International Multihull Rating Rule

January 2018

1. General Items

1.1. Administration of the rule

The International Multihull Rating Rule (IMHRR) will be administered and updated as required by the Rule Supervisor (RS).

1.2. Intent

The intent of this Rule is to fairly handicap a broad variety of multihull yachts for racing. To achieve this, the rule will compute a relative speed potential for each yacht.

1.3. Time on Time Handicapping

Each yachts relative speed potential will be converted to a Time Correction Factor (TCF) which will be used to convert her Elapsed Time (ET) for the Race to a Corrected Time (CT). (CT = ET x TCF).

1.4. Standard and Light TCF

The standard TCF shall be applied, by default, to all races taking place under normal sailing conditions. The light TCF can be applied when the forecast conditions for a race indicate that wind speeds are expected to be consistently below 12 knots for the expected duration of the race.

1.4.1. If the Light TCF is to be applied, competitors should be advised no later than 5 minutes before the warning signal for their class.

1.4.2. The decision to apply the Light TCF will be taken at the sole discretion of the Race Committee.

1.5. Ownership of the Rule

The measurement information used to calculate a TCF remains the property of the yacht owner. The formulae used to calculate the TCF and the web site where the rule details are published are the property of the IMHRR.

1.6. Measurement Rule

The rule is based on actual measurements. Formulae used to calculate the rating will be applied 'across the board' and not to a particular individual yacht in isolation.

1.7. Not a Development Rule

This rule is not a development rule and it is not anticipated that owners or designers will deliberately seek to exploit the rule so as to artificially reduce the yacht's TCF relative to her true speed potential. Where this appears to have been done, appropriate action will be taken to negate any unfair advantage.

1.8. Paperless Rule

This Rule is a 'paperless rule' and a yacht's only official TCF can be found on the latest computer database which will be published on the web site www.IMHRR.com. Any paper issued to the yacht is purely a measurement record.

1.9. Measurement process

The IMHRR comprises an "in the water" measurement part as well as the requirement for a certified displacement. Inspection of the underwater appendages may be required, especially in the case of foils that are designed to provide vertical lift.

1.10.

2. Use in Regattas

2.1. Support

Any regatta using the IMHRR may request either on site or remote support. In the case of on site support, the regatta will pay all transport and lodging fees of the Rule Representative (RR) attending. Duties may include:

2.1.1. Serve on the Technical Comittee.

2.1.2. Advise the Organising Authority and Race Committee on class assignment.

2.1.3. Review ratings of all entered boats and notify the owner, organizers and the Protest Committee of any errors found.

2.1.4. Be the "authority responsible" referred to in RRS 64.3 and perform any services required under this article from such an authority.

2.1.5. Correct errors found as permitted under the IMHRR and as agreed by the Protest Committee.

2.1.6. Any other duties requested by the Organisers that are appropriate.

2.2. Correcting Ratings during Regattas

2.2.1. Technical Errors

When the Technical Committee is satisfied that there is a technical error (i.e. typographical, calculation, measuring error, incorrect TCF /sail combination, etc.) in a boat's current rating at any time during the regatta, the Technical Committee shall notify the relevant authorities including the protest committee. If the protest committee is satisfied that the rating is in error, the Rulr Representative shall make the necessary corrections and the scoring shall be adjusted to the new TCF for all races in the regatta including those already sailed.

2.2.2. Rating Protest

When a rating protest is submitted to the protest committee that committee will be responsible to ensure that both the protesting and the protested yachts deposit measurement fees as described under IMHRR 3.3 (see below). RRS 64.3(d) shall be used to determine which party will pay any measurement fees incurred and which party shall have the measurement fee refunded.

2.2.3. If, as result of a protest on rating, or as a requirement from the race committee a yacht is re-measured to confirm her rating handicap, the following tolerances to confirm her TCF shall apply.

2.2.3.1. If the protest is solely in relation to the use of incorrect sails, then only the sails need to be measured. If as a result of this measurement the TCF of the yacht changes by 'more' than +/- 0.001 then the protest is considered to be upheld and then yacht's TCF will be adjusted accordingly.

