

Release notes V3 for class rules for 2016 – Marblehead, Ten Rater & A Class

Version for Official Measurers and Certification Authorities

Also useful for Sail Makers and Boat Builders

These notes introduce the revised class rules and indicate the significant changes and their rationale.

Notes in this colour indicate how existing and new boats may be affected.

Common to all classes

Effective Date

1 July 2016. Measurement of boats and other equipment shall be to the revised rules from this day onwards.

Action required Use new certification from that date onwards
It would be useful for CAs to advise their measurers of the changes in advance of that date and ensure they receive this material in good time.

Grandfathering

Except as prescribed in Section C, existing equipment is grandfathered as follows:

A Class	Hull, appendages, rig, sails
Ten Rater	Hull, sails
Marblehead	Hull, sails

Action required None - this does not affect the certification process

Interpretations and Q&As

All existing interpretations are incorporated in order to make them redundant.

Since the class rules were last revised there have been many interpretations answering questions about the meaning of the class rules. Where possible (that is, where a simple answer to a question is satisfactory and where no rule change is possible to improve the understanding of the class rules) a Q&A has been issued. Please see the Q&A section under the Class Section of the IRSA website <http://www.radiosailing.org/classes>

From 1 July 2016 the published Interpretations will become redundant. However, they will be retained in a historical file on the IRSA website as they will remain of importance for any boats (or other equipment) that are grandfathered under the revised rules.

The existing Q&As will be revised as required and additional ones may be added.

Action required None – please consult the Q&A section as required

Advertising

Advertising shall comply with the ISAF Advertising Code.

This is not a change but brings the class rule up to date with the ISAF rules concerning advertising.

Action required None - this does not affect the certification process

Automated sheeting, steering, navigation, on board cameras

All are prohibited.

This is a rule change felt necessary to ensure that Radio Sailing remains the same as sailors currently understand it until such time as the classes feel they want to revise class rules to permit any such items. In the meantime, this avoids differences in performance achieved by using relatively advanced technology, the possibility of an 'arms race', and/or a drop in the popularity of the classes themselves, due to cost, complexity, and/or perceived unfairness of using such equipment.

Action required None - this does not affect the certification process

Multiple certificates

Whereas the 1994 (A Class) and 2002 (Marblehead & 10 Rater) class rules permit only the most recent certificate to be valid, the revised class rules permit multiple certificates to be valid at the same time.

Past practice for IRSA events is that it is the competitor who enters and, even if he is requested to send details of his boat in advance of the event, use of that particular boat is not binding in any way. Not only is this normal practice for IRSA (International) events, it appears to be normal practice for most Radio Sailing events worldwide.

Whereas some owners have a single boat, others may have two or more boats which are each suited to different conditions. The latter are able to arrive at an event and choose the boat they will compete with. This allows them to match their boat to the expected conditions at the event and clearly gives those multiple boat owners an inherent advantage over those with a single boat.

Conclusion

Permitting multiple certificates for a single boat to help level the playing field with a multiple boat owner is a class rule change that can be as effective under a central register of certificates as under the previous system. Permitting multiple certificates additionally addresses the issues around the variability of DNM practice, ensuring fairness for all competitors, particularly at open events with international competitors.

Action required None - this does not affect the certification process

Hull geometry

It is prohibited to change the geometry of the hull shell during an event.

Whereas placement of the appendages is generally heavily restricted, there has been no rule limiting or prohibiting change of hull form during an event or race.

Action required None - this does not affect the certification process

Minimum mainsail luff length

A universal minimum mainsail luff length is introduced.

There are three reasons for this:

- To ensure the mainsail is large enough to carry the normal sail numbers and national letters
- To ensure that, when a race is abandoned because boats cannot sail, it is likely that all boats will be similarly affected and criticism of the race officer/race team will be minimised
- To introduce a cost reduction/limiting factor that assists owners to sensibly plan their investment/expenditure.

Action required Please advise owners presenting sails below the minimum luff length that their use is not permitted

Carrying and reefing a mainsail

The mainsail (largest sail for the 10R class) is to be carried set and may not be reefed.

The purpose of having a minimum size, of which the mainsail may be the only sail on which sail marks are displayed, would be subverted if it were permitted not to use the mainsail or to reef it.

