WORKING PARTY REPORTS

2021 UMS Report to World Sailing from IRC and ORC

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Introduction

This report details the progress and considerations of the Universal Measurement System (UMS) for 2021. The UMS Working Party do not formally meet but the rating systems involved with UMS continue with the philosophy in their mind while working on rules and their respective rating framework.

For the new Oceanic and Offshore committee, it is firstly necessary to remind ourselves the aim and purpose of the UMS as follows:

- The goal of the UMS is to separate "measurement" from "rating calculation" and establish an agreed-upon common set of measurements and measurement processes to be used by any World-Sailing Recognized or International Rating System.
- UMS is a definition standard for sailing yacht equipment, measurement points and measurements.
- UMS is a measurement standard to describe the condition and method of measurement
- UMS is a data exchange standard to pass data between rating systems and any other system which may wish to use UMS.
- UMS should not ignore the ERS or International Measurement System (IMS) but build on it and simplify where possible.

IMS/ORC and IRC both invoke ERS definitions. Both rating systems have reviewed the ERS 2021-2024 and are implementing the new or modified ERS definitions where appropriate within their respective rules.

Rating Measurement Comparisons and Database Exchange Project

Following UMS developments and progress made with standardization of several measurements such as SPL and TPS, ORC and IRC continues working on the implementation of the data conversion scheme where the CSV format was agreed as intermediate solution to data exchanges. This is currently work in progress and when completed, ORC software will be able to import IRC data and vice-versa.

We continue to maintain and update the comparison table between the two systems, detailed in Appendix 1.

Appendix 1 – Comparison Table of ORC/IMS and IRC measurements

Abbreviation		ORC / IMS	IRC	Comments
HULL				
FFM	Freeboard Forward Measured	B5.3		
FAM	Freeboard Aft Measured	B5.4		
SG	Water Specific Gravity	B5.5		
DSPW	Boat Weight	B6.11	17.1	
LOA / LH	Hull Length	B6.2	8.10.1 & A2	
	Beam		8.10.1	
FO / BO	Bow Overhang		A2	
X	Horizontal distance to 45 tangent on bow		A2	
H	Vertical distance to 45 tangent on bow		A2	
SO	Stern Overhang		A2	
Y	Transom Height	B6.9	A2	
	Hull Construction	B7.1	Application	
	Honeycomb Core	B7.2	Application	
	Rudder Construction	B7.3		
	Forward Accommodation	B7.4		
	General Accommodation Type		Application	
	Accommodation Material		Application	
	Light Materials in Lifelines	B7.5		
	Internal Ballast	B4.4	8.10.2	
	Engine Type		Application	
	Engine Weight		Application	
	Bow Thruster		Application	
	Standard Fitout Removed (e.g. tables & doors)		Application	
	Doors removed?		Application	
APPENDAGES				
ECM	Extension of Centreboard	C2.2		
KCDA	Keel Centreboard Depth Adjustment	C2.3		
	Maximum Draft		8.10.1	
	Minimum Draft (lifting keels)		Application	
WCBA	Centreboard Weight	C2.4		
	Keel fin material		Application	
	Wing Keel Span		Application	
CBDA	Centreboard Centre of Gravity Drop	C2.5		
CBRC	Centreboard Root Chord	C2.6		
CBMC	Centreboard Mid Chord	C2.6		
CBTC	Centreboard Tip Chord	C2.6		
RCG	Twin Rudder Distance from Stem	C3.2		
RSP	Twin Rudder Span	C3.3		
RC1	Twin Rudder Root Chord	C3.4		
RT1	Twin Rudder Root Thickness	C3.5		
RC2	Twin Rudder Tip Chord	C3.6		
RT2	Twin Rudder Tip Thickness	C3.7		
RY	Twin Rudder Transverse Distance	C3.8		
RAN	Twin Rudder Angle	C3.9		

BS	Bilgeboard Span	C4.2		
BC	Bilgeboard Chord	C4.3		
BT	Bilgeboard Thickness	C4.4		
BX	Bilgeboard Distance from Stem	C4.5		
BY	Bilgeboard Transverse Distance	C4.6		
BA	Bilgeboard Angle	C4.7		
BF	Bilgeboard Fraction	C4.8		
	Daggerboard/Canard/Forward Rudder etc.		Application	
	Trim Tab	C5	Application	
DSS	DSS Span	C6.1		
DSC	DSS Chord	C6.2		
DST	DSS Thickness	C6.3		
DSA	DSS Angle	C6.4		
DSD	DSS Distance from Centerline	C6.5		
	Bulb Weight		A2	
	Bulb material		Application	
	Number of Foils		A3	
	Foil Span		A3	
	Foil Chord		A3	
	Propeller Type	D2	Application	
	Propeller Installation	D3		
PRD	Propeller Diameter	D4.1		
PHD	Propeller Hub Diameter	D4.2		
PHL	Propeller Hub Length	D4.3		
PBW	Propeller Blade Width	D4.4		
PSA	Propeller Shaft Angle	D4.5		
PSD	Propeller Shaft Diameter	D4.6		
ESL	Exposed Shaft Length	D4.7		
EDL	Strut Drive Length	D4.8		
ST1-5	Propeller Strut Measurements	D4.9-13		
APH	Aperture Height	D4.15		
APT	Aperture Top Width	D4.16		
APB	Aperture Bottom Width	D4.16		
	Twin propeller	D4.18	Application	
STABILITY				
PLM	Length of Manometer	E2.3		
GSA	Gauge Surface Area	E2.4		
RSA	Reservoir Surface Area	E2.5		
WD	Weight Distance	E2.7		
W1-4	Inclining Weights	E2.8		
PD1-4	Pendulum Deflections	E2.9		
WBW	Water Ballast Volume	E3.1	22.3	
	Water Ballast Longitudinal Distance	E3.1		
	Water Ballast Vertical Distance	E3.1		
	Water Ballast Transverse Distance	E3.1		
LIST	Average List Angle	E4.2	22.3.2	
CANT	Average Cant Angle	E4.3	22.3.6	
RIG				

