

BOAT Name RAYO 4 Sail Nr ECU-8040	GPH 554,8	HULL Length Overall 12,470m Maximum Beam 3,732m Displacement 5.441kg Draft 2,720m IMS Reg. Division Performance Dynamic Allowance 0,000% Fwd Accommodation No Hull Construction Light Carbon Rudder Yes Crew Arm Extension
GENERAL Class SIDNEY 40 Designer MURRAY/BURNS/DOVEL Builder BASHFORD INT. Series 11/1998 Age 11/1998 Age Allowance 0,487% Offset File rayo4.off - 23/08/2002 10:49:06 a.m. Measurement by P GUTIERREZ - 26/09/2017		IMSL 11,007m VCGD -0,071m Sink 21,65kg/mm RL 10,871m VCGM -0,063m WS 28,40m² LSMO 10,627m Displacement/Length ratio 4,5336



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Rating Office
Federación Ecuatoriana
de Vela
Patricio D. Gutiérrez - RO
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SCORING OPTIONS	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
	Low	Medium	High	Low	Medium	High
Time On Distance	540,9			608,6		
Time On Time	1,1093			1,1091		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	633,5	492,6	435,1	828,0	612,8	529,8
Time on Time	1,0655	1,3704	1,5512	0,8152	1,1015	1,2741

TIME ALLOWANCES	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	902,5	740,0	670,6	640,4	623,7	615,7	605,9
52°	587,3	490,5	463,0	452,5	446,2	442,8	434,0
60°	550,6	471,7	448,6	438,0	431,2	426,4	415,7
75°	519,4	459,2	432,4	415,4	405,6	399,3	391,7
90°	520,6	459,7	431,2	404,7	385,5	375,1	364,8
110°	575,1	475,2	437,3	405,7	388,0	372,0	338,0
120°	597,9	487,8	445,7	414,4	382,9	358,3	330,9
135°	673,7	539,3	471,1	439,5	410,6	382,0	322,2
150°	806,9	638,9	535,1	473,4	442,5	415,5	362,4
Run VMG	931,8	737,7	617,9	541,4	492,2	455,7	404,3

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Issued On **04/10/2017**
VPP Ver. **2017 1.00**
Valid until **31/03/2018**

Crew Weight
Declared **757kg**
Default* **751kg**
Non Manual Pwr **No**

Special Scoring
ToD ToT
Non Spin GPH **573,3 1,0466**
Non Spin OSN **560,4 1,0706**

Selected Courses	917,1	738,9	644,3	590,9	557,9	535,7	505,1
Windward / Leeward	917,1	738,9	644,3	590,9	557,9	535,7	505,1
Circular Random	763,3	616,8	538,5	492,8	464,0	443,9	415,4
Ocean for PCS	946,5	729,2	606,9	532,0	482,7	447,5	397,3
Non Spinnaker	795,3	639,9	556,1	506,7	475,4	453,9	424,6

Sails Limitations	
Headsails	Spinnakers
6	4

Velocity Prediction in Knots for True Wind Speeds	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	43,2°	42,4°	39,9°	38,7°	37,7°	37,4°	37,2°
Beat VMG	3,99	4,86	5,37	5,62	5,77	5,85	5,94
52°	6,13	7,34	7,78	7,96	8,07	8,13	8,29
60°	6,54	7,63	8,02	8,22	8,35	8,44	8,66
75°	6,93	7,84	8,32	8,67	8,88	9,02	9,19
90°	6,92	7,83	8,35	8,90	9,34	9,60	9,87
110°	6,26	7,58	8,23	8,87	9,28	9,68	10,65
120°	6,02	7,38	8,08	8,69	9,40	10,05	10,88
135°	5,34	6,68	7,64	8,19	8,77	9,42	11,17
150°	4,46	5,63	6,73	7,61	8,14	8,66	9,93
Run VMG	3,86	4,88	5,83	6,65	7,31	7,90	8,90
Gybe Angles	141,7°	146,2°	148,7°	155,2°	168,4°	180,0°	180,0°

Class Division Length
CDL = **10,940**

Storm Sails Areas
Heavy Weather Jib **31,87**
Storm Jib (JL=9,99) **11,80**
Storm Trysail **16,53**

