Measurement 2014 Rules

Tentative v.2 2018 Rules

RG-65

RED Text reflects proposed change or amendment,
Text in Blue is a Comment!

DEFINITION:

"Rules Update" is the process in which errors, mistakes or confusing rule texts are amended in order to unify possible interpretations. It is **NOT** a process to "change" the Boat´s Style or Characteristics.

A "Rule Update" could be considered successful *if we reach an agreement on the text of the rules and it fits old and new boats.*

2014 RG-65 CLASS RULES

The “RG-65″ is a Radio Controlled monohull development class, where all is allowed except what is specifically prohibited by these rules of measurement.

MEASUREMENT RULES

1 GENERAL

1.1 Purpose of the measurement

1.1.1 It is intention of these Rules to give ample freedom to design and build R/C sailing racing models whose length will be of 65 +/- 0,5 cm, with an rig height of up to 110 cm and a maximum sail area of 2250 cm2.

1.1.2 The Class “RG-65″ is a Development Class, therefore everything that isn’t prohibited in these Rules is permitted.

1.2 Measuring Units

1.2.1 All dimensions will be measured in centimeters, with an accuracy of 1 (one) decimal (that is equivalent measuring in millimeters), and the final result of calculations of surface will be rounded to the nearest cm2.

1.2.2 Maximums and minimums are absolute values, without tolerance.

1.3 Graphic description

Appendices 1, 2, 3, 4, 5 and 6 are an inseparable part of these Rules and describe them graphically.

2 ADMINISTRATION

In accordance with the Standards of the RG65- ICA.

PROPOSED 2018 RULES UPDATE Rev. 2

The RG-65 is a Radio Controlled (R/C) Monohull development class, where all is allowed except what is specifically prohibited by these Measurement Rules.

MEASUREMENT RULES

1 GENERAL

1.1 Purpose of the measurement rules

1.1.1 It is the intention of these Rules to give ample freedom to design and build R/C Sailboats whose hull length will be of 65 +/- 0,5 cm, with a rig height of up to 110 cm over the sheerline at the hull section just under the mast, and a maximum sail area of 2250 cm2.

Comment: 1. height is defined to be over sheerline. 2.Material density proposal is removed, as Lead is now subject to severe restrictions due to its toxicity. Applicable Laws are changing but not definitive!

1.1.2 The RG-65 Class is a Development Class, where everything that isn’t prohibited in these Rules is permitted.

1.2 Measuring Units

1.2.1 All dimensions will be measured in centimeters, with an accuracy of 1 (one) decimal (equivalent to measuring in millimeters), and the final result of area calculations will be rounded to the nearest square centimeter.

1.2.2 Maximums and minimums are absolute values, without tolerance.

1.3 Graphic description

Appendices 1, 2, 3, and 4 are an integral part of these Rules and describe them graphically.

REMARK: Text on Appendices must be edited to reflect final (approved) text of Rules!

2 ADMINISTRATION

In accordance with the Standards of the RG65 International Class Association.

3 HULL

3.1 General

The “RG-65″ will be a monohull.

3.2 Hull

3.2.1 In each section of the hull, there will be no point of underwater body below 0.3 cm another point of the same section located closer to the centre line of the hull.

3.2.2 On the bow and from the deck, there will be a fender protecting, with a length of 0.5 +/- 0.1 cm by 0.3 cm of width at least, of elastomeric material (flexible gum, elastic foam, etc) (see appendice 5)

4 KEEL, BALLAST and RUDDER

4.1 Keel

The keel will have to be located on the centre line of the hull, and should not be mobile. However it can be removable to facilitate the transport of the model.

4.2 Rudder

The rudder will be located on the centre line of the hull, and will move only on one axis installed on the centre line of the hull, and it shall not extend outside the overall length of the hull.

3 HULL

3.1 General

The RG-65 shall be a monohull.

3.2 Hull

3.2.1 In each section of the hull, there will be no point of underwater body below 0.3 cm of another point of the same section located closer to the centre line of the hull.

Comment: to avoid possibility of Tunnel or Multihulls.

