

Provisional PHRF

Preliminary TCF



This form is for boats: a) New to the Fleet, b) Modified from the previous Configuration, or c) without a 2017 Rating

The Rating Committee has no responsibility for the seaworthiness or safety of yachts rated & cites US SAILING Fundamental Rule 4, "It shall be the sole responsibility of each yacht to decide whether or not to start or to continue to race".

Boat Name	_____	Name	_____
Sail Number	_____	Marina	_____
Boat Model	_____	Slip Number	_____
Manufacturer	_____	Year Built	_____

Do you want an ODR (One Design Rating)? Yes TBD No

Unmodified Class Boat Modified Class Boat Non-Class (Custom)

Source of the information Provided (Circle/check all that apply)
 Class Rules Estimate Sailmaker Measurement Certificate

Sail Areas and the Major Sail Dimensions (Luff, Foot or LP) are needed. Please use the "Actual Sail Area" from the sailmaker w/supporting dimensions.

Descriptions of terms used for sails makers, sailing weight and hull measurement are on following pages. UMS / IMS format is used for sails below (Universal Measurement System). Corsair Class Rules used these measurements for mains headsails & spinn. More Text Below, expand this XLS row, or see the following pages for the diagrams and explanations. Please provide drawings or pictures showing side & end views of your boat if a modified or custom boat.

Metric	Imp.Ft	Metric	Imp.Ft	Metric	Imp.Ft
Main 109.1/309.3 Rated Area		Jib Largest x Sailmaker		0 Screecher/Gennaker Sailmaker	
Lu.Girths MeasuredArea -below H.Area	0.00	0 Luff	1.00	3.28 Luff	1.00
Luff P	1.00	3.28 LPG	0.00	0.00 LPG	0.00
Foot E	0.00	0.00 HHB (JH) Head:	0.05	0.16 HHB (JH) Head:	0.00
MHB (MGH) Head	0.00	0.00 7/8 HUW (JGT):	0.00	0.00 7/8 HUW (JGT):	0.00
7/8 MUW (MGT)	0.00	0.00 3/4 HTW (JGU):	0.00	0.00 3/4 HTW (JGU):	0.00
3/4 MTW (MGU)	0.00	0.00 1/2 HHW (JGM):	0.00	0.00 1/2 HHW (JGM):	0.00
1/2 MGM (MHW)	0.00	0.00 1/4 HQW (JGL):	0.00	0.00 1/4 HQW (JGL):	0.00
1/4 MQW (MGL)	0.00	0.00 Foot :	0.00	0.00 Foot	0.00
LE :	0.00	0.00 Ft Roach	0.00	0.00 Foot.Roach	0.00
Area Below H =	0.00	0.00 JLE Leech:	8.24	27.04 JLE Leech:	9.98
<small>Measured SA = PIP(E+2MWL+2MWM+1.5*MMU+MMT+0.5*HB) + (Foot Roach)</small>		<small>0.1125x JLx (1.445x LPG + 2x JGL + 2x JGM + 1.5x JGU + JGT + 0.5x JH) + FtRoach</small>		<small>0.1125x JLx (1.445x LPG + 2x JGL + 2x JGM + 1.5x JGU + JGT + 0.5x JH) + FtL</small>	
Asymmetric, Symmetric Largest x Sailmaker		Jib Largest x Sailmaker		2 Displacement	
Area :	0.00	0 Luff	1.00	3.28 Wt Boat as raced, with racing sails	0
SLU (tape perimeter)	0.00	0.00 LP H =	0.00	0.00 dry, no(Gas, Water, personal gear)	0
SLE (tape perimeter)	0.00	0.00 HHB (JH) Head	0.05	0.16 WE:	0
SHW (SMG) (half-width, mid-girth)	0.00	0.00 Leech1:	8.24	27.04 Weight Sailing	0
Ft (tape perimeter)	0.00	0.00 Leech2	8.24	0.00 Weight Crew Auto	0
SMG as % SF	0%	0.00 Foot:	0.00	0.00 Rated Weight	0
<small>SA = (Luff+Leech)*(Foot + 4*Mid Girth) / 12</small>		<small>0.1125x JLx (1.445x LPG + 2x JGL + 2x JGM + 1.5x JGU + JGT + 0.5x JH) + FtRoach</small>		<small>0.1125x JLx (1.445x LPG + 2x JGL + 2x JGM + 1.5x JGU + JGT + 0.5x JH) + FtL</small>	

ERS World Sailing and/or US Sailing methods of sail measurement apply above, not class rules. Longest Luff Lengths from Class Rules & Maximum Sail Areas will be assumed if not provided. Weight Measured will be lightest boat in Class unless weighed w/inspection.

Metric	Imp.Ft	Metric	Imp.Ft	Metric	Imp.Ft
Hull		Hull - Foils		Other	
Length Overall:	9.45	31.00 Daggerboard (y/n)	Yes	Masthead Spin(yes/no)	no
Beam	5.62	18.44 Centerboard (y/n)	n	Masthead Scr.(yes/no)	no
Max. Draft	1.60	5.25 Ctb'd Fairing (y/n=0.990)		Sprit Length	
FOC Fwd Overhang		Keel(y/n) (y 0.995 or 0.980)		Rigging (SS, synthetic)	Synthetic
AOC Aft Overhang		Lifting Foils	n	MastCircumference (If rotating)	0.50
		(y/n, Curved, T, J)		Holding Tank(s) (yes/no)	no
Engine(s)		Propeller(s)			
Inboard (hp x type)		1 x feather/fold (0.980)	n/a	2 x feather/fold (0.970)	
Outboard (hp x type)	5hp Yamaha	1 x fixed (blades 0.975)		2 x fixed (blades 0.964)	

Modifications / Notes Describe modifications / comments / trapeze(#) or hiking straps below

01-07-18: Blank Application with examples from C-24 MkII, Corsair Pulse 600, Diam 24, Corsair 31R

I certify that my vessel conforms to the configuration indicated above and understand that the bama certificate will be issued based on this information, valid only for the indicated configuration.

Electronically

Signature of Owner Owner.Name (electronically)

rating committee

Date 01/07/18

Provisional PHRF
Preliminary TCF



This form is for boats: a) New to the Fleet, b) Modified from the previous Configuration, or c) without a 2016 Rating

The Rating Committee has no responsibility for the seaworthiness or safety of yachts rated & cites US SAILING Fundamental Rule 4, "It shall be the sole responsibility of each yacht to decide whether or not to start or to continue to race".

Boat Name		Name	
Sail Number	USA 49	Marina	Treasure Island Sailing Club
Boat Model	Pulse 600	Slip Number	Dry Storage
Manufacturer	Corsair Marine	Year Built	2016

Do you want an ODR (One Design Rating)? Yes No

This is a: Unmodified Class Boat Estimate RatingsComm

Source of the information Provided (Circle/check all that apply)
Measurement Certificate

Sail Areas and the Major Sail Dimensions (Luff, Foot or LP) are needed. Please use the "Actual Sail Area" from the sailmaker w/supporting dimensions.

Descriptions of terms used for sails makers, sailing weight and hull measurement are on following pages. UMS / IMS format is used for sails below (Universal Measurement System). Corsair Class Rules used these measurements for mains headsails & spinn. More Text Below, expand this XLS row, or see the following pages for the diagrams and explanations. Please provide drawings or pictures showing side & end views of your boat if a modified or custom boat.

Actual Sail Area from the sailmaker makes Mainsail Widths & Jib Widths or Roach metrics, supporting items. Please give measurements in feet & decimals or metric. Mainsail Area is calculated using monohull ORC 109.1, HPR 309.3. Main LE is needed for aspect ratio and more accurate Area (see diagrams). Main Luff Girths will be used where the 7/8 MUW is above the head MHB. Jibs, Genoa's, Gennakers, Screechers can use HPR/ORC 111.1 adding foot roach. Jib Area calculates below on ORC, Jibs/Gennakers can use World Sailing F18/Textel/SCHRS triangles. Jibs w/full-length battens see diagrams. Mains can use World Sailing F18/Textel/SCHRS triangles.

