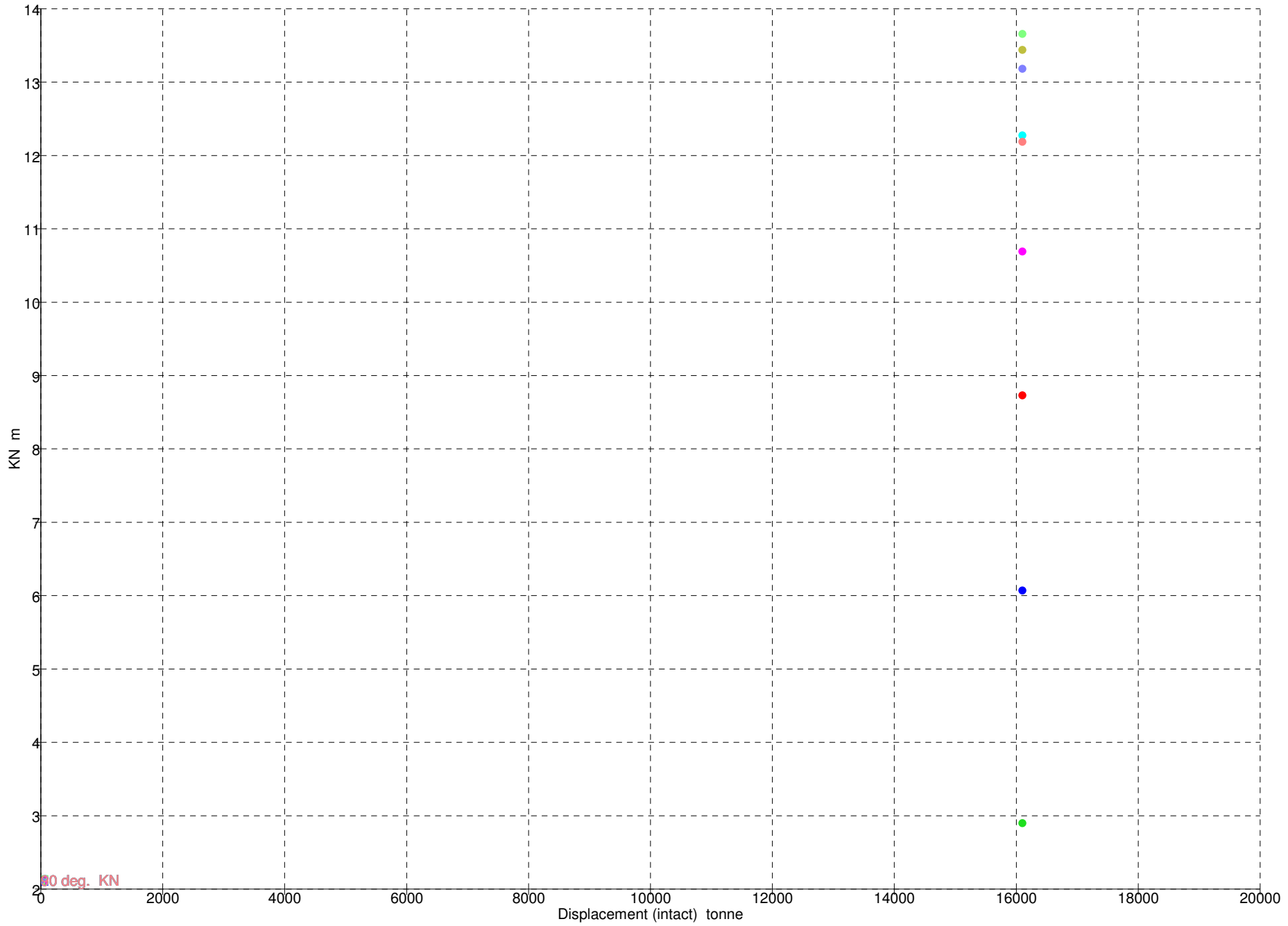
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.292	-4.096	-2.431	-0.411	1.682	3.641	5.152	6.066	6.743	7.155	6.889	6.102	4.994	3.757	2.480	1.189	-0.092
2	Area under GZ curve from zero heel	94.6099	47.4175	14.3764	-0.7466	6.3763	33.2177	77.6819	134.137	198.297	268.200	338.974	404.269	459.931	503.743	534.949	553.296	558.762
3	Displacement t	16104	16104	16104	16104	16104	16104	16104	16104	16104	16104	16104	16104	16104	16105	16104	16104	16106
4	Draft at FP m	6.650	7.743	8.325	8.586	8.514	8.052	7.068	5.581	3.452	0.182	-6.394	-26.612	n/a	-53.151	-32.654	-25.687	-22.146
5	Draft at AP m	5.698	6.519	6.911	6.987	6.977	6.651	5.907	4.429	1.787	-2.929	-11.708	-36.586	n/a	-59.264	-34.325	-25.739	-21.359
6	WL Length m	180.630	175.578	175.899	176.062	176.017	175.731	180.250	181.268	181.030	178.004	174.468	175.082	175.615	176.367	177.153	177.869	178.514
7	Beam max extents on WL m	28.485	29.906	28.640	28.205	28.640	29.949	29.041	26.277	25.724	23.094	21.283	20.308	20.000	20.308	21.120	21.228	19.880
8	Wetted Area m^2	5444.19	5642.83	5812.56	5967.94	5876.05	5740.80	5587.20	5359.24	5244.17	5141.90	4929.59	4825.78	4759.43	4731.25	4737.06	4759.69	4766.37
9	Waterpl. Area m^2	2869.17	2899.13	2981.88	3143.53	3078.91	3075.64	2971.63	3052.94	3252.34	3082.22	2718.19	2529.01	2481.71	2719.75	2810.13	2920.33	3037.34
10	Prismatic coeff. (Cp)	0.501	0.460	0.430	0.421	0.423	0.446	0.481	0.525	0.562	0.604	0.649	0.685	0.728	0.771	0.818	0.875	0.886
11	Block coeff. (Cb)	0.270	0.282	0.334	0.370	0.330	0.277	0.260	0.281	0.299	0.367	0.458	0.566	0.645	0.547	0.474	0.444	0.445
12	LCB from zero pt. (+ve fwd) m	74.247	74.258	74.257	74.257	74.275	74.279	74.277	74.251	74.278	74.301	74.325	74.335	74.335	74.311	74.280	74.242	74.199
13	LCF from zero pt. (+ve fwd) m	72.942	70.262	67.190	64.486	67.868	71.284	73.274	77.400	80.184	80.239	76.884	75.411	75.129	74.525	74.026	73.785	73.908
14	Max deck inclination deg	30.0012	20.0037	10.0113	0.5479	10.0133	20.0049	30.0018	40.0010	50.0010	60.0014	70.0012	80.0005	90.0000	99.9998	109.999	120.000	129.999
15	Trim angle (+ve by stern) deg	-0.3263	-0.4192	-0.4845	-0.5479	-0.5266	-0.4798	-0.3978	-0.3948	-0.5705	-1.0657	-1.8202	-3.4135	-90.000	-2.0934	-0.5727	-0.0178	0.2695



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16104	5.867	-0.549 (fixed)	79.874	0.000	0.000	2.896	6.067	8.728	10.689	12.273	13.436	13.655	13.180	12.183



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.147		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	2.0	deg	2.0		
32		<i>to the lesser of</i>					
33		first downflooding angle	34.1	deg	34.1		
34		angle of vanishing stability	129.3	deg			
35		shall not be less than (>=)	15.0	deg	32.1	Pass	+114.32
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	2.0	deg	2.0		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	34.1	deg			
43		angle of vanishing stability	129.3	deg			
44		shall not be less than (>=)	0.8590	m.deg	41.2525	Pass	+4702.39
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	2.0	deg			
53		angle of equilibrium with heel arm	2.7, 2.0,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(34.1), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.	deg			
58		first flooding angle of the DownfloodingPoints	34.1	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.435	Pass	+13487.5
61		8.2.3.3: Launching heeling moment	0.040	m	5.582	Pass	+13855.0
62		8.2.3.3: Wind heeling arm	0.040	m	5.566	Pass	+13815.0
63		<i>Intermediate values</i>					
64		GZ(34.1 deg) heel arm A.		m	5.582		
65		HA(34.1 deg) heel arm A.		m	0.147		
66		GZ(34.1 deg) heel arm B.		m	5.582		
67		HA(34.1 deg) heel arm B.		m	0.000		
68		GZ(34.1 deg) heel arm C.		m	5.582		
69		HA(34.1 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	2.0	deg	2.0		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	34.1	deg	34.1		
79		shall not be less than (>=)	0.100	m	5.582	Pass	+5482.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	34.1		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	2.0	deg	2.0		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.160	Pass	+14220.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	2.0	deg	2.0		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	129.3	deg	129.3		
99		shall be greater than (>)	7.0	deg	127.3	Pass	+1718.84
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.106	Pass	+24112.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	2.0	Pass	+72.03
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	4.4	deg	4.4		
110		shall be less than (<)	100.00	%	44.21	Pass	+55.79
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	2.0		
113							

CONDICION N°:3

AVERIA

CASO N°:4

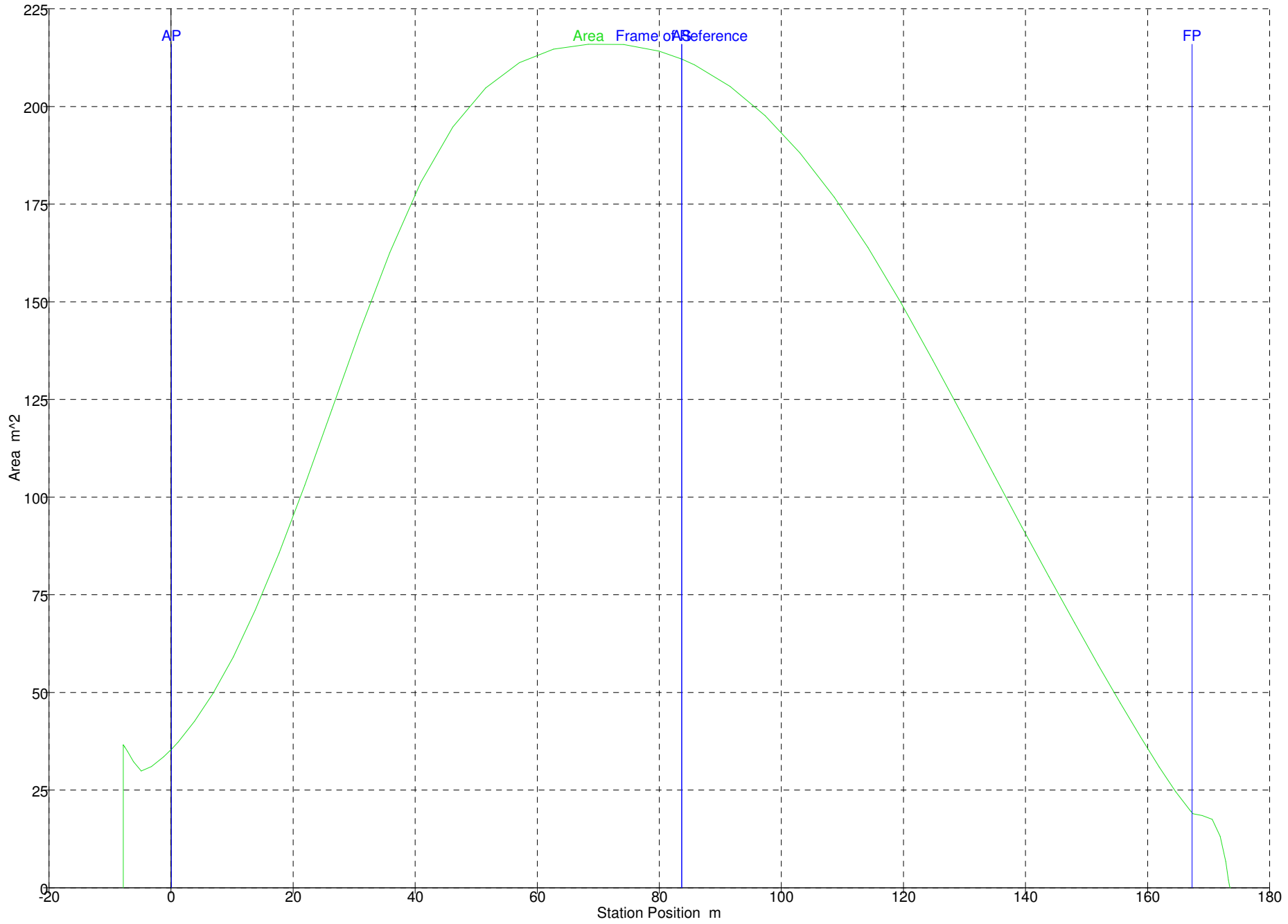
Academic Version

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8 (Damaged)	Damaged									
17	LASTRE 9 (Damaged)	Damaged									
18	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.503	IMO A.749(18)
19	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.434	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.597	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
26	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.578	IMO A.749(18)
29	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.131	IMO A.749(18)
31	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.299	IMO A.749(18)
33	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
35	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
36	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
37	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
38	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
50	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
51	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			16462.939	5069.825	4459.630	74.535	-0.021	7.082	36.875	
55	FS correction								0.002		
56	VCG fluid								7.084		

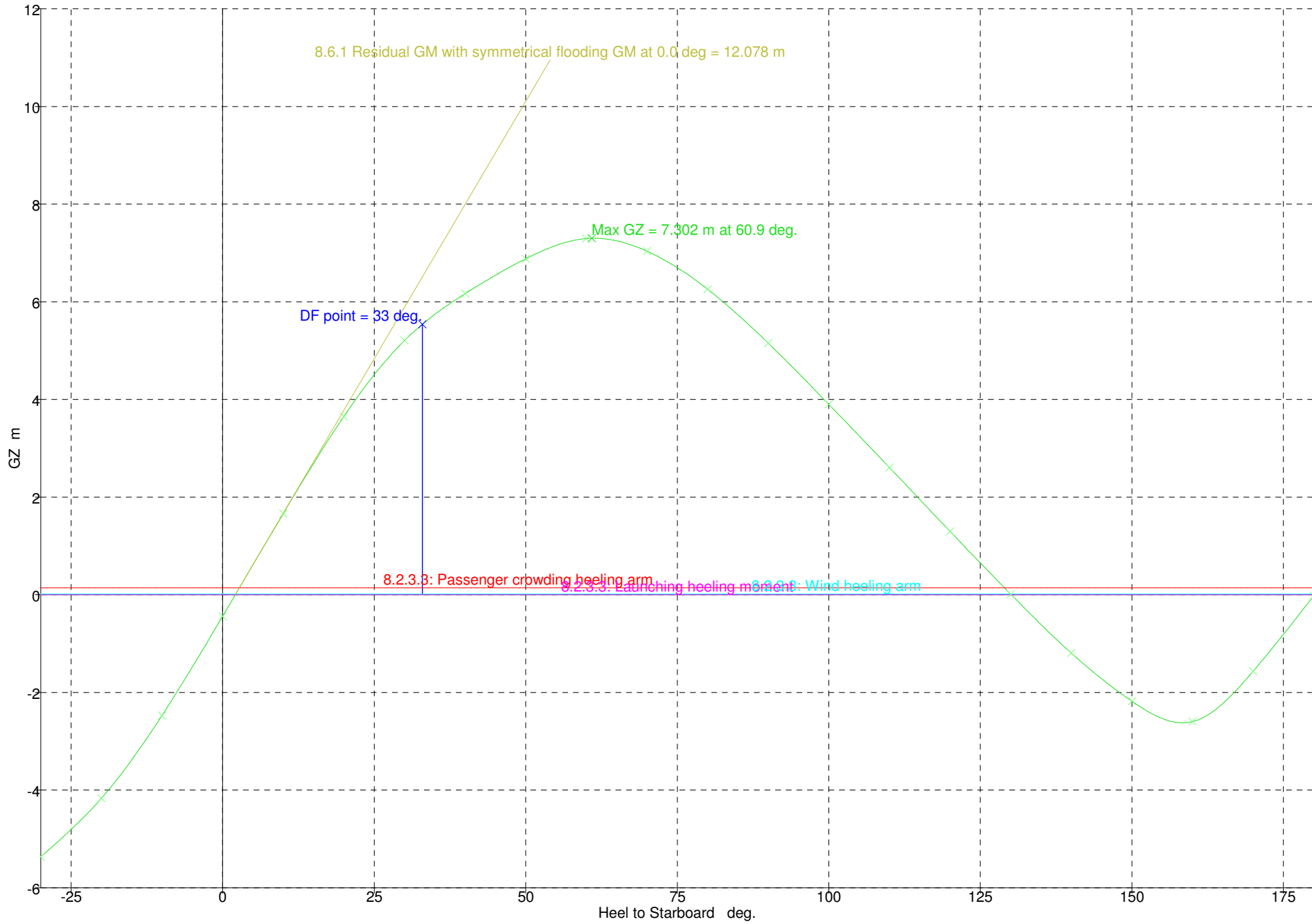
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1	Draft Amidships m	7.913
2	Displacement t	16463
3	Heel deg	2.0
4	Draft at FP m	8.685
5	Draft at AP m	7.142
6	Draft at LCF m	7.742
7	Trim (+ve by stern) m	-1.543
8	WL Length m	176.122
9	Beam max extents on WL m	28.222
10	Wetted Area m ²	6025.09
11	Waterpl. Area m ²	3157.65
12	Prismatic coeff. (Cp)	0.422
13	Block coeff. (Cb)	0.374
14	Max Sect. area coeff. (Cm)	0.938
15	Waterpl. area coeff. (Cwp)	0.635
16	LCB from zero pt. (+ve fwd) m	74.552
17	LCF from zero pt. (+ve fwd) m	65.086
18	KB m	4.447
19	KG fluid m	7.084
20	BMt m	14.750
21	BML m	594.076
22	GMt corrected m	12.112
23	GML m	591.437
24	KMt m	19.187
25	KML m	598.125
26	Immersion (TPc) tonne/cm	32.366
27	MTc tonne.m	582.250
28	RM at 1deg = GMt.Disp.sin(1) t	3479.91
29	Max deck inclination deg	2.0950
30	Trim angle (+ve by stern) deg	-0.5288



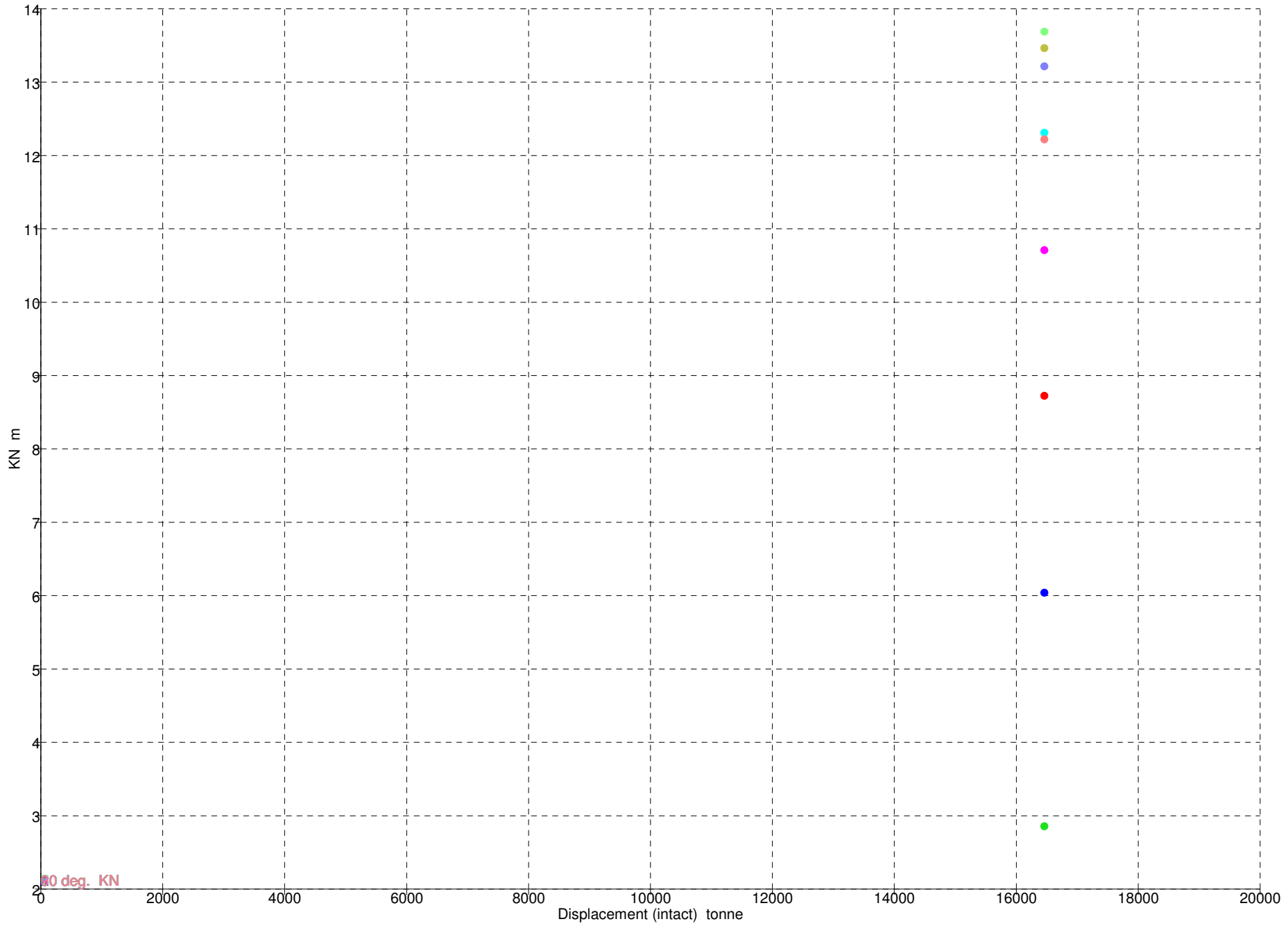
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.362	-4.167	-2.472	-0.439	1.664	3.653	5.207	6.166	6.881	7.296	7.038	6.259	5.155	3.900	2.609	1.299	0.015
2	Area under GZ curve from zero heel	96.2370	48.3144	14.7069	-0.7976	6.1400	32.9389	77.7346	134.963	200.337	271.653	343.867	410.687	467.948	513.285	545.848	565.386	571.926
3	Displacement t	16463	16463	16463	16463	16463	16464	16464	16463	16462	16463	16463	16463	16463	16464	16464	16463	16463
4	Draft at FP m	6.781	7.865	8.432	8.678	8.578	8.099	7.114	5.640	3.522	0.297	-6.146	-25.987	n/a	-52.430	-32.238	-25.380	-21.888
5	Draft at AP m	5.848	6.673	7.061	7.131	7.152	6.854	6.143	4.690	2.081	-2.544	-11.138	-35.472	n/a	-58.362	-33.957	-25.547	-21.242
6	WL Length m	180.513	175.631	175.964	176.118	176.055	175.758	180.179	181.256	181.057	178.250	174.559	175.192	175.723	176.453	177.240	177.951	178.595
7	Beam max extents on WL m	28.741	29.938	28.640	28.205	28.640	29.972	29.325	26.506	25.893	23.094	21.283	20.308	20.000	20.308	21.153	21.384	20.075
8	Wetted Area m^2	5508.81	5707.41	5885.16	6020.25	5946.93	5801.85	5652.20	5426.46	5309.22	5202.40	4992.00	4887.56	4819.61	4785.01	4789.11	4810.61	4821.14
9	Waterpl. Area m^2	2895.86	2951.22	3019.65	3156.80	3119.52	3132.04	3016.12	3092.83	3288.10	3082.61	2723.95	2536.17	2488.62	2688.23	2810.13	2926.40	3059.35
10	Prismatic coeff. (Cp)	0.502	0.460	0.431	0.423	0.425	0.447	0.482	0.525	0.563	0.604	0.649	0.684	0.725	0.769	0.815	0.872	0.893
11	Block coeff. (Cb)	0.271	0.285	0.337	0.374	0.333	0.279	0.260	0.282	0.300	0.370	0.461	0.566	0.647	0.550	0.476	0.444	0.447
12	LCB from zero pt. (+ve fwd) m	74.544	74.555	74.554	74.554	74.562	74.560	74.557	74.546	74.570	74.591	74.616	74.628	74.626	74.606	74.578	74.543	74.518
13	LCF from zero pt. (+ve fwd) m	73.033	70.622	67.333	65.038	67.647	71.125	73.117	77.255	79.931	80.412	77.180	75.742	75.433	75.022	74.600	74.298	74.311
14	Max deck inclination deg	30.0012	20.0035	10.0106	0.5298	10.0114	20.0038	30.0013	40.0006	50.0007	60.0012	70.0011	80.0005	90.0000	99.9998	109.999	120.000	129.999
15	Trim angle (+ve by stern) deg	-0.3197	-0.4083	-0.4697	-0.5298	-0.4885	-0.4263	-0.3329	-0.3255	-0.4935	-0.9733	-1.7098	-3.2466	-90.000	-2.0314	-0.5890	-0.0572	0.2213



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16463	5.958	-0.529 (fixed)	79.670	0.000	0.000	2.853	6.037	8.723	10.706	12.309	13.463	13.686	13.213	12.218



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.144		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m ²			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	2.1	deg	2.1		
32		<i>to the lesser of</i>					
33		first downflooding angle	33.0	deg	33.0		
34		angle of vanishing stability	130.1	deg			
35		shall not be less than (>=)	15.0	deg	30.9	Pass	+105.79
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	2.1	deg	2.1		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	33.0	deg			
43		angle of vanishing stability	130.1	deg			
44		shall not be less than (>=)	0.8590	m.deg	41.0610	Pass	+4680.10
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	2.1	deg			
53		angle of equilibrium with heel arm	2.8, 2.1,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(33.0), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.	deg			
58		first flooding angle of the DownfloodingPoints	33.0	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.396	Pass	+13390.0
61		8.2.3.3: Launching heeling moment	0.040	m	5.540	Pass	+13750.0
62		8.2.3.3: Wind heeling arm	0.040	m	5.524	Pass	+13710.0
63		<i>Intermediate values</i>					
64		GZ(33.0 deg) heel arm A.		m	5.540		
65		HA(33.0 deg) heel arm A.		m	0.144		
66		GZ(33.0 deg) heel arm B.		m	5.540		
67		HA(33.0 deg) heel arm B.		m	0.000		
68		GZ(33.0 deg) heel arm C.		m	5.540		
69		HA(33.0 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	2.1	deg	2.1		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	33.0	deg	33.0		
79		shall not be less than (>=)	0.100	m	5.540	Pass	+5440.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	33.0		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	2.1	deg	2.1		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.302	Pass	+14504.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	2.1	deg	2.1		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	130.1	deg	130.1		
99		shall be greater than (>)	7.0	deg	128.0	Pass	+1729.07
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.078	Pass	+24056.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	2.1	Pass	+70.21
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	4.1	deg	4.1		
110		shall be less than (<)	100.00	%	51.18	Pass	+48.82
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	2.1		
113							

CONDICION N°:3

AVERIA

CASO N°:5

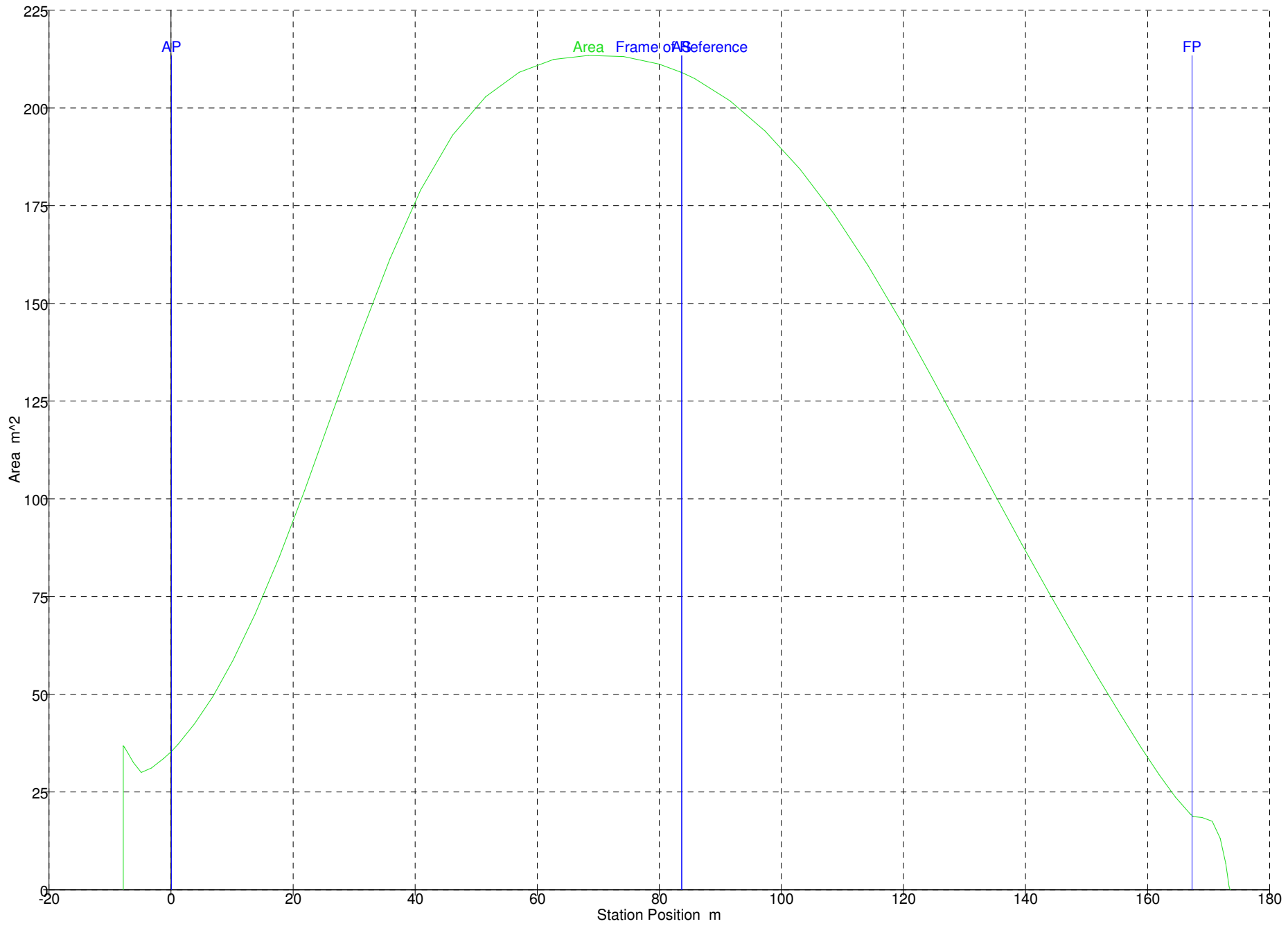
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	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9 (Damaged)	Damaged									
18	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.501	IMO A.749(18)
19	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.432	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11 (Damaged)	Damaged									
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.595	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
26	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.577	IMO A.749(18)
29	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.130	IMO A.749(18)
31	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
33	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
35	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
36	ALMACEN F.O. 2 (Damaged)	Damaged									
37	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
38	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4 (Damaged)	Damaged									
50	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
51	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			16253.993	4916.072	4238.359	74.702	-0.160	7.095	36.867	
55	FS correction								0.002		
56	VCG fluid								7.097		