Action required None - this does not affect the certification process

A Class

General

SCR format

For the first time the class rules are formatted according to the World Sailing (previously ISAF) Standard Class Rules.

Having class rules written to the SCR format is a prerequisite for having and maintaining any IRSA class status. This step is seen as an investment for the future of this class.

Action required Please note that ERS definitions become effective in the A Class

Link to ERS given at end

Boat/Hull

Measurement trim

The concept of measurement trim has been introduced. The boat is measured when floating in this prescribed state. Instead of requiring the boat to have sails on board for this step, a nominal sail weight of 100 grams is used instead.

Under the revised rules, the owner can have his boat measured and then have his sails made to the maximum permitted sizes while remaining fully compliant with the class rules.

Action required A 100 gram weight shall be placed on the deck with its centre of gravity at the mast position – try 2 x 50 gram weights or a U shaped weight
The mast shall be vertical (fore side of mast)
The heaviest headsail boom (and luff spar if used) and fittings & rigging shall be on board
Standing rigging shall be slack

Recesses, hollows, projections etc in the deck.

It is made plain that recesses and opening in the deck are permitted for a handle, the mast, access to radio control equipment, and for a deck edge rail.

Action required Check the deck design is compliant

Deck datum point

In the revised rules this distance is taken to a deck datum point on the deck aft of the mast.

Damage to the bow of the boat is not, and should not be, critical to the compliance of the boat with its certificate. Having the deck datum point aft of the mast ensures this distance is always positive.

Action required Check the deck datum point is marked as required and aft of the mast

Waterline limit marks

As a confidence-building measure the revised rules state that they shall be long enough to be visible when the boat is afloat.

Action required Check the waterline limit marks are long enough to be visible when afloat

Quarter beam lengths

It is known that offsetting a boat with a QBL penalty from the centreline of the measurement jig will result in a reduction of the average QBL and hence an increase in sail area. The opportunity to gain sail area in this way should be limited and so a maximum difference in the measured QBL dimensions is introduced. How to measure a boat with unequal half beams and where the QBLs are not within the permitted maximum difference are issues that can be handled by the issue of Q&As.

Action required If the QBL difference exceeds the permitted figure, adjust the boat's lateral position on the measurement jig until the difference is less than the maximum permitted

Rig

Main boom depth

A datum line is established for the **main boom spar**. This is used to determine the **vertical** and **transverse cross sections**.

The method in the revised rules ensures consistency in application of the rules and permits normal boom arrangements to be used on future boats without modification.

Action required Take measurements perpendicular to the boom datum line as shown in the figure in the class rules

B measurement – mainsail luff perpendicular

The measurement B, for the certificate, is taken as the **mainsail luff perpendicular**.

The revised rule eliminates the need for **limit marks** on the **main boom** and, furthermore, the need for two **limit marks** when a boat uses **double luff sails** and other luff **sails**.

Action required None - No limit mark (boom band) required on main boom

No spinnaker or genoa

Spinnakers and genoas are prohibited.

Action required None - this does not affect the certification process

Sails

Headboard limit zone

A headboard limit zone is established. It is then not important if a headboard is used, or how large the headboard is within that zone, as other dimensions are taken to the perimeter of the zone rather than to any headboard.

Action required It may be helpful to mark the HLZ on the sail – a template with a 25 x 25 hole may be a useful tool to make using transparent plastic so the width of additional material at the luff (bolt rope, pocket luff) can be measured easily.

Mainsail foot roach

The revised rules measure the foot roach relative to a line through the **tack point** and **clew point** thus enabling the sail maker to ensure compliance when constructing the sail.

Action required Check the sail foot roach depth using a straight edge from **tack point** to **clew point**

Luff perpendicular of mainsail to be measured

The **luff perpendicular** of the mainsail is measured as well as the usual **three quarter width**, **half width** and **quarter width**.

The **luff perpendicular** is defined in the ERS as the shortest distance between the **clew point** and the **luff**. Under the revised rules the **luff perpendicular** is restricted to the B measurement (formerly the distance between **boom limit mark** and **mast**).

This follows from the removal of the need for the **boom limit mark**.

Action required Measure **luff perpendicular** dimension as well as cross widths

Headsail half height cross width

To conform to normal practice as defined in the ERS, this is rationalised to the **half width** in the revised rules. From that dimension, the smallest J measurement with which the sail complies is determined and this dimension is marked on the sail by the measurer.