3.2.2 On the bow (not included in the hull overall length), from the deck to the foot of the stem, there shall be a fender to reduce eventual collision damage. Fore-aft thickness should be 0.5 +/- 0.1 cm, and not less than 0.3 cm from port to starboard. It should be made of elastomeric material (flexible rubber, elastic foam, etc). Refer to graphic in Appendix 1.

Comment: The Fender is *additional* to the hull, *added* to the Hull Length, following the Class Tradition.

4 FINS: KEEL and RUDDER

4.1 The boat can have up to 2 (two) foils, one to serve as keel and the other one as rudder.

Comment: Other foils never where part of an RG65, and inclusion of this text should avoid strong deviations from the traditional style of the Class.

4.2 Keel

The keel shall be located on the centre plane of the hull, and should not be movable. However it can be removable to facilitate the transport of the model. Only one (1) keel with its ballast shall be used during an event.

4.3 Rudder

The rudder shall be located on the centre plane of the hull, move only on its stock installed on said centerplane , and shall not extend outside the overall length of the hull. Only 1 (one) rudder shall be used during an event.

Comment: Rule Numbering had to be shifted to make place to the limitation of “one keel, one rudder” consequent to “Rule Cheating” attempts.

5 RIG

5.1 Definition

The rig is formed by the spars with their fittings, standing rigging and sails. A Vane or wind direction indicator does not form part of the rig.

5.2 General

5.2.1 No part of rig will extend beyond the bow nor beyond the stern of the boat nor to more than 110 cm over the sheerline at the point of coincident with the mast position.

5.2.2 The boat shall race while carrying no more than 2250 cm2 of sails in its rigs.

5.2.3 The boat could be equipped with up to 3 (three) set of sails A, B and/or C indivisible, which each do not exceed 2250 cm2 of total surface.

5.2.4 The dimensions and surfaces of each sail will be declared in writing before beginning the Races of the whole event, accompanied by a silhouette of each sail drawn out of paper. (APPENDICE 6)

5.3 Spars

5.3.1 All the spars must have a section smaller than a circle 1.2 cm in diameter.

5.3.2 Fittings constituting a definitely local extension (goosenecks, downhauls, rigging of the stays, etc.) do not form part of the section of the spars.

6 SAILS

For the calculation of sail area, each sail will be divided into trapezoids and/or triangles, whose surfaces must be added or be cut off. The Trapezoids or Triangles shall include sail fabric.

When the corners of the sail are rounded with abrupt curves, the corner of the enveloping figure is considered with the intersection of the natural prolongations on the sides of the figure used.

5 RIG

5.1 Definition

The rig is composed by the spars with their fittings, standing rigging and sails. A vane or wind direction indicator does not form part of the rig.

5.2 General

5.2.1 No part of the rig shall extend beyond the bow nor beyond the stern of the boat, nor be higher than 110 cm over the sheerline at a point of the mast position.

5.2.2 The boat shall race while carrying no more than 2250 cm2 of sails in its rig.

5.2.3 During an event the boat could be equipped with up to three (3) declared rigs, e.g. “A”, “B” or “C”, with each of them not exceeding 2250 cm2 of Sail Area, and using only one at a time.

5.2.4 The dimensions and areas of the sails forming each one of up to 3 (three) rigs shall be declared in writing before beginning an event. Each declaration shall include a sketch of the sail(s), the divisions used to measure it and the calculated areas.

5.3 Spars

5.3.1 All the spars must have a section smaller than a circle 1.2 cm in diameter.

5.3.2 Fittings constituting a local extension (goosenecks, downhauls, rigging of the stays, etc.) do not form part of the section of the spars.

6 SAILS

For the calculation of Sail Area, the enveloping figure of each sail is divided into sections consisting of trapezoids, rectangles, triangles or circle segments whose areas are added together to obtain the Total Area of a Sail. The manner of division is constrained only by the rules and definitions in Sections 6.1 and 6.2. Appendix 2 further defines the terms used in this Section 6.