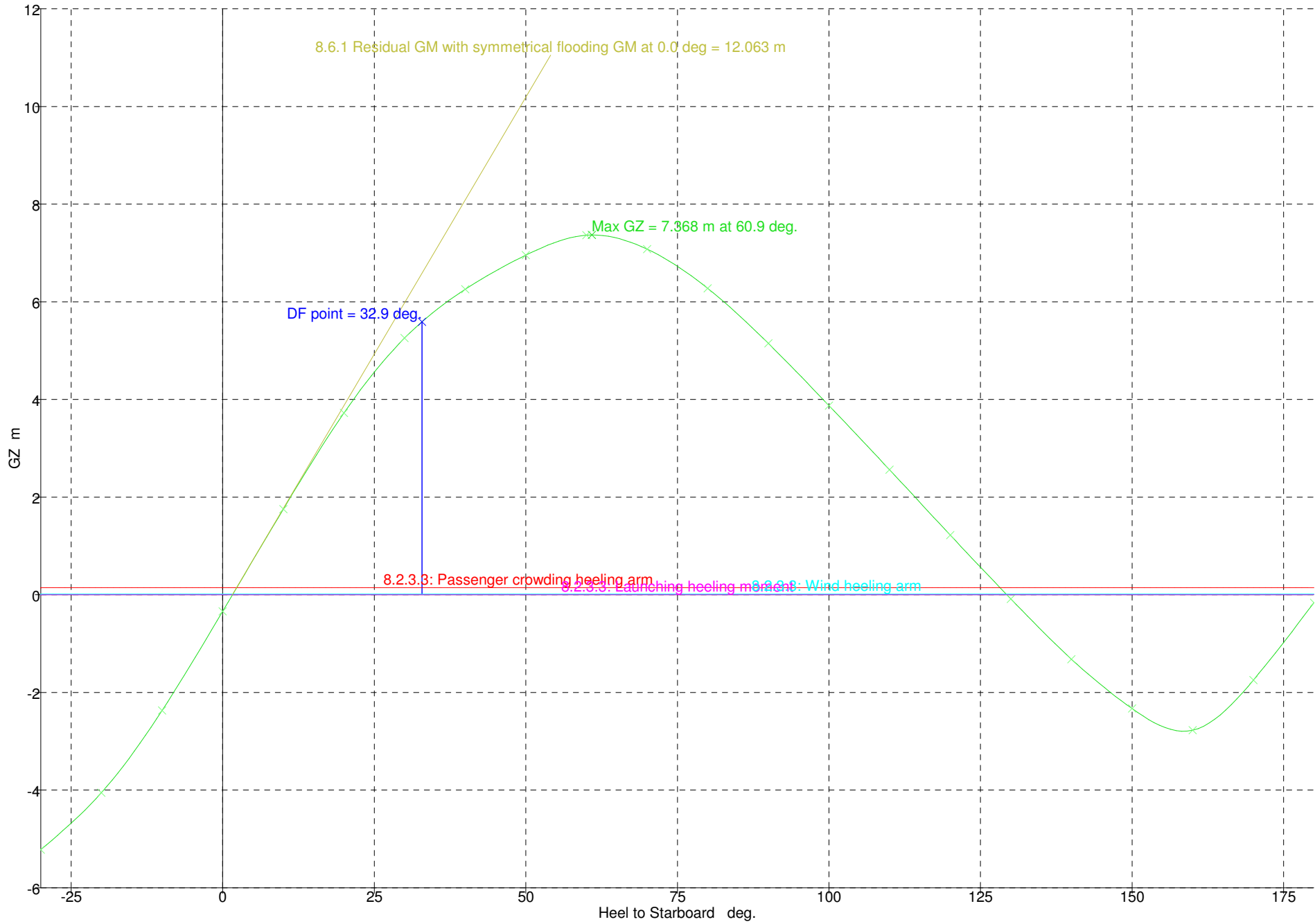
Academic Version

1	Draft Amidships m	7.805
2	Displacement t	16254
3	Heel deg	1.6
4	Draft at FP m	8.469
5	Draft at AP m	7.141
6	Draft at LCF m	7.655
7	Trim (+ve by stern) m	-1.327
8	WL Length m	175.987
9	Beam max extents on WL m	28.216
10	Wetted Area m ²	5976.51
11	Waterpl. Area m ²	3133.93
12	Prismatic coeff. (Cp)	0.422
13	Block coeff. (Cb)	0.379
14	Max Sect. area coeff. (Cm)	0.947
15	Waterpl. area coeff. (Cwp)	0.631
16	LCB from zero pt. (+ve fwd) m	74.715
17	LCF from zero pt. (+ve fwd) m	64.706
18	KB m	4.376
19	KG fluid m	7.097
20	BMt m	14.815
21	BML m	591.413
22	GMt corrected m	12.092
23	GML m	588.690
24	KMt m	19.184
25	KML m	595.535
26	Immersion (TPc) tonne/cm	32.123
27	MTc tonne.m	572.191
28	RM at 1deg = GMt.Disp.sin(1) t	3430.21
29	Max deck inclination deg	1.6793
30	Trim angle (+ve by stern) deg	-0.4547



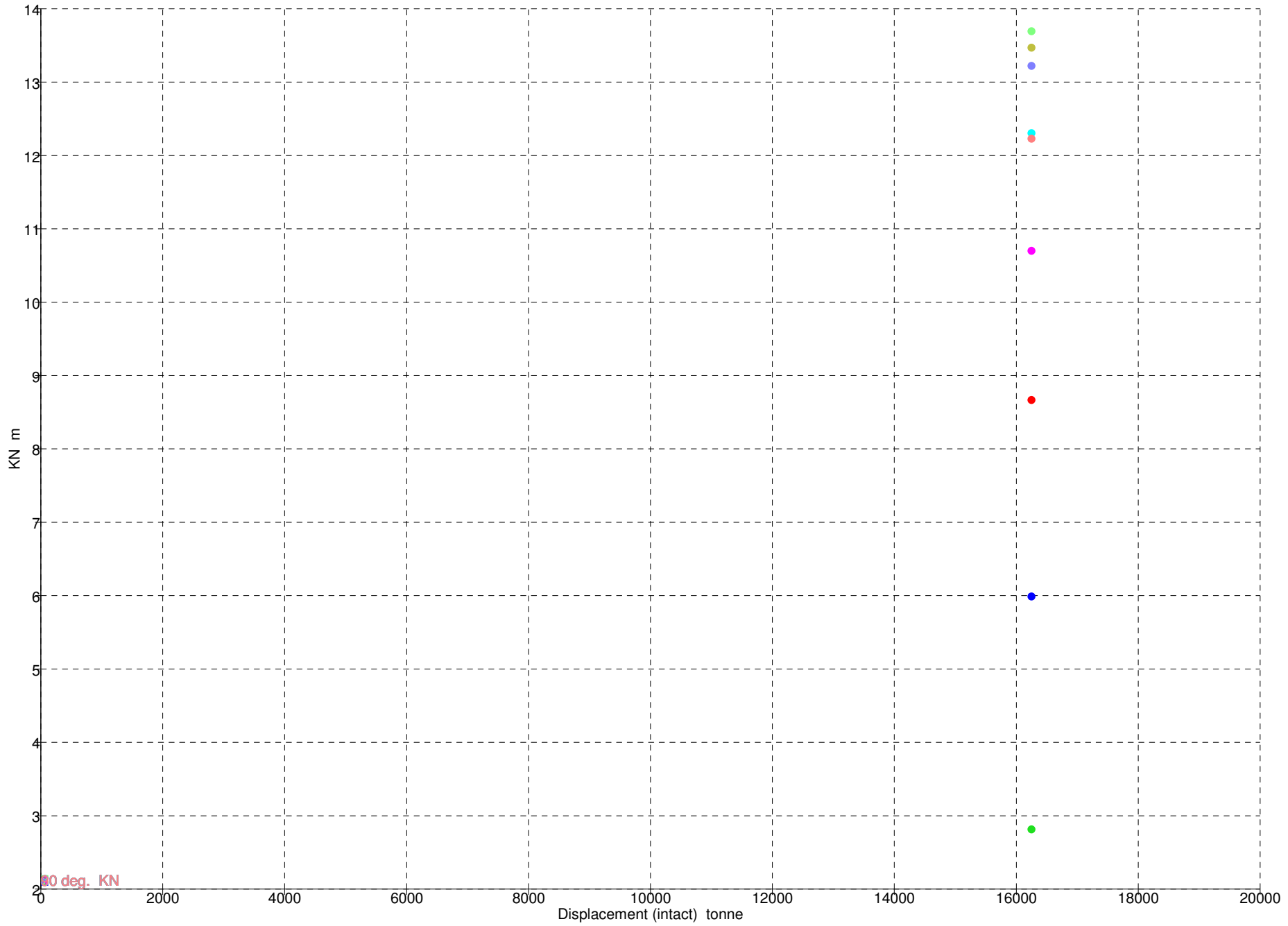
Academic Version

	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.219	-4.052	-2.370	-0.338	1.753	3.722	5.257	6.255	6.955	7.363	7.078	6.275	5.148	3.875	2.561	1.224	-0.084
2	Area under GZ curve from zero heel	92.8629	46.2254	13.6904	-0.6143	7.0980	34.7022	80.0532	137.978	204.199	276.217	348.985	416.087	473.397	518.576	550.782	569.703	575.370
3	Displacement t	16254	16252	16254	16254	16254	16256	16255	16254	16253	16254	16254	16254	16254	16254	16254	16254	16254
4	Draft at FP m	6.628	7.692	8.234	8.464	8.350	7.869	6.875	5.437	3.326	0.051	-6.570	-26.858	n/a	-53.149	-32.513	-25.514	-21.964
5	Draft at AP m	5.772	6.635	7.047	7.131	7.166	6.873	6.159	4.714	2.090	-2.553	-11.154	-35.539	n/a	-58.525	-34.105	-25.689	-21.366
6	WL Length m	180.652	175.555	175.841	175.984	175.912	175.631	180.434	181.301	180.966	177.623	174.401	175.036	175.592	176.365	177.185	177.916	178.571
7	Beam max extents on WL m	28.537	29.919	28.640	28.205	28.640	29.962	29.171	26.354	25.736	23.094	21.283	20.308	20.000	20.308	21.137	21.294	19.936
8	Wetted Area m^2	5456.97	5661.58	5836.78	5972.64	5901.40	5758.91	5603.01	5388.54	5277.52	5166.87	4957.30	4854.72	4789.17	4757.25	4761.41	4781.93	4790.43
9	Waterpl. Area m^2	2866.46	2904.78	2994.61	3132.97	3081.99	3088.58	3003.44	3083.16	3277.76	3077.66	2715.79	2527.69	2482.14	2693.81	2800.41	2914.55	3046.33
10	Prismatic coeff. (Cp)	0.503	0.461	0.431	0.423	0.424	0.447	0.481	0.523	0.561	0.603	0.648	0.683	0.725	0.768	0.816	0.874	0.895
11	Block coeff. (Cb)	0.271	0.283	0.336	0.379	0.332	0.278	0.259	0.281	0.299	0.368	0.458	0.565	0.651	0.551	0.475	0.443	0.448
12	LCB from zero pt. (+ve fwd) m	74.711	74.720	74.719	74.718	74.726	74.724	74.720	74.710	74.733	74.755	74.777	74.789	74.789	74.766	74.755	74.724	74.683
13	LCF from zero pt. (+ve fwd) m	73.216	70.469	67.090	64.669	67.076	70.523	72.833	77.130	80.024	80.354	77.084	75.650	75.409	75.390	74.993	74.679	74.585
14	Max deck inclination deg	30.0010	20.0028	10.0079	0.4568	10.0079	20.0025	30.0007	40.0004	50.0005	60.0010	70.0009	80.0004	90.0000	99.9998	109.999	120.000	129.999
15	Trim angle (+ve by stern) deg	-0.2936	-0.3618	-0.4069	-0.4568	-0.4057	-0.3416	-0.2455	-0.2475	-0.4232	-0.8923	-1.5703	-2.9715	-90.000	-1.8411	-0.5455	-0.0598	0.2048



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16254	5.900	-0.455 (fixed)	79.578	0.000	0.000	2.812	5.985	8.663	10.697	12.303	13.468	13.691	13.220	12.226



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.146		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.6	deg	1.6		
32		<i>to the lesser of</i>					
33		first downflooding angle	32.9	deg	32.9		
34		angle of vanishing stability	129.3	deg			
35		shall not be less than (>=)	15.0	deg	31.3	Pass	+108.36
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.6	deg	1.6		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	32.9	deg			
43		angle of vanishing stability	129.3	deg			
44		shall not be less than (>=)	0.8590	m.deg	42.7713	Pass	+4879.20
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.6	deg			
53		angle of equilibrium with heel arm	2.3, 1.6,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(32.9), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.	deg			
58		first flooding angle of the DownfloodingPoints	32.9	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.444	Pass	+13510.0
61		8.2.3.3: Launching heeling moment	0.040	m	5.590	Pass	+13875.0
62		8.2.3.3: Wind heeling arm	0.040	m	5.575	Pass	+13837.5
63		<i>Intermediate values</i>					
64		GZ(32.9 deg) heel arm A.		m	5.590		
65		HA(32.9 deg) heel arm A.		m	0.146		
66		GZ(32.9 deg) heel arm B.		m	5.590		
67		HA(32.9 deg) heel arm B.		m	0.000		
68		GZ(32.9 deg) heel arm C.		m	5.590		
69		HA(32.9 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.6	deg	1.6		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	32.9	deg	32.9		
79		shall not be less than (>=)	0.100	m	5.590	Pass	+5490.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	32.9		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.6	deg	1.6		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.368	Pass	+14636.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.6	deg	1.6		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	129.3	deg	129.3		
99		shall be greater than (>)	7.0	deg	127.7	Pass	+1724.83
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.063	Pass	+24026.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.6	Pass	+76.99
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	4.9	deg	4.9		
110		shall be less than (<)	100.00	%	32.65	Pass	+67.35
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.6		
113							

CONDICION N°:3

AVERIA

CASO N°:6

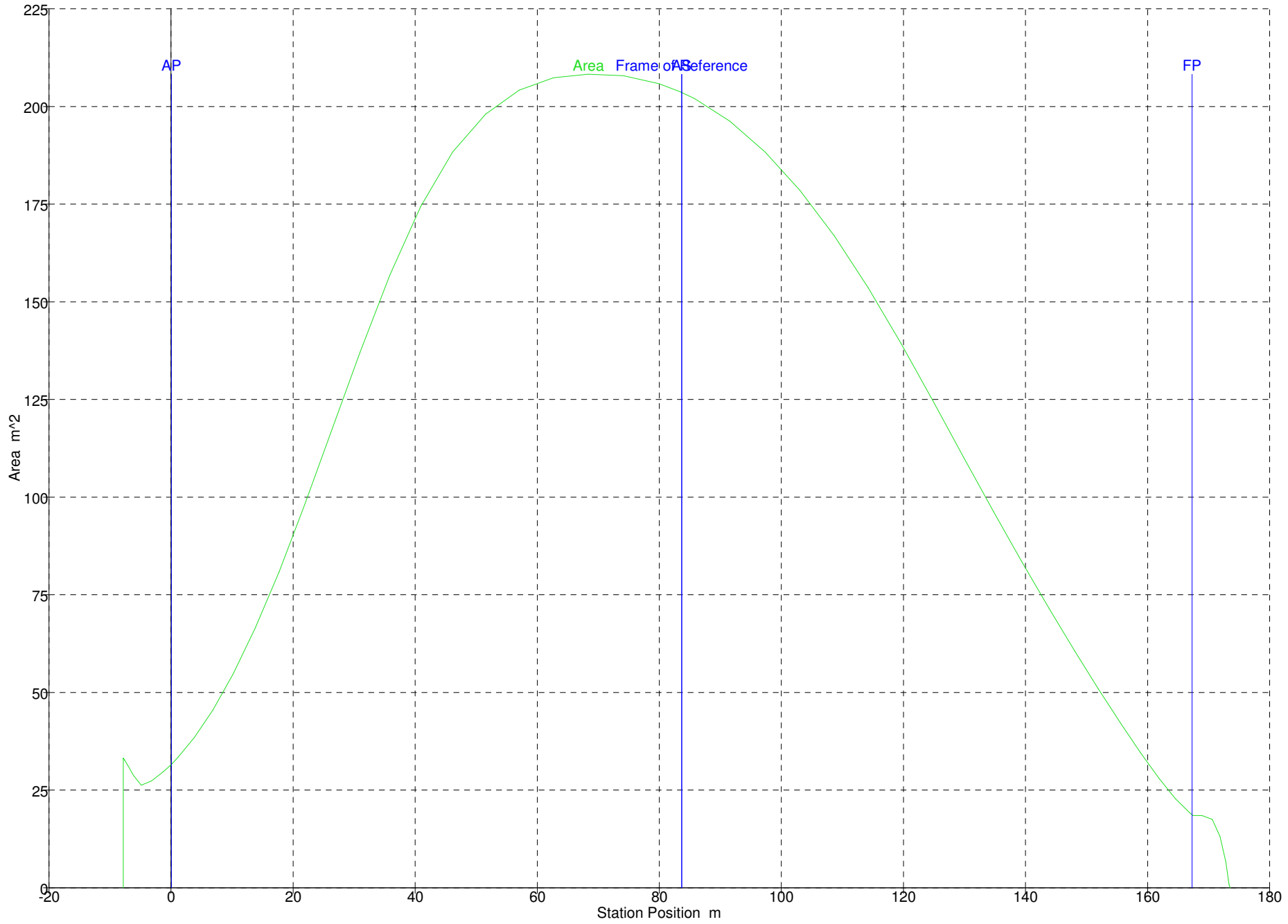
Academic Version

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.499	IMO A.749(18)
19	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.430	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11 (Damaged)	Damaged									
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.593	IMO A.749(18)
24	LASTRE 13 (Damaged)	Damaged									
25	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
26	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.129	IMO A.749(18)
31	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
33	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
35	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
36	ALMACEN F.O. 2 (Damaged)	Damaged									
37	ALMACEN D.O. (Damaged)	Damaged									
38	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4 (Damaged)	Damaged									
50	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
51	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5 (Damaged)	Damaged									
54	Total Loadcase			15779.345	4776.861	3747.731	75.330	-0.323	7.212	36.858	
55	FS correction								0.002		
56	VCG fluid								7.214		

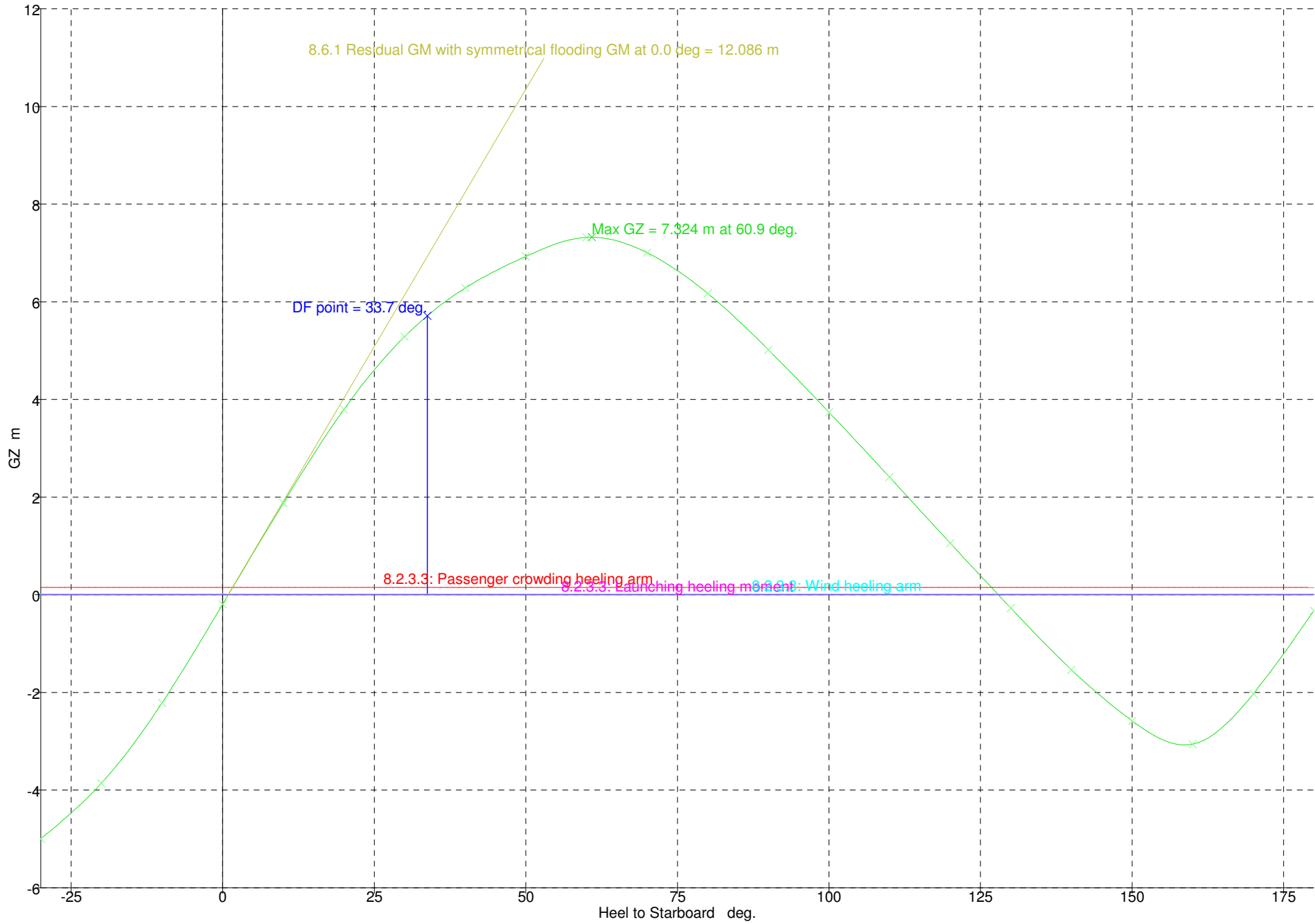
Academic Version

1	Draft Amidships m	7.611
2	Displacement t	15779
3	Heel deg	1.0
4	Draft at FP m	8.217
5	Draft at AP m	7.006
6	Draft at LCF m	7.470
7	Trim (+ve by stern) m	-1.212
8	WL Length m	175.831
9	Beam max extents on WL m	28.209
10	Wetted Area m ²	5889.47
11	Waterpl. Area m ²	3102.19
12	Prismatic coeff. (Cp)	0.420
13	Block coeff. (Cb)	0.379
14	Max Sect. area coeff. (Cm)	0.961
15	Waterpl. area coeff. (Cwp)	0.625
16	LCB from zero pt. (+ve fwd) m	75.344
17	LCF from zero pt. (+ve fwd) m	64.150
18	KB m	4.239
19	KG fluid m	7.214
20	BMt m	15.079
21	BML m	594.721
22	GMt corrected m	12.103
23	GML m	591.746
24	KMt m	19.315
25	KML m	598.859
26	Immersion (TPc) tonne/cm	31.797
27	MTc tonne.m	558.364
28	RM at 1deg = GMt.Disp.sin(1) t	3333.06
29	Max deck inclination deg	1.0576
30	Trim angle (+ve by stern) deg	-0.4151



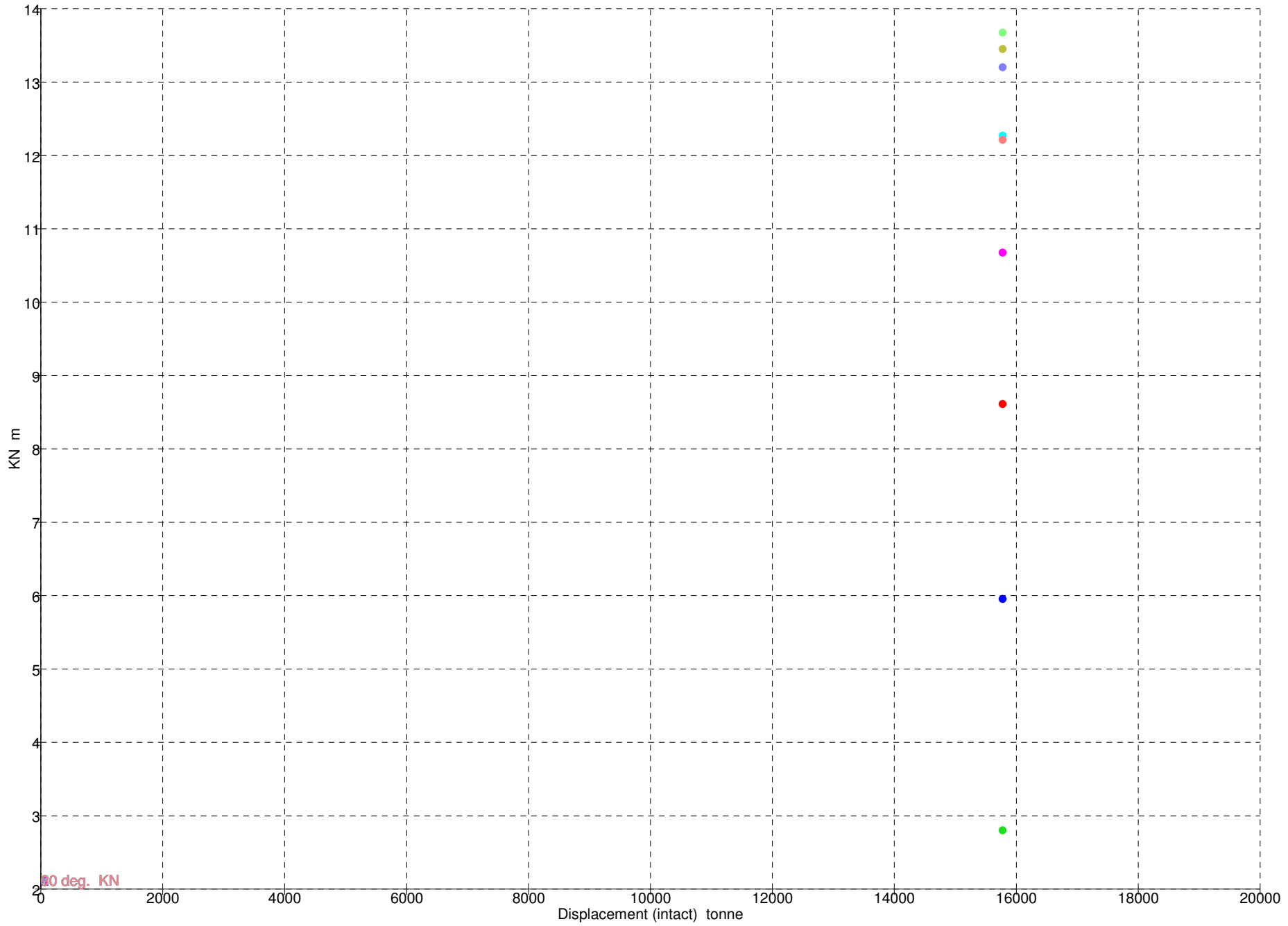
Academic Version

	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.997	-3.858	-2.214	-0.193	1.878	3.799	5.284	6.282	6.930	7.322	7.006	6.173	5.019	3.739	2.410	1.059	-0.272
2	Area under GZ curve from zero heel	87.5411	42.9940	12.1997	-0.3515	8.4627	37.0941	82.9286	141.132	207.375	279.042	351.252	417.474	473.614	517.460	548.234	565.578	569.493
3	Displacement t	15779	15779	15780	15779	15779	15779	15781	15779	15779	15779	15779	15780	15781	15779	15779	15780	15780
4	Draft at FP m	6.480	7.505	8.009	8.216	8.091	7.621	6.628	5.227	3.132	-0.190	-6.988	-27.752	n/a	-53.775	-32.759	-25.631	-22.028
5	Draft at AP m	5.496	6.418	6.882	6.998	7.032	6.721	5.980	4.511	1.827	-2.933	-11.759	-36.799	n/a	-59.880	-34.804	-26.174	-21.744
6	WL Length m	180.765	175.474	175.702	175.830	175.752	175.523	180.659	181.348	180.882	176.741	174.246	174.878	175.462	176.287	177.130	177.886	178.553
7	Beam max extents on WL m	28.143	29.864	28.640	28.205	28.640	29.925	28.772	26.037	25.468	23.094	21.283	20.308	20.000	20.308	21.086	21.046	19.561
8	Wetted Area m^2	5356.38	5566.85	5732.66	5887.09	5800.11	5668.47	5505.98	5294.60	5196.48	5087.07	4879.79	4778.50	4715.97	4690.36	4696.52	4716.47	4720.37
9	Waterpl. Area m^2	2814.56	2818.80	2940.23	3101.51	3007.40	3001.45	2968.03	3030.35	3233.24	3071.61	2707.96	2524.90	2474.12	2715.72	2793.22	2900.60	3017.54
10	Prismatic coeff. (Cp)	0.504	0.461	0.430	0.421	0.423	0.446	0.480	0.520	0.558	0.604	0.647	0.684	0.727	0.771	0.820	0.878	0.912
11	Block coeff. (Cb)	0.271	0.281	0.333	0.379	0.328	0.275	0.258	0.280	0.297	0.365	0.454	0.562	0.647	0.543	0.468	0.439	0.455
12	LCB from zero pt. (+ve fwd) m	75.343	75.350	75.336	75.348	75.355	75.353	75.348	75.342	75.364	75.389	75.414	75.411	75.422	75.417	75.392	75.363	75.324
13	LCF from zero pt. (+ve fwd) m	73.830	70.496	67.187	64.129	66.911	70.063	72.814	77.157	80.390	80.259	76.993	75.625	75.345	75.823	75.390	75.098	74.980
14	Max deck inclination deg	30.0013	20.0029	10.0071	0.4170	10.0063	20.0020	30.0006	40.0004	50.0006	60.0011	70.0010	80.0004	90.0000	99.9998	109.999	120.000	130.000
15	Trim angle (+ve by stern) deg	-0.3372	-0.3725	-0.3860	-0.4170	-0.3628	-0.3084	-0.2218	-0.2451	-0.4471	-0.9397	-1.6343	-3.0969	-90.000	-2.0908	-0.7003	-0.1859	0.0974



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	15779	5.775	-0.415 (fixed)	79.682	0.000	0.000	2.800	5.951	8.609	10.675	12.268	13.448	13.672	13.202	12.211



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.150		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.9	deg	0.9		
32		<i>to the lesser of</i>					
33		first downflooding angle	33.7	deg	33.7		
34		angle of vanishing stability	127.9	deg			
35		shall not be less than (>=)	15.0	deg	32.8	Pass	+118.79
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.9	deg	0.9		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	33.7	deg			
43		angle of vanishing stability	127.9	deg			
44		shall not be less than (>=)	0.8590	m.deg	45.1216	Pass	+5152.80
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.9	deg			
53		angle of equilibrium with heel arm	1.6, 0.9,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(33.7), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.	deg			
58		first flooding angle of the DownfloodingPoints	33.7	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.560	Pass	+13800.0
61		8.2.3.3: Launching heeling moment	0.040	m	5.711	Pass	+14177.5
62		8.2.3.3: Wind heeling arm	0.040	m	5.695	Pass	+14137.5
63		<i>Intermediate values</i>					
64		GZ(33.7 deg) heel arm A.		m	5.711		
65		HA(33.7 deg) heel arm A.		m	0.150		
66		GZ(33.7 deg) heel arm B.		m	5.711		
67		HA(33.7 deg) heel arm B.		m	0.000		
68		GZ(33.7 deg) heel arm C.		m	5.711		
69		HA(33.7 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.9	deg	0.9		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	33.7	deg	33.7		
79		shall not be less than (>=)	0.100	m	5.711	Pass	+5611.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	33.7		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.9	deg	0.9		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.324	Pass	+14548.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.9	deg	0.9		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	127.9	deg	127.9		
99		shall be greater than (>)	7.0	deg	127.0	Pass	+1714.51
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.086	Pass	+24072.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.9	Pass	+86.77
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	6.0	deg	6.0		
110		shall be less than (<)	100.00	%	15.51	Pass	+84.49
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.9		
113							

CONDICION N°:3

AVERIA

CASO N°:7

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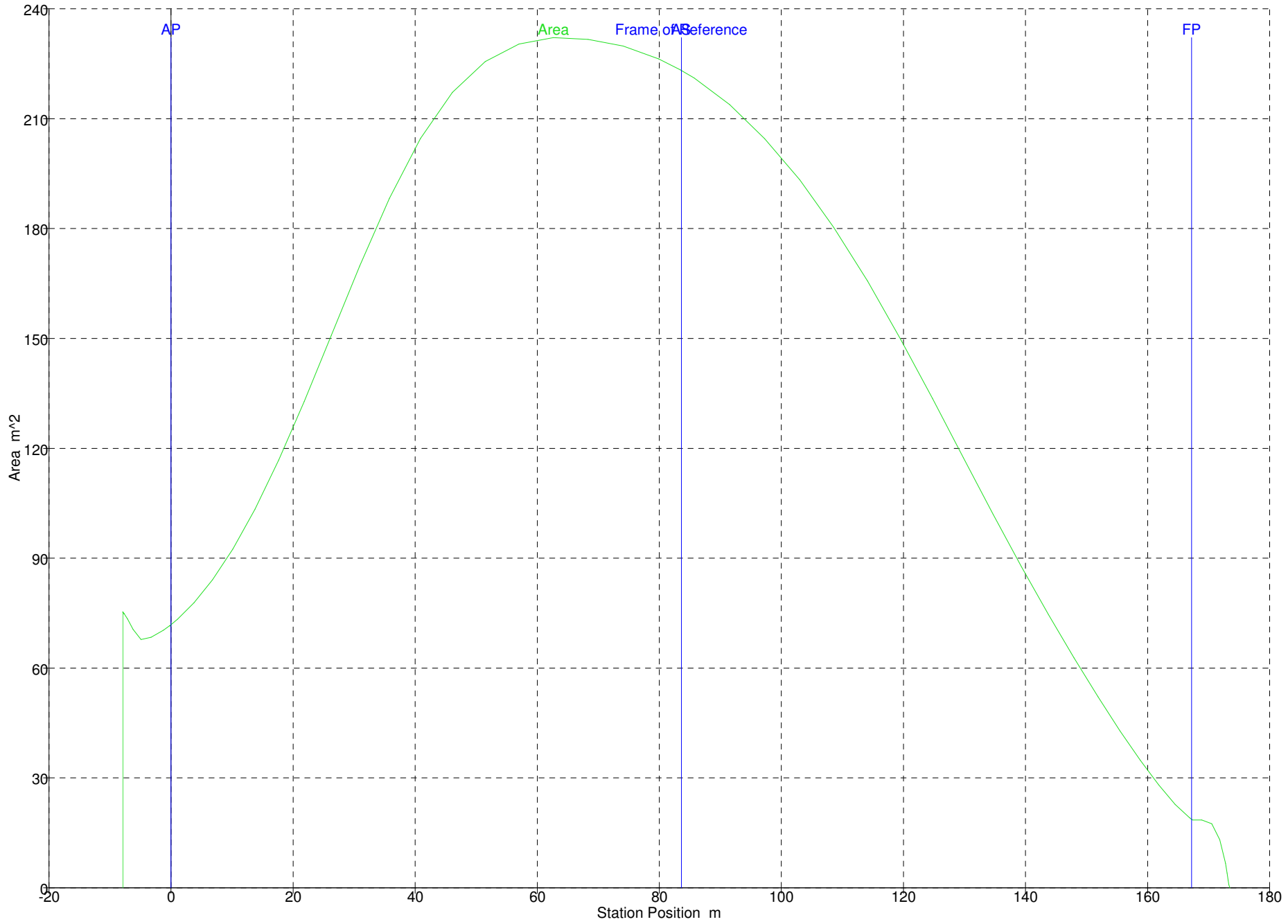
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.499	IMO A.749(18)
19	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.429	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.593	IMO A.749(18)
24	LASTRE 13 (Damaged)	Damaged									
25	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
26	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.128	IMO A.749(18)
31	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
33	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
35	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
36	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
37	ALMACEN D.O. (Damaged)	Damaged									
38	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
50	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
51	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5 (Damaged)	Damaged									
54	Total Loadcase			15988.291	5282.024	3969.002	75.150	-0.178	7.196	36.854	
55	FS correction								0.002		
56	VCG fluid								7.199		