Action required Measure sail half widths (no change)

B and J measurement to be marked on sails

Sails will be marked with the smallest B and J measurements with which they comply.

It follows that the mainsail can be used on any boat providing

- It is set within the limit marks on the mast,
- has a B dimension equal to or smaller than that permitted for the boat and
- has compliant sail numbers

The headsail may then be used on any boat providing:

- It is set within the foretriangle limit marks,
- has a J dimension equal to or smaller than that permitted for the boat and
- has compliant sail numbers

How to find the smallest B dimension with which the sails comply?

The spreadsheet used to compute the rating from the measured dimensions has been extended so that, for any sail, when its **three-quarter width**, **half width**, **quarter width** and **luff perpendicular** dimensions are entered, the smallest B dimension with which the sail complies is determined.

How to find the smallest J dimension with which the sails comply?

As for the mainsail there are suitable calculations for this dimension on the spreadsheet that is used to compute the rating of the boat.

Action required Use rating spreadsheet to find smallest B and J dimensions for each sail and mark each sail accordingly

Events

Event measurement

The revised class rules contain tolerances for the principle hull dimensions that can be checked at event measurement (**equipment inspection**) given some rudimentary equipment used with reasonable care. For example the following can be checked: the distance between the waterline limit marks, the draught to the datum waterplane, and the freeboard to the datum waterplane. The tolerances chosen are such that if a boat has been measured accurately by a competent **official measurer** and it is subsequently checked by an event measurer (**equipment inspector**) exercising reasonable care then the boat will be found to be compliant with its certificate.

Where there is access to the same equipment used for **certification control** another set of tolerances is given in the expectation that the measurements can be taken with greater accuracy.

Action required None - this does not affect the certification process

Non compliance with the certificated dimensions

Where a boat is found not to comply with the tolerances and cannot be brought into those tolerances, it is suggested that the jury should consider allowing the boat to be brought into rating in another configuration.

Currently the RRS allow a boat to correct deviations in excess of tolerances and continue racing. However, if it is impossible to correct the boat, there appears to be no option but to cease racing. Rather than leave a competitor exposed to this possibility the option to allow him to return the boat to another compliant rating is suggested.

Action required None - this does not affect the certification process

Marblehead Class

Hull

Length restriction gauge

The shape and size of a suitable length restriction gauge is indicated in Figure J.3 of the class rules. This does not change anything but it makes it clear how the gauge should be shaped to achieve the length and datum waterline measurements described by Figure J.2.

Action required None - this does not affect the certification process

Rig

Measured area marked on sails

The measured area of the largest mainsail shall be marked on all mainsails in a rig/sail group. Likewise for headsails. This is a confidence-building measure for other owners that will minimise the risk of a larger than permitted sail are being used.

Action required The area of each sail is determined by the measurement form after entering the sail dimensions – write the area on the tack of each sail (and each smaller sail in that rig/sail group) as appropriate

Foot roach restriction

As an alternative to a straight or a fair curve foot roach profile, the option is offered to use a foot roach profile that fits within a triangle with 25 mm depth.

The class rules show how a gauge (make from two pieces of timber or plastic) can be used to check the profile of the foot roach.

Action required Where the foot profile is triangular instead of straight or curved, use the foot roach gauge as shown in Figure J.9 of the class rules.

Certificate values of cross widths

Where the measured cross widths of sails are less than the maximum permitted by the class rules the certificate will show the maximum permitted values rather than the measured values.

The 2002 measurement forms and certificate require the actual cross width of an undersize sail to be recorded on the certificate. Sails made subsequently had to comply with this reduced size which meant that any sail whose dimensions were recorded on the certificate that had undersized cross widths could only be replaced by a similarly undersized sail.

Action required None - this does not affect the certification process

Ten Rater Class

Hull/boat

Slack rigging when measured

When the waterline endings are checked against the waterline limit marks the rigging shall be slack.

If an owner, measurer or equipment inspector is checking that the boat complies with the requirement that the waterline endings do not fall outside of the waterline limit marks it is important that the rigging should be slack. This prevents artificial shortening of the waterline length.

Action required Slacken rigging when checking flotation

Waterline limit marks on plumb ended boats with a full length waterline

A suitable wording is given that permits plumb ended boats to comply with the class rules regarding placement of the waterline limit marks.