2.2.3.2. If the protest is of a more general nature and the entire yacht requires to be re-measured then the protest shall be considered to be upheld if the yacht's TCF differs by 'more' than +/- 0.003 from the current TCF and the database will record the new rating.

2.2.4. The Rule Supervisor is the final authority for interpretation of this rule. In resolving disputes the RS will be guided by the intention of the rule (to provide a fair TCF as stated in para 1.2 above) rather than by the precise wording of any clause or statement. This authority can be delegated to a RR if necessary.

2.3. Un-measurable Yachts

If a yacht, arriving at a regatta to race, cannot be given a measurement rating because of some abnormality in its dimensions which results in the calculated rating being inapplicable, or which has essential equipment which is not allowed under the rule, the matter shall be referred to the RR. If there is no RR this shall be referred to the RS. The RR or RS shall use his or her best efforts to arrive at a fair rating for the yacht and may suggest to the regatta organizer that this yacht be given a provisional rating (for this regatta only) to allow it to race. The RR or RS shall have the authority to alter the rating of the yacht during the regatta if, in his subsequent opinion, the initial rating allocated does not truly represent the speed potential of the yacht.

2.4. Standard Dimensions

Some common models of yacht may be given standarised hull and rig dimensions which are recorded in the database as an average of many measurements for that particular type of yacht. In this case only the sails, factors, and miscellaneous information, need to be recorded uniquely in the database, the hull and rig dimensions being the standards. If the Measurer suspects that the boat may not be a substantially standard production version, (for example if it has been modified, or stripped out, etc.) he or she shall measure the boat in the normal way and it will race with the TCF for that specific yacht rather than the TCF assigned to the model.

2.4.1. The RS shall determine which designs may have standard measurements. The RS's approval is required for all boats with standard dimensions. From time to time the standard measurements may be modified as more information is collected.

2.5. One Design Class Rating

Certain classes may be designated as "one-design" and each yacht in the class can be given the same rating after it is determined by the RS that the yacht is 'Class Legal'.

3. Obtaining a Rating

3.1. Procedure

Ratings for volume production yachts can be applied for directly by the owner by filling in the appropriate online form. Ratings for modified, custom or low volume production yachts must be obtained through a Rule Representative. In either case, a minimum amount of measurement data must be entered on the online application form and the administration fee paid. The data is then reviewed by the RS and entered into the database, after which the rating and measurement record is published on the IMHRR web site.

3.2. Fees

The administration fee is charged based on the overall length of the yacht. Fees must be paid when the online data form is submitted. Measurement fees are charged by the Rating representative and should be paid when the yacht is measured.

3.3. Administration Fees, for year 2018

Administration fee for annual update, no changes – USD 50
Administration fee for new measurement or changes for yachts under 10m LOA - USD 75
Administration fee for new measurement or changes for yachts 10m LOA or more – USD 115
Administration fees will be discounted by 50% after 01 September.

3.4. Measurement Fees

Measurement fees are set by your local RR and can be based on the size of the boat, as a fixed amount or as an hourly rate. Fees may differ according to which geographical area the RR is based.

4. Measurements and Ratings

The measurements submitted for the yacht shall be entered in the IMHRR database. The TCFs produced by the current IMHRR program is the current Rating for the yacht. A yacht may only have one current rating.

4.1. Rating and Measurement Validation

Ratings are valid for one complete calendar year 01 Jan01 to 31 Dec. (Note – Yachts which carry out a first measurement or a change update after 01/Dec of any year will consider to have been measured / certified in the next full calendar year), unless this rating becomes invalid as indicated below.

4.1.1. Measurements are valid indefinitely unless they become invalid as detailed in 4.1.2 below. Invalid measurements result in an invalid rating.

4.1.2. Measurements become invalid when:

4.1.2.1. The boat is sold to a new owner

4.1.2.2. The boat is significantly modified since last measured

4.1.2.3. The boat acquires new sails

4.1.2.4. If the RS determines that a Rating is invalid

4.1.2.5. If the Rating Rule is changed to require different measurements or different ways of measuring

4.1.3. When a Rating becomes invalid the owner or agent can request a new rating by filling in the appropriate online form or by getting the yacht remeasured by a RR.