If the corners of the sail are rounded, the sides of the enveloping figure shall be extended to define the position of the vertex of the corresponding trapezoid, rectangle, triangle or circle segment. If any portion of the sail outline is concave, the concave portion shall be bridged with a straight line.

If the edge of the sail forms an arc of more than 0.2 cm on the side of the trapezoid or triangle used to measure it, the segment of the resulting arc will be included in the surface calculation.	If an edge of the enveloping figure deviates more than 0.2 cm from a straight side of the section (rectangle, trapezoid or triangle) used to measure it, the resulting circle segment shall be included in the calculation of total area. The height ("sagitta") of the circular segment should not exceed 50% of its chord.
The partial surfaces corresponding to divisions will be calculated as follows:	The areas of sections resulting from the division of the enveloping figure will be calculated as follows:
a. Simple trapezoids: (B0 + B1) * h / 2	a. Simple trapezes: (B0 + B1) * h / 2
b. Contiguous trapezoids, all the same height:: (B0/2 + B1+ . . . + Bn/2) * h	b. Rectangles: B * Ht
c. Triangles: Bt * Ht /2	c. Triangles: B * Ht /2
d. Segments of Arc: C * f / 1.5	d. Circular Segment: C * Ch / 1.5
Where: B0, B1, . . ., Bn = Width of the trapezoids	where:
h = Height of the trapezoids	(See corrected text below)
Bt = Base of the triangle	(See corrected text below)
C = Cord of the segment of arc	(See corrected text below)
f = Arrow of the segment of arc	(See corrected text below)
	Ht = Vertical dimension of section. B = Base dimension of section. B0 = Upper horizontal dimension of trapezoid. B1 = Lower horizontal dimension of trapezoid. C = Chord of circular segment. Ch= Height (“sagitta”) of circular segment. Maximal height should be at midpoint of chord.
	Comment: Corrected element naming, syntax, consistency of terms, simplification for the geometrically challenged. Eliminated Simpsons Rule to simplify, measuring each trapezoid will suffice. Added rectangle explicitly. Introduced standard “height” usage for circular segment.
	Comment: Area Calculation could be executed using any one of the Work Sheets that will be available at *http://rg65.org/faq-knowledge/*

6.2 **Checking the dimensions**

Each sail will have permanent marks indicating the extremes and special points of the divisions used for its surface calculation. Dimensions are measured and /or verified edge to edge on the cloth.

Each sail will have permanent marks indicating the extremes and special points of the divisions used for its surface calculation. Dimensions are measured and /or verified edge to edge on the cloth.

The minimum tension will be applied to the sails as necessary to eliminate wrinkles along the dimension verified.

When checking declared dimensions, a tolerance of 0.5 cm will be accepted in total measurement (clew point to tack point to head point), and 0.2 cm in partial measurements (bases, heights, arrows of subdivisions). In case of finding any differences, and within the tolerances described above, the surface should be recalculated using the actual values obtained. The total area of the rig shall not exceed 2250 cm2.

6.3 **Identifications marks**. (see appendice 4)

Emblem of the class:

The class emblem will be located in the upper third of the mainsail, starboard above, port side below, and measure not less than 3 cm. by 3.5 cm. (See appendix 3)

Sail Number:

Consist of the last two digits of either the allocated boat number or owner's personal number. There should be space allowed in front of the sail numbers to add the prefix 'I' when required.

The Mainsail: The sail number is located in the middle third of the mainsail, starboard above, port side below, with numbers clearly visible in contrasting colour, in Arial font, height not less than 8 cm., Made with a stroke not less than 0.8 cm. Wide.

The Foresail: The sail number is located in the lower half of the sail, starboard above, port below, with numbers clearly visible in contrasting colour, in Arial font, height not less than 8 cm., made with a stroke not less than 0.8 cm. wide.

6.2 **Checking the dimensions**

For each sail there shall be available to Race Officials upon request a declaration diagram that shows the end points of the divisions used for its area calculation, the associated measured values, and the calculations.

Each sail shall have on it permanent marks which correspond to the end points shown on the declaration diagram.

When checking declared dimensions, a minimum tension shall be applied as required to eliminate wrinkles along the dimension to be measured or verified.