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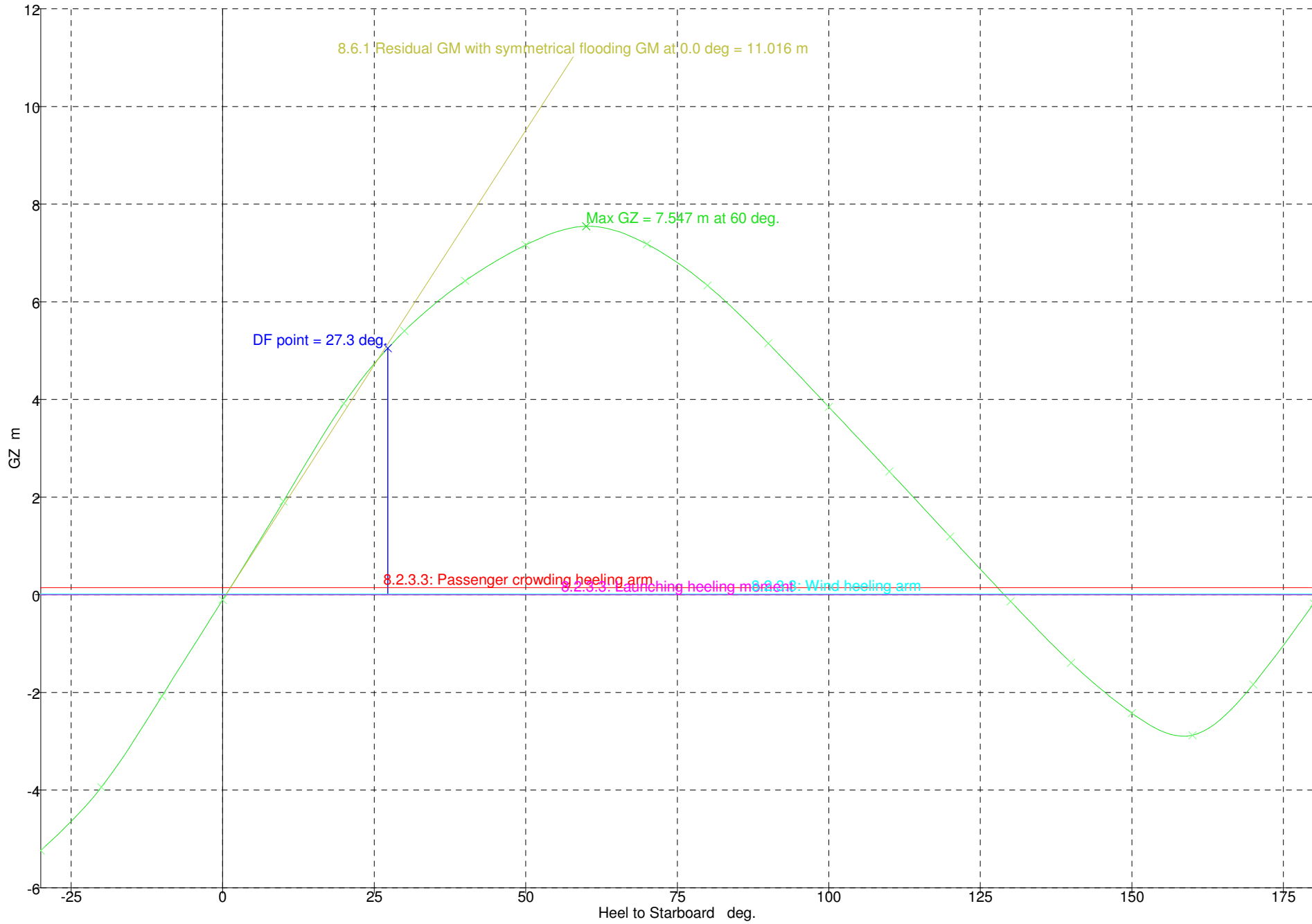
1	Draft Amidships m	8.306
2	Displacement t	15987
3	Heel deg	0.6
4	Draft at FP m	8.178
5	Draft at AP m	8.434
6	Draft at LCF m	8.329
7	Trim (+ve by stern) m	0.256
8	WL Length m	175.799
9	Beam max extents on WL m	28.206
10	Wetted Area m ²	6196.38
11	Waterpl. Area m ²	2714.58
12	Prismatic coeff. (Cp)	0.382
13	Block coeff. (Cb)	0.373
14	Max Sect. area coeff. (Cm)	0.975
15	Waterpl. area coeff. (Cwp)	0.547
16	LCB from zero pt. (+ve fwd) m	75.142
17	LCF from zero pt. (+ve fwd) m	68.506
18	KB m	4.684
19	KG fluid m	7.199
20	BMt m	13.536
21	BML m	578.289
22	GMt corrected m	11.021
23	GML m	575.774
24	KMt m	18.220
25	KML m	582.944
26	Immersion (TPc) tonne/cm	27.825
27	MTc tonne.m	550.435
28	RM at 1deg = GMt.Disp.sin(1) t	3075.06
29	Max deck inclination deg	0.5642
30	Trim angle (+ve by stern) deg	0.0878

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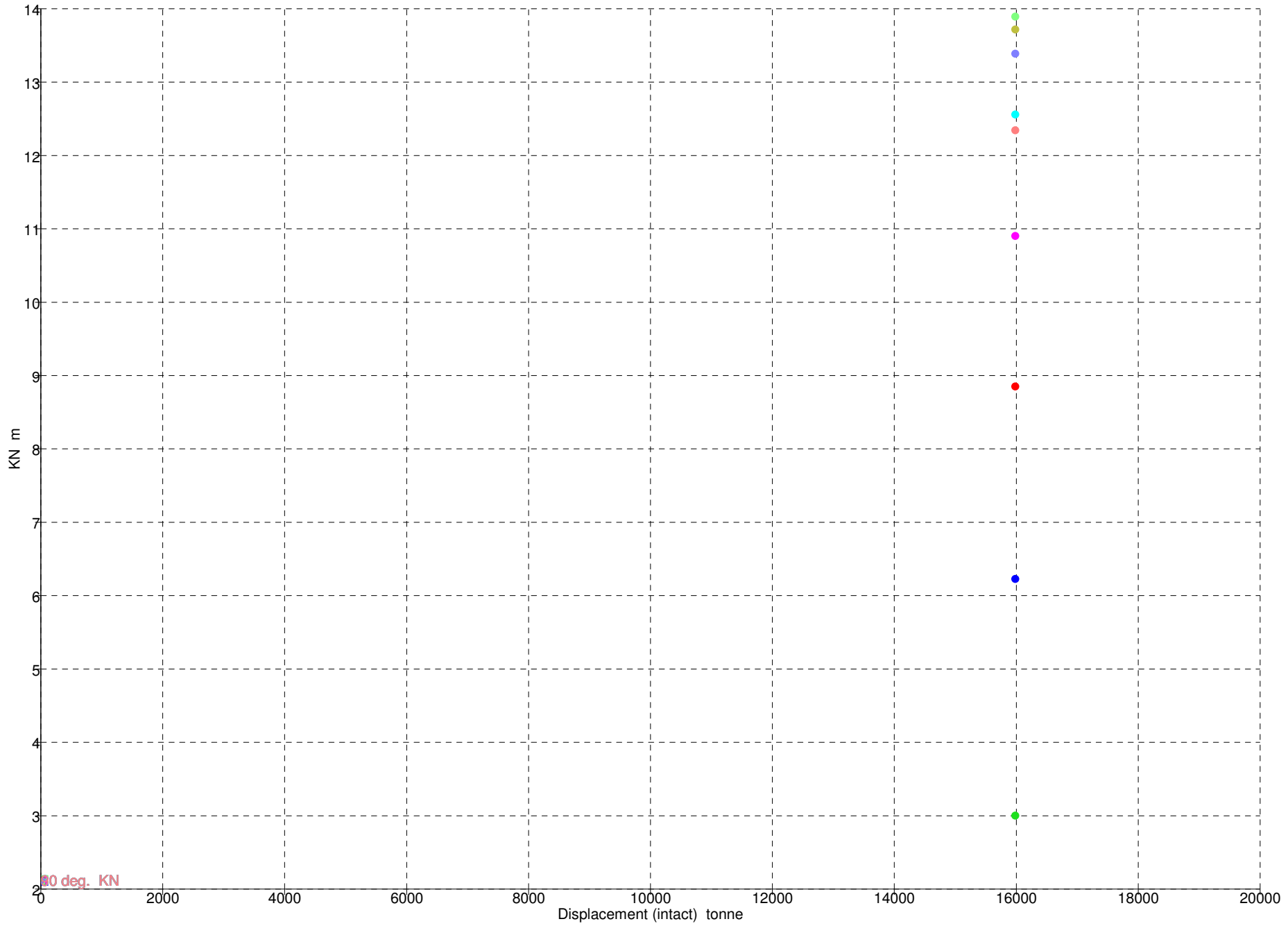
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.235	-3.939	-2.072	-0.103	1.911	3.920	5.402	6.429	7.163	7.547	7.182	6.332	5.151	3.846	2.526	1.189	-0.136
2	Area under GZ curve from zero heel	87.4788	41.2495	10.8662	-0.1879	8.9513	38.3351	85.4211	144.871	213.036	287.076	361.280	429.166	486.776	531.793	563.659	582.239	587.488
3	Displacement t	15988	15988	15988	15987	15988	15988	15988	15988	15988	15988	15988	15988	15988	15988	15988	15988	15988
4	Draft at FP m	6.313	7.341	7.962	8.178	7.991	7.379	6.359	4.939	2.832	-0.562	-7.554	-28.754	n/a	-54.513	-33.001	-25.701	-22.024
5	Draft at AP m	7.085	8.008	8.373	8.431	8.443	8.153	7.339	5.811	3.132	-1.359	-9.633	-33.088	n/a	-57.528	-33.863	-25.692	-21.488
6	WL Length m	180.939	175.399	175.667	175.799	175.685	175.416	180.910	181.377	180.723	174.636	174.036	174.696	175.322	176.187	177.070	177.865	178.553
7	Beam max extents on WL m	29.770	30.011	28.640	28.205	28.640	30.013	30.047	26.969	25.892	23.094	21.283	20.308	20.000	20.308	21.134	21.245	19.804
8	Wetted Area m^2	5691.91	5942.07	6162.79	6195.69	6184.80	5987.98	5761.33	5513.00	5381.36	5204.66	4995.57	4881.26	4794.70	4750.21	4748.38	4763.61	4762.42
9	Waterpl. Area m^2	2801.93	2881.12	2866.22	2714.45	2939.77	2973.22	2872.52	3008.46	3216.38	2912.85	2590.25	2400.16	2354.12	2621.03	2742.13	2858.69	2985.10
10	Prismatic coeff. (Cp)	0.450	0.412	0.388	0.382	0.386	0.407	0.439	0.485	0.528	0.584	0.624	0.663	0.709	0.756	0.806	0.867	0.894
11	Block coeff. (Cb)	0.242	0.261	0.308	0.377	0.306	0.259	0.237	0.261	0.285	0.360	0.443	0.548	0.665	0.556	0.475	0.441	0.447
12	LCB from zero pt. (+ve fwd) m	75.139	75.135	75.139	75.144	75.149	75.142	75.138	75.117	75.131	75.171	75.177	75.188	75.191	75.198	75.178	75.156	75.130
13	LCF from zero pt. (+ve fwd) m	74.253	70.808	67.215	68.505	67.083	70.374	73.668	77.317	80.355	81.281	78.483	77.543	77.143	77.134	76.595	76.157	75.769
14	Max deck inclination deg	30.0008	20.0011	10.0010	0.0868	10.0012	20.0015	30.0013	40.0005	50.0000	60.0001	70.0002	80.0001	90.0000	100.000	110.000	120.000	129.999
15	Trim angle (+ve by stern) deg	0.2645	0.2285	0.1411	0.0868	0.1549	0.2651	0.3359	0.2989	0.1028	-0.2730	-0.7124	-1.4846	-90.000	-1.0331	-0.2954	0.0030	0.1837



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	15987	5.793	0.088 (fixed)	78.295	0.000	0.000	2.998	6.226	8.850	10.901	12.557	13.715	13.891	13.387	12.341



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.149		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.5	deg	0.5		
32		<i>to the lesser of</i>					
33		first downflooding angle	27.3	deg	27.3		
34		angle of vanishing stability	129.0	deg			
35		shall not be less than (>=)	15.0	deg	26.7	Pass	+78.21
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.5	deg	0.5		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	27.3	deg			
43		angle of vanishing stability	129.0	deg			
44		shall not be less than (>=)	0.8590	m.deg	46.5500	Pass	+5319.10
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.5	deg			
53		angle of equilibrium with heel arm	1.3, 0.5,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(27.3), (2		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.0, 60.	deg			
58		first flooding angle of the DownfloodingPoints	27.3	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	4.902	Pass	+12155.0
61		8.2.3.3: Launching heeling moment	0.040	m	5.051	Pass	+12527.5
62		8.2.3.3: Wind heeling arm	0.040	m	5.035	Pass	+12487.5
63		<i>Intermediate values</i>					
64		GZ(27.3 deg) heel arm A.		m	5.051		
65		HA(27.3 deg) heel arm A.		m	0.149		
66		GZ(27.3 deg) heel arm B.		m	5.051		
67		HA(27.3 deg) heel arm B.		m	0.000		
68		GZ(27.3 deg) heel arm C.		m	5.051		
69		HA(27.3 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.5	deg	0.5		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.0	deg			
78		first downflooding angle	27.3	deg	27.3		
79		shall not be less than (>=)	0.100	m	5.051	Pass	+4951.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	27.3		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.5	deg	0.5		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.0	deg	60.0		
89		shall be greater than (>)	0.050	m	7.547	Pass	+14994.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.0		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.5	deg	0.5		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	129.0	deg	129.0		
99		shall be greater than (>)	7.0	deg	128.4	Pass	+1734.91
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	11.016	Pass	+21932.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.5	Pass	+92.51
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	4.4	deg	4.4		
110		shall be less than (<)	100.00	%	11.98	Pass	+88.02
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.5		
113							

CONDICION N°:3

AVERIA

CASO N°:8

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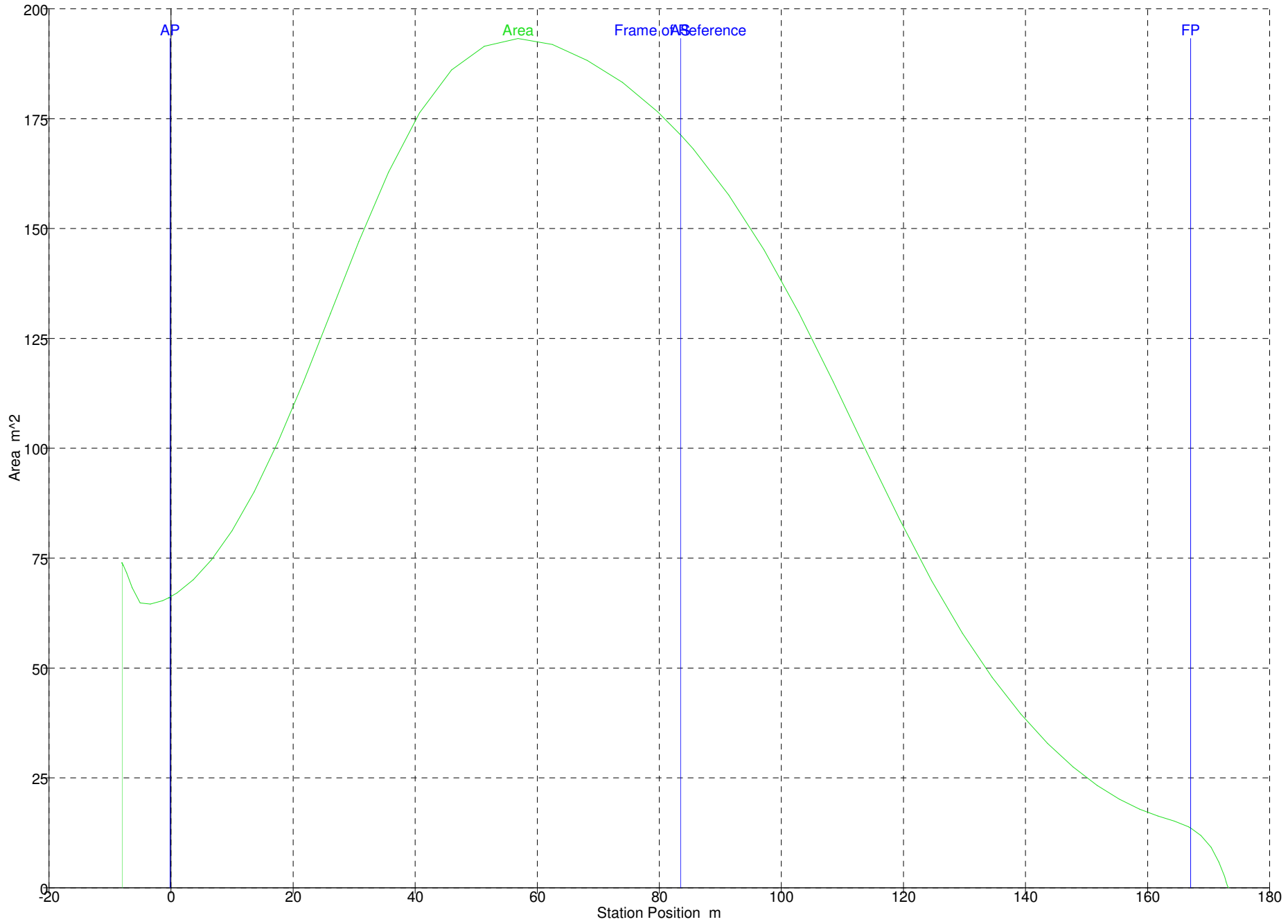
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	1	142.500	142.500			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	10%	22.375	2.237	26.636	2.664	64.915	-6.835	0.128	7.498	IMO A.749(18)
19	REBOSE F.O.	10%	25.152	2.515	26.635	2.664	61.545	-6.835	0.128	8.429	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	10%	22.464	2.246	24.604	2.460	51.294	-6.744	0.263	7.592	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	100%	28.991	28.991	31.512	31.512	41.344	-4.239	1.594	0.000	IMO A.749(18)
26	ALMACEN ACEITE 2	100%	28.991	28.991	31.512	31.512	41.344	4.239	1.594	0.000	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	10%	16.836	1.684	18.300	1.830	42.613	0.000	0.481	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	100%	15.073	15.073	16.383	16.383	39.591	0.000	1.579	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	10%	12.913	1.291	14.036	1.404	37.166	0.000	0.944	5.128	IMO A.749(18)
31	DERRAME BANDEJA F.O.	10%	6.748	0.675	7.146	0.715	34.486	-0.903	1.266	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	10%	6.574	0.657	7.146	0.715	34.486	0.903	1.266	1.298	IMO A.749(18)
33	AGUA DULCE 1	100%	103.453	103.453	103.453	103.453	145.579	0.000	4.364	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	100%	105.822	105.822	112.064	112.064	61.585	-10.830	4.325	0.000	IMO A.749(18)
35	DECANTACION F.O. 1	100%	114.678	114.678	121.442	121.442	54.240	-10.830	4.325	0.000	IMO A.749(18)
36	ALMACEN F.O. 2	100%	105.822	105.822	112.064	112.064	61.585	10.830	4.325	0.000	IMO A.749(18)
37	ALMACEN D.O.	100%	89.994	89.994	107.136	107.136	53.790	10.830	4.325	0.000	IMO A.749(18)
38	AGUA TECNICA	100%	29.175	29.175	29.175	29.175	30.950	0.000	4.325	0.000	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	100%	103.820	103.820	103.820	103.820	145.595	0.000	7.810	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	100%	103.124	103.124	109.207	109.207	61.585	-10.830	7.810	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	100%	37.739	37.739	39.965	39.965	56.770	-10.830	7.810	0.000	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	100%	103.124	103.124	109.207	109.207	61.585	10.830	7.810	0.000	IMO A.749(18)
50	AGUA DULCE 3	100%	304.763	304.763	304.763	304.763	19.640	0.000	7.810	0.000	IMO A.749(18)
51	AGUA DULCE 4	100%	118.330	118.330	118.330	118.330	14.300	0.000	7.810	0.000	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	100%	98.589	98.589	104.405	104.405	53.790	10.830	7.810	0.000	IMO A.749(18)
54	Total Loadcase			16462.939	5772.652	4459.630	74.535	-0.021	7.082	36.853	
55	FS correction								0.002		
56	VCG fluid								7.084		

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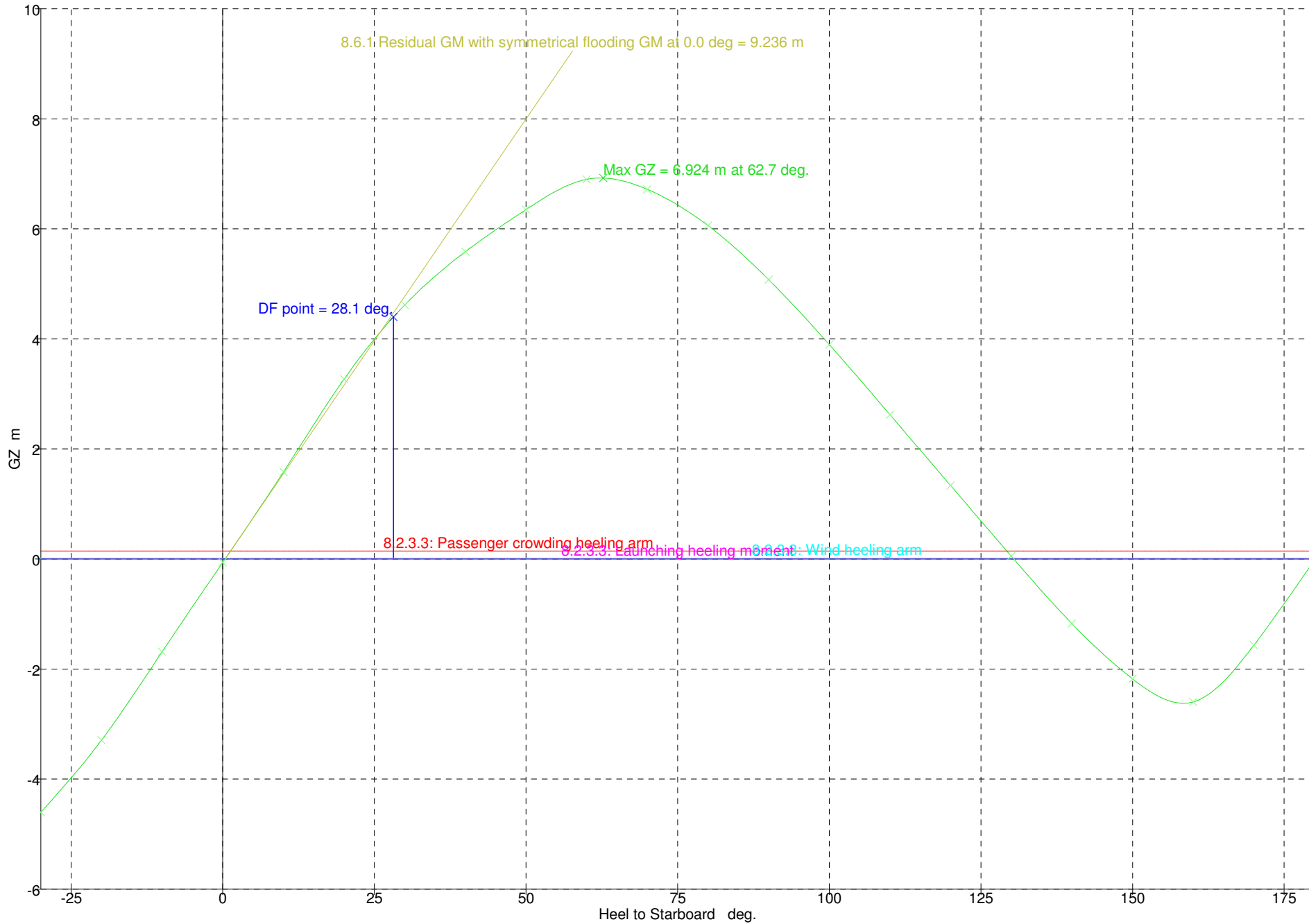
1	Draft Amidships m	6.468
2	Displacement t	16463
3	Heel deg	0.4
4	Draft at FP m	4.705
5	Draft at AP m	8.232
6	Draft at LCF m	6.706
7	Trim (+ve by stern) m	3.527
8	WL Length m	181.369
9	Beam max extents on WL m	28.205
10	Wetted Area m ²	5359.43
11	Waterpl. Area m ²	3440.42
12	Prismatic coeff. (Cp)	0.458
13	Block coeff. (Cb)	0.441
14	Max Sect. area coeff. (Cm)	0.970
15	Waterpl. area coeff. (Cwp)	0.673
16	LCB from zero pt. (+ve fwd) m	74.473
17	LCF from zero pt. (+ve fwd) m	72.366
18	KB m	3.933
19	KG fluid m	7.084
20	BMt m	12.388
21	BML m	465.132
22	GMt corrected m	9.237
23	GML m	461.981
24	KMt m	16.319
25	KML m	468.953
26	Immersion (TPc) tonne/cm	35.264
27	MTc tonne.m	454.805
28	RM at 1deg = GMt.Disp.sin(1) t	2653.98
29	Max deck inclination deg	1.2589
30	Trim angle (+ve by stern) deg	1.2083

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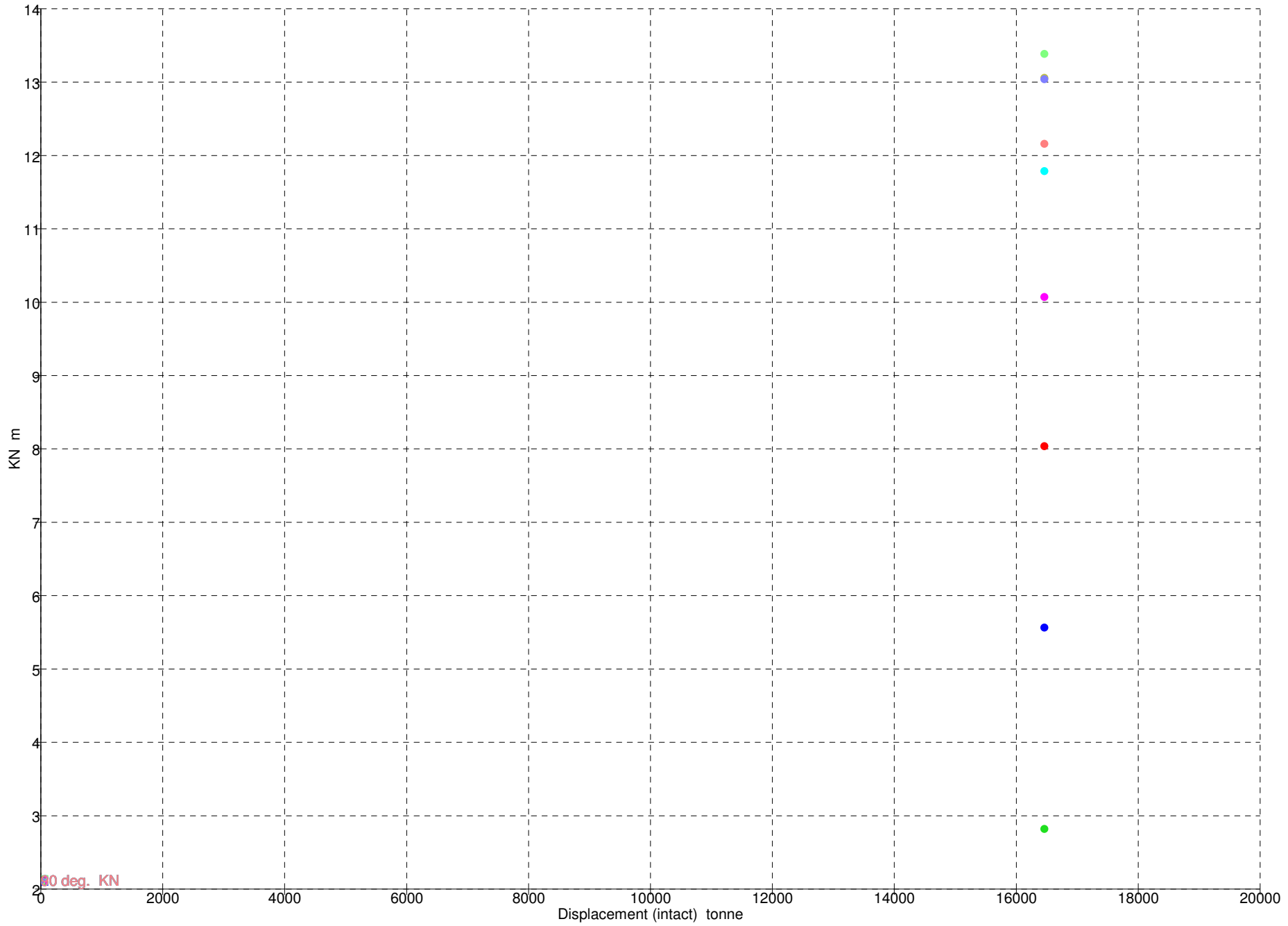
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.604	-3.294	-1.685	-0.061	1.582	3.270	4.618	5.586	6.351	6.901	6.718	6.061	5.077	3.897	2.623	1.335	0.052
2	Area under GZ curve from zero heel	73.4238	33.7401	8.6915	-0.1101	7.5280	31.9002	71.7009	122.970	182.747	249.435	318.097	382.286	438.193	483.175	515.813	535.598	542.521
3	Displacement t	16463	16463	16462	16463	16463	16463	16464	16463	16463	16463	16463	16463	16463	16463	16463	16463	16463
4	Draft at FP m	3.931	4.329	4.569	4.704	4.562	4.291	3.885	3.001	1.291	-2.151	-9.458	-31.343	n/a	-55.137	-33.218	-25.784	-22.037
5	Draft at AP m	6.913	7.861	8.243	8.233	8.259	7.947	7.029	5.450	2.832	-1.521	-9.509	-32.201	n/a	-55.598	-32.895	-25.055	-21.034
6	WL Length m	181.175	181.312	181.352	181.369	181.351	181.309	181.152	180.697	179.105	171.948	173.250	174.240	175.110	176.104	177.016	177.840	178.547
7	Beam max extents on WL m	27.918	29.761	28.640	28.205	28.640	29.777	28.029	25.585	24.959	23.094	21.283	20.308	20.000	20.308	21.175	21.483	20.213
8	Wetted Area m^2	5090.32	5208.21	5358.13	5359.37	5360.30	5223.10	5108.62	5036.91	5026.03	4937.39	4859.51	4825.96	4805.44	4798.75	4803.76	4826.68	4834.13
9	Waterpl. Area m^2	3490.56	3506.84	3508.67	3440.32	3552.52	3542.80	3502.32	3555.88	3659.76	3331.61	2996.77	2788.32	2697.11	2699.87	2767.27	2888.36	3010.66
10	Prismatic coeff. (Cp)	0.528	0.484	0.461	0.458	0.460	0.481	0.523	0.560	0.594	0.645	0.669	0.694	0.724	0.758	0.803	0.858	0.870
11	Block coeff. (Cb)	0.286	0.292	0.354	0.441	0.353	0.291	0.284	0.303	0.321	0.389	0.469	0.572	0.705	0.577	0.484	0.433	0.438
12	LCB from zero pt. (+ve fwd) m	74.467	74.467	74.476	74.465	74.467	74.452	74.465	74.477	74.498	74.530	74.543	74.544	74.545	74.539	74.528	74.511	74.490
13	LCF from zero pt. (+ve fwd) m	78.310	75.515	72.175	72.365	71.629	74.975	78.119	80.313	81.432	81.084	79.641	79.062	78.317	77.503	76.861	76.413	76.040
14	Max deck inclination deg	30.0118	20.0310	10.0758	1.2092	10.0767	20.0332	30.0131	40.0043	50.0008	60.0001	70.0000	80.0000	90.0000	100.000	110.000	119.999	129.999
15	Trim angle (+ve by stern) deg	1.0218	1.2101	1.2586	1.2092	1.2663	1.2526	1.0770	0.8390	0.5280	0.2157	-0.0172	-0.2938	-90.000	-0.1580	0.1108	0.2498	0.3436



Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	16463	5.800	1.208 (fixed)	74.724	0.000	0.000	2.818	5.562	8.034	10.069	11.785	13.056	13.382	13.038	12.156



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.144		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.016		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.4	deg	0.4		
32		<i>to the lesser of</i>					
33		first downflooding angle	28.1	deg	28.1		
34		angle of vanishing stability	130.4	deg			
35		shall not be less than (>=)	15.0	deg	27.8	Pass	+85.10
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.4	deg	0.4		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	28.1	deg			
43		angle of vanishing stability	130.4	deg			
44		shall not be less than (>=)	0.8590	m.deg	38.7592	Pass	+4412.13
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.4	deg			
53		angle of equilibrium with heel arm	1.3, 0.4,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(28.1), (2		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	62.7, 62.	deg			
58		first flooding angle of the DownfloodingPoints	28.1	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	4.256	Pass	+10540.0
61		8.2.3.3: Launching heeling moment	0.040	m	4.400	Pass	+10900.0
62		8.2.3.3: Wind heeling arm	0.040	m	4.384	Pass	+10860.0
63		<i>Intermediate values</i>					
64		GZ(28.1 deg) heel arm A.		m	4.400		
65		HA(28.1 deg) heel arm A.		m	0.144		
66		GZ(28.1 deg) heel arm B.		m	4.400		
67		HA(28.1 deg) heel arm B.		m	0.000		
68		GZ(28.1 deg) heel arm C.		m	4.400		
69		HA(28.1 deg) heel arm C.		m	0.016		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.4	deg	0.4		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	62.7	deg			
78		first downflooding angle	28.1	deg	28.1		
79		shall not be less than (>=)	0.100	m	4.400	Pass	+4300.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	28.1		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.4	deg	0.4		
87		<i>to the lesser of</i>					
88		angle of max. GZ	62.7	deg	62.7		
89		shall be greater than (>)	0.050	m	6.924	Pass	+13748.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	62.7		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.4	deg	0.4		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	130.4	deg	130.4		
99		shall be greater than (>)	7.0	deg	130.0	Pass	+1757.60
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	9.236	Pass	+18372.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.4	Pass	+94.63
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	4.5	deg	4.5		
110		shall be less than (<)	100.00	%	8.31	Pass	+91.69
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.4		
113							

CONDICION N°:4

AVERIA

CASO N°:1

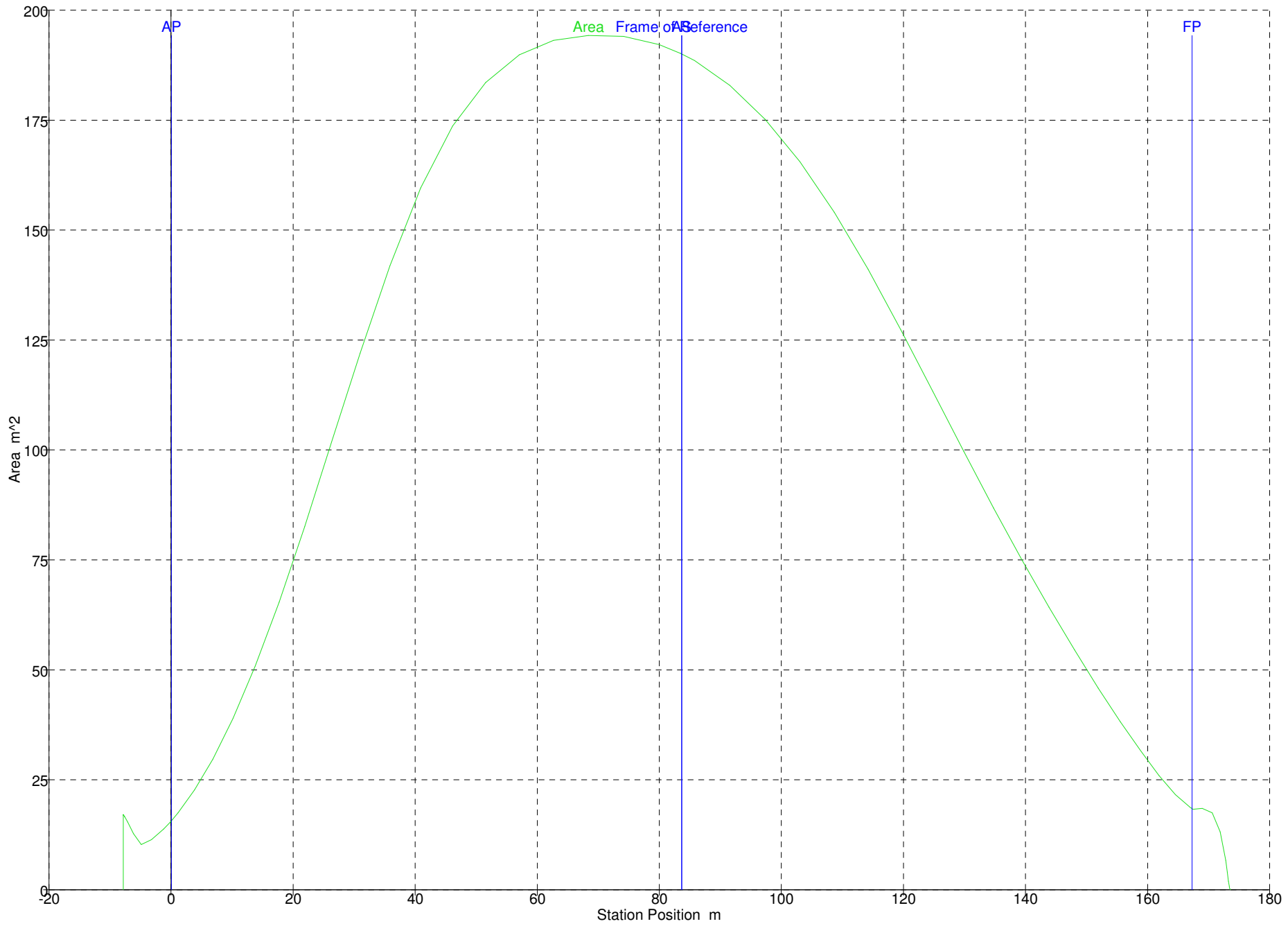
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5 (Damaged)	Damaged									
14	LASTRE 6 (Damaged)	Damaged									
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.499	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.429	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.593	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.996	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.996	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.128	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.709	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.288	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.709	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.526	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.646	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2 (Da	Damaged									
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.021	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.126	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	799.908	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.303	IMO A.749(18)
54	Total Loadcase			14294.596	4971.116	2392.809	73.861	-0.193	7.226	1994.082	
55	FS correction								0.139		
56	VCG fluid								7.365		

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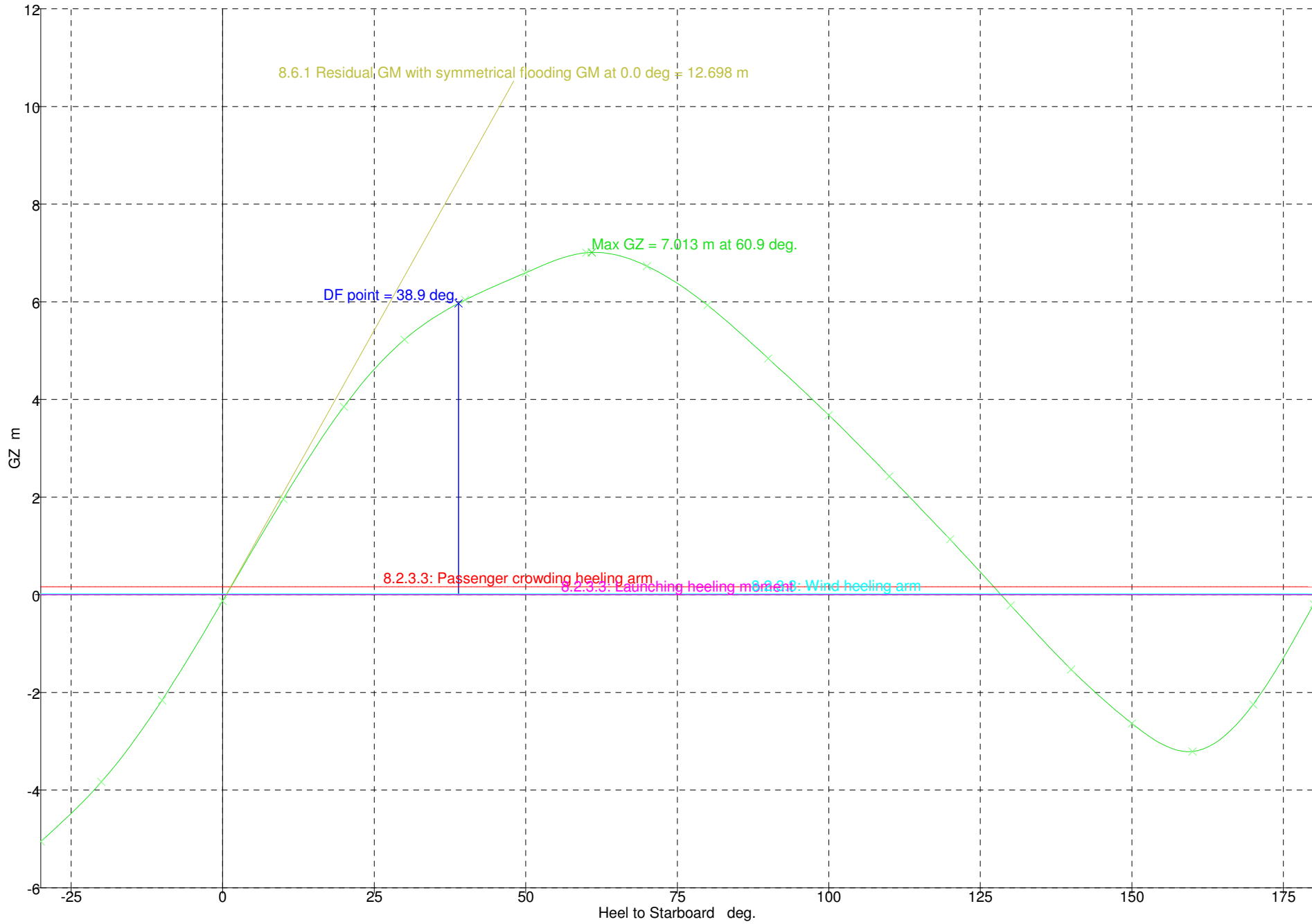
1	Draft Amidships m	7.131
2	Displacement t	14295
3	Heel deg	0.6
4	Draft at FP m	7.824
5	Draft at AP m	6.438
6	Draft at LCF m	6.948
7	Trim (+ve by stern) m	-1.387
8	WL Length m	175.616
9	Beam max extents on WL m	28.206
10	Wetted Area m ²	5673.72
11	Waterpl. Area m ²	3035.81
12	Prismatic coeff. (Cp)	0.409
13	Block coeff. (Cb)	0.361
14	Max Sect. area coeff. (Cm)	0.969
15	Waterpl. area coeff. (Cwp)	0.613
16	LCB from zero pt. (+ve fwd) m	73.886
17	LCF from zero pt. (+ve fwd) m	61.511
18	KB m	3.885
19	KG fluid m	7.365
20	BMt m	16.187
21	BML m	623.343
22	GMt corrected m	12.707
23	GML m	619.862
24	KMt m	20.071
25	KML m	627.176
26	Immersion (TPc) tonne/cm	31.117
27	MTc tonne.m	529.860
28	RM at 1deg = GMt.Disp.sin(1) t	3170.01
29	Max deck inclination deg	0.7375
30	Trim angle (+ve by stern) deg	-0.4750

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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.053	-3.832	-2.158	-0.127	1.965	3.853	5.228	6.037	6.595	7.006	6.731	5.930	4.841	3.680	2.428	1.135	-0.214
2	Area under GZ curve from zero heel	86.6101	41.9465	11.5990	-0.2307	9.2430	38.6379	84.5459	141.236	204.468	272.831	342.100	405.732	459.716	502.379	532.978	550.828	555.462
3	Displacement t	14295	14293	14295	14295	14295	14296	14295	14294	14294	14294	14295	14295	14295	14295	14295	14295	14295
4	Draft at FP m	5.944	6.952	7.536	7.815	7.857	7.453	6.470	5.017	2.870	-0.665	-8.058	-30.409	n/a	-56.986	-34.628	-27.019	-23.164
5	Draft at AP m	4.904	5.819	6.286	6.438	6.296	5.851	4.966	3.323	0.493	-4.559	-14.145	-41.445	n/a	-63.333	-36.200	-26.905	-22.211
6	WL Length m	181.174	179.994	175.489	175.612	175.631	175.456	180.763	181.390	180.787	173.444	173.832	174.408	175.000	175.876	176.696	177.454	178.152
7	Beam max extents on WL m	27.057	29.622	28.640	28.205	28.640	29.724	27.549	25.096	24.787	23.094	21.283	20.308	20.000	20.308	20.867	20.165	18.778
8	Wetted Area m^2	5072.83	5291.62	5437.08	5671.78	5513.09	5411.95	5224.38	5005.69	4908.44	4805.37	4619.50	4525.95	4471.24	4469.56	4484.18	4497.75	4486.94
9	Waterpl. Area m^2	2693.54	2641.06	2788.93	3035.13	2838.05	2763.71	2754.70	2852.60	3059.29	3031.06	2690.40	2528.99	2714.20	2736.82	2793.51	2860.43	2918.77
10	Prismatic coeff. (Cp)	0.495	0.445	0.422	0.409	0.413	0.441	0.477	0.518	0.555	0.612	0.650	0.693	0.739	0.782	0.834	0.891	0.875
11	Block coeff. (Cb)	0.267	0.264	0.321	0.362	0.315	0.264	0.258	0.278	0.292	0.357	0.443	0.558	0.639	0.531	0.462	0.445	0.443
12	LCB from zero pt. (+ve fwd) m	73.900	73.885	73.883	73.883	73.889	73.902	73.908	73.905	73.923	73.961	73.971	73.978	73.971	73.946	73.909	73.865	73.816
13	LCF from zero pt. (+ve fwd) m	73.539	69.014	66.013	61.473	67.027	70.793	73.989	78.115	81.216	78.589	75.759	74.793	73.639	73.274	72.954	72.842	73.313
14	Max deck inclination deg	30.0014	20.0032	10.0088	0.4719	10.0137	20.0064	30.0030	40.0021	50.0020	60.0022	70.0016	80.0007	90.0000	99.9998	109.999	120.000	129.999
15	Trim angle (+ve by stern) deg	-0.3565	-0.3884	-0.4283	-0.4719	-0.5345	-0.5489	-0.5153	-0.5803	-0.8141	-1.3340	-2.0849	-3.7756	-90.000	-2.1736	-0.5384	0.0391	0.3266



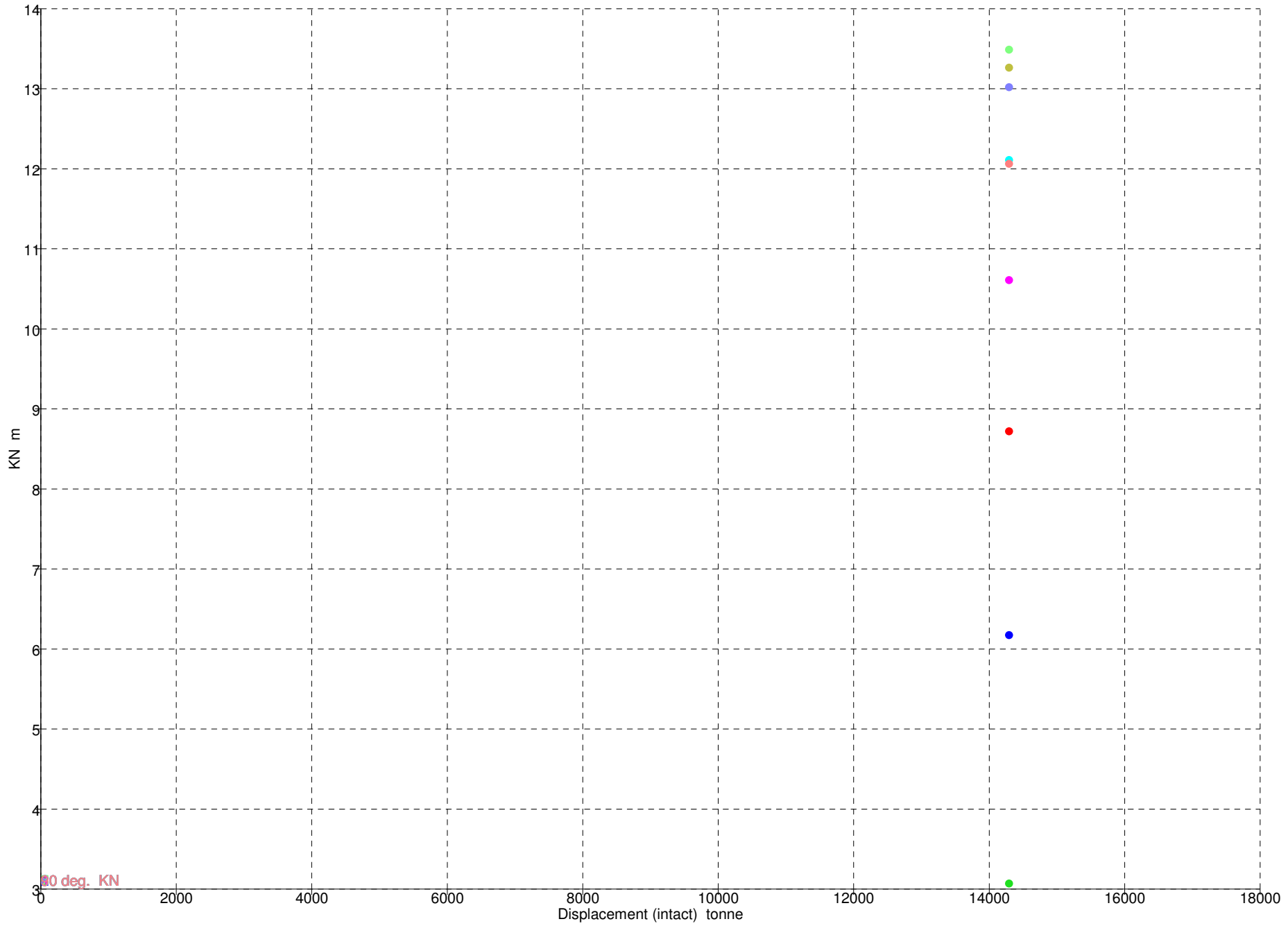
8.2.3.3: Passenger crowding heeling arm

8.2.3.3: Launching heeling arm

8.2.3.3: Wind heeling arm

Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	14295	5.385	-0.475 (fixed)	80.391	0.000	0.000	3.068	6.172	8.718	10.608	12.109	13.261	13.487	13.018	12.060



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.166		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.018		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.6	deg	0.6		
32		<i>to the lesser of</i>					
33		first downflooding angle	38.9	deg	38.9		
34		angle of vanishing stability	128.4	deg			
35		shall not be less than (>=)	15.0	deg	38.3	Pass	+155.29
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.6	deg	0.6		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	38.9	deg			
43		angle of vanishing stability	128.4	deg			
44		shall not be less than (>=)	0.8590	m.deg	46.7088	Pass	+5337.58
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.6	deg			
53		angle of equilibrium with heel arm	1.4, 0.6,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(38.9), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.	deg			
58		first flooding angle of the DownfloodingPoints	38.9	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.801	Pass	+14402.5
61		8.2.3.3: Launching heeling moment	0.040	m	5.967	Pass	+14817.5
62		8.2.3.3: Wind heeling arm	0.040	m	5.949	Pass	+14772.5
63		<i>Intermediate values</i>					
64		GZ(38.9 deg) heel arm A.		m	5.967		
65		HA(38.9 deg) heel arm A.		m	0.166		
66		GZ(38.9 deg) heel arm B.		m	5.967		
67		HA(38.9 deg) heel arm B.		m	0.000		
68		GZ(38.9 deg) heel arm C.		m	5.967		
69		HA(38.9 deg) heel arm C.		m	0.018		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.6	deg	0.6		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	38.9	deg	38.9		
79		shall not be less than (>=)	0.100	m	5.967	Pass	+5867.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	38.9		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.6	deg	0.6		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.013	Pass	+13926.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.6	deg	0.6		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	128.4	deg	128.4		
99		shall be greater than (>)	7.0	deg	127.8	Pass	+1726.04
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.698	Pass	+25296.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.6	Pass	+91.40
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	7.3	deg	7.3		
110		shall be less than (<)	100.00	%	8.28	Pass	+91.72
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.6		
113							

CONDICION N°:4

AVERIA

CASO N°:2

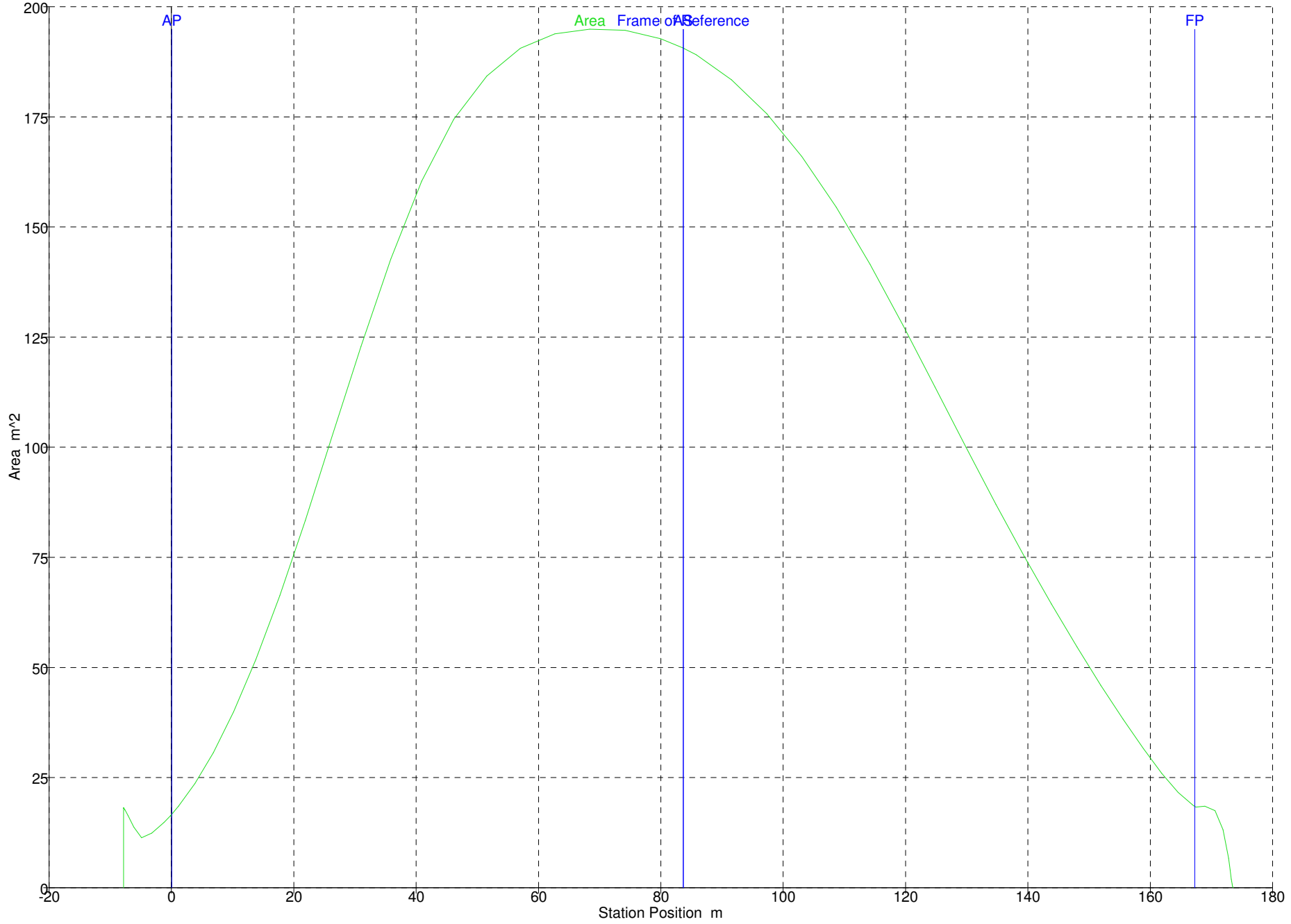
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6 (Damaged)	Damaged									
15	LASTRE 7 (Damaged)	Damaged									
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.499	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.430	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.593	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.996	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.996	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.129	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.712	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.291	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.712	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.529	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.646	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2 (Da	Damaged									
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.022	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.168	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	799.948	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.306	IMO A.749(18)
54	Total Loadcase			14251.515	4929.086	2350.779	74.195	-0.193	7.246	1994.181	
55	FS correction								0.140		
56	VCG fluid								7.386		

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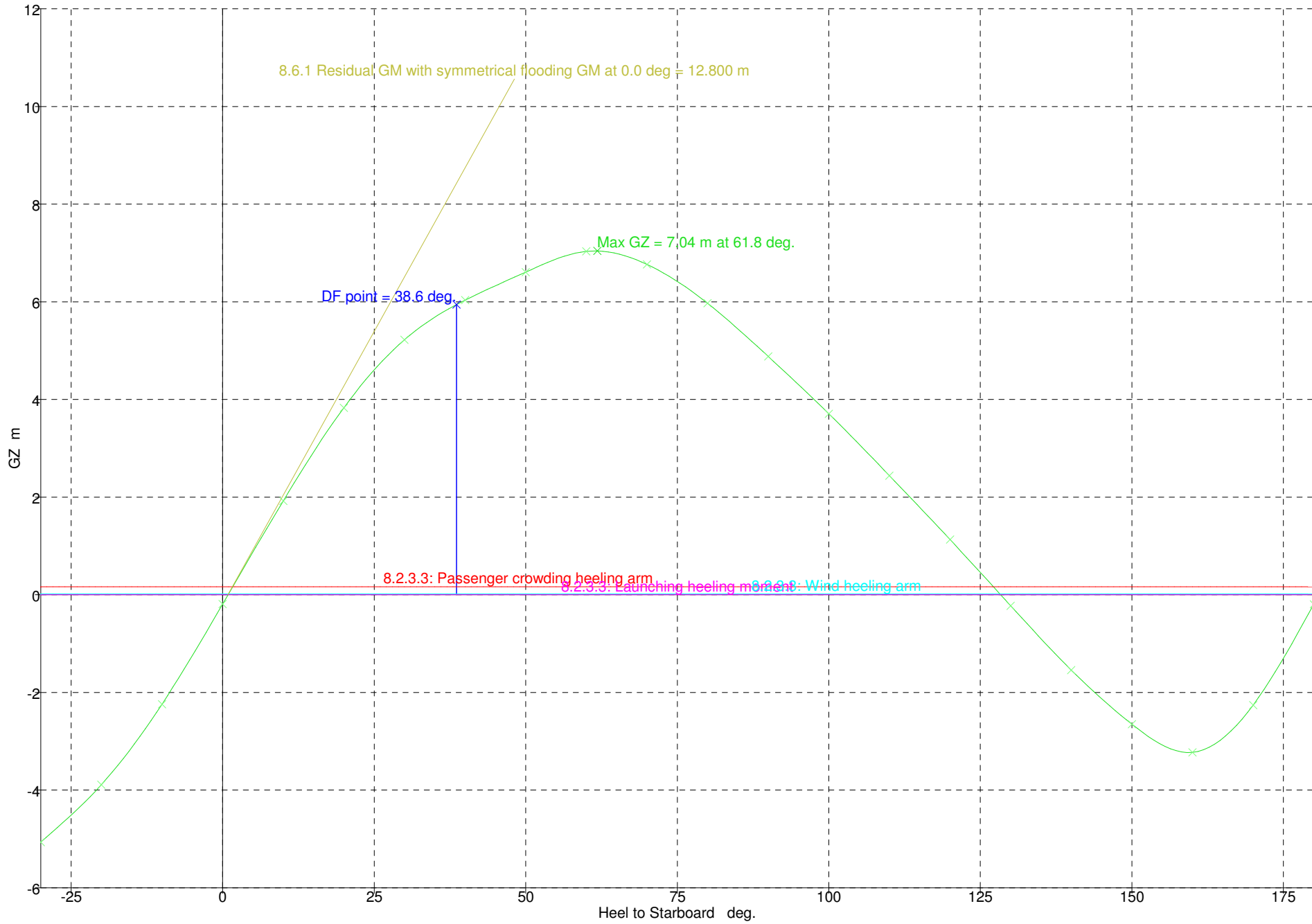
1	Draft Amidships m	7.151
2	Displacement t	14252
3	Heel deg	0.8
4	Draft at FP m	7.829
5	Draft at AP m	6.473
6	Draft at LCF m	6.975
7	Trim (+ve by stern) m	-1.356
8	WL Length m	175.617
9	Beam max extents on WL m	28.207
10	Wetted Area m ²	5682.93
11	Waterpl. Area m ²	3041.21
12	Prismatic coeff. (Cp)	0.406
13	Block coeff. (Cb)	0.360
14	Max Sect. area coeff. (Cm)	0.962
15	Waterpl. area coeff. (Cwp)	0.614
16	LCB from zero pt. (+ve fwd) m	74.219
17	LCF from zero pt. (+ve fwd) m	61.843
18	KB m	3.923
19	KG fluid m	7.386
20	BMt m	16.274
21	BML m	628.947
22	GMt corrected m	12.811
23	GML m	625.484
24	KMt m	20.195
25	KML m	632.788
26	Immersion (TPc) tonne/cm	31.172
27	MTc tonne.m	533.054
28	RM at 1deg = GMt.Disp.sin(1) t	3186.28
29	Max deck inclination deg	0.9261
30	Trim angle (+ve by stern) deg	-0.4645