P	Mainsail Luff Mast Distance	F2.1	A4	
IG	Forestay Height	F3.1		
ISP	Height of Spinnaker Hoist	F3.2		
BAS	Boom Above Sheerline	F3.4		
MDT1	Max. Transverse Mast Spar Cross Section	F4.1		
MDT2	Max. Fore-and-Aft Mast Spar Cross Section	F4.2		
MDT2	Max. Transverse Mast Spar Cross Section	F4.3		
MDL2	Max. Fore-and-Aft Mast Spar Cross Section	F4.4		
TL	Taper Length	F4.5		
MW	Mast Width	F4.6		
GO	Forestay Outrigger	F4.7		
E	Outer Point Distance	F5.1	A4	
BD	Vertical Boom Spar Cross Section	F5.2		
J	Foretriangle Base	F6.1	A4	
SFJ	Stem to Forward End of J	F6.2		
FSP	Forestay Perpendicular	F6.5		
SPL	Spinnaker Pole Length	F7.1	A4	
TPS	Tacking Point of Spinnaker	F7.2	A4	STL is similar to TPS
STL	Spinnaker Tack Length		A4	STL is similar to TPS
MWT	Mast Weight	F8.1		
MCG	Mast Centre of Gravity	F8.2		
	Mast Material		Application	
	Jumper Struts	F9.1		
	Inner Stay	F9.2		
	Forestay Tension	F9.3		
	Number of Spreaders	F9.4	Application	
	Number of Runners	F9.5		IRC See Aft Rigging
	Adjustable Mast & Forestay		21.1.6(b)	
	Taper Hollows	F9.6		
	Carbon Mast	F9.7	Application	IRC see mast material
	Fiber Rigging	F9.7	Application	IRC see standing rigging material
	Standing Rigging Material		21.2 & Application	
	Mainsail Furler	F9.7	21.2.3	
	Headsails Furler	F9.8	21.8	
	Non-circular Rigging	F9.9		
	Backstay	F9.10		
	Non-Manual Power	F9.11	15.2	
	Aft Rigging		A4	Sets of aft stays including deflectors
PY	Mainsail Luff Mizzen Mast Distance	F10.1	A4	
BASY	Boom Above Sheerline Mizzen	F10.1		
MDT1Y	Max. Transverse Mizzen Cross Section	F10.1		
MDT2Y	Max. Fore-and-Aft Mizzen Cross Section	F10.1		
MDT2Y	Max. Transverse Mizzen Cross Section	F10.1		

MDL2Y	Max. Fore-and-Aft Mizzen Cross Section	F10.1		
TLY	Taper Length Mizzen	F10.1		
EY	Outer Point Distance Mizzen	F10.1	A4	
BDY	Vertical Boom Spar Cross Section Mizzen	F10.1		
IY	Height of Mizzen Staysail Hoist	F10.2		
EB	Distance Between Masts	F10.3		
FL	Forestay Length		A4	
SAILS				
MHB	Mainsail Top Width	G2.1		
MUW	Mainsail Upper Width	G2.1	A7	
MTW	Mainsail 3/4 Width	G2.1	A7	
MHW	Mainsail 1/2 Width	G2.1	A7	
MQW	Mainsail 1/4 Width	G2.1		
MHBY	Mizzen Top Width	G3		
MUWY	Mizzen Upper Width	G3	A7	
MTWY	Mizzen 3/4 Width	G3	A7	
MHWY	Mizzen 1/2 Width	G3	A7	
MQWY	Mizzen 1/4 Width	G3		
HHB	Headsail Top Width	G4.1		
HUW	Headsail Upper Width	G4.1	A6	
HTW	Headsail 3/4 Width	G4.1	A6	
HHW	Headsail 1/2 Width	G4.1	A6	
HQW	Headsail 1/4 Width	G4.1		
HLU	Headsail Luff Length	G4.1	A6	
HLUmax	Maximum Headsail Luff		A6	
HLP	Headsail Perpendicular	G4.1	A6	
	Flying Headsail Top Width	G4.1		
FUW	Flying Headsail Upper Width	G4.1	A9	Note:
FTW	Flying Headsail 3/4 Width	G4.1	A9	IRC measurements
FHW	Flying Headsail 1/2 Width	G4.1	A9	FUW, FTW, FHW, FLU
	Flying Headsail 1/4 Width	G4.1		are the same as
FLU	Headsail Luff Length	G4.1	A9	ORC measurements
FSHW	Flying Headsail Half Width	G6.4-5	A9	HUW, HTW, HHW, HLU
FSFL	Flying Headsail Foot Length	G6.4-5	A9	
FLP	Flying Headsail Perpendicular	G4.1	A9	
	Foot Offset		A5	
SHW	Spinnaker Half Width	G6.4-5	A8	
SFL	Spinnaker Foot Length	G6.4-5	A8	
SLU	Spinnaker Luff Length	G6.4-5	A8	
SLE	Spinnaker Leech Length	G6.4-5	A8	
SPA	Spinnaker Area		21.6.2 & A8	
YSHF	Mizzen Staysail Head to Foot	G5		
YSHW	Mizzen Staysail Half Width	G5		
YSFL	Mizzen Staysail Foot Length	G5		
LLY	Mizzen Staysail Luff Length		A6	
LPY	Mizzen Staysail Luff Perpendicular		A6	