Sail areas are to be reported as accurately as practicable. Formulas for measurement are given for conventional sails. These procedures do not restrict the measurer from using alternative means to obtain an accurate area for any sail which is an unusual shape and is deemed to require a different measuring technique. RRS 50.2 & 50.3 are deferred for the spinnaker tack on a bowsprit. sheeted to the floats.

Main 109.1/309.3 Rated Area	18.44	198 Jib 2016 Doyle x UMS	7.73	83 Screecher/Gnrk None MOCRA.UK	28.73	309
Area Lu.Girths 18.19m ² -below.H	17.74	191 Luff	8.12	26.64 Luff class 9.45	10.09	33.10
Luff P	9.07	29.76 LP	1.93	6.35 LP	5.45	17.88
Foot E	2.59	8.51 HHB (JH) Head:	0.03	0.08 HHB (JH) Head:	0.04	0.13
MHB (MGH) Head class 1.050	1.02	3.33 7/8 HUW (JGT):	0.24	0.79 7/8 HUW (JGT):	0.74	2.42
7/8 MUW (MGT) class 1.255	1.26	4.13 3/4 HTW (JGU):	0.45	1.49 3/4 HTW (JGU):	1.44	4.72
3/4 MTW (MGU) class 1.680	1.68	5.51 1/2 HHW (JGM):	0.88	2.90 1/2 HHW (JGM):	2.80	9.17
1/2 MGM (MHW) class 2.125	2.14	7.02 1/4 HQW (JGL):	1.41	4.62 1/4 HQW (JGL):	4.12	13.53
1/4 MQW (MGL) class 2.440	2.44	8.01 Foot :	2.11	6.92 Foot class 4.53	5.84	19.16
LE : class 9.100	9.09	29.82 Ft Roach	0.10	0.32 Foot.Roach	0.20	0.66
Subtract Area Below H ≈	0.45	4.86 JLE Leech:	7.46	24.49 JLE Leech: class 9.45	9.12	29.92

Asymmetric 2016 Doyle	31.24	Jib 2016 Doyle x SCHRS TXL	7.73	83 Displacement		
Area:	31.24	Luff	8.12	26.64 Wt Boat sails, outboard, anchor	555	1,224
SLU	9.15	30.02 LP H	1.91	6.26 Mast, Asym, Roller Furling Jib		
SLE	8.36	30.02 HHB (JH) Head:	0.03	0.08 Mainsail, CG Safety, dry(gas,h2o)		
SMG	4.24	27.42 Leech1:	7.46	24.49 Weight Sailing	555	1,224
Ft	4.44	13.92 Leech2	7.46	6.92 WCD Wt. Crew Decl. xClass.Min	160	353
		14.58 Foot:	2.11	0.09 Weight Crew Auto	171	377
		Luff Roach ±	0.03	-0.25		
		Leech2 Roach ±	-0.08	0.32 Rated Weight	726	1,601
		Ft Roach	0.10			

ISAF ERS and/or US Sailing methods of sail measurement apply above, not class rules. Longest Luff Lengths from Class Rules & Maximum Sail Areas and will be assumed if not provided. Weight Measured will be lightest boat in Class unless weighed w/inspection.

Hull	6.03	Hull - Foils	Yes	Other	no
Length Overall:	6.03	39.79 Daggerboard (y/n)	Yes	Masthead Spin(yes/no)	no
Beam	4.50	Centerboard (y/n)		Masthead Scr.(yes/no)	no
Max. Draft	1.20	14.76 Ctdb Fairing (y/n=0.990)		Sprit Length	tbid
FOC Fwd Overhang	0.00	3.94 Keel(y/n) (y 0.995 or 0.980)		Rigging (SS, synthetic)	Synthetic
AOC Aft Overhang	0.00	0.00 Lifting Foils	no	MastCircumference (rotating)	0.440
		0.00 (y/n, Curved, T, J)		Holding Tank(s) (yes/no)	no
Engine(s)	Honda 2.5	Propeller(s)	n/a		
Inboard (hp x type)		1 x feather/fold (0.980)	n/a	2 x feather/fold (0.970)	
Outboard (hp x type)	Honda 2.5	1 x fixed (blades 0.975)		2 x fixed (blades 0.964)	

Modifications / Notes Describe modifications / comments / trapeze(#) or hiking straps below

I certify that my vessel conforms to the configuration indicated above and understand that the bama, orca, certificate will be issued based on this information, valid only for the indicated configuration.

Electronically Signature of Owner **Owner.Name (electronically)** Date **03/03/17**

Example Measurement

2016 Corsair Pulse Mainsail

M² 18.44 Ft² 198.5

1st: Enter Lu, Le, Ft

2nd: Enter Head Width with 7/8, 3/4, 1/2 and 1/4 Girths

Measured Area is calculated by the trapezoid formula below, dividing the luff in amounts of 1/4, 1/2, 3/4 and 7/8.

Rated Area is calculated with the actual heights on the luff from the tack point (or H) to points where LE girths are measured.

Area Below H is Added

Color.Code = Estimate RatingsComm, Foot.R

11/03/16: Main x web page 19.1m² 205.8ft² = ODR Rules

12/19/16: Doyle BSG SailPak Measurement Check List Gives All Data

01/12/17: Visio.diagram LE.chk decrease Luff curve Calc M² 18.437 Doyle Area 18.391

data entry

Pulse v.2

v.2

Lu	9.071	29.76
Le class 9.100	9.090	29.82
Ft	2.593	8.51

data entry

MHB (MGH) Head class 1.050	1.015	3.33
7/8 MUW (MGT) class 1.255	1.260	4.13
3/4 MTW (MGU) class 1.680	1.680	5.51
1/2 MHW (MGM) class 2.125	2.140	7.02
1/4 MQW (MGL) class 2.440	2.440	8.01

M²

Ft²

109.1 / 309.3 Rated Area +below H Area, Ft.Roach	18.44	198.5
109.1 Area m ² x LE Girth using LU.1 x H	17.99	194
MGMH = P/2+(MGM-E/2)/P*E	4.61	4.61
MGLH = MGMH/2+(MGL-(E+MGM)/2)*(E-MGM)/MGMH	2.31	2.31
MGUH = (MGMH+P)/2+(MGU-MGM/2)*MGM/(P-MGMH)	6.98	6.98
MGTH = (MGUH+P)/2+(MGT-MGU/2)*MGU/(P-MGUH)	8.26	7.92

109.1 / 309.3 Measured Area +below H,Ft.Roach	17.91	192.8
LU Girths Area m ² using LU.1 x H	17.46	187.9
P use Lu.1	8.72	28.61
E foot uses H	2.57	8.43
MHB (MGH) Head class 1.050	1.02	
7/8 MUW (MGT) class 1.255	1.26	
3/4 MTW (MGU) class 1.680	1.68	
1/2 MHW (MGM) class 2.125	2.14	
1/4 MQW (MGL) class 2.440	2.44	
Area Below H	0.45	
Lu.1	8.72	
Lu.2	0.35	
Foot	2.59	
Ft.Roach	0.00	0.00
H = (Triangle Area.Lu.Le.Ft) / Lu*2	2.57	8.43
Triangle Area x Lu Le Ft	11.65	125.4
S = 1/2 (a + b + c) {a=Lu b=Le c=Ft}	10.38	
Triangle.Area = (s*(s-a)*(s-b)*(s-c))^0.5	11.65	
LPM	2.46	8.09
Below H1 Diff m ²	0.45	4.9
Below H1 Diff ft ²	4.9	
Le2 (leech aft)	8.891	29.17

109.1 LE Girths Correction on Trapezoid Area (ORC.2016)

309.3 LE Girths Correction on Trapezoid Area (HPR.2016)

16.7 LE Girth Corrections on Trapezoid Area (HPR 2013)

16.4 LU Girth Trapezoid Equation x Ht. =0.25, 0.50 0.75, 0.875, 1.00

Efficiency Main (EFM):

EFM uses LPM (Le.Perp to Tack @ H) to set sail efficiency.