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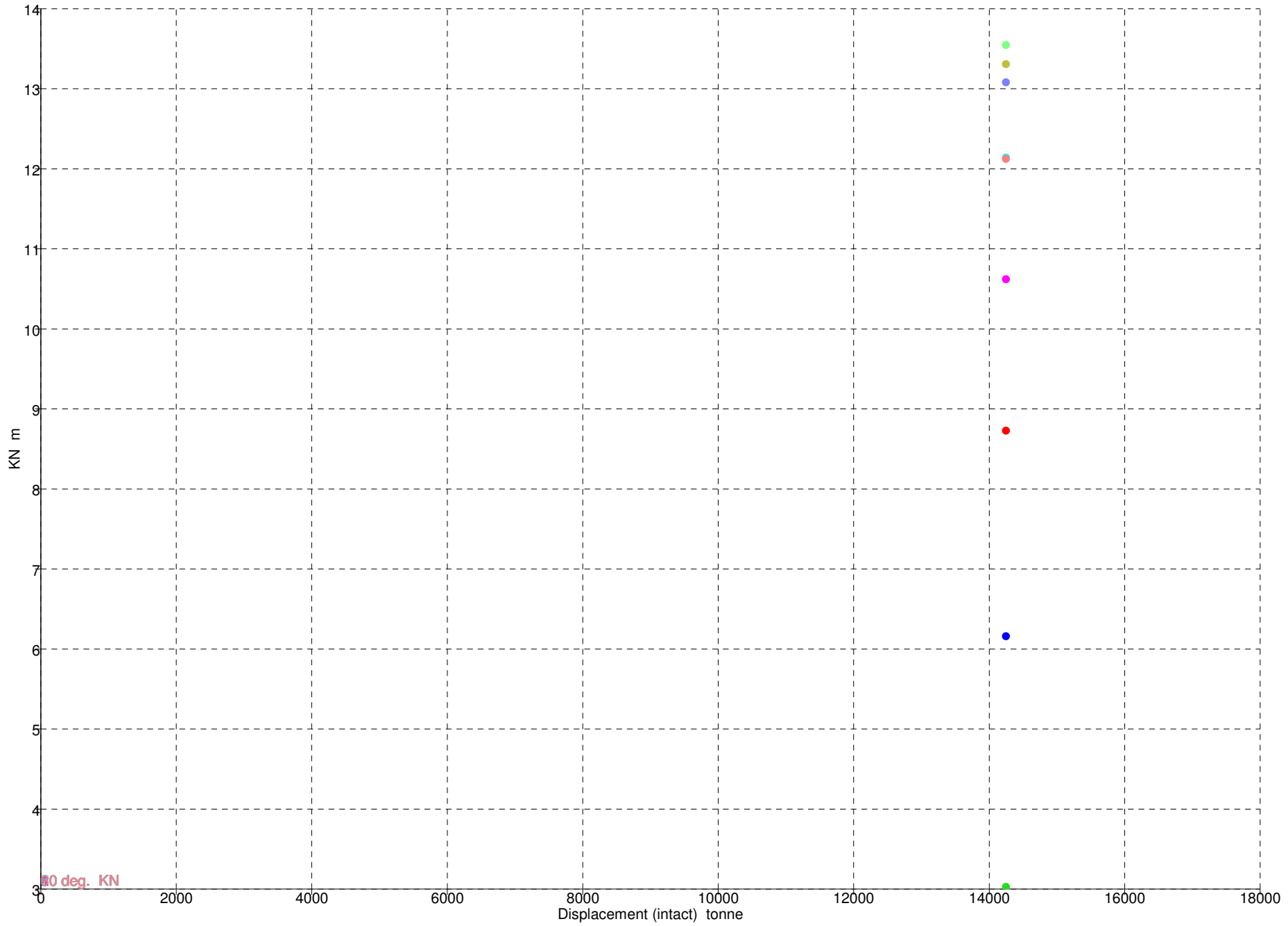
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.063	-3.887	-2.240	-0.191	1.924	3.831	5.224	6.033	6.608	7.033	6.767	5.970	4.881	3.708	2.441	1.132	-0.224
2	Area under GZ curve from zero heel	88.4170	43.4214	12.3553	-0.3475	8.7238	37.7992	83.5865	140.239	203.500	272.062	341.644	405.659	460.052	503.060	533.863	551.761	556.327
3	Displacement t	14252	14250	14252	14252	14252	14252	14252	14251	14251	14251	14251	14250	14253	14253	14252	14252	14253
4	Draft at FP m	5.948	6.975	7.563	7.819	7.830	7.420	6.436	4.985	2.851	-0.669	-8.030	-30.301	n/a	-56.768	-34.517	-26.944	-23.100
5	Draft at AP m	4.897	5.830	6.312	6.472	6.354	5.920	5.042	3.390	0.554	-4.501	-14.082	-41.371	n/a	-63.422	-36.296	-26.999	-22.298
6	WL Length m	181.171	179.932	175.501	175.613	175.619	175.440	180.791	181.397	180.777	173.395	173.844	174.427	175.028	175.905	176.722	177.479	178.177
7	Beam max extents on WL m	27.054	29.630	28.640	28.205	28.640	29.738	27.603	25.111	24.789	23.094	21.283	20.308	20.000	20.308	20.864	20.132	18.711
8	Wetted Area m^2	5072.05	5299.78	5451.25	5680.55	5524.72	5422.69	5234.58	5014.22	4915.57	4811.82	4626.32	4532.24	4477.73	4473.23	4484.17	4494.22	4481.55
9	Waterpl. Area m^2	2679.06	2630.72	2792.84	3040.61	2841.33	2772.39	2758.33	2857.18	3064.01	3031.62	2690.33	2525.45	2732.56	2722.94	2778.62	2846.59	2914.00
10	Prismatic coeff. (Cp)	0.493	0.443	0.419	0.406	0.410	0.438	0.473	0.515	0.552	0.608	0.646	0.689	0.735	0.778	0.832	0.891	0.883
11	Block coeff. (Cb)	0.266	0.263	0.319	0.360	0.314	0.263	0.256	0.276	0.291	0.355	0.441	0.555	0.634	0.527	0.459	0.445	0.446
12	LCB from zero pt. (+ve fwd) m	74.237	74.219	74.218	74.217	74.224	74.235	74.240	74.236	74.255	74.293	74.304	74.313	74.305	74.283	74.249	74.205	74.154
13	LCF from zero pt. (+ve fwd) m	73.632	69.067	66.261	61.796	67.031	70.596	73.948	78.172	81.256	78.694	75.906	74.903	74.191	73.588	73.227	73.111	73.623
14	Max deck inclination deg	30.0015	20.0033	10.0088	0.4615	10.0123	20.0056	30.0026	40.0018	50.0019	60.0022	70.0016	80.0007	90.0000	99.9998	109.999	120.000	129.999
15	Trim angle (+ve by stern) deg	-0.3599	-0.3924	-0.4286	-0.4615	-0.5057	-0.5138	-0.4778	-0.5465	-0.7870	-1.3128	-2.0728	-3.7871	-90.000	-2.2787	-0.6093	-0.0188	0.2747



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	14252	5.373	-0.465 (fixed)	80.381	0.000	0.000	3.025	6.156	8.726	10.618	12.137	13.308	13.545	13.079	12.121



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.167		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.018		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.9	deg	0.9		
32		<i>to the lesser of</i>					
33		first downflooding angle	38.6	deg	38.6		
34		angle of vanishing stability	128.4	deg			
35		shall not be less than (>=)	15.0	deg	37.7	Pass	+151.29
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.9	deg	0.9		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	38.6	deg			
43		angle of vanishing stability	128.4	deg			
44		shall not be less than (>=)	0.8590	m.deg	45.8766	Pass	+5240.70
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.9	deg			
53		angle of equilibrium with heel arm	1.7, 0.9,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(38.6), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	61.8, 61.	deg			
58		first flooding angle of the DownfloodingPoints	38.6	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.776	Pass	+14340.0
61		8.2.3.3: Launching heeling moment	0.040	m	5.942	Pass	+14755.0
62		8.2.3.3: Wind heeling arm	0.040	m	5.924	Pass	+14710.0
63		<i>Intermediate values</i>					
64		GZ(38.6 deg) heel arm A.		m	5.942		
65		HA(38.6 deg) heel arm A.		m	0.167		
66		GZ(38.6 deg) heel arm B.		m	5.942		
67		HA(38.6 deg) heel arm B.		m	0.000		
68		GZ(38.6 deg) heel arm C.		m	5.942		
69		HA(38.6 deg) heel arm C.		m	0.018		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.9	deg	0.9		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	61.8	deg			
78		first downflooding angle	38.6	deg	38.6		
79		shall not be less than (>=)	0.100	m	5.942	Pass	+5842.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	38.6		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.9	deg	0.9		
87		<i>to the lesser of</i>					
88		angle of max. GZ	61.8	deg	61.8		
89		shall be greater than (>)	0.050	m	7.040	Pass	+13980.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	61.8		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.9	deg	0.9		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	128.4	deg	128.4		
99		shall be greater than (>)	7.0	deg	127.5	Pass	+1720.91
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.800	Pass	+25500.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.9	Pass	+87.21
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	7.3	deg	7.3		
110		shall be less than (<)	100.00	%	12.22	Pass	+87.78
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.9		
113							

CONDICION N°:4

AVERIA

CASO N°:3

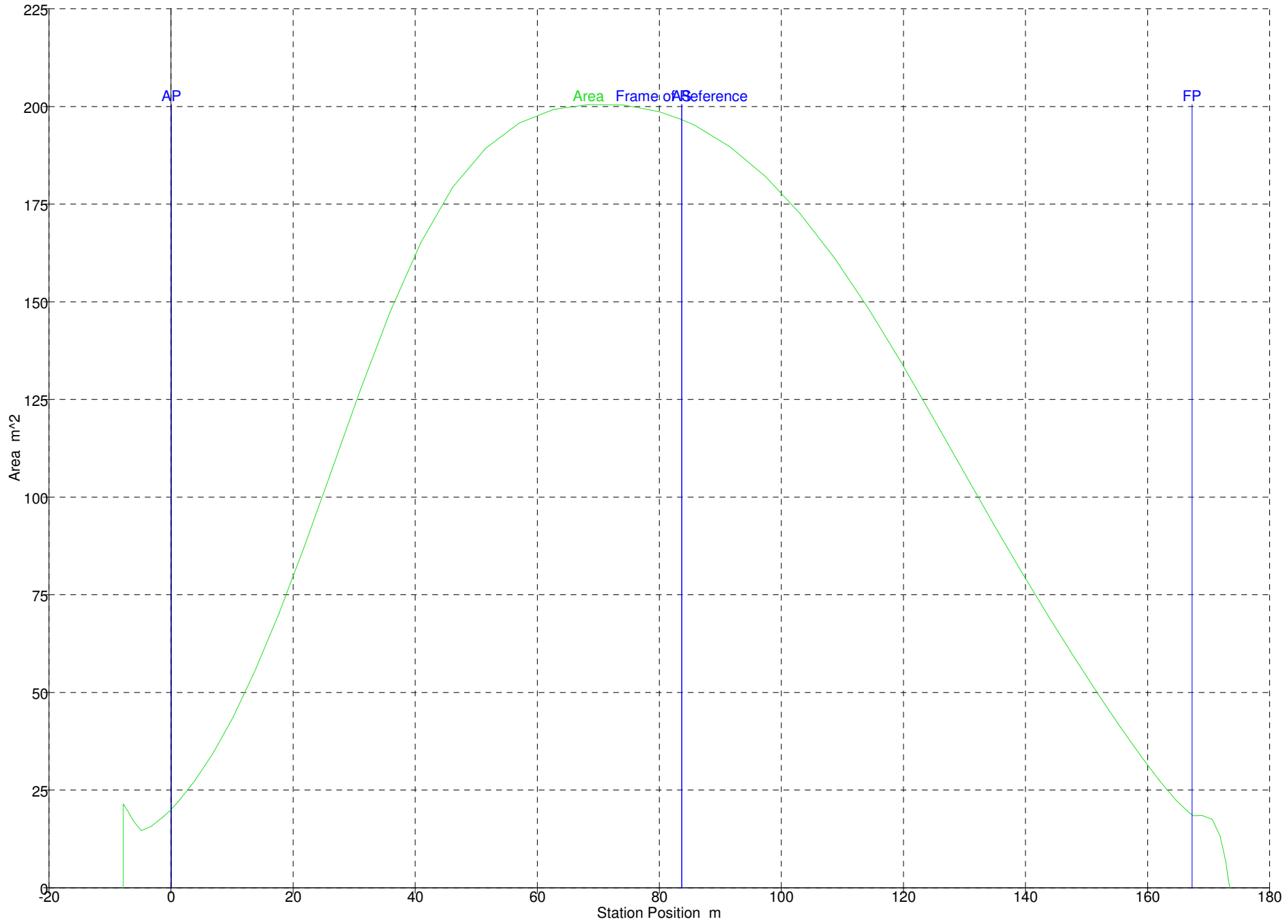
Academic Version

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7 (Damaged)	Damaged									
16	LASTRE 8 (Damaged)	Damaged									
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.501	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.432	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.595	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.997	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.997	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.577	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.130	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.730	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.310	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.730	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.544	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.648	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.029	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.449	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	800.209	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.323	IMO A.749(18)
54	Total Loadcase			14757.596	5071.412	2844.516	74.958	-0.066	7.113	1994.833	
55	FS correction								0.135		
56	VCG fluid								7.248		

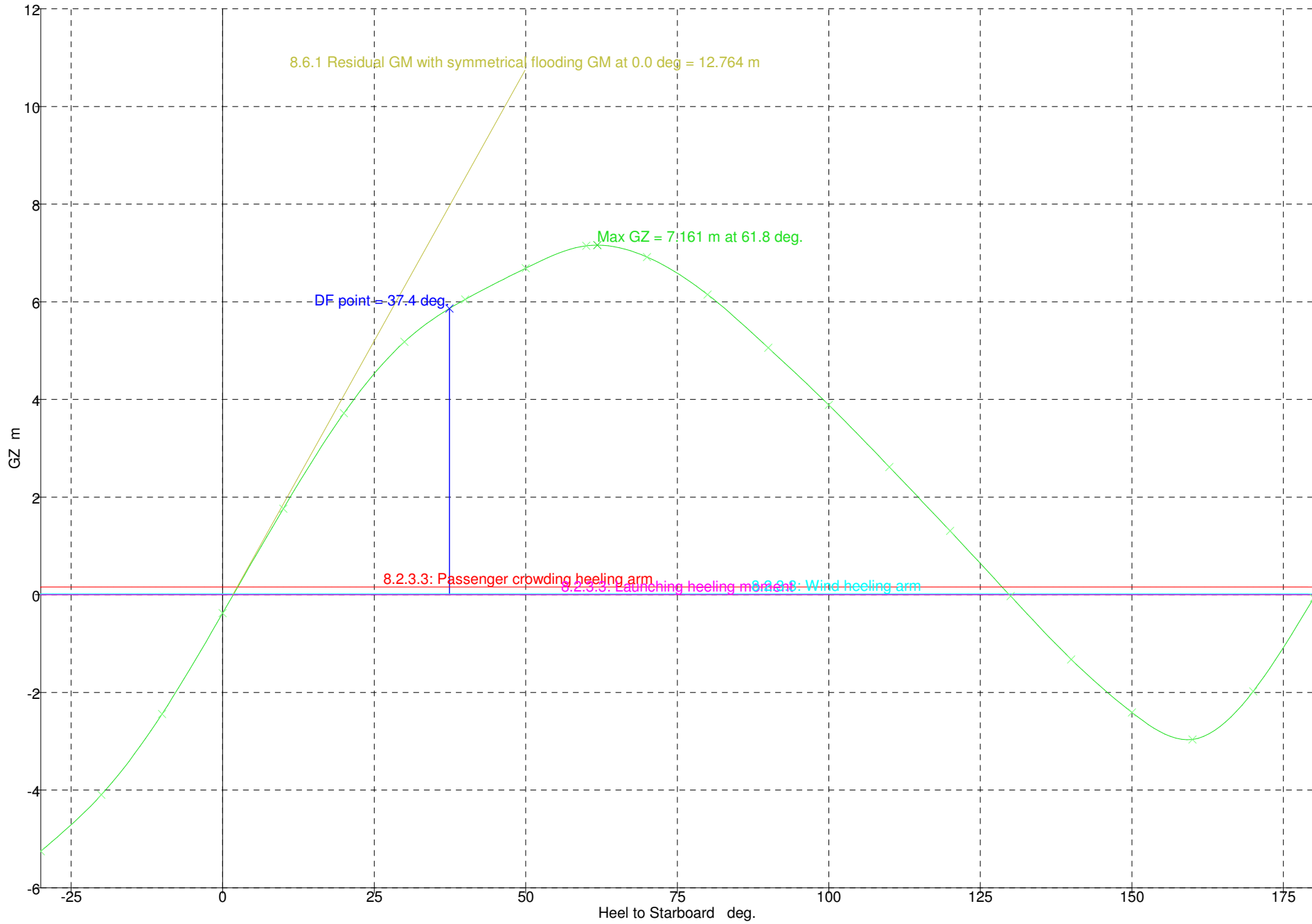
Academic Version

1	Draft Amidships m	7.365
2	Displacement t	14758
3	Heel deg	1.7
4	Draft at FP m	8.133
5	Draft at AP m	6.596
6	Draft at LCF m	7.176
7	Trim (+ve by stern) m	-1.537
8	WL Length m	175.783
9	Beam max extents on WL m	28.217
10	Wetted Area m ²	5779.22
11	Waterpl. Area m ²	3079.48
12	Prismatic coeff. (Cp)	0.409
13	Block coeff. (Cb)	0.359
14	Max Sect. area coeff. (Cm)	0.942
15	Waterpl. area coeff. (Cwp)	0.621
16	LCB from zero pt. (+ve fwd) m	74.982
17	LCF from zero pt. (+ve fwd) m	63.082
18	KB m	4.075
19	KG fluid m	7.248
20	BMt m	15.947
21	BML m	626.956
22	GMt corrected m	12.773
23	GML m	623.781
24	KMt m	20.015
25	KML m	630.738
26	Immersion (TPc) tonne/cm	31.565
27	MTc tonne.m	550.481
28	RM at 1deg = GMt.Disp.sin(1) t	3289.66
29	Max deck inclination deg	1.7512
30	Trim angle (+ve by stern) deg	-0.5266



Academic Version

	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.249	-4.094	-2.442	-0.375	1.761	3.717	5.182	6.049	6.687	7.148	6.916	6.150	5.061	3.886	2.616	1.308	-0.027
2	Area under GZ curve from zero heel	94.3905	47.4142	14.2849	-0.6814	6.9826	34.6519	79.6620	136.181	199.926	269.479	340.380	406.061	462.266	507.059	539.630	559.270	565.688
3	Displacement t	14758	14758	14758	14758	14758	14758	14758	14756	14757	14758	14758	14758	14758	14759	14758	14758	14758
4	Draft at FP m	6.254	7.314	7.884	8.121	8.091	7.670	6.684	5.230	3.116	-0.282	-7.273	-28.581	n/a	-54.983	-33.585	-26.313	-22.613
5	Draft at AP m	5.041	5.966	6.443	6.591	6.517	6.116	5.273	3.658	0.861	-4.141	-13.582	-40.417	n/a	-62.784	-36.049	-26.870	-22.213
6	WL Length m	180.933	175.393	175.642	175.776	175.757	175.549	180.590	181.344	180.893	176.363	174.143	174.735	175.300	176.136	176.941	177.681	178.367
7	Beam max extents on WL m	27.442	29.733	28.640	28.205	28.640	29.823	28.075	25.482	25.108	23.094	21.283	20.308	20.000	20.308	20.945	20.456	18.922
8	Wetted Area m^2	5190.57	5411.93	5564.65	5775.14	5634.74	5525.60	5348.64	5112.76	5019.60	4925.39	4721.04	4624.43	4560.12	4551.08	4556.87	4571.38	4563.75
9	Waterpl. Area m^2	2726.98	2691.45	2852.26	3079.74	2912.20	2870.04	2821.48	2906.27	3122.94	3063.14	2699.35	2529.19	2615.07	2726.49	2780.28	2864.69	2950.84
10	Prismatic coeff. (Cp)	0.495	0.454	0.420	0.409	0.412	0.438	0.474	0.516	0.554	0.600	0.644	0.685	0.731	0.774	0.827	0.885	0.906
11	Block coeff. (Cb)	0.268	0.273	0.322	0.359	0.317	0.266	0.256	0.277	0.292	0.355	0.445	0.557	0.627	0.524	0.456	0.439	0.454
12	LCB from zero pt. (+ve fwd) m	75.000	74.985	74.984	74.983	74.981	75.001	75.006	74.984	75.015	75.041	75.070	75.088	75.079	75.056	75.029	74.989	74.953
13	LCF from zero pt. (+ve fwd) m	73.875	69.802	67.150	62.989	67.700	71.016	73.863	77.915	81.234	79.635	76.365	75.275	74.551	74.287	73.777	73.703	74.146
14	Max deck inclination deg	30.0020	20.0045	10.0117	0.5243	10.0139	20.0060	30.0026	40.0018	50.0018	60.0022	70.0017	80.0008	90.0000	99.9997	109.999	120.000	129.999
15	Trim angle (+ve by stern) deg	-0.4155	-0.4618	-0.4938	-0.5243	-0.5392	-0.5324	-0.4833	-0.5388	-0.7725	-1.3221	-2.1604	-4.0487	-90.000	-2.6711	-0.8442	-0.1911	0.1370



8.6.1 Residual GM with symmetrical flooding GM at 0.0 deg = 12.764 m

Max GZ = 7.161 m at 61.8 deg.

DF point = 37.4 deg.

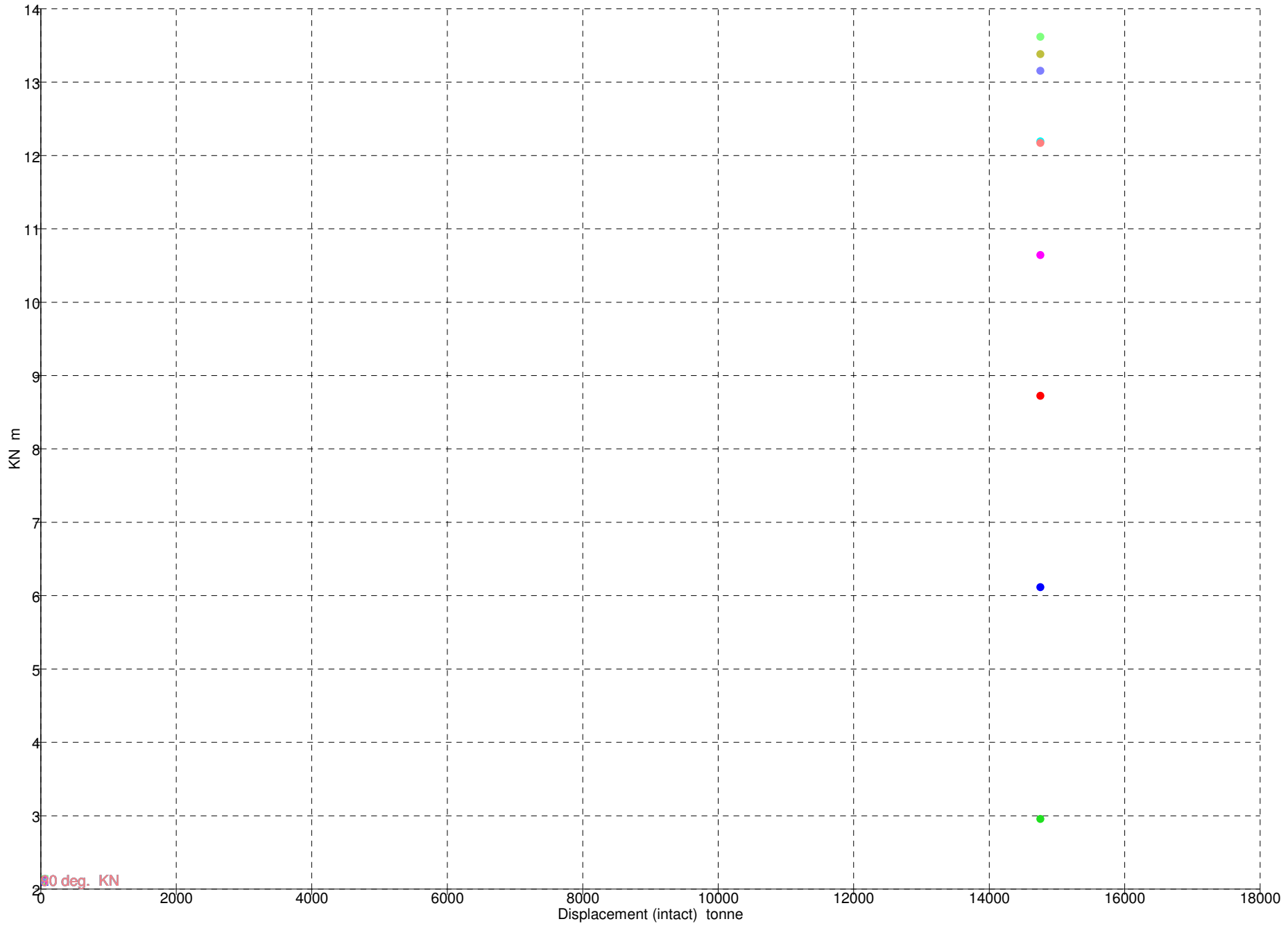
8.2.3.3: Passenger crowding heeling arm

8.2.3.3: Launching heeling moment

8.2.3: Wind heeling arm

Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	14758	5.512	-0.527 (fixed)	80.346	0.000	0.000	2.955	6.112	8.722	10.641	12.190	13.381	13.617	13.151	12.169



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.161		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.017		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.7	deg	1.7		
32		<i>to the lesser of</i>					
33		first downflooding angle	37.4	deg	37.4		
34		angle of vanishing stability	129.8	deg			
35		shall not be less than (>=)	15.0	deg	35.7	Pass	+137.72
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.7	deg	1.7		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	37.4	deg			
43		angle of vanishing stability	129.8	deg			
44		shall not be less than (>=)	0.8590	m.deg	42.7570	Pass	+4877.53
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.7	deg			
53		angle of equilibrium with heel arm	2.5, 1.7,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(37.4), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	61.8, 61.	deg			
58		first flooding angle of the DownfloodingPoints	37.4	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.701	Pass	+14152.5
61		8.2.3.3: Launching heeling moment	0.040	m	5.862	Pass	+14555.0
62		8.2.3.3: Wind heeling arm	0.040	m	5.844	Pass	+14510.0
63		<i>Intermediate values</i>					
64		GZ(37.4 deg) heel arm A.		m	5.862		
65		HA(37.4 deg) heel arm A.		m	0.161		
66		GZ(37.4 deg) heel arm B.		m	5.862		
67		HA(37.4 deg) heel arm B.		m	0.000		
68		GZ(37.4 deg) heel arm C.		m	5.862		
69		HA(37.4 deg) heel arm C.		m	0.017		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.7	deg	1.7		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	61.8	deg			
78		first downflooding angle	37.4	deg	37.4		
79		shall not be less than (>=)	0.100	m	5.862	Pass	+5762.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	37.4		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.7	deg	1.7		
87		<i>to the lesser of</i>					
88		angle of max. GZ	61.8	deg	61.8		
89		shall be greater than (>)	0.050	m	7.161	Pass	+14222.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	61.8		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.7	deg	1.7		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	129.8	deg	129.8		
99		shall be greater than (>)	7.0	deg	128.1	Pass	+1729.37
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.764	Pass	+25428.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.7	Pass	+75.13
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	6.3	deg	6.3		
110		shall be less than (<)	100.00	%	27.84	Pass	+72.16
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.7		
113							

CONDICION N°:4

AVERIA

CASO N°:4

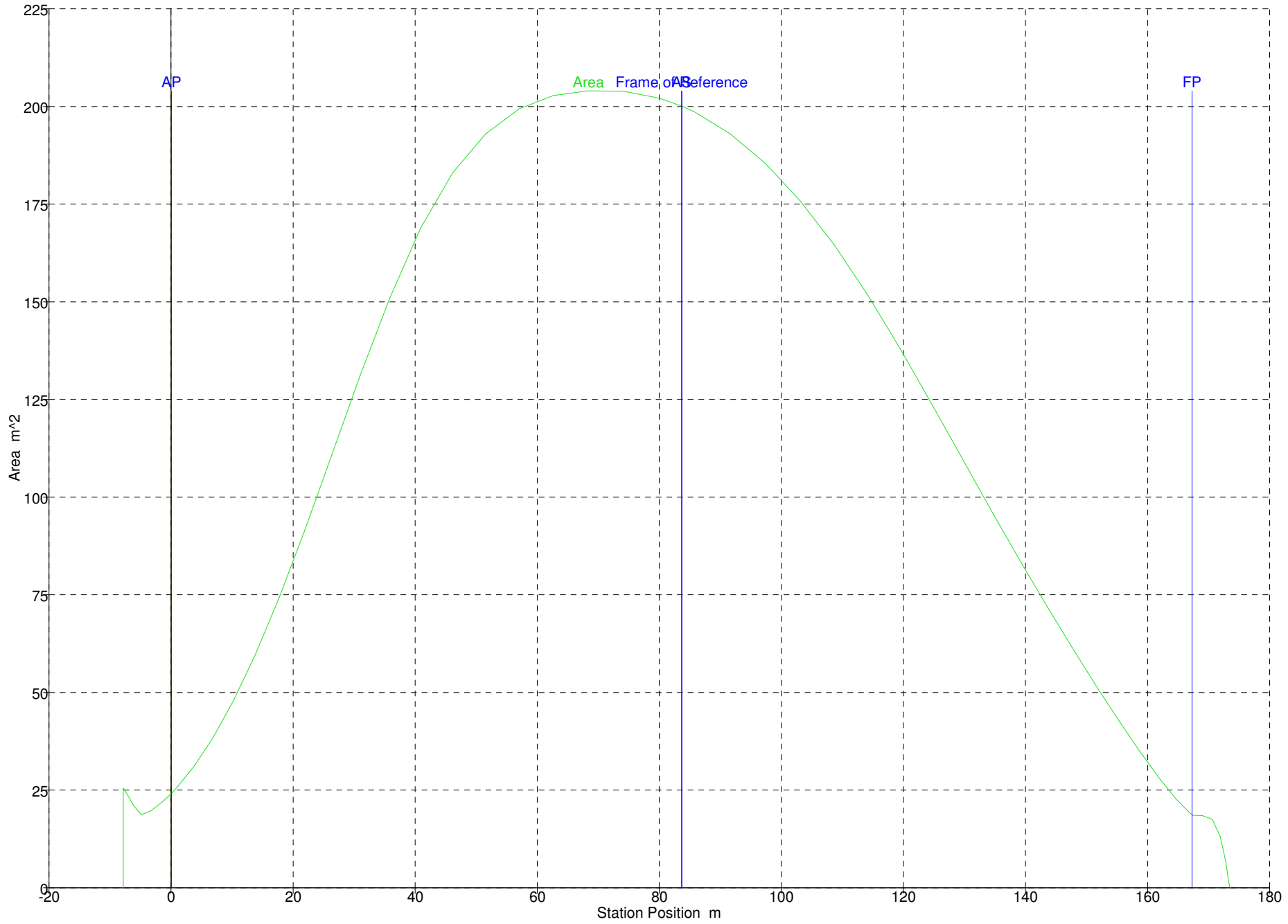
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	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8 (Damaged)	Damaged									
17	LASTRE 9 (Damaged)	Damaged									
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.502	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.433	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.596	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.997	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.997	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.577	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.131	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.299	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.734	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.315	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.734	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.548	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.649	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.030	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.524	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	800.279	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.328	IMO A.749(18)
54	Total Loadcase			15116.170	5069.825	3194.345	75.266	-0.064	6.975	1995.008	
55	FS correction								0.132		
56	VCG fluid								7.107		

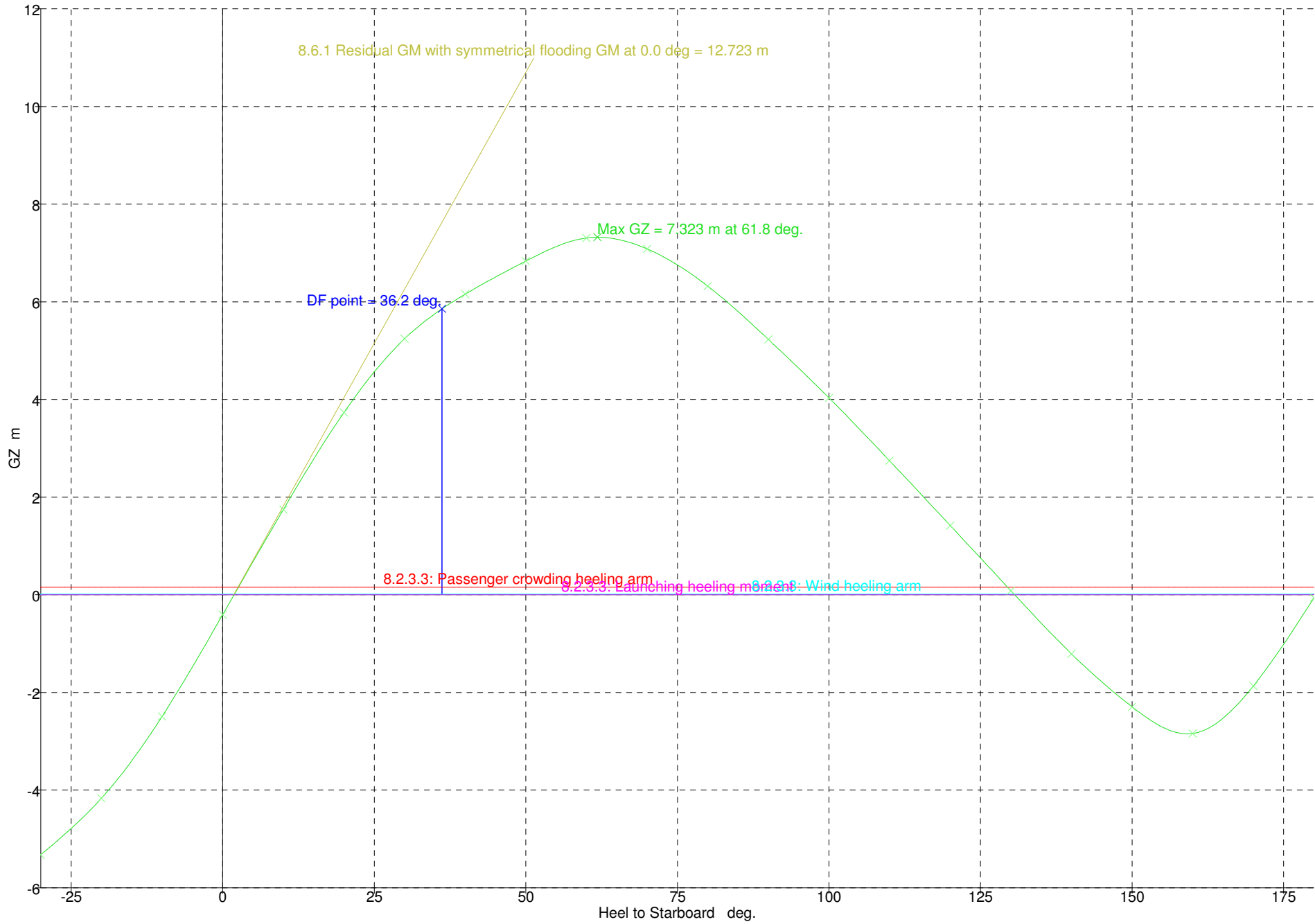
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1	Draft Amidships m	7.487
2	Displacement t	15116
3	Heel deg	1.8
4	Draft at FP m	8.233
5	Draft at AP m	6.740
6	Draft at LCF m	7.309
7	Trim (+ve by stern) m	-1.493
8	WL Length m	175.844
9	Beam max extents on WL m	28.219
10	Wetted Area m ²	5834.21
11	Waterpl. Area m ²	3095.97
12	Prismatic coeff. (Cp)	0.411
13	Block coeff. (Cb)	0.363
14	Max Sect. area coeff. (Cm)	0.939
15	Waterpl. area coeff. (Cwp)	0.624
16	LCB from zero pt. (+ve fwd) m	75.286
17	LCF from zero pt. (+ve fwd) m	63.667
18	KB m	4.170
19	KG fluid m	7.107
20	BMt m	15.682
21	BML m	619.912
22	GMt corrected m	12.743
23	GML m	616.973
24	KMt m	19.843
25	KML m	623.739
26	Immersion (TPc) tonne/cm	31.734
27	MTc tonne.m	557.702
28	RM at 1deg = GMt.Disp.sin(1) t	3361.85
29	Max deck inclination deg	1.9038
30	Trim angle (+ve by stern) deg	-0.5116