4.2. Updating Ratings

When applying for an annual update, it is up to the owner or manager to highlight any changes that may have been made to the yacht since the last Rating was issued. Failure to provide necessary information may result in the Rating becoming invalid (see 4.1.2 above).
A yacht's rating may be updated at any time to accommodate changes made to the yacht.

4.3. Rating Changes Immediately Prior to an Event

There are several alternate TCF's for different sail combinations for each rated yacht. A yacht may elect to race with any one of these TCF's, but must declare which TCF/sail combination it intends to use by the deadline set by the Regatta Organizers.
It must be noted that:

4.3.1. The TCF elected to be used cannot then be changed during that specific regatta.

4.3.2. Any request to alter a rating immediately prior to a regatta, after that yacht's initial registration but before close of registration, shall be put to the RR or RS who shall adjudicate on this matter. Late measurement changes are to be discouraged.

4.4. Re-measurement

A full re-measurement of a yacht shall be undertaken if the current measurements become invalid for any reason (See 4.1.2 above.)

4.5. This may also be done at the request of the RS if he or she suspects that the rating may be incorrect. It may also be done at the request of a protest committee as a result of a valid protest.

4.6. Temporary Ratings

Temporary ratings may be issued only for a single regatta and only and as a last resort. The RR or RS must be confident that the rating so issued will stand up to a measurement protest. The rating must be clearly marked as "TEMPORARY" in the database and should include the circumstances requiring its issue in the notes. A Temporary Rating cannot be updated without a full measurement of the yacht.

4.7. Power Assisted Operations

Yachts racing under the IMHRR may use power assisted winches or rams and may use power activated auto steering systems, if they wish. This changes ISAF RRS 52.

4.8. Owner – Rule Representative Responsibilities

4.8.1. The OWNER shall be responsible for presenting his yacht for measurement as specified and in a location (Note – a location at a dock is normally preferable) where the water is sufficiently calm to ensure an accurate measurement. The Owner (or his agent) must be in attendance to assist as necessary. The Owner must ensure that there is a suitable dinghy available. The Owner must make available all sails requiring measurement – or provide appropriate certified data for these sails (from a reputable sailmaker or another internationally recognized certificate).

4.8.2. The RR shall ensure the yacht is in a proper condition for measurement as specified below. The yacht is to be measured Empty so the Measurer shall personally check the whole boat from stem to stern including sounding all tanks and bilges to ensure the conditions for Empty are adhered to. Shortcomings shall be brought to the attention of the owner who shall remove, relocate, or fix all items as required by the RR.

4.9. Preparation of a Yacht for Measurement

4.9.1. Measuring Trim

A yacht will be presented for measuring in an empty state as follows:

4.9.1.1. All items needed for racing may be left on board, including racing sails, sheets and halyards and racing anchor. In addition, all normal furnishings may be left in place, including drawers, doors, tables, cabin soles and bunk mattresses.

4.9.1.2. All other items such as food, drinks, stores, tools, safety equipment, additional lines and personal belongings must be removed and all bilges must be empty.

4.9.1.3. All tanks will be empty, except for the fuel tank, which may contain a measured amount of fuel.

4.9.1.4. The underwater surfaces must be clean and free of marine growth.

4.9.2. Information

The following information must be readily available for the Measurer:

4.9.2.1. Owner's Name and Address

4.9.2.2. Owner's (or yacht's) Email address

4.9.2.3. Sail Numbers

4.9.2.4. Design Class or Type

4.9.2.5. Year of First Launch

4.9.2.6. Maximum Draft – from ship's plans or other recognized data sheet

4.9.2.7. Minimum Draft – for yacht equipped with daggerboards

4.9.2.8. Accurate drawings showing underwater profile of yacht and any foils that may be present.

4.9.2.9. Propeller / drive – number and type

4.9.2.10. Copies of any existing rating certificates, from any recognized rating authority.

4.9.3. Measurement Location

To ensure accuracy of measurement, yachts shall move into a sheltered location as designated by the Measurer with minimal wind and water disturbance (and a clear space all around the yacht of 1.5m.