EFM Texel.NDL x H, EFM Texel.AUS 2012 x LPM

Area Below H = (1/2 *S*1.2 *H1) + Ft.Roach

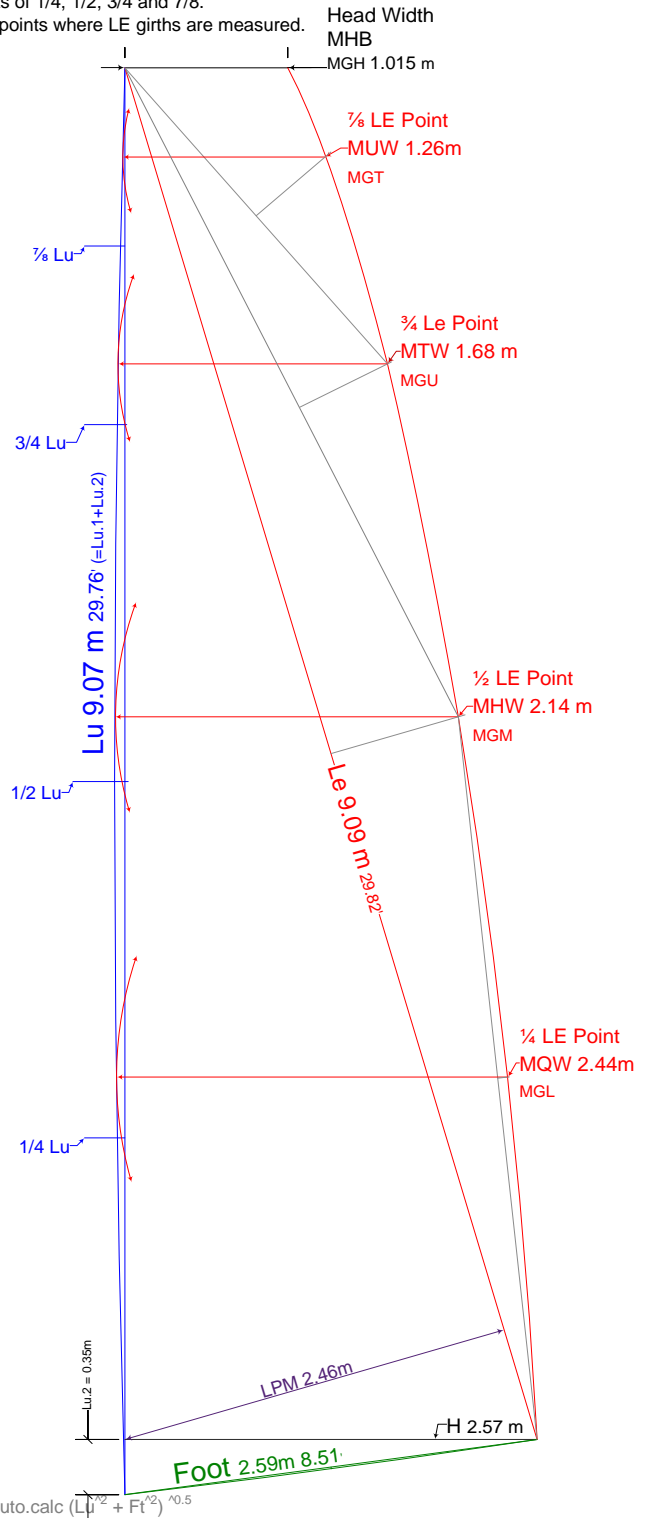
LU.2 = (E^2-H1^2)^0.5

LPM = (P.1*H1)/((P.1^2+H1^2)^0.5)

9.43

30.95

LE auto.calc (Lu² + Ft²)^{0.5}



Measurement Check List

Measurement rules Ref.: SQTOP_MAIN_BR

[MLE] = 9.090 m [Luff] = 9.071 m [Foot] = 2.593 m Area = 18.391 m² [geo_foot] = 2.593 m
 [LEECH AFT] = 8.891 m [Leech] = 8.912 m [Head] = 1.015 m [afttheadtotack] = 9.183 m [stlinehead]
 = 1.015 m [MUW_S] = 1.240 m [MTW_S] = 1.652 m [MHW_S] = 2.110 m [MLW_S] = 2.413 m
 [BROffset] = 0.025 m MUW = 1.26 m MTW = 1.68 m MHW = 2.14 m MLW = 2.44 m

Example Measurement

Corsair Pulse 600 Jib ≈

M² **7.73** Ft² **83**

12/19/16: Doyle BSG SailPak Measurement Check List Gives Data, missing Foot.Roach
 LP is an Arc to the nearest point on the Luff; H fits from the Clew to the Luff straight line

7.594 m² x Doyle

7.594m² x UMS Foot.Roach = 0

7.73 m² x UMS Foot.Roach = 0.01m ≈ 4" defined by Foot Median

Color.Code = Estimate RatingsComm

US Sailing UMS (ORC HPR)

	Metric	Imperial
Jib Pulse 2016 North	7.73	83.21
Luff class 8.11	8.119	26.64
LP class 1.96	1.934	6.35
HHB (JH) Head: class 0.040	0.025	0.08
7/8 HUW (JGT):	0.240	0.79
3/4 HTW (JGU):	0.455	1.49
1/2 HHW (JGM): class 0.900	0.884	2.90
1/4 HQW (JGL):	1.409	4.62
Foot: class 2.110	2.110	6.92
Ft Roach (Median 7.819->Ft.R)	0.097	0.32
JLE Leech: class 7.460	7.464	24.49