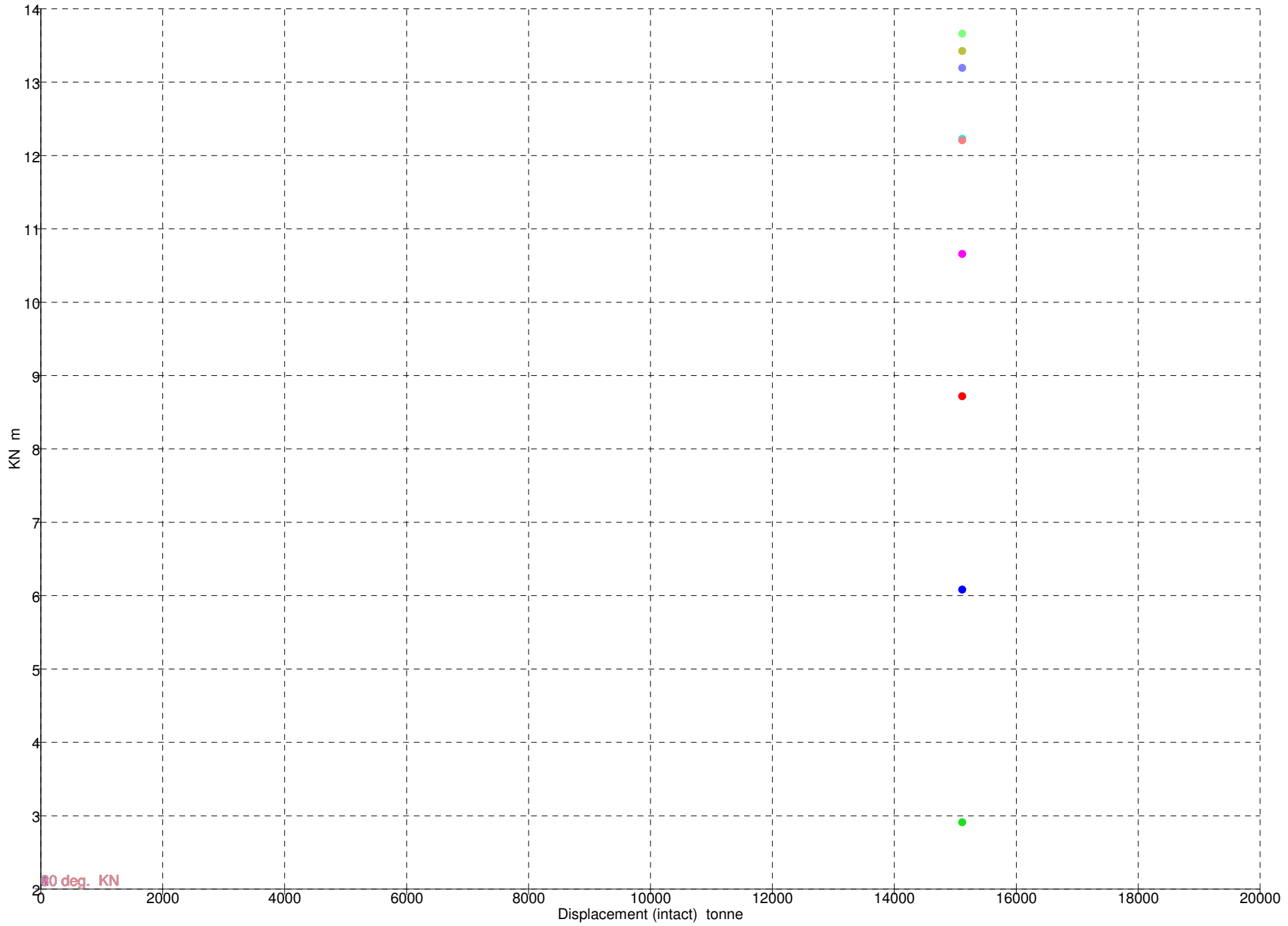
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.322	-4.168	-2.493	-0.407	1.746	3.732	5.243	6.156	6.835	7.308	7.083	6.322	5.231	4.034	2.746	1.420	0.085
2	Area under GZ curve from zero heel	96.1759	48.4501	14.6880	-0.7394	6.7390	34.3842	79.7645	137.127	202.161	273.270	345.803	413.179	471.109	517.496	551.458	572.302	579.827
3	Displacement t	15116	15116	15116	15116	15116	15116	15116	15115	15116	15116	15116	15116	15116	15116	15118	15118	15117
4	Draft at FP m	6.384	7.451	7.999	8.225	8.161	7.725	6.736	5.292	3.186	-0.161	-7.011	-27.931	n/a	-54.209	-33.146	-25.990	-22.348
5	Draft at AP m	5.202	6.125	6.597	6.731	6.697	6.328	5.518	3.932	1.172	-3.763	-13.022	-39.325	n/a	-61.967	-35.705	-26.687	-22.094
6	WL Length m	180.835	175.452	175.699	175.839	175.799	175.572	180.547	181.331	180.920	176.888	174.240	174.850	175.413	176.235	177.043	177.784	178.453
7	Beam max extents on WL m	27.735	29.796	28.640	28.205	28.640	29.872	28.375	25.695	25.269	23.094	21.283	20.308	20.000	20.308	21.001	20.672	19.125
8	Wetted Area m^2	5261.77	5481.44	5638.99	5829.86	5707.25	5590.90	5420.02	5190.23	5087.55	4991.94	4783.26	4681.76	4619.01	4603.65	4608.57	4623.76	4618.48
9	Waterpl. Area m^2	2759.61	2742.65	2891.27	3095.90	2954.61	2931.75	2866.83	2954.85	3163.37	3072.00	2704.95	2525.75	2467.94	2728.38	2780.75	2875.24	2973.55
10	Prismatic coeff. (Cp)	0.497	0.455	0.422	0.412	0.414	0.439	0.474	0.517	0.555	0.599	0.644	0.683	0.729	0.771	0.823	0.881	0.914
11	Block coeff. (Cb)	0.268	0.275	0.325	0.363	0.320	0.268	0.256	0.278	0.293	0.358	0.448	0.558	0.629	0.527	0.458	0.437	0.457
12	LCB from zero pt. (+ve fwd) m	75.282	75.291	75.289	75.288	75.295	75.308	75.310	75.288	75.316	75.344	75.371	75.390	75.383	75.375	75.332	75.293	75.267
13	LCF from zero pt. (+ve fwd) m	73.885	70.179	67.371	63.584	67.645	70.874	73.629	77.924	80.997	80.016	76.659	75.337	74.918	74.875	74.339	74.193	74.419
14	Max deck inclination deg	30.0019	20.0044	10.0111	0.5117	10.0121	20.0048	30.0020	40.0013	50.0014	60.0019	70.0016	80.0007	90.0000	99.9997	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	-0.4051	-0.4543	-0.4805	-0.5117	-0.5016	-0.4785	-0.4171	-0.4657	-0.6901	-1.2340	-2.0584	-3.8978	-90.000	-2.6560	-0.8766	-0.2388	0.0872



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	15116	5.607	-0.512 (fixed)	80.176	0.000	0.000	2.909	6.081	8.716	10.656	12.226	13.422	13.657	13.191	12.205



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.157		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.017		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.9	deg	1.9		
32		<i>to the lesser of</i>					
33		first downflooding angle	36.2	deg	36.2		
34		angle of vanishing stability	130.6	deg			
35		shall not be less than (>=)	15.0	deg	34.3	Pass	+128.63
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.9	deg	1.9		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	36.2	deg			
43		angle of vanishing stability	130.6	deg			
44		shall not be less than (>=)	0.8590	m.deg	42.5814	Pass	+4857.09
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.9	deg			
53		angle of equilibrium with heel arm	2.6, 1.9,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(36.2), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	61.8, 61.	deg			
58		first flooding angle of the DownfloodingPoints	36.2	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.699	Pass	+14147.5
61		8.2.3.3: Launching heeling moment	0.040	m	5.856	Pass	+14540.0
62		8.2.3.3: Wind heeling arm	0.040	m	5.839	Pass	+14497.5
63		<i>Intermediate values</i>					
64		GZ(36.2 deg) heel arm A.		m	5.856		
65		HA(36.2 deg) heel arm A.		m	0.157		
66		GZ(36.2 deg) heel arm B.		m	5.856		
67		HA(36.2 deg) heel arm B.		m	0.000		
68		GZ(36.2 deg) heel arm C.		m	5.856		
69		HA(36.2 deg) heel arm C.		m	0.017		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.9	deg	1.9		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	61.8	deg			
78		first downflooding angle	36.2	deg	36.2		
79		shall not be less than (>=)	0.100	m	5.856	Pass	+5756.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	36.2		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.9	deg	1.9		
87		<i>to the lesser of</i>					
88		angle of max. GZ	61.8	deg	61.8		
89		shall be greater than (>)	0.050	m	7.323	Pass	+14546.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	61.8		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.9	deg	1.9		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	130.6	deg	130.6		
99		shall be greater than (>)	7.0	deg	128.8	Pass	+1739.39
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.723	Pass	+25346.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.9	Pass	+73.20
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	5.9	deg	5.9		
110		shall be less than (<)	100.00	%	31.87	Pass	+68.13
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.9		
113							

CONDICION N°:4

AVERIA

CASO N°:5

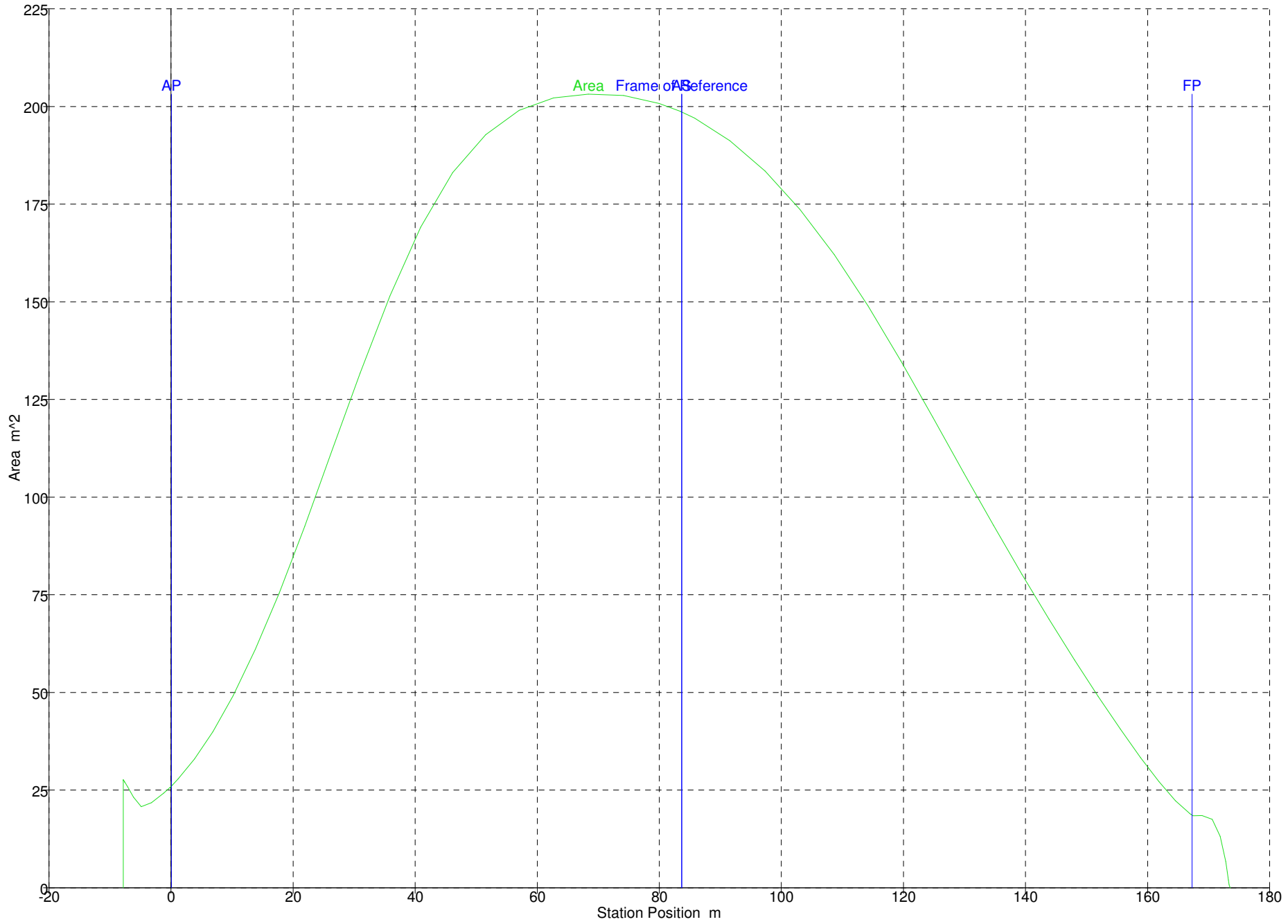
Academic Version

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9 (Damaged)	Damaged									
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.503	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.434	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11 (Damaged)	Damaged									
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.597	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.997	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.997	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.578	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.131	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.299	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.739	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.320	IMO A.749(18)
36	ALMACEN F.O. 2 (Damaged)	Damaged									
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.552	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.649	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.032	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4 (Damaged)	Damaged									
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.601	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	800.351	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.332	IMO A.749(18)
54	Total Loadcase			15095.006	4916.072	3171.932	75.286	-0.079	6.980	1940.446	
55	FS correction								0.129		
56	VCG fluid								7.109		

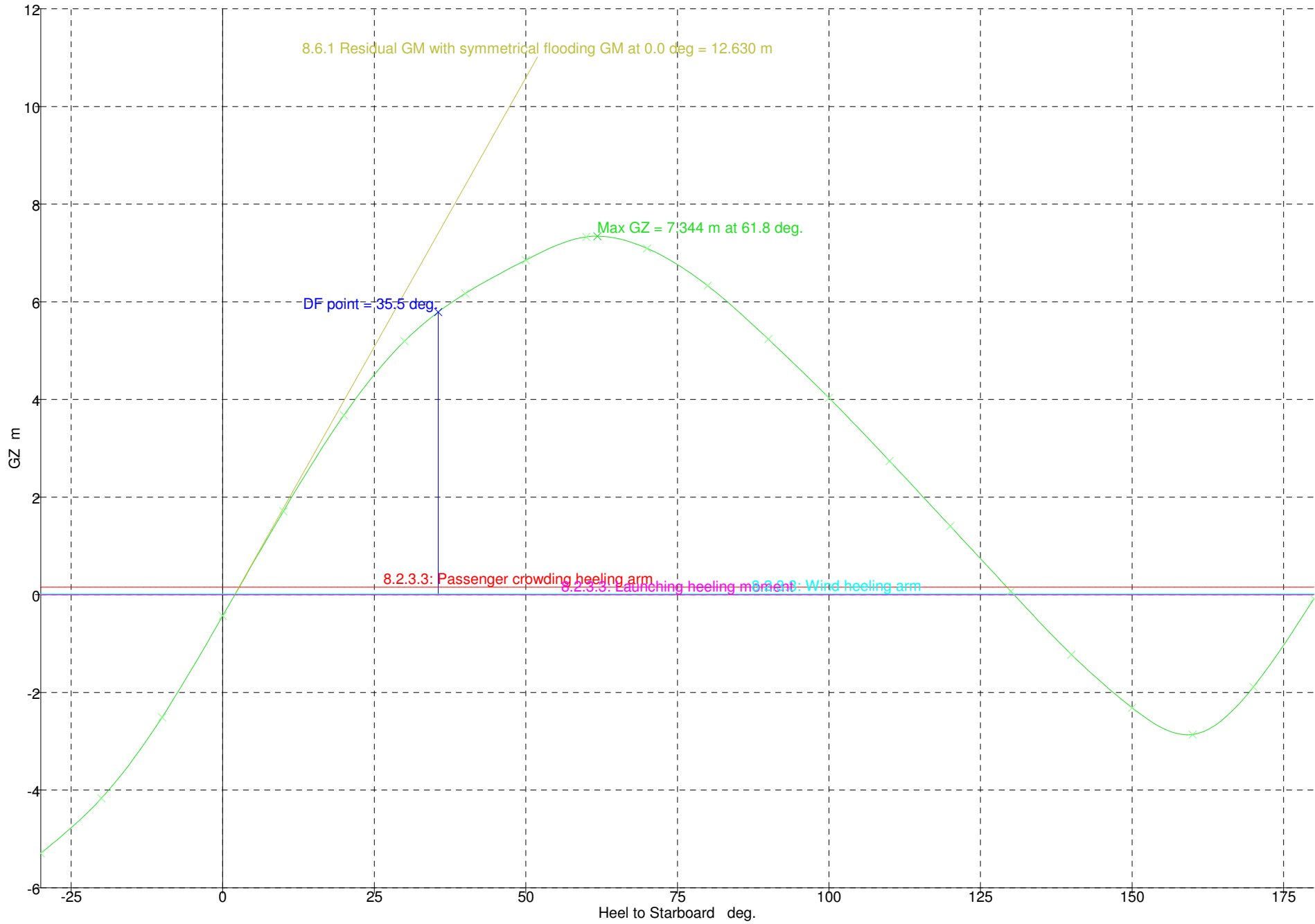
Academic Version

1	Draft Amidships m	7.434
2	Displacement t	15095
3	Heel deg	2.0
4	Draft at FP m	8.061
5	Draft at AP m	6.806
6	Draft at LCF m	7.282
7	Trim (+ve by stern) m	-1.255
8	WL Length m	175.735
9	Beam max extents on WL m	28.222
10	Wetted Area m ²	5810.41
11	Waterpl. Area m ²	3077.98
12	Prismatic coeff. (Cp)	0.413
13	Block coeff. (Cb)	0.370
14	Max Sect. area coeff. (Cm)	0.935
15	Waterpl. area coeff. (Cwp)	0.621
16	LCB from zero pt. (+ve fwd) m	75.302
17	LCF from zero pt. (+ve fwd) m	63.414
18	KB m	4.141
19	KG fluid m	7.109
20	BMt m	15.619
21	BML m	612.347
22	GMt corrected m	12.648
23	GML m	609.377
24	KMt m	19.750
25	KML m	616.103
26	Immersion (TPc) tonne/cm	31.549
27	MTc tonne.m	550.064
28	RM at 1deg = GMt.Disp.sin(1) t	3332.16
29	Max deck inclination deg	2.0326
30	Trim angle (+ve by stern) deg	-0.4299



Academic Version

	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.292	-4.166	-2.508	-0.431	1.709	3.678	5.195	6.169	6.853	7.330	7.094	6.329	5.234	4.033	2.740	1.407	0.071
2	Area under GZ curve from zero heel	96.3057	48.7317	14.8908	-0.7843	6.4386	33.6337	78.4596	135.655	200.883	272.194	344.899	412.353	470.332	516.730	550.657	571.403	578.791
3	Displacement t	15095	15095	15095	15095	15095	15096	15095	15095	15094	15095	15095	15095	15095	15095	15095	15095	15095
4	Draft at FP m	6.275	7.317	7.841	8.056	7.970	7.520	6.534	5.120	3.022	-0.365	-7.351	-28.608	n/a	-54.718	-33.315	-26.054	-22.374
5	Draft at AP m	5.219	6.170	6.658	6.795	6.783	6.434	5.636	4.077	1.320	-3.585	-12.749	-38.797	n/a	-61.605	-35.602	-26.665	-22.092
6	WL Length m	180.921	175.393	175.621	175.733	175.679	175.480	180.726	181.369	180.840	175.894	174.112	174.727	175.311	176.168	177.003	177.763	178.445
7	Beam max extents on WL m	27.658	29.787	28.640	28.205	28.640	29.869	28.331	25.640	25.181	23.094	21.283	20.308	20.000	20.308	21.001	20.664	19.118
8	Wetted Area m^2	5239.71	5464.04	5622.70	5805.78	5691.80	5574.11	5402.19	5181.59	5086.04	4976.05	4777.50	4681.60	4615.80	4600.68	4605.37	4620.04	4615.19
9	Waterpl. Area m^2	2751.54	2722.67	2882.47	3078.16	2937.14	2912.70	2886.57	2955.11	3167.25	3056.74	2699.40	2527.80	2461.73	2725.16	2774.37	2871.63	2971.77
10	Prismatic coeff. (Cp)	0.499	0.456	0.423	0.413	0.416	0.440	0.475	0.516	0.553	0.601	0.644	0.683	0.728	0.771	0.823	0.882	0.912
11	Block coeff. (Cb)	0.269	0.275	0.326	0.370	0.321	0.268	0.256	0.277	0.294	0.359	0.447	0.557	0.637	0.532	0.460	0.438	0.456
12	LCB from zero pt. (+ve fwd) m	75.301	75.308	75.293	75.304	75.324	75.309	75.322	75.300	75.328	75.352	75.380	75.395	75.389	75.381	75.360	75.326	75.282
13	LCF from zero pt. (+ve fwd) m	74.041	70.017	67.033	63.331	67.077	70.163	73.288	77.598	80.847	79.720	76.636	75.541	74.963	75.289	74.759	74.562	74.644
14	Max deck inclination deg	30.0015	20.0033	10.0079	0.4323	10.0079	20.0029	30.0011	40.0008	50.0010	60.0015	70.0013	80.0006	90.0000	99.9997	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	-0.3618	-0.3927	-0.4055	-0.4323	-0.4069	-0.3722	-0.3077	-0.3576	-0.5828	-1.1031	-1.8487	-3.4869	-90.000	-2.3584	-0.7834	-0.2091	0.0965



8.6.1 Residual GM with symmetrical flooding GM at 0.0 deg = 12.630 m

Max GZ = 7.344 m at 61.8 deg.

DF point = 35.5 deg.

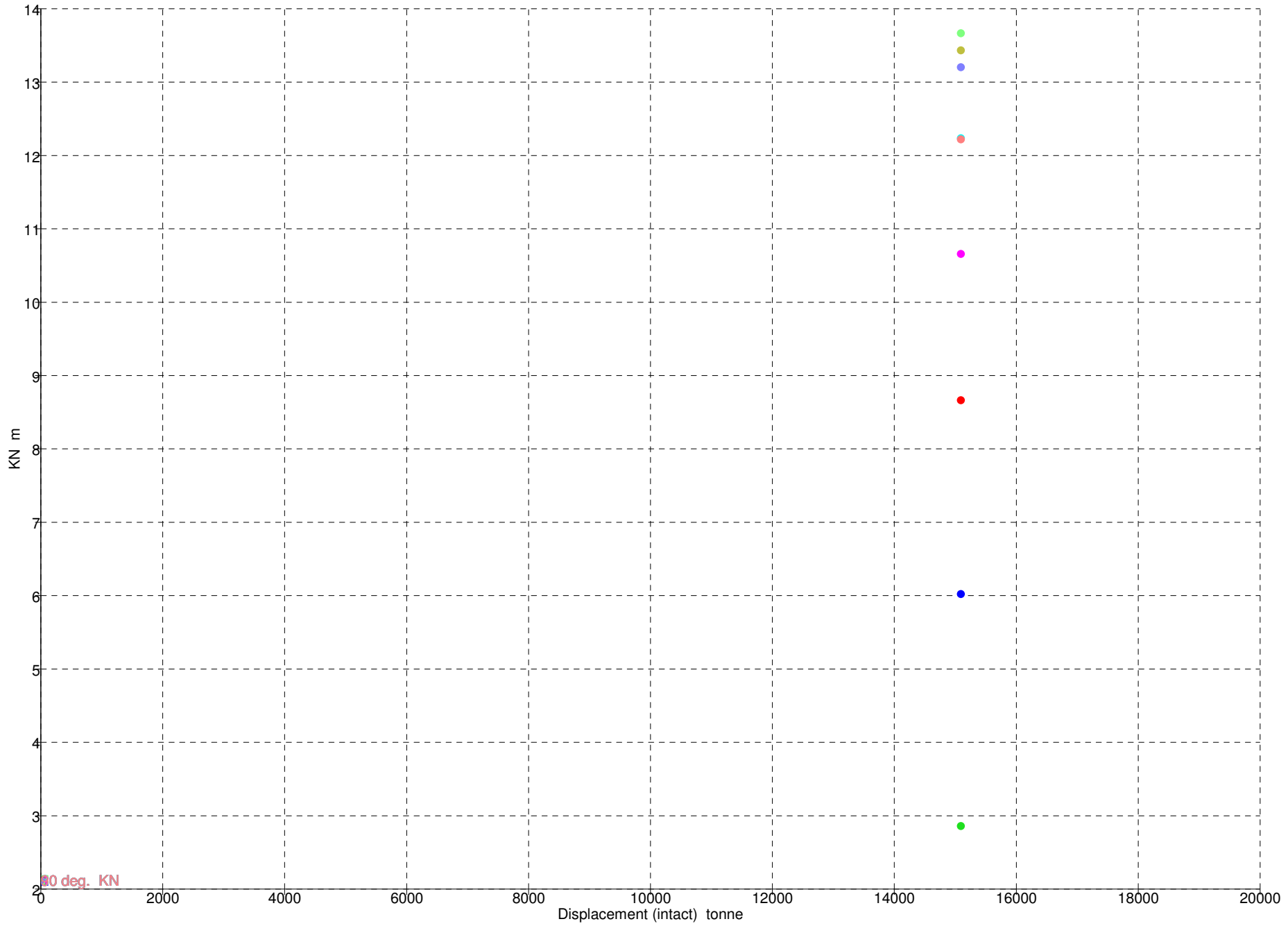
8.2.3.3: Passenger crowding heeling arm

8.2.3.3: Launching heeling arm

8.2.3.3: Wind heeling arm

Academic Version

	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	15095	5.597	-0.430 (fixed)	79.988	0.000	0.000	2.857	6.019	8.661	10.657	12.233	13.430	13.665	13.201	12.216



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.157		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.017		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	2.0	deg	2.0		
32		<i>to the lesser of</i>					
33		first downflooding angle	35.5	deg	35.5		
34		angle of vanishing stability	130.5	deg			
35		shall not be less than (>=)	15.0	deg	33.6	Pass	+123.67
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	2.0	deg	2.0		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	35.5	deg			
43		angle of vanishing stability	130.5	deg			
44		shall not be less than (>=)	0.8590	m.deg	41.7706	Pass	+4762.70
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	2.0	deg			
53		angle of equilibrium with heel arm	2.7, 2.0,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(35.5), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	61.8, 61.	deg			
58		first flooding angle of the DownfloodingPoints	35.5	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.633	Pass	+13982.5
61		8.2.3.3: Launching heeling moment	0.040	m	5.791	Pass	+14377.5
62		8.2.3.3: Wind heeling arm	0.040	m	5.774	Pass	+14335.0
63		<i>Intermediate values</i>					
64		GZ(35.5 deg) heel arm A.		m	5.791		
65		HA(35.5 deg) heel arm A.		m	0.157		
66		GZ(35.5 deg) heel arm B.		m	5.791		
67		HA(35.5 deg) heel arm B.		m	0.000		
68		GZ(35.5 deg) heel arm C.		m	5.791		
69		HA(35.5 deg) heel arm C.		m	0.017		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	2.0	deg	2.0		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	61.8	deg			
78		first downflooding angle	35.5	deg	35.5		
79		shall not be less than (>=)	0.100	m	5.791	Pass	+5691.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	35.5		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	2.0	deg	2.0		
87		<i>to the lesser of</i>					
88		angle of max. GZ	61.8	deg	61.8		
89		shall be greater than (>)	0.050	m	7.344	Pass	+14588.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	61.8		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	2.0	deg	2.0		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	130.5	deg	130.5		
99		shall be greater than (>)	7.0	deg	128.5	Pass	+1736.17
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.630	Pass	+25160.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	2.0	Pass	+71.44
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	6.6	deg	6.6		
110		shall be less than (<)	100.00	%	30.43	Pass	+69.57
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	2.0		
113							

CONDICION N°:4

AVERIA

CASO N°:6

Academic Version

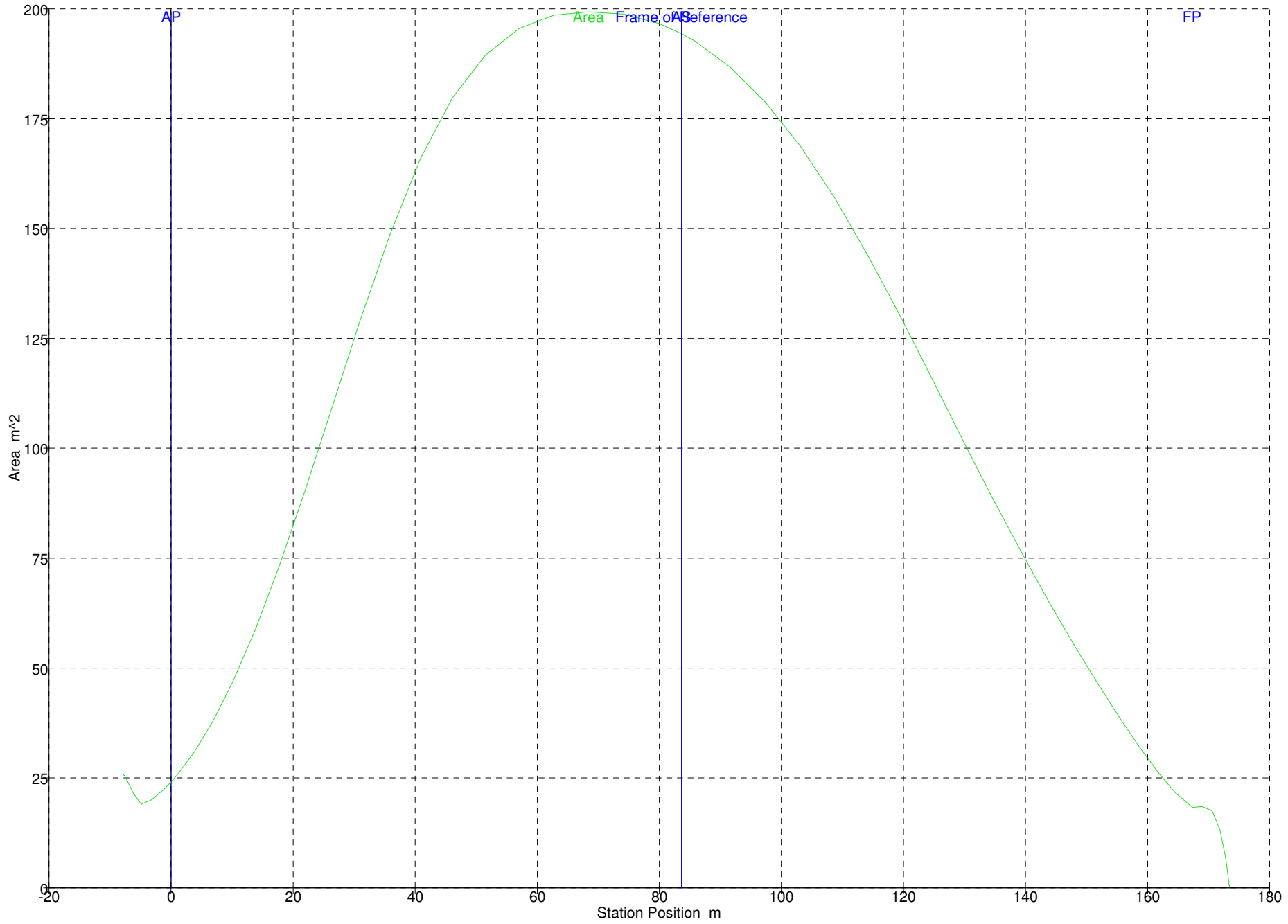
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.502	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.433	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11 (Damaged)	Damaged									
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.596	IMO A.749(18)
24	LASTRE 13 (Damaged)	Damaged									
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.997	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.997	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.578	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.131	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.333	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.299	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.735	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.316	IMO A.749(18)
36	ALMACEN F.O. 2 (Damaged)	Damaged									
37	ALMACEN D.O. (Damaged)	Damaged									
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.649	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.031	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4 (Damaged)	Damaged									
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.535	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	800.290	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5 (Damaged)	Damaged									
54	Total Loadcase			14780.225	4776.861	2861.251	75.743	-0.133	7.094	1841.422	
55	FS correction								0.125		
56	VCG fluid								7.218		