4.9.4. Representative in attendance

The Owner, Captain, or their representative shall be in attendance to give assistance as needed.

4.9.5. Dinghy Required

The Owner, Captain or their representative shall provide a small tender or dinghy for the Measurer to take the Freeboard and Overhang measurements.

4.9.6. Mainsail and mizzen measurement

The owner must have available the main and mizzen sails that he intends to use for racing.

4.9.7. Headsail Measurements

The Owner must have available the largest area headsail he proposes to use for racing. He must be aware that he cannot race with a larger headsail than that declared. If he has stamped and signed sails from a previous measurement these markings must be available for scrutiny.

4.9.8. Spinnaker Measurements

The Owner must have available all spinnakers and screachers that he intends to use for racing.

4.9.9. Sail Measurements

Sails will be measured in accordance with the current IMS guidelines. If a measurement certificate from a recogised sail loft or other institution exists, these measurements may be used in place of physical measurements where applicable.

4.9.10. Displacement certificate

The owner must provide a recent weight certificate for his yacht. The certificate must be prepared from measurements taken from a direct single point load cell or from multiple

load cells on a travel lift that have been calibrated to eliminate the horizontal load component. The yacht must be weighed in measuring trim.

4.9.11. Production Displacement
In some cases, where it is impractical to weigh the yacht, a specified displacement from the manufacturer in the case of volume production vessels may be allowed in place of the measured displacement. The lightest published displacement for the particular model will be used.

5. Measurement Definitions

Measurements defined as follows will be taken in order to calculate a particular yacht's rating:

Weight

5.1. DSPW Total measured weight of a boat in measurement trim

5.2. DSPWD Total declared (published) weight of a boat in measurement trim

Hull

5.3. LOA Length Overall – Of longest hull, excluding rub rails, railings, anchor rollers etc.

5.4. FO Forward Overhang – Horizontal distance from the forward-most part of the hull to where the stem, or a straight projection thereof, cuts the waterline.

5.5. FF Forward freeboard – Vertical distance from the forward-most part of the hull to the waterline

5.6. AO Aft Overhang – Horizontal distance from the aft-most part of the hull to where the stem, or a straight projection thereof, cuts the waterline.