0.1125x JLx (1.445x LPG + 2x JGL + 2x JGM + 1.5x JGU + JGT + 0.5x JH) ± Ft.Roach

Foot Median class 7.85m 7.819 25.65

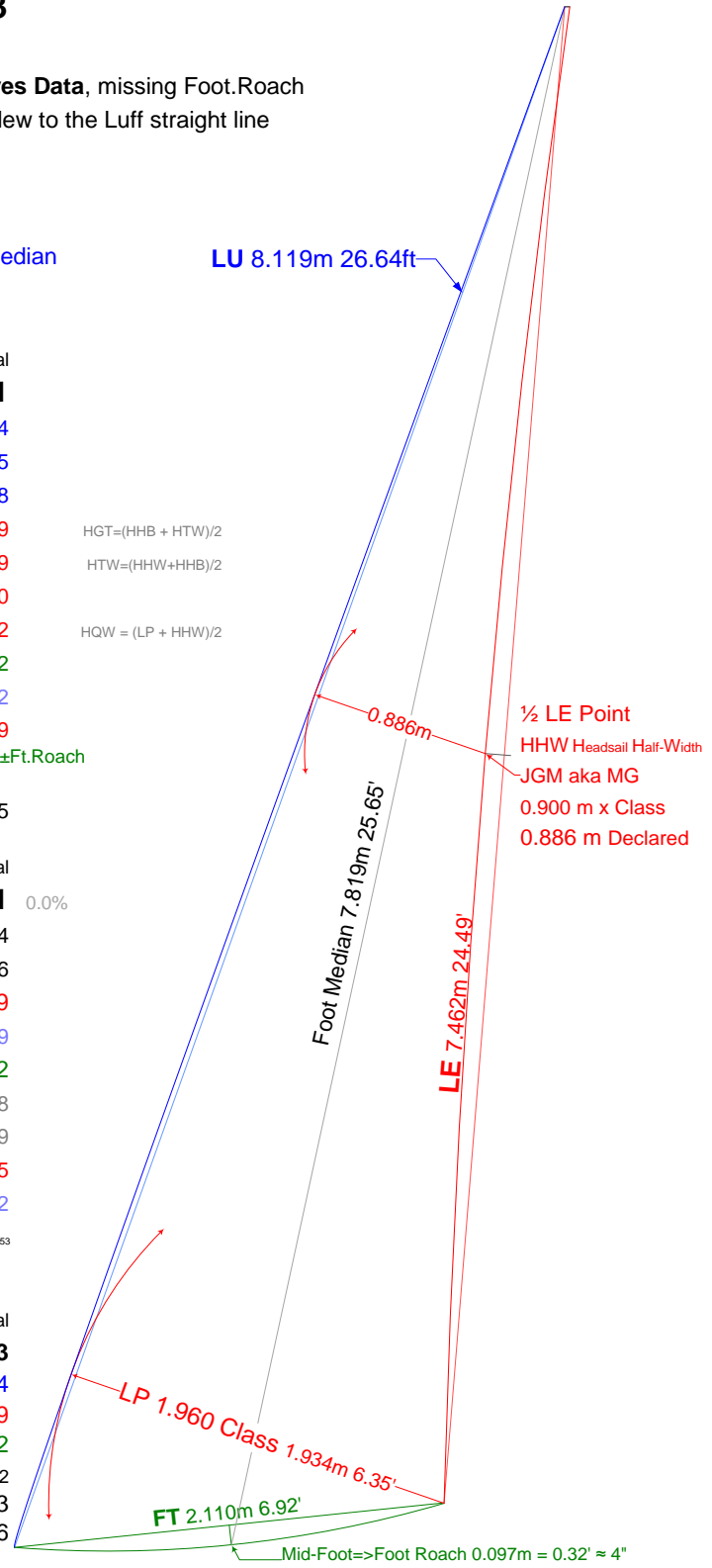
Texel.AUS, Texel.NDL, SCHRS

	Metric	Imperial
Jib Pulse 2016 North	7.73	83.21 0.0%
Luff class 8.11	8.119	26.64
LP class 1.96, Decl 1.934 > H =	1.907	6.26
JLE Leech: class 7.46	7.464	24.49
Leech2	7.464	24.49
Foot: class 2.11	2.110	6.92
HHB (JH) Head: class 0.040	0.025	0.08
Luff Roach ±	0.026	0.09
Leech2 Roach ±	-0.077	-0.25
Ft Roach ± (Median 7.819->Ft.R)	0.097	0.32

LE Triangle S = 1/2 (LE.1 + LE.2 + HHB) 7.48 24.53

Area x Perimeter (Lu Le Ft)

	Metric	Imperial
JIB Triangle Area	7.742	83.33
Lu	8.12	26.64
Le	7.46	24.49
Ft	2.11	6.92
S = 1/2 (a + b + c)	8.8	29.02
Area = (s*(s-a)*(s-b)*(s-c))^0.5	7.74	83.33
H = (2 * Area / Lu) ≠ LP	1.907	6.26



Measurement Check List

Measurement rules Ref.: Jib

[Luff] = 8.119 m [Leech] = 7.462 m [Head] = 0.025 m [Foot] = 2.110 m [LP] = 1.934 m [Foot-Geo] = 2.105 m [Leech Geo] = 7.464 m [HHW] = 0.884 m Area = 7.594 m² [STCHLUFF] = 8.118 m [FOOTMEDIAN] = 7.819 m

Example Measurements

Pulse 600 : asym

Class Maximum Dimensions **367 ft²**

Measured **336 ft²**

Class Rule 1/2 Width (SMG) > 75% assumed therefore a Spinnaker; Sail ≠ Jib, Genoa, Gennaker, Screecher

01/14/17: measured at Treasure Island Sailing Club "on the dock" SLU 30'+, SLE 27'5" SLF 14'7" SHW 13'11"

Dims Metric x Class Rules (2 equations, same answer)

$$CSPI = (SLU+SLE) \times .25 \times ASF + (ASMG-.5ASF) \times (SLU+SLE)/3$$

$$SA = (Luff+Leech) \times (Foot + 4 \times \text{Mid Girth}) / 12$$

CSPI=

Pulse 600

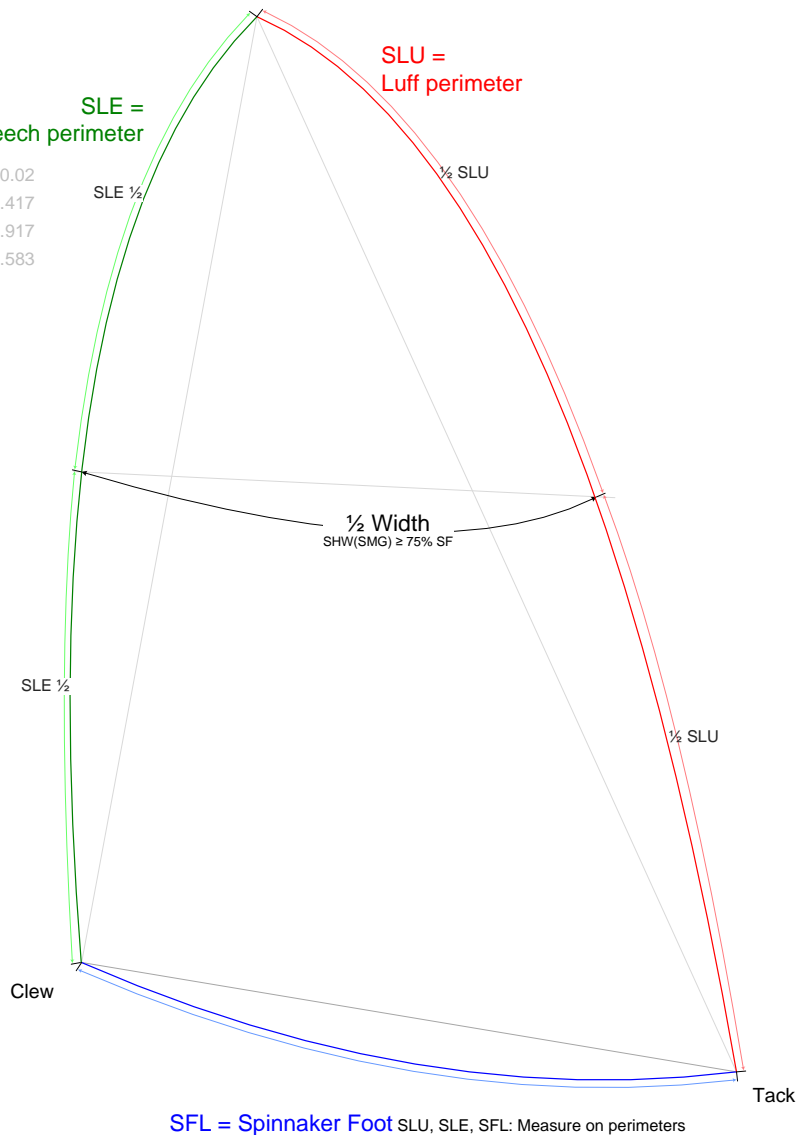
Area:	31.24	336
SLU class 9.45 (luff tape perimeter) 30'1/4"	9.15	30.02
SLE class 9.45 (leech perimeter) 27'5"	8.36	27.42
SHW class 4.28 () 13'11"	4.24	13.92
SF class 9.45 (foot.perimeter) 14'7"	4.44	14.58
SMG as % SF	95%	

SA=

Pulse 600

Area:	31.24	336
SLU class 9.45 (luff tape perimeter)	9.15	30.02
SLE class 9.45 (leech perimeter)	8.36	27.42
SMG class 4.28	4.24	13.92
SF class 9.45 (foot.perimeter)	4.44	14.58
SMG as % SF	95%	

CSPI **31.24** 336
Spin SA **31.24** 336



Weight: Inventory, Equipment Declaration Form (Texel AUS THA DEN GER NDL NOR SWE CSA MOCRA BRA UK Multi2000 FRA FIN)

Load-Cell Measurement **Weight Sailing lb**
 Hull ID: FRADH00061F616 **Weight Sailing kg**

2/16/2017

- 1,056 Boat: Boom
- 103 Mast: Mast tube; Shrouds; Forestay; Halyards
- 51 Sails: Racing, Main, Solent, Staysail, Gennaker, Battens, Furlers

This is to **Declare** that the yacht **Manufacturer Type, Sail.Number, Boat.Name** weighs the above, in a dry condition (no:water, gas). All equipment "Declared" is part of the "Inventory" that must remain on the boat for racing including a set of racing sails & **U.S. Coast Guard Required Equipment** applicable to the boat size. Texel Weight Equipment (WE) of individual items is waived based on inclusion of same in Sailing Weight.