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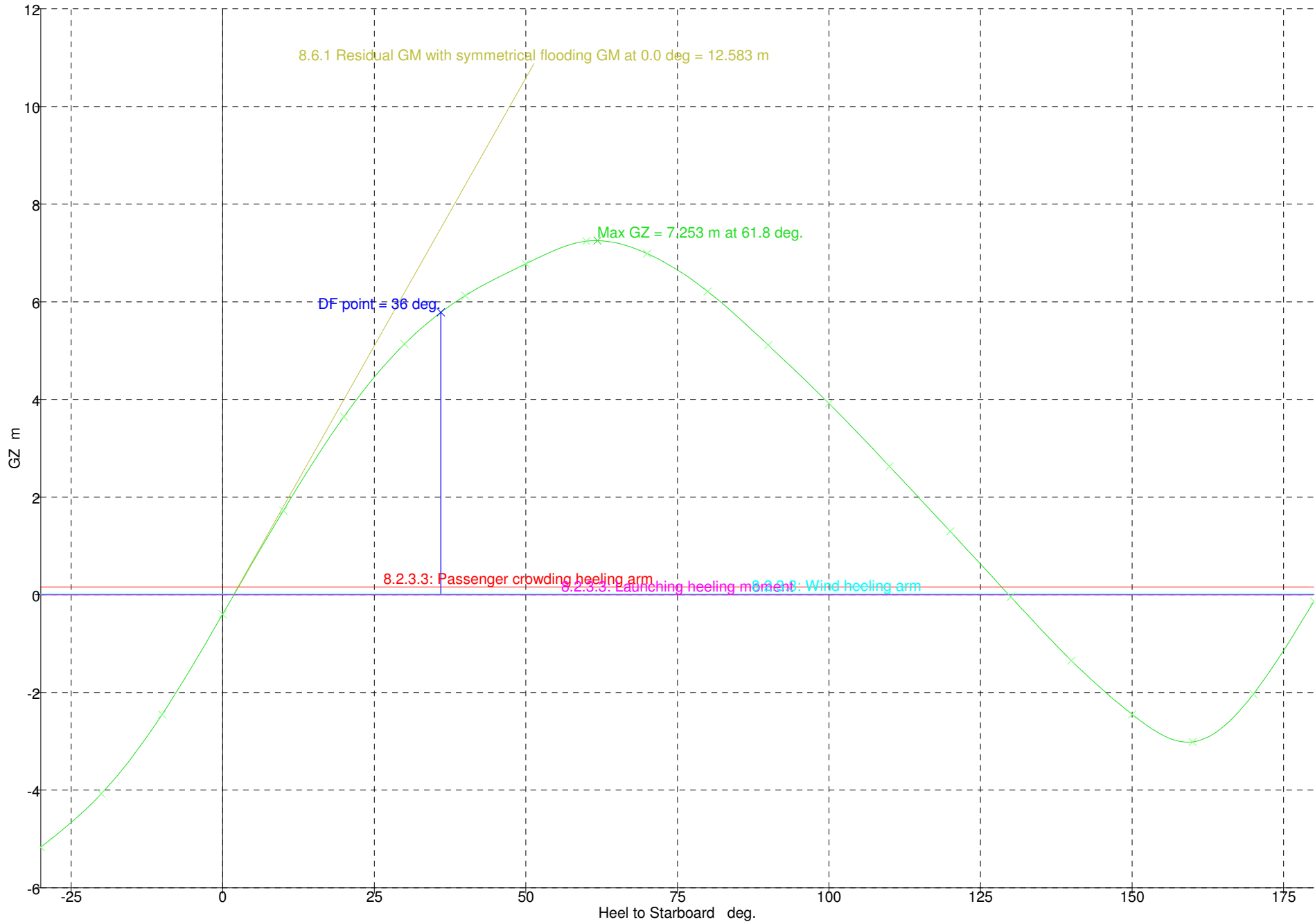
1	Draft Amidships m	7.283
2	Displacement t	14780
3	Heel deg	1.9
4	Draft at FP m	7.827
5	Draft at AP m	6.739
6	Draft at LCF m	7.149
7	Trim (+ve by stern) m	-1.088
8	WL Length m	175.614
9	Beam max extents on WL m	28.220
10	Wetted Area m ²	5742.74
11	Waterpl. Area m ²	3049.11
12	Prismatic coeff. (Cp)	0.412
13	Block coeff. (Cb)	0.373
14	Max Sect. area coeff. (Cm)	0.937
15	Waterpl. area coeff. (Cwp)	0.615
16	LCB from zero pt. (+ve fwd) m	75.760
17	LCF from zero pt. (+ve fwd) m	62.942
18	KB m	4.035
19	KG fluid m	7.218
20	BMt m	15.783
21	BML m	611.560
22	GMt corrected m	12.597
23	GML m	608.374
24	KMt m	19.809
25	KML m	615.260
26	Immersion (TPc) tonne/cm	31.253
27	MTc tonne.m	537.707
28	RM at 1deg = GMt.Disp.sin(1) t	3249.50
29	Max deck inclination deg	1.8943
30	Trim angle (+ve by stern) deg	-0.3729

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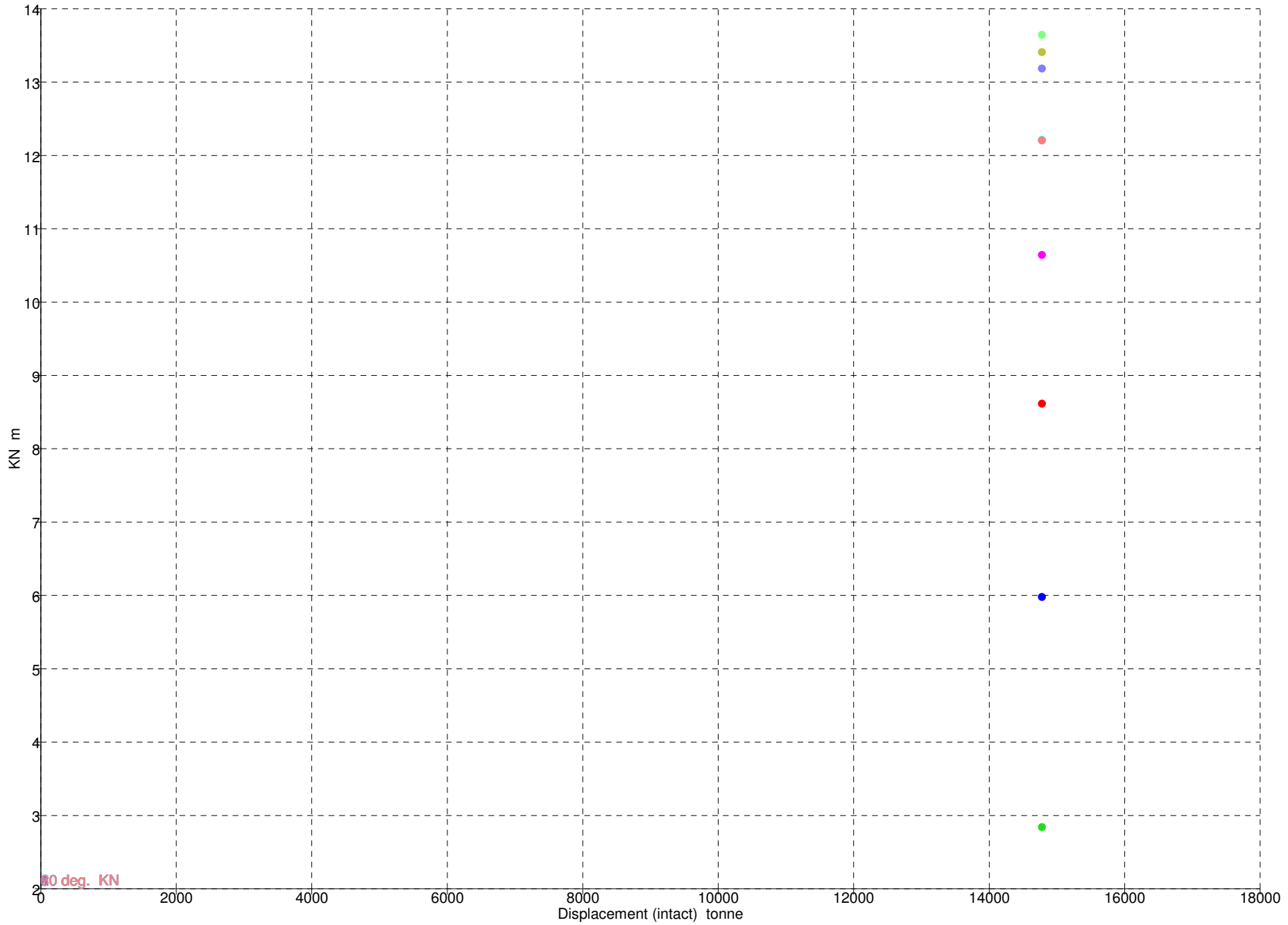
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.170	-4.071	-2.451	-0.396	1.723	3.646	5.137	6.126	6.778	7.241	6.989	6.212	5.111	3.917	2.628	1.299	-0.042
2	Area under GZ curve from zero heel	94.0108	47.5285	14.4438	-0.7204	6.6992	33.8139	78.1463	134.840	199.493	269.970	341.711	408.055	464.829	510.032	542.825	562.473	568.763
3	Displacement t	14779	14780	14780	14780	14780	14782	14780	14779	14780	14780	14780	14782	14780	14780	14780	14781	14781
4	Draft at FP m	6.149	7.140	7.640	7.824	7.723	7.275	6.301	4.921	2.837	-0.600	-7.750	-29.415	n/a	-55.286	-33.527	-26.147	-22.420
5	Draft at AP m	5.027	6.029	6.558	6.727	6.717	6.361	5.550	3.978	1.182	-3.780	-13.064	-39.476	n/a	-62.394	-36.038	-26.980	-22.346
6	WL Length m	181.016	179.493	175.533	175.613	175.568	175.373	180.908	181.384	180.758	174.195	173.962	174.584	175.192	176.095	176.955	177.735	178.432
7	Beam max extents on WL m	27.340	29.722	28.640	28.205	28.640	29.825	28.044	25.417	24.979	23.094	21.283	20.308	20.000	20.308	20.950	20.459	18.853
8	Wetted Area m^2	5158.11	5390.16	5545.24	5738.85	5614.81	5503.40	5327.06	5125.33	5027.35	4910.57	4723.63	4630.03	4566.22	4555.45	4561.27	4574.94	4566.97
9	Waterpl. Area m^2	2714.04	2661.22	2841.40	3049.85	2879.74	2843.69	2879.32	2928.87	3135.26	3039.21	2692.87	2526.50	2512.20	2720.72	2769.33	2861.47	2949.68
10	Prismatic coeff. (Cp)	0.500	0.447	0.423	0.412	0.415	0.440	0.474	0.514	0.552	0.605	0.643	0.683	0.730	0.773	0.826	0.883	0.923
11	Block coeff. (Cb)	0.270	0.268	0.324	0.373	0.319	0.267	0.256	0.276	0.293	0.358	0.444	0.556	0.637	0.528	0.456	0.436	0.461
12	LCB from zero pt. (+ve fwd) m	75.769	75.761	75.762	75.753	75.766	75.764	75.775	75.758	75.784	75.809	75.838	75.851	75.846	75.838	75.819	75.787	75.746
13	LCF from zero pt. (+ve fwd) m	74.663	69.995	66.984	62.875	66.808	69.567	73.348	77.912	81.018	79.348	76.575	75.569	75.617	75.670	75.168	74.963	75.008
14	Max deck inclination deg	30.0017	20.0031	10.0066	0.3758	10.0057	20.0021	30.0008	40.0006	50.0010	60.0015	70.0012	80.0006	90.0000	99.9997	109.999	119.999	130.000
15	Trim angle (+ve by stern) deg	-0.3842	-0.3809	-0.3707	-0.3758	-0.3445	-0.3131	-0.2573	-0.3230	-0.5673	-1.0892	-1.8202	-3.4432	-90.000	-2.4340	-0.8600	-0.2854	0.0254



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	14780	5.510	-0.373 (fixed)	79.967	0.000	0.000	2.839	5.977	8.612	10.642	12.209	13.406	13.644	13.182	12.203



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.161		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m ²			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.017		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	1.8	deg	1.8		
32		<i>to the lesser of</i>					
33		first downflooding angle	36.0	deg	36.0		
34		angle of vanishing stability	129.7	deg			
35		shall not be less than (>=)	15.0	deg	34.1	Pass	+127.57
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	1.8	deg	1.8		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	36.0	deg			
43		angle of vanishing stability	129.7	deg			
44		shall not be less than (>=)	0.8590	m.deg	41.8133	Pass	+4767.67
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	1.8	deg			
53		angle of equilibrium with heel arm	2.6, 1.8,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(36.0), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	61.8, 61.	deg			
58		first flooding angle of the DownfloodingPoints	36.0	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.622	Pass	+13955.0
61		8.2.3.3: Launching heeling moment	0.040	m	5.783	Pass	+14357.5
62		8.2.3.3: Wind heeling arm	0.040	m	5.766	Pass	+14315.0
63		<i>Intermediate values</i>					
64		GZ(36.0 deg) heel arm A.		m	5.783		
65		HA(36.0 deg) heel arm A.		m	0.161		
66		GZ(36.0 deg) heel arm B.		m	5.783		
67		HA(36.0 deg) heel arm B.		m	0.000		
68		GZ(36.0 deg) heel arm C.		m	5.783		
69		HA(36.0 deg) heel arm C.		m	0.017		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	1.8	deg	1.8		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	61.8	deg			
78		first downflooding angle	36.0	deg	36.0		
79		shall not be less than (>=)	0.100	m	5.783	Pass	+5683.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	36.0		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	1.8	deg	1.8		
87		<i>to the lesser of</i>					
88		angle of max. GZ	61.8	deg	61.8		
89		shall be greater than (>)	0.050	m	7.253	Pass	+14406.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	61.8		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	1.8	deg	1.8		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	129.7	deg	129.7		
99		shall be greater than (>)	7.0	deg	127.8	Pass	+1726.23
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	12.583	Pass	+25066.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	1.8	Pass	+73.59
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	7.5	deg	7.5		
110		shall be less than (<)	100.00	%	24.56	Pass	+75.44
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	1.8		
113							

CONDICION N°:4

AVERIA

CASO N°:7

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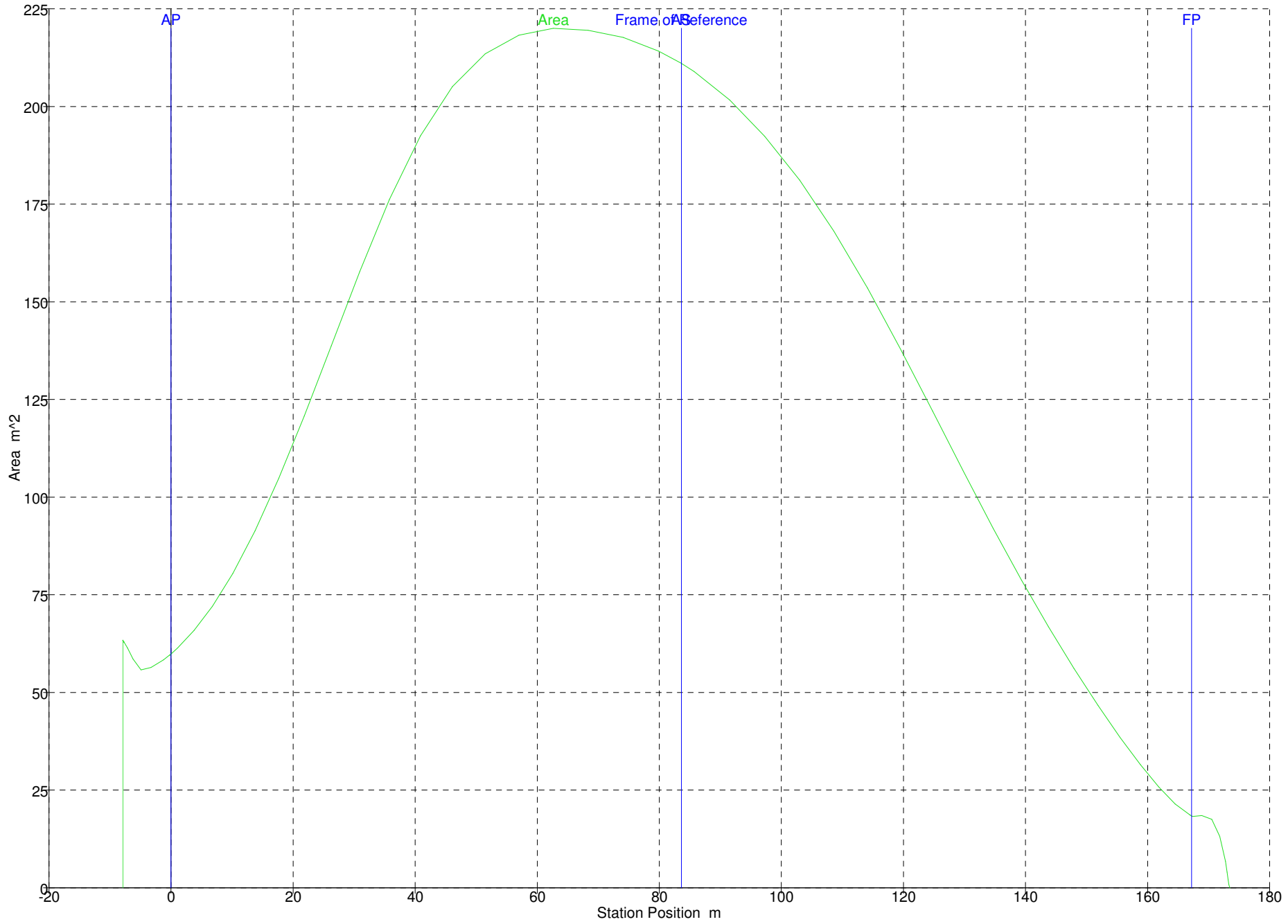
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.499	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.430	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.593	IMO A.749(18)
24	LASTRE 13 (Damaged)	Damaged									
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.996	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.996	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.129	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.712	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.291	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.712	IMO A.749(18)
37	ALMACEN D.O. (Damaged)	Damaged									
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.646	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.022	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.174	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	799.953	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5 (Damaged)	Damaged									
54	Total Loadcase			14801.389	5282.024	2883.664	75.722	-0.117	7.088	1895.358	
55	FS correction								0.128		
56	VCG fluid								7.216		

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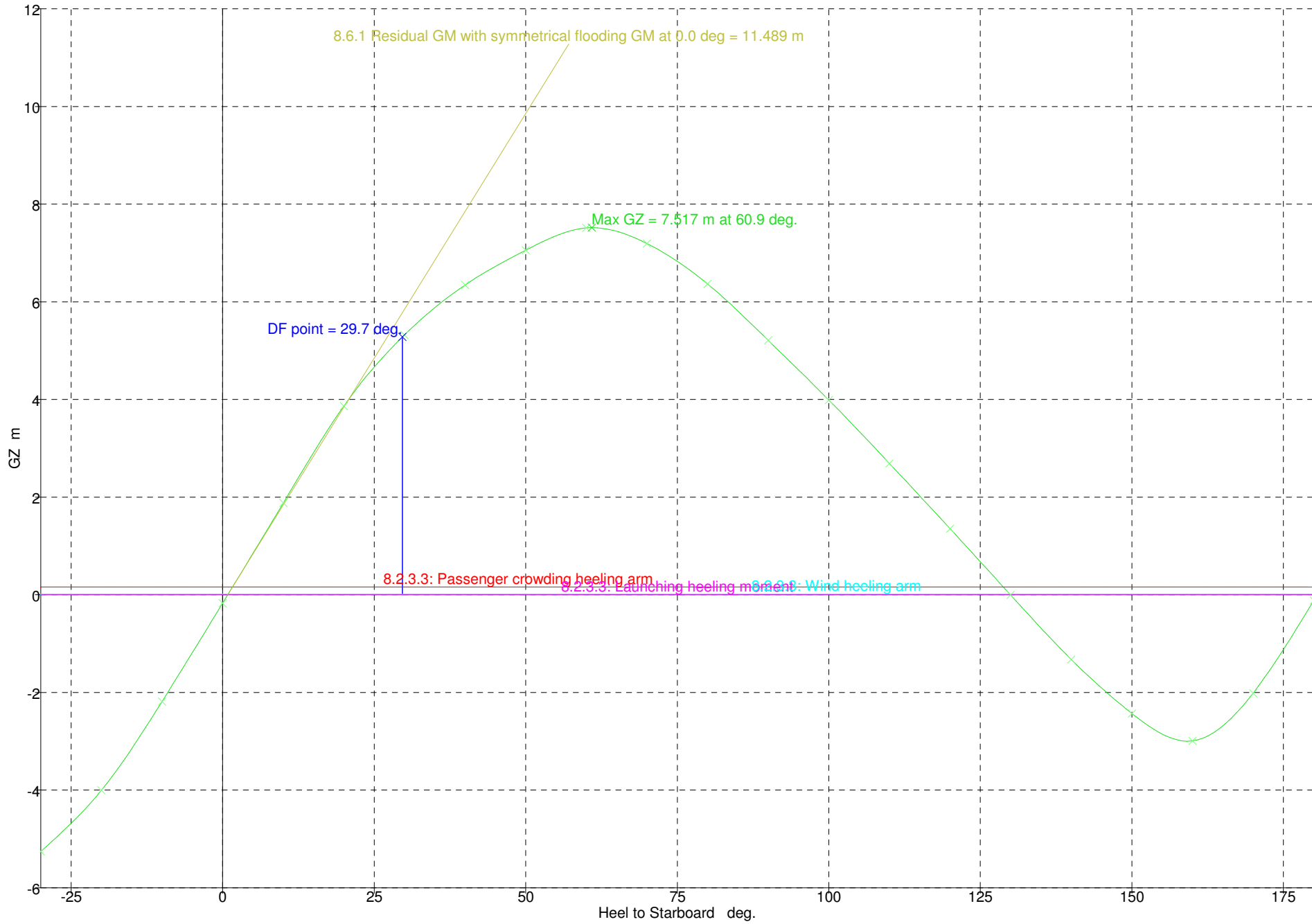
1	Draft Amidships m	7.875
2	Displacement t	14801
3	Heel deg	0.8
4	Draft at FP m	7.742
5	Draft at AP m	8.008
6	Draft at LCF m	7.901
7	Trim (+ve by stern) m	0.267
8	WL Length m	175.572
9	Beam max extents on WL m	28.208
10	Wetted Area m ²	6005.31
11	Waterpl. Area m ²	2659.22
12	Prismatic coeff. (Cp)	0.374
13	Block coeff. (Cb)	0.362
14	Max Sect. area coeff. (Cm)	0.967
15	Waterpl. area coeff. (Cwp)	0.537
16	LCB from zero pt. (+ve fwd) m	75.709
17	LCF from zero pt. (+ve fwd) m	66.933
18	KB m	4.410
19	KG fluid m	7.216
20	BMt m	14.305
21	BML m	601.720
22	GMt corrected m	11.499
23	GML m	598.914
24	KMt m	18.714
25	KML m	606.067
26	Immersion (TPc) tonne/cm	27.257
27	MTc tonne.m	530.105
28	RM at 1deg = GMt.Disp.sin(1) t	2970.47
29	Max deck inclination deg	0.8331
30	Trim angle (+ve by stern) deg	0.0913

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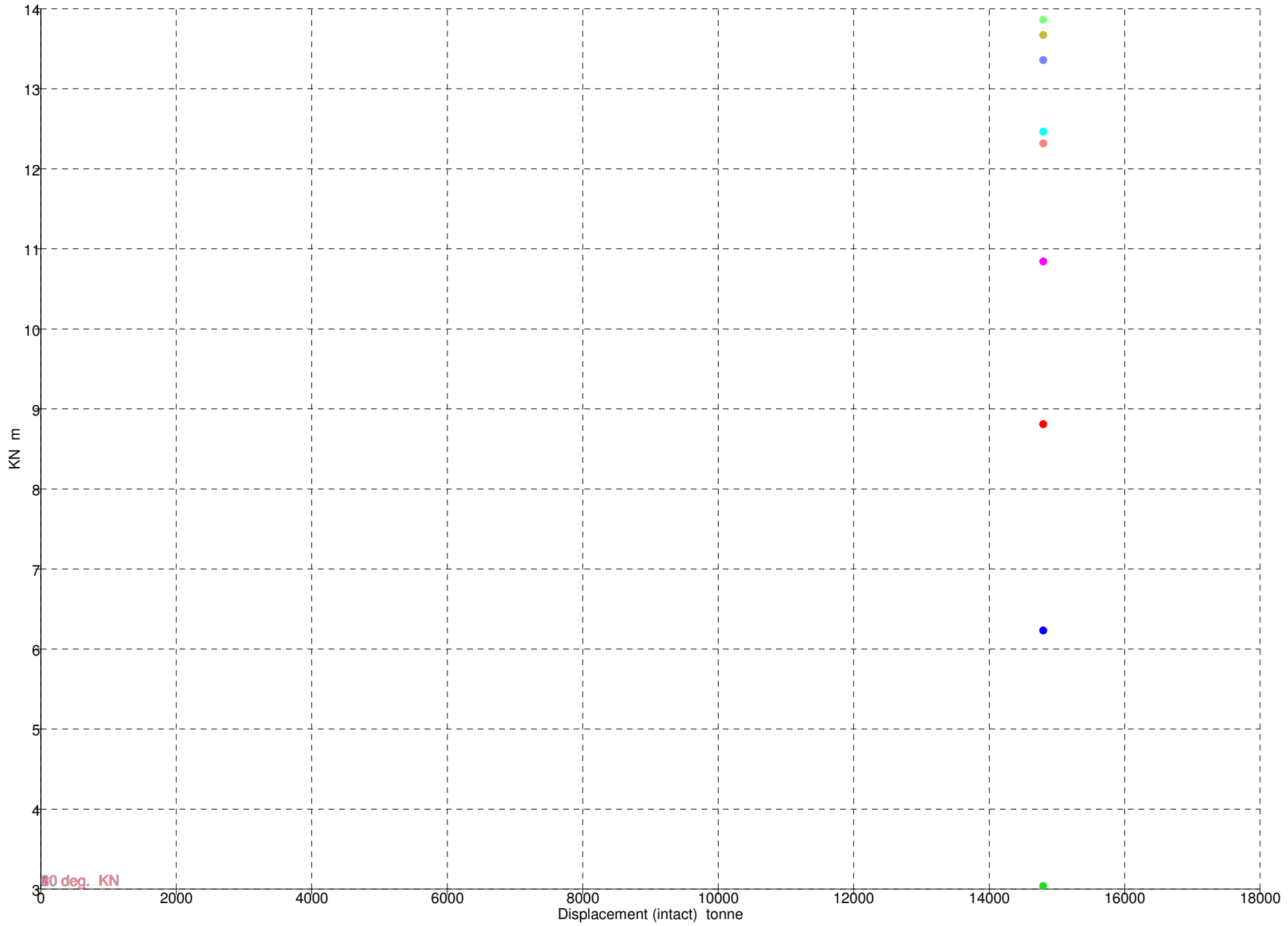
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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-5.255	-4.002	-2.185	-0.171	1.880	3.867	5.323	6.345	7.058	7.513	7.194	6.366	5.211	3.989	2.690	1.354	-0.005
2	Area under GZ curve from zero heel	89.7571	43.1285	11.8164	-0.3101	8.5062	37.5042	83.9113	142.559	209.735	283.036	357.168	425.298	483.338	529.376	562.831	583.074	589.835
3	Displacement t	14803	14801	14802	14801	14801	14801	14802	14801	14801	14801	14801	14801	14800	14801	14802	14802	14802
4	Draft at FP m	5.940	6.945	7.518	7.742	7.556	6.987	5.985	4.594	2.502	-1.013	-8.377	-30.565	n/a	-56.090	-33.806	-26.249	-22.448
5	Draft at AP m	6.507	7.530	7.964	8.004	8.043	7.697	6.785	5.154	2.337	-2.487	-11.373	-36.700	n/a	-60.841	-35.469	-26.733	-22.253
6	WL Length m	181.201	180.148	175.475	175.572	175.492	180.044	181.193	181.329	180.512	172.738	173.697	174.376	175.031	175.988	176.887	177.701	178.422
7	Beam max extents on WL m	28.863	29.971	28.640	28.205	28.640	29.987	29.230	26.123	25.130	23.094	21.283	20.308	20.000	20.308	20.986	20.558	18.936
8	Wetted Area m^2	5462.22	5728.55	5968.51	6004.22	5996.39	5781.67	5541.24	5305.95	5172.95	4991.26	4802.43	4690.88	4607.47	4585.22	4584.39	4593.41	4580.39
9	Waterpl. Area m^2	2683.10	2679.75	2711.80	2658.86	2766.92	2778.01	2759.67	2888.13	3099.46	2868.31	2573.29	2398.46	2390.65	2661.20	2717.59	2814.79	2915.60
10	Prismatic coeff. (Cp)	0.445	0.395	0.380	0.374	0.376	0.388	0.434	0.479	0.522	0.584	0.622	0.665	0.715	0.760	0.815	0.877	0.914
11	Block coeff. (Cb)	0.240	0.245	0.297	0.368	0.296	0.243	0.233	0.259	0.282	0.351	0.433	0.542	0.651	0.536	0.459	0.436	0.457
12	LCB from zero pt. (+ve fwd) m	75.714	75.718	75.700	75.713	75.722	75.713	75.708	75.693	75.727	75.759	75.770	75.783	75.786	75.792	75.771	75.748	75.718
13	LCF from zero pt. (+ve fwd) m	74.961	70.744	66.373	66.930	66.194	70.256	74.421	78.003	80.956	80.529	78.007	77.307	77.345	76.917	76.321	75.980	75.798
14	Max deck inclination deg	30.0004	20.0008	10.0011	0.0896	10.0013	20.0013	30.0009	40.0002	50.0000	60.0003	70.0004	80.0002	90.0000	99.9999	109.999	120.000	130.000
15	Trim angle (+ve by stern) deg	0.1944	0.2003	0.1531	0.0896	0.1671	0.2433	0.2739	0.1920	-0.0563	-0.5050	-1.0262	-2.1011	-90.000	-1.6273	-0.5695	-0.1658	0.0671



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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	14801	5.500	-0.091 (fixed)	79.268	0.000	0.000	3.036	6.229	8.807	10.841	12.464	13.670	13.862	13.356	12.317



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.160		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m ²			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.017		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.8	deg	0.8		
32		<i>to the lesser of</i>					
33		first downflooding angle	29.7	deg	29.7		
34		angle of vanishing stability	130.0	deg			
35		shall not be less than (>=)	15.0	deg	28.8	Pass	+92.21
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.8	deg	0.8		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	29.7	deg			
43		angle of vanishing stability	130.0	deg			
44		shall not be less than (>=)	0.8590	m.deg	45.6516	Pass	+5214.51
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.8	deg			
53		angle of equilibrium with heel arm	1.6, 0.8,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(29.7), (2		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	60.9, 60.	deg			
58		first flooding angle of the DownfloodingPoints	29.7	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	5.122	Pass	+12705.0
61		8.2.3.3: Launching heeling moment	0.040	m	5.283	Pass	+13107.5
62		8.2.3.3: Wind heeling arm	0.040	m	5.266	Pass	+13065.0
63		<i>Intermediate values</i>					
64		GZ(29.7 deg) heel arm A.		m	5.283		
65		HA(29.7 deg) heel arm A.		m	0.160		
66		GZ(29.7 deg) heel arm B.		m	5.283		
67		HA(29.7 deg) heel arm B.		m	0.000		
68		GZ(29.7 deg) heel arm C.		m	5.283		
69		HA(29.7 deg) heel arm C.		m	0.017		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.8	deg	0.8		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	60.9	deg			
78		first downflooding angle	29.7	deg	29.7		
79		shall not be less than (>=)	0.100	m	5.283	Pass	+5183.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	29.7		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.8	deg	0.8		
87		<i>to the lesser of</i>					
88		angle of max. GZ	60.9	deg	60.9		
89		shall be greater than (>)	0.050	m	7.517	Pass	+14934.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	60.9		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.8	deg	0.8		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	130.0	deg	130.0		
99		shall be greater than (>)	7.0	deg	129.1	Pass	+1744.66
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	11.489	Pass	+22878.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.8	Pass	+88.01
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	6.0	deg	6.0		
110		shall be less than (<)	100.00	%	13.97	Pass	+86.03
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.8		
113							