5.7. Y Aft freeboard – Vertical distance from the aft-most part of the hull to the waterline

5.8. OSB Distance between the outermost stems of a trimaran or the stems of a catamaran

5.9. TP none, One folding, One fixed, Two Folding, Two fixed

5.10. V Draft to underside of hull or fixed keel if present

5.11. TH Hull type – Catamaran, Trimaran

Daggerboards and Foils

5.12. TB Board type – None, Standard, Asymmetric, C-Board, L or T-Board

5.13. BV1, 2, 3, 4 Board /Foil 1, 2, 3, 4 maximum exposed vertical length

5.14. BH1, 2, 3, 4 Board /Foil 1, 2, 3, 4 maximum exposed horizontal length

5.15. BC1, 2, 3, 4 Board/Foil 1, 2, 3, 4 maximum cord

Mast

5.16. TPC Mast control type – Fixed, Rotating, Canting or Both

5.17. PC Circumference of rotating mast

5.18. PCY Circumference of rotating mizzen mast

Main Sail

5.19. PU Vertical distance between the top of the mainsail hoist and the clew

5.20. PL Vertical distance of mainsail clew above or below tack

5.21. E Maximum outhaul distance perpendicular to mast

5.22. MHB Top width

5.23. MUW Upper width

5.24. MTW Three-quarter width

5.25. MHW Half width

5.26. MQW Quarter width

Mizzen , 2nd Main Sail

5.27. PUY Mizzen hoist

5.28. PLY Vertical distance of mizzen clew below or above tack

5.29. EY Maximum outhaul distance perpendicular to mast

5.30. MHBY Top width

5.31. MUWY Upper width

5.32. MTWY Three-quarter width

5.33. MHWY Half width

5.34. MQWY Quarter width

Headsail

5.35. IG Forestay height

5.36. J Foretriangle base

5.37. HLU Headsail luff length

5.38. HHB Top width

5.39. HUW Upper width

5.40. HTW Three-quarter width

5.41. HHW Half width

5.42. HQW Quarter width

5.43. HLP Perpendicular distance from clew to luff

Spinnaker

5.44. SLU Length of luff

5.45. SLE Length of leach

5.46. SFL Length of foot

5.47. SHW Distance between mid points of luff and leach

Screacher

5.48. CLU Length of luff

5.49. CLE Length of leach

5.50. CFL Length of foot

5.51. CHW Distance between mid points of luff and leach

6. Calculated Values

The following values are calculated and form part of the final TCF value:

Weight

6.1. DC Crew weight allowance

6.2. RD Rated displacement

Hull

6.3. RL Rated length

6.4. CCH Catamaran correction for main and headsail

6.5. CCS Catamaran correction for main, headsail, spinnaker

6.6. CCC Catamaran correction for main, headsail, screacher

6.7. CCSC Catamaran correction for main, headsail, screacher, spinnaker

6.8. VA Fixed keel allowance

6.9. TPF Propeller type Allowance

Daggerboards and Foils

6.10. BVA Vertical projected area of daggerboards

6.11. BF Daggerboard factor

6.12. VF Keel/Daggerboard factor

6.13. BHA Horizontal projected area of boards / foils

Mast

6.14. P Mainsail hoist

6.15. PY Mizzen hoist

6.16. PA Mast area

6.17. PAY Mizzen mast area

Main Sail

6.18. MA Mainsail area (as per IMS)

6.19. MER Mainsail efficiency ratio

6.20. MEF Mainsail efficiency factor

6.21. RMA Rated mainsail area

Mizzen / 2nd main Sail

6.22. MAY Mizzen area (as per IMS)

6.23. RMAY Rated mizzen area

Headsail

6.24. HA Headsail area calculated (as per IMS)

6.25. HER Headsail efficiency ratio

6.26. HEF Headsail efficiency factor

6.27. RHA Rated area of headsail

Spinnaker

6.28. SA Spinnaker area calculated (as per IMS)

6.29. RSA Rated spinnaker area

6.30. SMG% Ratio of SMG to SF

Screacher

6.31. CA Screacher area calculated (as per IMS)

6.32. RCA Rated screacher area

6.33. CMG% Ratio of CMG to CF

Rated sail areas

6.34. RSAH Rated sail area headsail only

6.35. RSAS Rated sail area with spinnaker only

6.36. RSAC Rated sail area with screacher only

6.37. RSASC Rated sail area with screacher and spinnaker

Stable wind speed

6.38. WR Righting moment

6.39. WS Upwind windspeed in knots

Speed prediction

6.40. VVH Predicted velocity headsail in knots

6.41. VVS Predicted velocity spinnaker in knots

6.42. VVC Predicted velocity screacher in knots

6.43. VVSC Predicted velocity spinnaker and screacher in knots

Lift factor

6.44. LH Lift in kg headsail

6.45. LS Lift in kg spinnaker

6.46. LC Lift in kg screacher

6.47. LSC Lift in kg spinnaker and screacher

6.48. LFH Lift factor headsail

6.49. LFS Lift factor spinnaker

6.50. LFC Lift factor screacher

6.51. LFSC Lift factor spinnaker and screacher

Ratings

6.52. TCF-H TCF headsail only

6.53. TCF-S TCF spinnaker only

6.54. TCF-C TCF screacher only

6.55. TCF-SC TCF screacher plus spinnaker

6.56.

6.57. TCFL-H Light wind TCF headsail only

6.58. TCFL-S Light wind TCF spinnaker only

6.59. TCFL-C Light wind TCF screacher only

6.60. TCFL-SC Light wind TCF screacher plus spinnaker