Equipment	Description	Equipment	Description	WE items (list)	
Engine/s	Outboard	Mainsails	One (1)	Offshore	
Outboard(hp)	electric torqueedo 3hp	Headsails	One (1) Roller Furl	NCORC	2017
Battery #1 Amp/Hrs	minimal,	Headsails			
Battery #2 Amp/Hrs	n/a	Spinnaker #1			
Tools / Spares	None	Gennaker / Screecher	One (1) Roller Furl		
Fenders	Two (2) hull-float	Shrouds	Synthetic	Item.Desc	Kg
Moorings	no dock lines	Other	bucket, velocitek speedpuk		
Safety YRA	Inshore 2017	Spare sheets	minimal		
2.5.3 Bilge Pump		Roller Furlers	One (2) jib, gnkr		
3.1.3 Life Jackets		Winch Handles	None		
3.3.1 Running Lights		Tiller Extension	2		
3.4 Fire Extinguisher		Auto-Pilot	n/a		
3.5 Air Horn	One (1)	Stove (fuel type)	n/a		
3.6.4 Flares day/night		Refrigerator	n/a		
3.7.3 Heaving line 50'		Ice Maker	n/a		
3.8 CG Type IV throwable		Solar Panels	n/a		
3.9 VHF portable		Seat cushions	n/a		
3.11 GPS / charts		Bunk Cushions	n/a		
3.19.1 Compass magnetic		Porta-Potty	n/a		
3.23 Anchor 1	Yes Britany [8kg]lb/kg	Water Tank	n/a		
3.23 a. Chain (size/m)	Yes[8mm]link.dia. [4.3]m	Enlclosed Head	n/a		
3.23 b. Rode (dia/m)	Yes [8mm] dia. [22]m	Black Water Tank	n/a		
3.25 First Aid Kit		Pressure H/C Water	n/a		

Where it is simpler to weigh items such as tools and spares, use kgs, where it is simpler to count items, use numbers etc. For example [Tools - 10kg], [Mattresses - 4], [Chain 8mm - 50 metres]. Otherwise describe, [Engine - 9.8 hp Yamaha outboard 27hp Yanmar Diesel] or mark to show it is carried [Video - X]. **WE** may be used for **Offshore Races** requiring Category X **NCORC** equip.

WM Offshore **WE**
 Inshore WS: (Wt.Measured + Wt.Equipment)

SIGNED:

MEASURER slackwater_sf.electronic

OWNER

1,210 Gross:
 0 Lifting Bridle, Tared to Zero (0)
 0 NIST test deviation @ 1,000 lbs
 0 Sail Covers, main, jib
 0.0 Del. 0.3 gal 1.1 Liter Gas integrated tank @ 6.43 lb / gal 0.3 6.33 [Merc.Ref.Link](#)
 1,210 Net:

Weight Measured:

Weight Measured is the "Empty Weight" of the boat taken by a load-cell in the following dry condition (no water/gas):

- 1 Fully rigged with all spars, standing rigging, runners-checkstays, halyards and sheets.
- 2 Main engine installed, or outboard engine aboard in stowed position.
- 3 Trampolines and netting.
- 4 Sails, not more than 1 mainsail, 1 jib, 1 reacher, 1 or 2 spinnakers, or as equipped to race (size dependent).
- 5 Headsail and spinnaker sheets.
- 6 Batteries & fitted berth cushions on board in their normal positions if carried while racing (noted above).
- 7 Anchor, chain, rode, mooring lines.
- 8 Safety equipment, life jackets.
- 9 All permanent fixtures detachable or not, including hatchboards & table in the normal positions.
- 10 Fenders etc. (qty noted above).
- 11 Cooking facilities (items noted above).
- 12 Holding Tanks (black water) will be empty for weighing.

All items included in "Weight Measured" will be carried while racing.

The following items shall not be on board for weighing:

- 1 Spare standing and running rigging.
- 2 Fuel, water and the contents of any other tanks. Fluids will cause a full-tank weight deduction.
- 3 Food.
- 4 Clothing, bedding and personal effects.
- 5 Spare Tools and large spare parts inventory.
- 6 Loose gear.
- 7 Crew.

MAIN x Mack Sails
C-24 Mark II Class Main

M² Ft²
23.47 253

1st: Enter **Lu, Le, Ft**

2nd: Enter Head Width with 7/8, 3/4, 1/2 and 1/4 Widths

Measured Area is calculated by the trapezoid formula below, dividing the luff in amounts of 1/4, 1/2, 3/4 and 7/8.

Rated Area is calculated with the actual heights on the luff from the tack point (or H) to points where LE girths are measured.

12/28/98: Main 243 Corsair Marine pdf sail plan, same Lu, Ft, Le
 Main 247 Corsair Marine CTOA PHRF Area
 Main 253 Rated Area x LE Girths

data entry

Lu class 29' 6"	8.99	29.50
Le class ≤ 30' 6"	9.30	30.50
Ft class 11' 6"	3.51	11.50

data entry

MHB (MGH) Head class 29.9"	0.76	2.49
7/8 MUW (MGT) class 3' 11"	1.19	3.92
3/4 MTW (MGU) class 6' 4.7"	1.95	6.39
1/2 MHW (MGM) class 9'3"	2.82	9.25
1/4 MQW (MGL) class 10' 7"	3.23	10.58

	M ²	Ft ²
109.1 / 309.3 Rated Area + Area below H, roach	23.47	253 5%
109.1 Area m ² x LE Girth using LU.1 x H	22.82	246
MGMH = P/2+(MGM-E/2)*P/E	4.74	4.74
MGLH = MGMH/2+(MGL-(E+MGM)/2)*(E-MGM)/MGMH	2.38	2.38
MGUH = (MGMH+P)/2+(MGU-MGM/2)*MGM/(P-MGMH)	7.07	7.07
MGTH = (MGUH+P)/2+(MGT-MGU/2)*MGU/(P-MGUH)	8.12	7.88

	M ²	Ft ²
109.1 / 309.3 Measured Area + Area below H, roach	22.27	240
LU Girths Area m ² using LU.1 x H	21.62	233
P use Lu.1	8.62	28.27
E foot uses H	3.48	11.43
MHB (MGH) Head	0.76	
7/8 MUW (MGT)	1.19	
3/4 MTW (MGU)	1.95	
1/2 MHW (MGM)	2.82	
1/4 MQW (MGL)	3.23	
Area Below H m ² ft ²	0.65	7
Lu.1	8.62	
Lu.2	0.37	1.23
Foot	3.51	
Ft.Roach ~0"	0.00	0.00
H = (Triangle Area.Lu.Le.Ft) / Lu*2	3.48	11.43
Triangle Area x Lu Le Ft	15.67	168.7
S = 1/2 (a + b + c) {a=Lu b=Le c=Ft}	10.90	
Triangle.Area = (s*(s-a)*(s-b)*(s-c))^0.5	15.67	
LPM	3.23	10.60
Le2 (leech aft)	9.04	29.66

- 109.1 LE Girths Correction on Trapezoid Area (ORC.2017)
- 309.3 LE Girths Correction on Trapezoid Area (HPR.2014)
- 16.7 LE Girth Corrections on Trapezoid Area (HPR 2013)
- 16.4 LU Girth Trapezoid Equation x Ht. =0.25, 0.50 0.75, 0.875, 1.00

Efficiency Main (EFM):

EFM uses LPM (Le.Perp to Tack @ H) to set sail efficiency.