CONDICION N°:4

AVERIA

CASO N°:8

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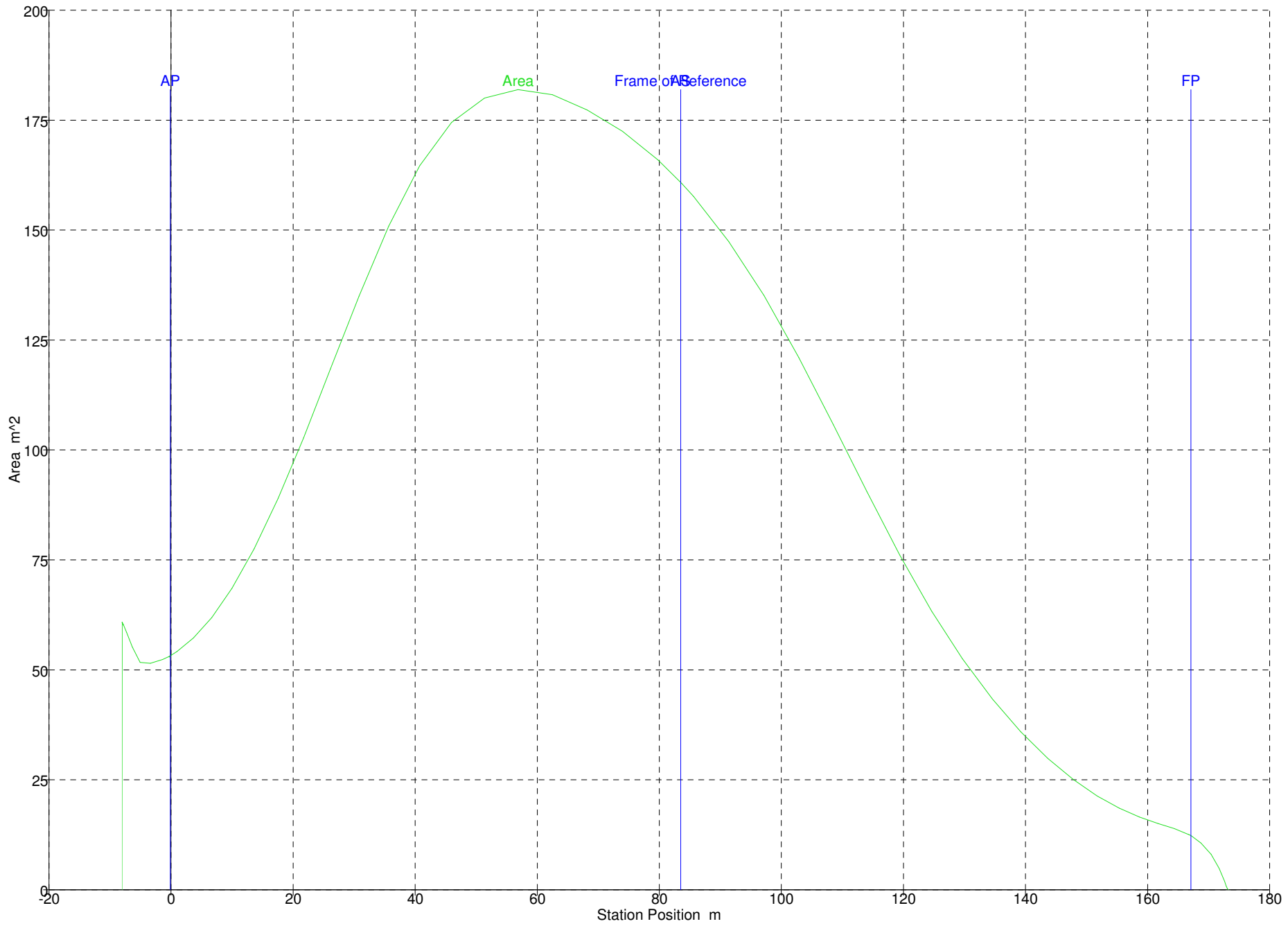
	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
1	PESO ROSCA	1	11655.330	11655.330			73.330	0.000	7.760	0.000	User Specified
2	PESO TRIPULACION	1	10.000	10.000			116.600	0.000	26.210	0.000	User Specified
3	PESO PASAJE	0	142.500	0.000			116.600	0.000	23.550	0.000	User Specified
4	PESO VIVERES	0.1	142.500	14.250			116.600	0.000	22.550	0.000	User Specified
5	COCHES CUBIERTA N°:1	0	100.000	0.000			83.610	0.000	3.260	0.000	User Specified
6	COCHES CUBIERTA N°:3	0	200.000	0.000			83.610	0.000	10.230	0.000	User Specified
7	COCHES CUBIERTA N°:5	0	200.000	0.000			83.610	0.000	15.530	0.000	User Specified
8	ELEMENTOS ESTIVA	1	200.000	200.000			159.470	0.000	9.530	0.000	User Specified
9	LASTRE 1	100%	293.857	293.857	286.690	286.690	165.463	0.000	4.989	0.000	IMO A.749(18)
10	LASTRE 2	0%	82.930	0.000	80.907	0.000	147.354	0.000	0.000	0.000	IMO A.749(18)
11	LASTRE 3	0%	122.105	0.000	119.127	0.000	138.523	0.000	0.000	0.000	IMO A.749(18)
12	LASTRE 4	100%	261.036	261.036	254.669	254.669	113.398	0.000	1.445	0.000	IMO A.749(18)
13	LASTRE 5	100%	315.494	315.494	307.799	307.799	104.939	0.000	1.391	0.000	IMO A.749(18)
14	LASTRE 6	100%	347.129	347.129	338.662	338.662	96.454	0.000	1.321	0.000	IMO A.749(18)
15	LASTRE 7	100%	358.575	358.575	349.829	349.829	87.940	0.000	1.285	0.000	IMO A.749(18)
16	LASTRE 8	0%	360.197	0.000	351.411	0.000	79.339	0.000	0.000	0.000	IMO A.749(18)
17	LASTRE 9	0%	360.202	0.000	351.416	0.000	70.870	0.000	0.000	0.000	IMO A.749(18)
18	REBOSE D.O.	90%	22.375	20.137	26.636	23.973	64.915	-6.835	1.152	7.498	IMO A.749(18)
19	REBOSE F.O.	90%	25.152	22.637	26.635	23.972	61.545	-6.835	1.152	8.429	IMO A.749(18)
20	LASTRE 10	0%	14.569	0.000	14.213	0.000	59.762	-5.683	0.000	0.000	IMO A.749(18)
21	LASTRE 11	0%	290.990	0.000	283.893	0.000	63.694	1.380	0.000	0.000	IMO A.749(18)
22	LASTRE 12	100%	41.769	41.769	40.751	40.751	55.455	-6.830	1.300	0.000	IMO A.749(18)
23	LODOS	90%	22.464	20.218	24.604	22.144	51.184	-6.825	1.231	7.592	IMO A.749(18)
24	LASTRE 13	100%	286.064	286.064	279.087	279.087	53.825	1.599	1.301	0.000	IMO A.749(18)
25	ALMACEN ACEITE 1	15%	28.991	4.349	31.512	4.727	43.071	-4.214	0.699	2.996	IMO A.749(18)
26	ALMACEN ACEITE 2	15%	28.991	4.349	31.512	4.727	43.071	4.214	0.699	2.996	IMO A.749(18)
27	AGUAS CILINDRICAS	100%	10.139	10.139	10.139	10.139	44.579	0.000	1.405	0.000	IMO A.749(18)
28	ACEITE SUCIO	90%	16.836	15.153	18.300	16.470	42.428	0.000	1.360	5.575	IMO A.749(18)
29	ALMACEN ACEITE 3	0%	15.073	0.000	16.383	0.000	40.964	0.000	0.447	0.000	IMO A.749(18)
30	AGUAS ACEITOSAS	90%	12.913	11.622	14.036	12.632	36.765	0.000	1.637	5.128	IMO A.749(18)
31	DERRAME BANDEJA F.O.	90%	6.748	6.073	7.146	6.431	33.946	-0.996	1.833	1.332	IMO A.749(18)
32	DERRAME BANDEJA ACEITE	90%	6.574	5.917	7.146	6.431	33.946	0.996	1.833	1.298	IMO A.749(18)
33	AGUA DULCE 1	0%	103.453	0.000	103.453	0.000	145.549	0.000	2.560	0.000	IMO A.749(18)
34	ALMACEN F.O. 1	20%	105.822	21.164	112.064	22.413	61.585	-10.830	2.913	54.707	IMO A.749(18)
35	DECANTACION F.O. 1	10%	114.678	11.468	121.442	12.144	54.240	-10.830	2.736	59.285	IMO A.749(18)
36	ALMACEN F.O. 2	20%	105.822	21.164	112.064	22.413	61.585	10.830	2.913	54.707	IMO A.749(18)
37	ALMACEN D.O.	10%	89.994	8.999	107.136	10.714	53.790	10.830	2.736	46.524	IMO A.749(18)
38	AGUA TECNICA	10%	29.175	2.918	29.175	2.918	30.950	0.000	2.736	5.646	IMO A.749(18)
39	LASTRE 14	100%	126.375	126.375	123.293	123.293	9.674	0.000	5.596	0.000	IMO A.749(18)
40	AGUA DULCE 2	0%	103.820	0.000	103.820	0.000	145.595	0.000	6.090	0.000	IMO A.749(18)
41	TANQUE ANTIESCORRA 1	100%	158.952	158.952	155.075	155.075	96.495	-11.235	7.810	0.000	IMO A.749(18)
42	TANQUE ANTIESCORRA 2	100%	158.952	158.952	155.075	155.075	96.495	11.235	7.810	0.000	IMO A.749(18)
43	ALMACEN F.O. 3	0%	103.124	0.000	109.207	0.000	61.585	-10.830	6.090	0.000	IMO A.749(18)
44	DECANTACION F.O. 2	10%	37.739	3.774	39.965	3.997	56.770	-10.830	6.262	20.020	IMO A.749(18)
45	U.D. F.O. 1	100%	37.008	37.008	39.190	39.190	54.215	-10.830	7.810	0.000	IMO A.749(18)
46	U.D. F.O. 2	100%	37.008	37.008	39.191	39.191	51.685	-10.830	7.810	0.000	IMO A.749(18)
47	U.D. D.O. 1	100%	14.000	14.000	16.667	16.667	51.770	-1.900	7.810	0.000	IMO A.749(18)

	Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
48	U.D. D.O. 2	100%	14.000	14.000	16.667	16.667	50.270	-1.900	7.810	0.000	IMO A.749(18)
49	ALMACEN F.O. 4	0%	103.124	0.000	109.207	0.000	61.585	10.830	6.090	0.000	IMO A.749(18)
50	AGUA DULCE 3	20%	304.763	60.953	304.763	60.953	19.640	0.000	6.434	858.087	IMO A.749(18)
51	AGUA DULCE 4	20%	118.330	23.666	118.330	23.666	14.300	0.000	6.434	799.872	IMO A.749(18)
52	LASTRE 15	100%	491.956	491.956	479.957	479.957	8.890	0.000	7.810	0.000	IMO A.749(18)
53	ALMACEN F.O. 5	20%	98.589	19.718	104.405	20.881	53.790	10.830	6.434	52.301	IMO A.749(18)
54	Total Loadcase			15116.170	5772.652	3194.345	75.266	-0.064	6.975	1993.991	
55	FS correction								0.132		
56	VCG fluid								7.107		

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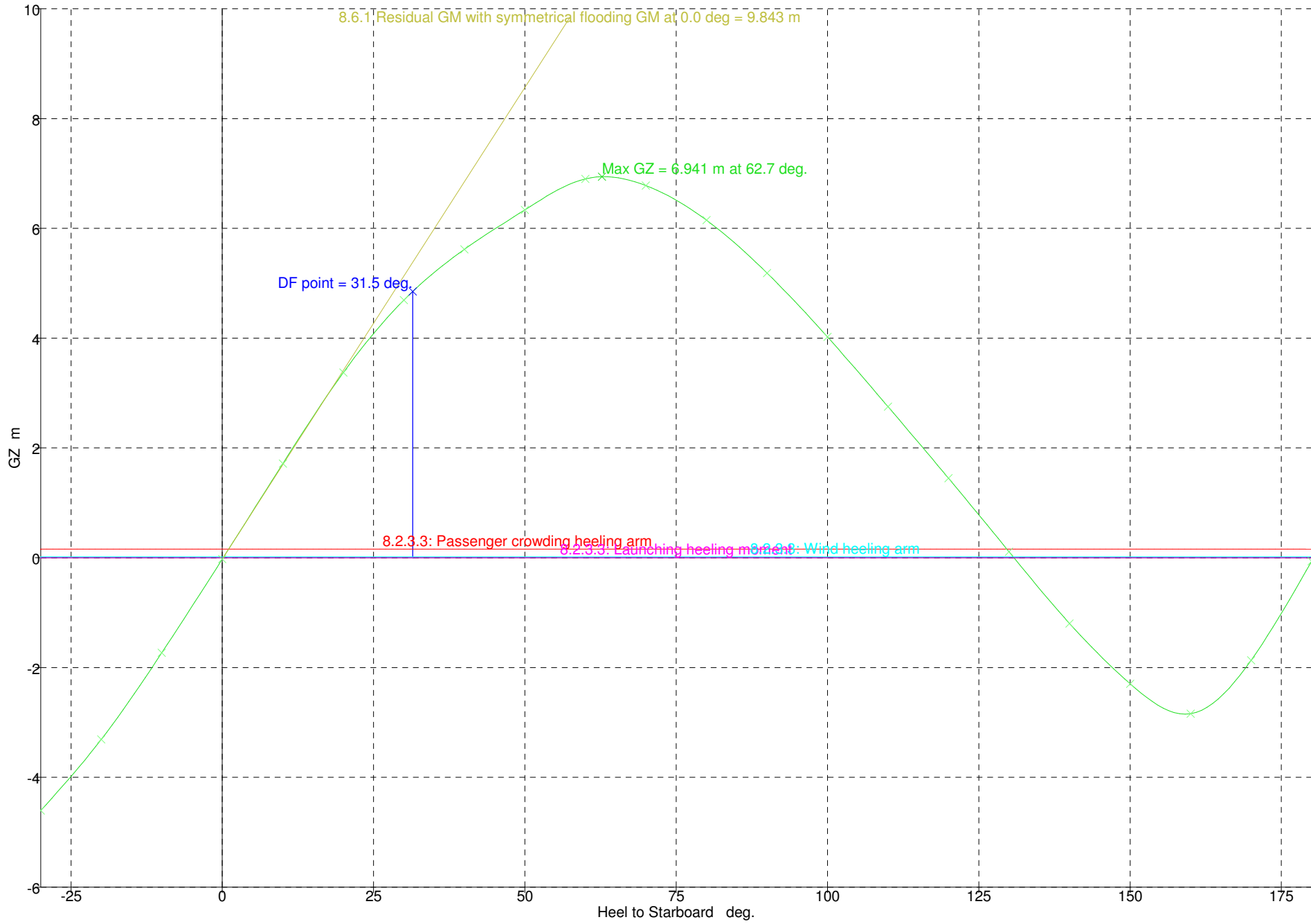
1	Draft Amidships m	6.097
2	Displacement t	15116
3	Heel deg	0.1
4	Draft at FP m	4.420
5	Draft at AP m	7.773
6	Draft at LCF m	6.333
7	Trim (+ve by stern) m	3.353
8	WL Length m	181.326
9	Beam max extents on WL m	28.205
10	Wetted Area m ²	5193.29
11	Waterpl. Area m ²	3405.64
12	Prismatic coeff. (Cp)	0.447
13	Block coeff. (Cb)	0.430
14	Max Sect. area coeff. (Cm)	0.972
15	Waterpl. area coeff. (Cwp)	0.666
16	LCB from zero pt. (+ve fwd) m	75.202
17	LCF from zero pt. (+ve fwd) m	71.831
18	KB m	3.692
19	KG fluid m	7.107
20	BMt m	13.259
21	BML m	499.718
22	GMt corrected m	9.844
23	GML m	496.303
24	KMt m	16.948
25	KML m	503.308
26	Immersion (TPc) tonne/cm	34.908
27	MTc tonne.m	448.625
28	RM at 1deg = GMt.Disp.sin(1) t	2596.96
29	Max deck inclination deg	1.1564
30	Trim angle (+ve by stern) deg	1.1485

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	Heel to Starboard deg	-30.0	-20.0	-10.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0
1	GZ m	-4.606	-3.310	-1.732	-0.024	1.715	3.374	4.694	5.618	6.337	6.902	6.780	6.150	5.187	4.022	2.753	1.449	0.110
2	Area under GZ curve from zero heel	73.9856	34.2403	8.8302	-0.0442	8.4535	34.0737	74.7574	126.590	186.432	252.993	321.976	386.954	443.862	490.028	523.953	544.990	552.809
3	Displacement t	15115	15116	15115	15116	15116	15116	15117	15117	15116	15116	15116	15116	15116	15116	15116	15116	15116
4	Draft at FP m	3.726	4.104	4.288	4.419	4.276	4.057	3.678	2.795	1.066	-2.465	-10.026	-32.604	n/a	-56.620	-33.992	-26.317	-22.458
5	Draft at AP m	6.259	7.304	7.776	7.774	7.806	7.406	6.382	4.692	1.932	-2.764	-11.445	-36.227	n/a	-59.553	-34.815	-26.295	-21.944
6	WL Length m	181.077	181.264	181.309	181.326	181.308	181.241	181.052	180.541	178.640	171.688	173.006	174.015	174.893	175.918	176.841	177.677	178.417
7	Beam max extents on WL m	26.977	29.546	28.640	28.205	28.640	29.572	27.100	24.699	24.075	23.094	21.283	20.308	20.000	20.308	21.032	20.779	19.235
8	Wetted Area m^2	4889.78	5008.99	5178.75	5193.22	5184.26	5025.99	4909.58	4831.88	4815.67	4745.24	4672.37	4639.58	4619.24	4613.72	4619.27	4636.57	4629.55
9	Waterpl. Area m^2	3373.52	3379.89	3394.51	3405.56	3441.32	3411.01	3386.30	3415.57	3515.84	3295.97	2976.80	2771.31	2680.17	2681.42	2742.04	2840.46	2934.06
10	Prismatic coeff. (Cp)	0.522	0.477	0.450	0.447	0.449	0.473	0.517	0.553	0.587	0.639	0.663	0.691	0.724	0.763	0.815	0.876	0.895
11	Block coeff. (Cb)	0.283	0.282	0.340	0.430	0.340	0.280	0.280	0.299	0.318	0.374	0.456	0.562	0.678	0.552	0.470	0.441	0.449
12	LCB from zero pt. (+ve fwd) m	75.205	75.202	75.206	75.195	75.197	75.179	75.202	75.219	75.253	75.286	75.301	75.306	75.308	75.302	75.290	75.270	75.244
13	LCF from zero pt. (+ve fwd) m	79.040	76.441	72.749	71.829	72.119	75.924	78.835	81.129	82.069	80.772	79.241	78.709	77.965	77.172	76.573	76.232	76.039
14	Max deck inclination deg	30.0085	20.0254	10.0683	1.1493	10.0700	20.0279	30.0097	40.0026	50.0003	60.0000	70.0001	80.0001	90.0000	100.000	110.000	120.000	129.999
15	Trim angle (+ve by stern) deg	0.8680	1.0964	1.1947	1.1493	1.2094	1.1474	0.9264	0.6501	0.2967	-0.1023	-0.4863	-1.2411	-90.000	-1.0051	-0.2821	0.0077	0.1761



8.6.1 Residual GM with symmetrical flooding GM at 0.0 deg = 9.843 m

Max GZ = 6.941 m at 62.7 deg.

DF point = 31.5 deg.

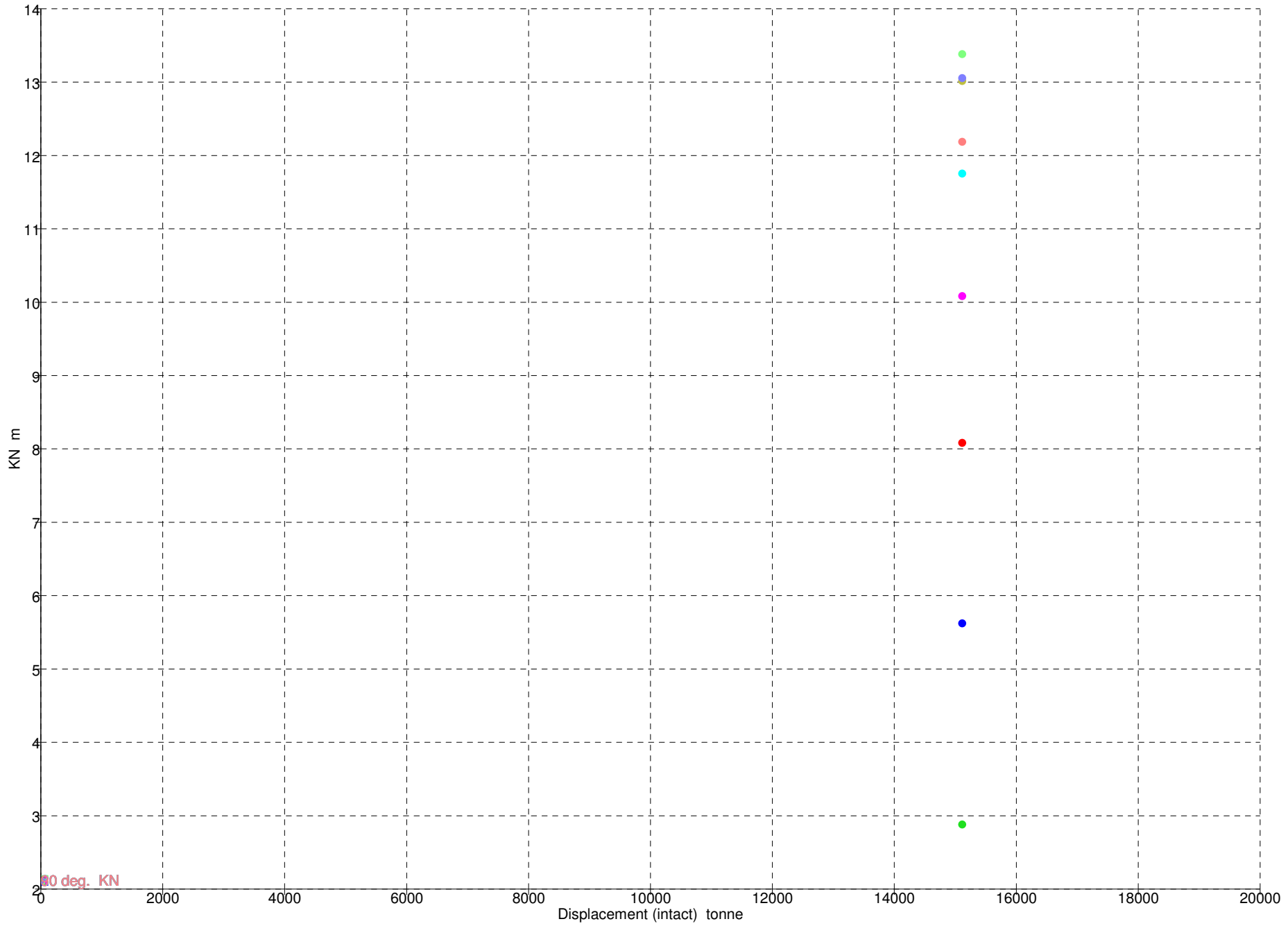
8.2.3.3: Passenger crowding heeling arm

8.2.3.3: Launching heeling arm

8.2.2.8: Wind heeling arm

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	Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	LCG m	TCG m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1	15116	5.483	1.148 (fixed)	75.661	0.000	0.000	2.878	5.618	8.080	10.081	11.751	13.013	13.380	13.053	12.184



	Code	Criteria	Value	Units	Actual	Status	Margin %
1	SOLAS, II	8.2.3.3: Passenger crowding heeling arm					
2		<i>Pass. crowding arm = nPass M / disp. D cos^n(phi)</i>					
3		number of passengers: nPass =	1000				
4		passenger mass: M =	0.150	tonne			
5		distance from centre line: D =	15.830	m			
6		cosine power: n =	0				
7		<i>Intermediate values</i>					
8		Heel arm amplitude		m	0.157		
9							
10	SOLAS, II	8.2.3.3: Launching heeling moment					
11		<i>Heeling arm = A / disp. cos^n(phi)</i>					
12		A =	0.000	tonne.m			
13		n =	0				
14		<i>Intermediate values</i>					
15		Heel arm amplitude		m	0.000		
16							
17	SOLAS, II	8.2.3.3: Wind heeling arm					
18		<i>Wind arm: a P A (h - H) / (g disp.) cos^n(phi)</i>					
19		constant: a =	1				
20		wind pressure: P =	120.0	Pa			
21		area centroid height (from zero point): h =	6.000	m			
22		total area: A =	3500.000	m^2			
23		height of lateral resistance: H =	0.000	m			
24		cosine power: n =	0				
25		gust ratio	1				
26		<i>Intermediate values</i>					
27		Heel arm amplitude		m	0.017		
28							
29	SOLAS, II	8.2.3.1: Range of residual positive stability				Pass	
30		<i>from the greater of</i>					
31		angle of equilibrium	0.1	deg	0.1		
32		<i>to the lesser of</i>					
33		first downflooding angle	31.5	deg	31.5		
34		angle of vanishing stability	130.8	deg			
35		shall not be less than (>=)	15.0	deg	31.3	Pass	+108.81
36							
37	SOLAS, II	8.2.3.2: Area under residual GZ curve				Pass	
38		<i>from the greater of</i>					
39		angle of equilibrium	0.1	deg	0.1		
40		<i>to the lesser of</i>					
41		spec. heel angle	22.0	deg	22.0		
42		first downflooding angle	31.5	deg			
43		angle of vanishing stability	130.8	deg			
44		shall not be less than (>=)	0.8590	m.deg	41.1222	Pass	+4687.22
45							
46	SOLAS, II	8.2.3.3: Maximum residual GZ (method 1)				Pass	
47		8.2.3.3: Passenger crowding heeling arm					

	Code	Criteria	Value	Units	Actual	Status	Margin %
48		8.2.3.3: Launching heeling moment					
49		8.2.3.3: Wind heeling arm					
50		<i>in the range from the greater of</i>					
51		spec. heel angle	0.0	deg			
52		angle of equilibrium	0.1	deg			
53		angle of equilibrium with heel arm	1.0, 0.1,	deg			
54		<i>to the lesser of</i>					
55		fraction of upper angle	100.00	% (deg)	(31.5), (3		
56		spec. heel angle	90.0	deg			
57		angle of max. GZ above heel arm	62.7, 62.	deg			
58		first flooding angle of the DownfloodingPoints	31.5	deg			
59		Criteria: max GZ above heel arm shall not be less than (>=)...				Pass	
60		8.2.3.3: Passenger crowding heeling arm	0.040	m	4.694	Pass	+11635.0
61		8.2.3.3: Launching heeling moment	0.040	m	4.851	Pass	+12027.5
62		8.2.3.3: Wind heeling arm	0.040	m	4.834	Pass	+11985.0
63		<i>Intermediate values</i>					
64		GZ(31.5 deg) heel arm A.		m	4.851		
65		HA(31.5 deg) heel arm A.		m	0.157		
66		GZ(31.5 deg) heel arm B.		m	4.851		
67		HA(31.5 deg) heel arm B.		m	0.000		
68		GZ(31.5 deg) heel arm C.		m	4.851		
69		HA(31.5 deg) heel arm C.		m	0.017		
70							
71	SOLAS, II	8.2.3.3: Maximum residual GZ (method 2 - manual calc.)				Pass	
72		<i>in the range from the greater of</i>					
73		spec. heel angle	0.0	deg			
74		angle of equilibrium	0.1	deg	0.1		
75		<i>to the lesser of</i>					
76		spec. heel angle	90.0	deg			
77		angle of max. GZ	62.7	deg			
78		first downflooding angle	31.5	deg	31.5		
79		shall not be less than (>=)	0.100	m	4.851	Pass	+4751.00
80		<i>Intermediate values</i>					
81		angle at which this GZ occurs		deg	31.5		
82							
83	SOLAS, II	8.2.4.a Maximum GZ (intermediate stages)				Pass	
84		<i>in the range from the greater of</i>					
85		spec. heel angle	0.0	deg			
86		angle of equilibrium	0.1	deg	0.1		
87		<i>to the lesser of</i>					
88		angle of max. GZ	62.7	deg	62.7		
89		shall be greater than (>)	0.050	m	6.941	Pass	+13782.0
90		<i>Intermediate values</i>					
91		angle at which this GZ occurs		deg	62.7		
92							
93	SOLAS, II	8.2.4.b Range of positive stability (intermediate stages)				Pass	
94		<i>from the greater of</i>					

	Code	Criteria	Value	Units	Actual	Status	Margin %
95		spec. heel angle	0.0	deg			
96		angle of equilibrium	0.1	deg	0.1		
97		<i>to the lesser of</i>					
98		angle of vanishing stability	130.8	deg	130.8		
99		shall be greater than (>)	7.0	deg	130.7	Pass	+1766.81
100							
101	SOLAS, II	8.6.1 Residual GM with symmetrical flooding				Pass	
102		spec. heel angle	0.0	deg			
103		shall not be less than (>=)	0.050	m	9.843	Pass	+19586.0
104							
105	SOLAS, II	8.6.2: Heel angle at equilibrium for unsymmetrical flooding - GZ based				Pass	
106		shall not be greater than (<=)	7.0	deg	0.1	Pass	+98.00
107							
108	SOLAS, II	8.6.3: Margin line immersion - GZ based (EquilAngle ratio)				Pass	
109		first flooding angle of the Marginline	6.4	deg	6.4		
110		shall be less than (<)	100.00	%	2.21	Pass	+97.79
111		<i>Intermediate values</i>					
112		Equilibrium angle		deg	0.1		
113							

ANEXO

	Long. Pos. m	Offset m	Height m
1	-7.885	14.102	9.53
2	-7.885	14.102	9.53
3	-7.885	14.102	9.53
4	-7.704	14.102	9.53
5	-7.699	14.102	9.53
6	-7.14	14.102	9.53
7	-6.212	14.102	9.53
8	-4.919	14.102	9.53
9	-3.264	14.102	9.53
10	-1.256	14.102	9.53
11	-0.181	14.102	9.53
12	-0.181	14.102	9.53
13	0	14.102	9.53
14	0	14.102	9.53
15	0.181	14.102	9.53
16	1.097	14.102	9.53
17	3.786	14.102	9.53
18	6.8	14.102	9.53
19	10.126	14.102	9.53
20	13.751	14.102	9.53
21	17.66	14.102	9.53
22	21.836	14.102	9.53
23	26.263	14.102	9.53
24	30.923	14.102	9.53
25	35.795	14.102	9.53
26	40.861	14.102	9.53
27	46.099	14.102	9.53
28	51.488	14.102	9.53
29	57.006	14.102	9.53
30	62.63	14.102	9.53
31	68.337	14.102	9.53
32	74.103	14.102	9.53
33	79.905	14.102	9.53
34	83.432	14.102	9.53
35	83.614	14.102	9.53
36	83.795	14.102	9.53
37	85.719	14.102	9.53
38	91.521	14.102	9.53
39	97.287	14.102	9.53
40	102.994	14.102	9.53
41	108.618	14.102	9.53
42	114.135	14.102	9.53
43	119.524	14.102	9.53
44	124.763	14.102	9.53
45	129.828	14.102	9.53
46	134.701	14.102	9.53
47	139.36	14.102	9.53
48	143.787	14.102	9.53
49	147.964	14.102	9.53
50	151.873	14.102	9.53
51	155.498	14.021	9.53
52	158.824	13.491	9.53
53	161.838	12.191	9.53
54	164.527	10.295	9.53
55	166.88	7.943	9.53
56	167.046	7.748	9.53
57	167.227	7.528	9.53
58	167.408	7.303	9.53
59	168.888	5.475	9.53

	Name	Long. Pos. m	Offset m	Height m	Type	Linked to	Flood from	Intact (use for intact case)	Damage (use for damage cases)
1	DF point	0	14.01	14.83	Downflooding	None	Sea	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	DF point	-2.13	14.01	14.83	Downflooding	None	Sea	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	DF point	-4.26	14.01	14.83	Downflooding	None	Sea	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	DF point	-6.39	14.01	14.83	Downflooding	None	Sea	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	DF point	0	-14.01	14.83	Downflooding	None	Sea	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	DF point	-2.13	-14.01	14.83	Downflooding	None	Sea	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	DF point	-4.26	-14.01	14.83	Downflooding	None	Sea	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	DF point	-6.39	-14.01	14.83	Downflooding	None	Sea	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>