Action required Apply waterline limit marks as shown

No restriction on lower displacement

There will now be no lower limit to displacement or waterline length compared to the certificated dimensions.

Action required None - this does not affect the certification process

Weight of boat

The weight of the boat will be recorded at certification control. At an event the weight shall be no more than this figure plus a tolerance.

This allows some simple event measurement that will give a good indication of whether a boat is likely to comply with the waterline limit mark rules. It also makes it easier for the owner to maintain his boat and be confident that it remains in compliance.

Note that the weight of the boat shall be found using calibrated equipment and rounded to the nearest 0.01 kg.

Scales used for weighing can be calibrated in one of two ways. One way is to have the scales tested by an authorised person/business who will issue a certificate identifying the scales and the date when they were tested. The test has to be repeated at regular intervals. The other way is to use calibration weights (of standard weight to a specified high degree of precision) that are approximately equal in weight to the object being weighed. The reading for the object is corrected by the difference found when weighing the calibration weights.

Use of calibration weights is to be preferred for several reasons: they can be used on any scales, they remain available for use whenever required, their use demonstrates the process is sound.

Many measurers who measure IOMs will have scales that will measure weight up to 5 or 10 kgs to the nearest 0.01 kg or better and calibration weights of 4 kgs. Most Ten Raters weigh 6 kgs or less and it is possible the same scales can be used.

The following link is for a set of scales that weigh up to 20 kgs in 1 gram increments and 40 kgs in 2 gram increments. Price Euro 51 plus post and packing. Excellent for weighing A Class boats too.

<http://shop1.r-g.de/en/art/390301>

Calibration weights to the M1 quality standard are suitable for the task and will be readily available from many dealers locally. The following link gives the following weights, precisions and prices.

Weight	Precision	Price (UK)
1 kg	0.05 gram	£15
2 kg	0.1 gram	£17
5 kg	0.25 gram	£35

http://www.scalesandbalances.co.uk/acatalog/Iron_Test_Weights.html

More information relevant to the weighing process can be found in the comprehensive ISAF International Measurers Manual which can be found at the following link on the IRSA website:

<http://www.radiosailing.org/documents/category/176-administration>

Action required Ensure adequate scales and calibration weights are available

Sails

Measured area marked on sails

The measured area of the largest mainsail shall be marked on all mainsails. Likewise for headsails. This will minimise the risk of a larger than permitted sail area being used and is a confidence-building measure that will reassure other competitors that the rules are being complied with.

Action required The area of each sail is determined by the measurement form after entering the sail dimensions – write the area on the tack of each sail (and each smaller sail) as appropriate

Measured sail area - method

There are some refinements to the way in which sails are measured. The principle change is that a line through the **head** and **tack** of a sail shall be perpendicular to the grid lines with the **clew point** placed on a grid line. Cross widths (horizontal) are taken at 200 mm spacing above the **clew point** and depths (vertical) are taken at 50 mm spacing below the **clew point**.

Normally the **tack point** will be below the gridline on which the **clew point** is placed. If the sail shape means the **tack point** is above the gridline on which the **clew point** is placed, the sail shall be moved down the vertical line until the **tack point** is on a gridline.

Several benefits arise from the change to the area measurement system:

- The approximate luff, leech and foot dimensions can be determined from the measured data and will be quoted on the certificate as an aid to sail makers and equipment inspectors at events.
- The luff, leech and foot dimensions can be quickly checked at event measurement as a rough guide to a sail's compliance.
- The requirement for smaller, alternative, sails to fit within the profile of the largest will become redundant although the effect is retained.
- It becomes possible for replacement and alternative smaller sails to be measured and found to be compliant without reference to the sails that were checked at the boat's initial certification measurement.
- Full area sails with different luff shaping (mast bend) can be made that can be guaranteed to comply with the certificated dimensions
- Fewer cross width measurements are taken
- When making a sail to match a certificate it will be easier to plot out the cross widths and put a fair line through them

Action required Revise the measurement grid as appropriate

Sail luff length

The length of the luff, of the sail with the largest luff, shall be no more than 2200 mm and no less than 1990 mm.

Action required Check sail luff length where appropriate

References

ERS Equipment Rules of Sailing: <http://www.sailing.org/documents/equipmentrules/>

ISAF International Measurers Manual: <http://www.radiosailing.org/documents/category/176-administration>