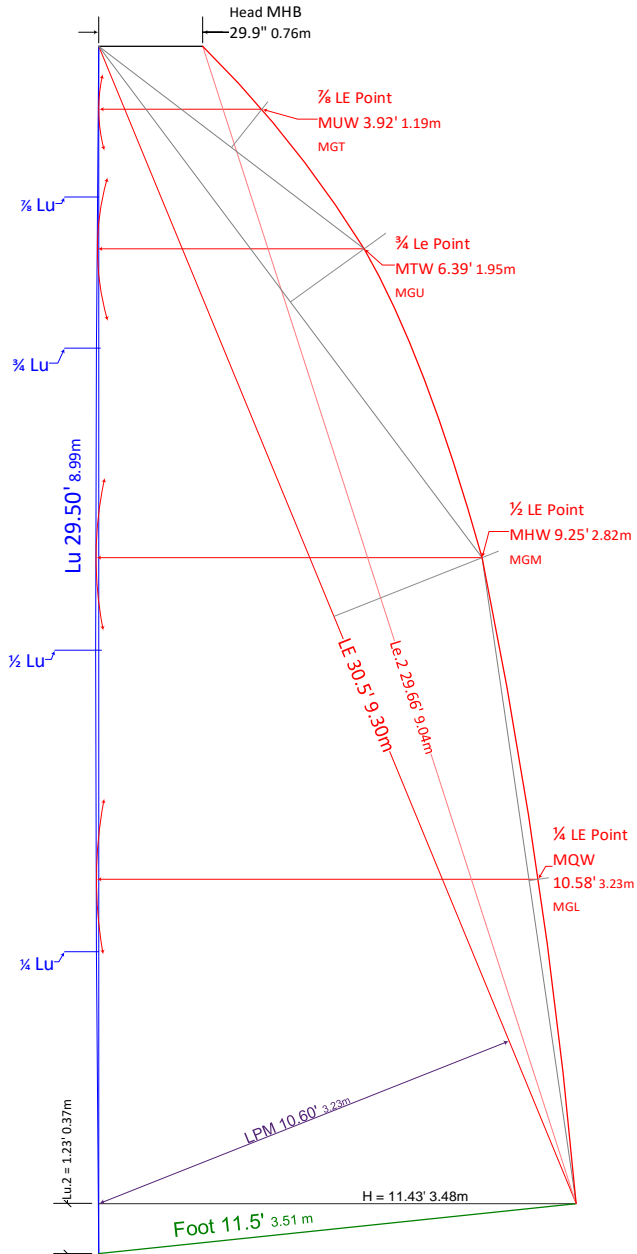
EFM Texel.NDL x H, EFM Texel.AUS 2012 x LPM

Area Below H = (1/2 *S1.2 *H1) + Ft.Roach

LU.2 = (E^2-H1^2)^0.5

LPM = (P.1*H1)/((P.1^2+H1^2)^0.5)

9.65 31.66 LE auto.calc (Lu² + Ft²)^{0.5}



Example Measurement

2017 Diam24 North.FR Main

M² Ft²
24.26 **261**

1st: Enter **Lu**, **Le**, **Ft**

2nd: Enter Head Width with 7/8, 3/4, 1/2 and 1/4 Girths

Measured Area is calculated by the trapezoid formula below, dividing the luff in amounts of 1/4, 1/2, 3/4 and 7/8.

Rated Area is calculated with the actual heights on the luff from the tack point (or H) to points where LE girths are measured.

11/24/16 : AUS Multihull Nationals GR 207 Wilparina2 Texel.AUS main dims 24.15m, not ORC/HPR UMS LE.Girths

02/14/17 : trial run, MOCRA LE.Girths fail, MHB.calc.aus

02/15/17 : **Visio MHB AUS**, LE.2 radius above P Increases Vertical Luff Main, MHB New 1.36

02/18/17 : Visio **DEL MHB.AUS Area** above Head x Le2, Dims North.Fr/ADH Inotec 02/16/17,

data entry

Lu	10.78	35.37
Le	10.70	35.10
Ft	2.95	9.68

data entry

MHB (MGH) Head class x.xxx	1.35	4.43
7/8 MUW (MGT) class x.xxx	1.53	5.02
3/4 MTW (MGU) class x.xxx	1.87	6.14
1/2 MHW (MGM) class x.xxx	2.33	7.64
1/4 MQW (MGL) class x.xxx	2.66	8.73

	M ²	Ft ²
109.1 / 309.3 Rated Area +below H Area, Ft.Roach	24.26	261
109.1 Area m ² x LE Girth using LU.1 x H	23.55	254
MGMH = P/2+(MGM-E/2)/P*E	5.40	5.40
MGLH = MGMH/2+(MGL-(E+MGM)/2)*(E-MGM)/MGMH	2.70	2.70
MGUH = (MGMH+P)/2+(MGU-MGM/2)*MGM/(P-MGMH)	8.18	8.18
MGTH = (MGUH+P)/2+(MGT-MGU/2)*MGU/(P-MGUH)	9.76	9.31

	M ²	Ft ²
109.1 / 309.3 Measured Area -below H,Ft.Roach	22.34	240
LU Girths Area m ² using LU.1 x H	23.04	248.0
P use Lu.1	10.30	33.78
E foot uses H	2.91	9.55
MHB (MGH) Head	1.35	
7/8 MUW (MGT)	1.53	
3/4 MTW (MGU)	1.87	
1/2 MHW (MGM)	2.33	
1/4 MQW (MGL)	2.66	
Area Below H	0.70	
Lu.1	10.30	
Lu.2	0.48	
Foot	2.95	
Ft.Roach	0.00	0.00
H = (Triangle Area.Lu.Le.Ft) / Lu ²	2.91	9.55
Triangle Area x Lu Le Ft	15.69	168.8
S = 1/2 (a + b + c) {a=Lu b=Le c=Ft}	12.22	
Triangle.Area = (s*(s-a)*(s-b)*(s-c)) ^{0.5}	15.69	
LPM	2.80	9.19
Below H1 Diff m ²	0.70	7.6
Below H1 Diff ft ²	7.6	
Le2 (leech aft)	10.41	34.16

- 109.1 LE Girths Correction on Trapezoid Area (ORC.2016)
- 309.3 LE Girths Correction on Trapezoid Area (HPR.2016)
- 16.7 LE Girth Corrections on Trapezoid Area (HPR 2013)
- 16.4 LU Girth Trapezoid Equation x Ht. =0.25, 0.50 0.75, 0.875, 1.00

Efficiency Main (EFM):

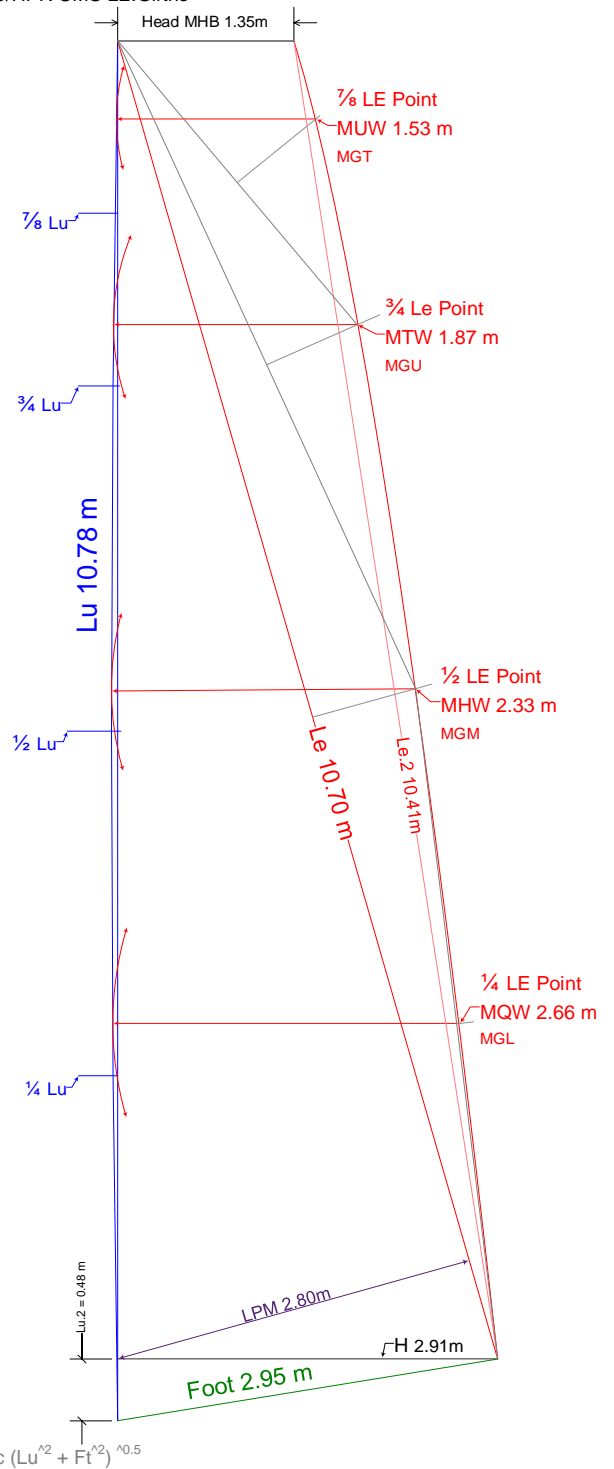
EFM uses LPM (Le.Perp to Tack @ H) to set sail efficiency.