Owner
ESCUELA SUPERIOR NAVAL
SALINAS, ECUADOR


I certify that I understand my responsibilities under ORC Rules and Regulations

Signature

BOAT	
Name RAYO 4	Sail Nr ECU-8040
File ECU8040	Data in meters/kilograms

INCLINING TEST AND FREEBOARDS		
Inclining Test Current Inclining		
Flotation date 26/09/2017	SG 1,0253	
FFM 1,341	FF 1,342	SFFP 0,280
FAM 1,071	FA 1,071	SAFP 12,040
W1 100,0	PD1 523,8	WD 11,480
W2 100,0	PD2 529,0	GSA 1,0
W3 100,0	PD3 530,9	RSA 1,0
W4 100,0	PD4 529,2	PLM 9000,0
LCF from stem on CL / on sheer		6,572 / 6,808
Maximum beam station from stem		7,293
RM Measured		171,2kg·m
RM Default		177,2kg·m
Limit of positive stability / Stab.Index		120,0° / 118,9
Freeboard at mast at 4,450		1,175

RIG			
Forestay Tension Aft	Spreaders 3		
Inner Stay None Fitted	Runners 2		
Carbon Mast Yes	Jumper Struts None		
Taper Hollows No	Jib Furler No		
Fiber Rigging No	Main Furler No		
Lenticular Rigging No	Without Backstay No		
Articulated Bowsprit No			
P 16,015	E 5,897	MDT1 0,108	MW 0,193
IG 15,305	J 4,450	MDL1 0,199	GO 0,210
ISP 15,365	SFJ 0,000	MDT2 0,101	BD 0,260
BAS 1,870	SPL 4,415	MDL2 0,126	MWT 181,00
FSP 0,076	TPS	TL 1,980	MCG 5,210




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MIZZEN RIG AND SAILS	
N/A	

PROPELLER		
Installation Strut	PRD 0,420	
Type Folding 2 blades	PBW 0,111	
Twin Screw No	PIPA 0,0035	
ST1 0,044	ST3 0,182	ST5 0,260
ST2 0,180	ST4 0,112	EDL 0,730

COMMENTS	
EST Y FBDS	

MOVEABLE BALLAST	
N/A	

CENTERBOARD	
N/A	

SAILS (Maximum Areas)									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0,210	1,28	2,25	3,85	5,03	56,89	58,25	P/8 · (E + 2·MQW+ 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL	100,36		SL · (SFL + 4·SHW) / 6	
	15,19	15,19	15,19	7,97	7,76				
Asymmetric Not Available									

HEADSAILS												
Area = 0.1125·HLU · (1.445·HLP + 2·HQW + 2·HHW + 1.5·HTW + HUW + 0.5·HHB)												
HHB	HUW	HTW	HHW	HQW	HLP	HLU	Area	Btn	Fly	Meas.Date	Material	Comment
0,08	0,78	1,53	3,07	4,74	6,59	15,35	48,80			22/09/2011	Kevlar	
0,07	0,85	1,57	3,12	4,69	6,31	15,48	48,72			04/10/2017	Kevlar	NUEVA
0,07	0,79	1,54	3,08	4,65	6,29	15,27	47,56			09/10/2014	Carbon	NUEVA
0,09	0,78	1,52	3,04	4,59	6,13	15,39	47,13			22/09/2011	Kevlar	

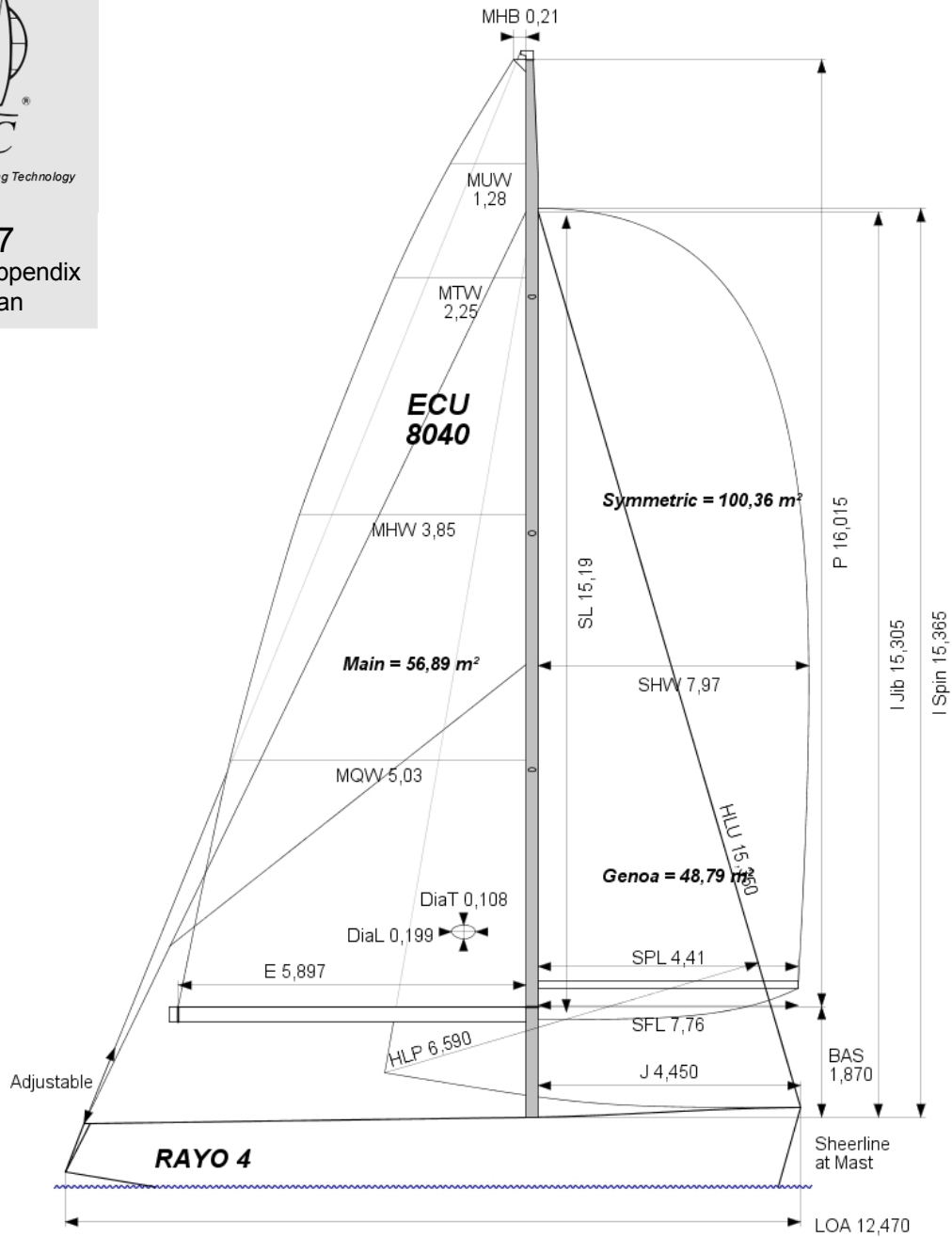
MEASUREMENT INVENTORY				
Measurer PATRICIO GUTIERREZ P G				
Date 26/09/2017				
Comment				
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>
<i>Id</i>	<i>Item</i>	<i>Maker</i>	<i>Model</i>	
C4	Engine	MOTOR		
<i>Id</i>	<i>Item</i>	<i>Weight Description</i>		

MEASUREMENT INVENTORY								
<i>Id</i>	<i>Item</i>	<i>Tank Use</i>	<i>Tank Type</i>	<i>Capcty</i>	<i>Dist.</i>	<i>VCG</i>	<i>Condtn</i>	<i>Description</i>
C7	Tank	PETROLEO	ALUMINIO	70,0	5,00	0,00	12,0	
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>				
C6	Ballast	82,0	5,50	0,00	1	LINGOTE GRANDE		
E7	Ballast	222,0	5,00	0,00	5	LINGOTES DE PLOMO		
B7	Ballast	222,0	5,00	0,00	5	LINGOTES DE PLOMO		
C4	Battery	14,0	7,00	0,00	12	V.		



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Certificate Appendix
Sail Plan



SAILS INVENTORY

MAINSAIL (1)

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
M4	0,210	1,28	2,25	3,85	5,03	56,89	P GUTIERREZ	04/10/2017	NORTH	Carbon	3DI-NUEVA

HEADSAILS (4)

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
JT	0,08	0,78	1,53	3,07	4,74	6,59	15,35	148%	48,80			PG	22/09/2011	NORTH	Kevlar	
G1 LM	0,07	0,85	1,57	3,12	4,69	6,31	15,48	142%	48,72			DECLAR	04/10/2017	NORTH	Kevlar	NUEVA
H	0,07	0,79	1,54	3,08	4,65	6,29	15,27	141%	47,56			R	09/10/2014	NORTH	Carbon	NUEVA
G1MH	0,09	0,78	1,52	3,04	4,59	6,13	15,39	138%	47,13			PG	22/09/2011	NORTH	Kevlar	

SYMMETRIC SPINNAKERS (2)

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
S2	15,19	15,19	15,19	7,97	7,76	100,36	R PESCHIERA	09/10/2014	NORTH	Nylon	NUEVO
S1.5	15,19	15,19	15,19	7,71	7,77	97,75	R PESCHIERA	09/10/2014	NORTH	Nylon	NUEVO

ASYMMETRIC SPINNAKERS (0)

Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment
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