EFM Texel.NDL x H, EFM Texel.AUS 2012 x LPM

Area Below H = (1/2 *S1.2 *H1) + Ft.Roach

LU.2 = (E²-H1²)^{0.5}

LPM = (P.1*H1)/((P.1²+H1²)^{0.5}) **11.18** **36.67** LE auto.calc (Lu² + Ft²)^{0.5}



Examples

C/F-31 Jib Areas

Leech Girths, Class dimensions, Example Diagram

269 ft² actual area > CTOA 218 ft² assumption. 30%+ > 206 ft² Triangle

LP is an Arc nearest point of the Luff; H or H1 is from the Clew to Luff straight li

C-31R North Dims x UMS, not Diagram

	Imperial	Metric
Jib	269	24.96
Luff S1 par 5.9.2a 411.6" 34.3'	34.28	10.45
LPG par 5.9.2b 144" 12'	12.01	3.66
JH Head	0.33	0.10
JGT 7/8:	2.82	0.86
JGU 3/4:	5.25	1.60
JGM 1/2: par 5.9.2c 90" 7.5'	8.69	2.65
JGL 1/4:	11.27	3.44
Foot	13.38	4.08
Foot.Roach	0.65	0.20
0.1125x JLx (1.445x LPG + 2x JGL + 2x JGM + 1.5x JGU + JGT + 0.5x JH) ±Ft.Roach		

C-31 Class Example Diagram MaxDims

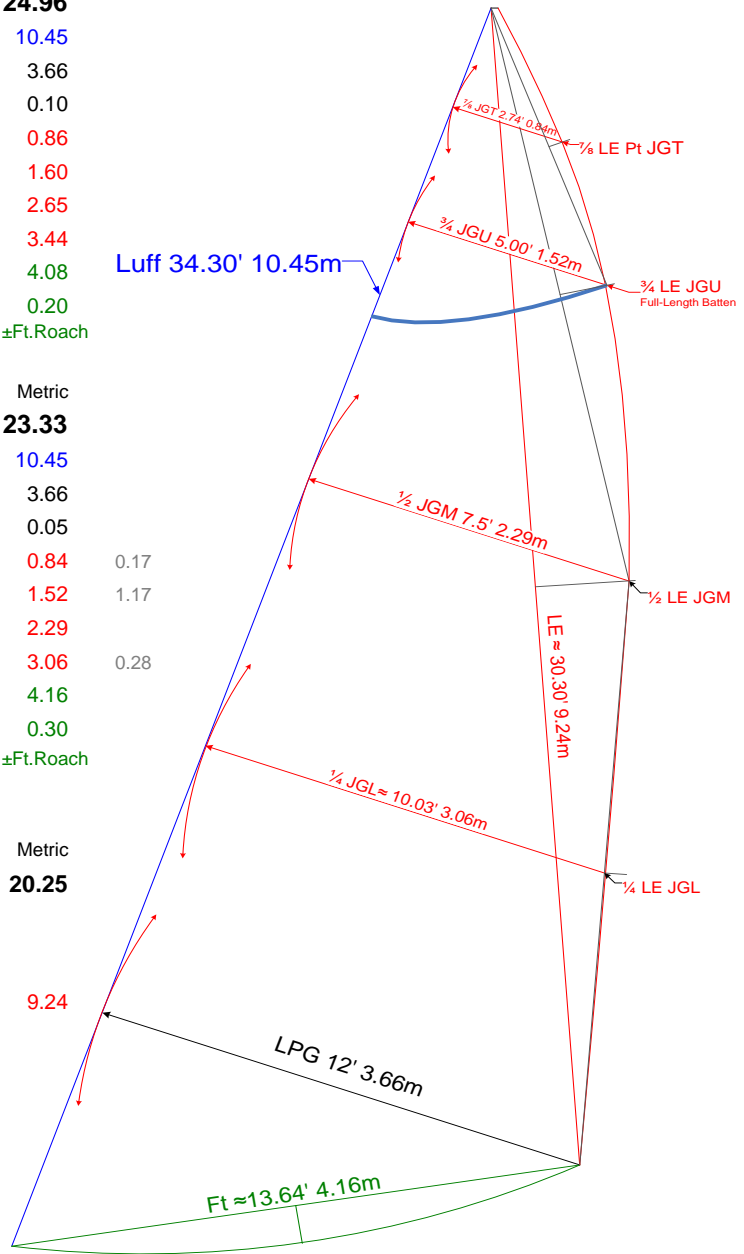
	Imperial	Metric
Jib	251	23.33
Luff S1 par 5.9.2a 411.6" 34.3'	34.30	10.45
LPG par 5.9.2b 144" 12'	12.00	3.66
JH Head	0.17	0.05
JGT 7/8:	2.75	0.84
JGU 3/4:	5.00	1.52
JGM 1/2: par 5.9.2c 90" 7.5'	7.50	2.29
JGL 1/4:	10.03	3.06
Foot	13.64	4.16
Foot.Roach 12" w/batten	1.00	0.30
0.1125x JLx (1.445x LPG + 2x JGL + 2x JGM + 1.5x JGU + JGT + 0.5x JH) ±Ft.Roach		

CTOA Rule: Maximum allowable PHRF sail area in square feet

	Imperial	Metric
Jib	218	20.25
Triangle Area(Lu,Le,Ft)	206	
Lu	34.30	
Le.calc	30.30	9.24
Ft	13.64	
s = 1/2 (a + b + c)	39.1	
Area = (s*(s-a)*(s-b)*(s-c))^0.5	206	
H = 2 * TriangleArea / Lu	12.0	

- (C-31 North / Triangle) -1
- (C-31 Class / Triangle) -1
- (C-31 CTOA / Triangle) -1

- 31%
- 22%
- 6%



Jib Area - Headboard

$$\text{Area} = (0.5 \cdot \text{LL} \cdot \text{LPG}) + ((2/3) \cdot \text{LL} \cdot \text{LLRG}) + ((2/3) \cdot \text{FG} \cdot \text{FRG}) + (0.5 \cdot \text{LG1} \cdot \text{HG}) + (\text{IF}((\text{HG} > 0), ((2/3) \cdot \text{LG2} \cdot \text{LRG}), ((2/3) \cdot \text{LG1} \cdot \text{LRG})))$$

F-31: Class Luff, LP, batten @ Head

- 19.12 **S9 = LL a x LPG / 2** (Triangle)
- 1.05 **S10 = 2/3 FG b x FRG h10** (Foot)
- 2.94 **S11 = 1/2 HG x LG2**
- 0.12 **S12 = 2/3 LL a x LLRG h12** (Luff)
- 1.32 **S13 = 2/3 LG2 x LRG h11**

OMR	ISAF	ORC	Metric	Imp
Txl.AUS	Txl.NDL	HPR	10.45	34.30
LL	a luff	JL	3.66	12.00
LPG	h lpg	LPG	4.15	13.60
FG	b foot		0.38	1.25
FRG	h10		9.22	30.25
LG1	C1 leech		9.39	30.80
LG2	C2 leech		0.47	1.54
HG	hw	JH	0.28	0.92
LRG	h11 Le.R		-0.02	-0.06
LLRG	h12		2.29	7.50
	Le.mg 1/2	JGM		

24.32 Jib m² = S9 +/- (S10 S11 S12 S13 S14)

127% (ISAF ~ Texel) / Triangle

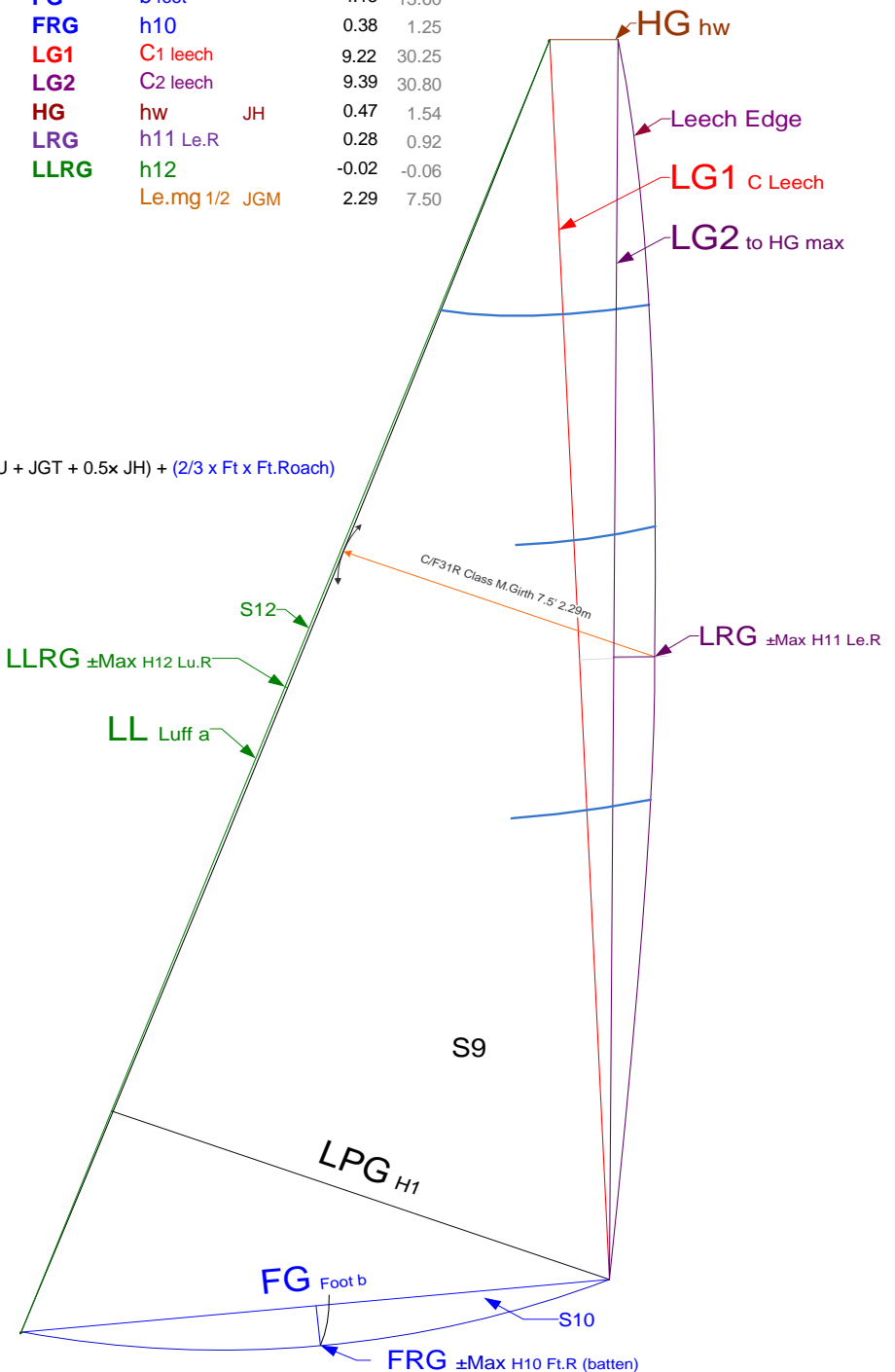
262 Jib ft²

206 Triangle

90° JGM, Le.mg Class Rule US

ORC 111.1 Jib/Genoa/Code0/Gennaker (HPR)

$$\text{Area} = 0.1125 \times \text{JL} \times (1.445 \times \text{LPG} + 2 \times \text{JGL} + 2 \times \text{JGM} + 1.5 \times \text{JGU} + \text{JGT} + 0.5 \times \text{JH}) + (2/3 \times \text{Ft} \times \text{Ft} \cdot \text{Roach})$$



Mast Circumference

MC := Rotating Masts Only - tape or paper around mast above boom and measure from tick marks. Please report on the Rating Application in metric or inches.

Boat	MC		Date	Comments
Orion	1.830	c	05/28/13	C. Ogletree
Vamonos!	0.940	c	06/25/12	M.Park
Native, Newick Tri	0.908	w	08/20/09	Blue Tape, taper above spin.halyard (img_0060...)
Antrim 30	0.865	t	04/05/10	TB.verified, Erin #28910
Extreme 40, Smart Recruiters	0.745	c	01/27/13	Texel Denmark MC, Extreme40 #4, SEB
Humdinger, Acapella Tri	0.800	w	03/20/10	Owner TB.Verified
Formula 40 Tuki	0.760	c	07/28/09	Blue Tape
Formula 40 Shadow	0.719	a	04/04/09	Blue tape, 1st pass, taper above hounds
Seacart 30 Wegwezen	0.700	c	03/09/17	Texel.NDL 82
D-Class Cat Adrenaline Marstrom	0.700	c	05/30/09	Assumption, not measured pre-Delta.Ditch @RichmondYC
SL-33 #4	0.665	c	12/23/11	Blue Tape, Alameda Marina
C-37R, Miss Saigon	0.620	a	12/01/11	P.Harper THA
C-37R, Zhuka	0.600	a	07/12/10	P.Harper THA
Viva 27 Cat Sass	0.600	a	05/30/09	Estimate, w/o measure pre-Delta.Ditch @RichmondYC
Seacart 30, Thor	0.600	c	12/01/10	M.Pescott/THA
Contour 34SC	0.585	a	01/08/10	Blue.Tape, measured by owner
Marstrom32	0.577	c	08/21/13	preliminary
Corsair 31RS Leneman	0.554	a	05/30/09	Blue Tape, C-31RS #28543 Prime Directive
Seacart 26	0.530	c	11/28/11	M.Pescott/THA
Diam 24	0.510	c	11/16/16	P. Boyed / AUS for Nationals.AUS
Diam 24	0.500	c	02/16/17	ADH Inotec x F. Bouju
Dash 750.AUS	0.500	a	11/10/10	S.Barton/G.Scott AUS
Dash 750.THA	0.480	a	04/11/11	P.Herning/M.Pescott THA
D-Class Cat Rocket88	0.495	a	07/15/10	Wet, 1st pass
D-Class Cat Beowulf V Marstrom	0.483	c	06/01/10	Corsair 28R Section
Corsair 28R Marstrom	0.483	c	03/31/10	Blue Tape C-28R, Alameda Marina
Corsair 31R Marstrom	0.483	c	04/22/09	Blue Tape C-31R #135 Roshambo, Alameda Marina
Corsair Sprint 750	0.481	a	05/02/09	Blue Tape Sprint 750 #70 Afterburner, Alameda Marina
Corsair Pulse 600	0.440	a	11/03/16	Blue Tape Pulse 600 Origami II Treasure Island Sailing Center
Corsair 24 Mk II	0.397	a	08/01/09	Blue tape C-24MkII #006 Emma Jean, Alameda Marina
Multi23	0.356	c	04/07/09	Blue tape M. Leneman, US Tri.Nationals, standard section

Mast Area added to mainsail area, **IF and ONLY IF**, the mast rotates

Mast Area = $1/2 * \text{Mast Circumference} * P$ (mainsail luff, Vertical Luff Mainsail)

No Correction Factor (CF) on airfoil shape, carbon, weight difference vs. aluminum, ...

CF-Carbon Mast may be added later (ref: Multi2000 (FRA), MOCRA (UK))

a: aluminum

Example Mainsail Measurements: Extreme 20

Texel/ISAF Extreme 20		m ²	ft ²
Area		20.52	221
10.07	S1 VLM1 Lu		
2.44	H1		
	mtr1	12.29	
0.11	P1		
	segm1	0.70	
2.47	S2 Foot		
0.05	P2		
	segm2	0.08	
9.76	S3 Le		
0.88	H3		
	mtr3	4.29	
5.14	S4		
0.73	H4		
	tr4	1.88	
4.78	S5		
0.03	P5		
	segm5	0.10	
2.77	S6		
0.04	P6		
	segm6	0.07	
2.58	S7		
0.81	P7		
	tr7	1.04	
2.01	S8		
0.05	P8		
	segm8	0.07	