A tolerance of 0.5 cm will be accepted in total measurement (clew point to tack point to head point), and 0.2 cm in section measurements (bases, heights, chords). If there are differences between the total measurement and the sum of the section measurements which correspond to it, and both are within the tolerances specified above, the surface shall be recalculated using the section measurements. The total area of the rig shall not exceed 2250 cm2.

6.3 **Identifications marks**. (see Appendix 4)

Class Logotype:

The Class Logotype shall be located in the upper third of the mainsail, starboard above, port below, and shall measure not less than 3 cm. by 3.5 cm. (See Appendix 3)

Sail Number:

The Sail Number consist of the last two digits of either the allocated Boat Number or owner's Personal Number. There shall be space allowed in front of the sail numbers to add the prefix '1' when required.

On the Mainsail: The sail number shall be located in the middle third of the mainsail, starboard above, port below, with numbers clearly visible in contrasting colour, in Arial or simmilar font without serifs, height not less than 8 cm., drawn with a stroke not less than 0.8 cm. wide.

On the Foresail (if present): The sail number shall be located in the lower half of the sail, starboard above, port below, with numbers clearly visible in contrasting colour, in Arial or simmilar font without serifs, height not less than 8 cm., drawn with a stroke not less than 0.8 cm. wide.

Nationality letters: (only for international events)

The nationality letters will be located in the lower third of the mainsail, starboard above, port side below, with letters clearly visible in contrasting colour, in Arial font, height not less than 4 cm., made with a stroke of not less than 0.4 cm. Wide.

Identification of the rig:

The identification of the rig should be written with water-proof ink and be clear and visibly in the head corner on all the sails that form the rig. Eg "A", "B", "X", etc..

Sail area:

The measured area of each sail will be indelibly written in the tack of the sail.

7 REMOTE CONTROL EQUIPMENT

7.1 General

Radio systems with 2 (two) control functions shall be used. One function will act only on the rudder, and the other will act only on the sheets.

7.2 Replacements

No component of the boat nor its equipment, except the batteries of the equipment of radio, shall be replaced during the races of the **day**, except if the element to be replaced is broken or lost during the event and that the RACE OFFICER considers that this breakage or loss is really fortuitous and accidental. There is no restriction about replacement of RC equipment batteries during the races of the **day.**

Nationality letters: (only for international events)

The nationality letters shall be located in the lower third of the mainsail, starboard above, port below, with letters clearly visible in contrasting colour, in Arial or simmilar font without serifs, height not less than 4 cm., traced with a stroke of not less than 0.4 cm. Wide.

Rig Identification:

The Rig Identification should be marked with water-proof ink and be clear and visible in the head corner on all the sails that form the rig. Eg "A", "B", "X", etc..

If some specific Sail is used in more then 1 (one) Rig it should be marked with all Rig Identification letters that are due.

Comment: to permit various combinations of sails to form different rigs.

Sail area:

The measured area of each sail shall be written on the tack of the sail with water-proof ink.

7 REMOTE CONTROL EQUIPMENT

7.1 General

Only 2 (two) radio control functions shall be used. One function shall act only on the rudder, and the other shall act only on the sheets.

With exception of standard battery status and signal strength, no data transmission should be effected from boat to shore.

7.2 Replacements

No component of the boat nor its equipment, except the batteries, shall be replaced during the heats of an event, except if the element to be replaced is broken or lost during the event and the Race Officer considers that this breakage or loss is really fortuitous and accidental.

Graphic Appendices:	Graphic Appendices:
Appendix 1	**Appendix 1** (Graphic Rules): Change text to reflect update
Appendix 2	**Appendix 2** (Sail Calculation): Change text to reflect update
Appendix 3	**Appendix 3** (Logotype): No changes
Appendix 4	**Appendix 4** (Sail Markings): Change text to reflect update
Appendix 5	(Removed)
Appendix 6	(Removed)

Repeat of initial comment:

DEFINITION:

"Rules Update" is the process in which errors, mistakes or confusing rule texts are amended in order to unify possible interpretations. It is **NOT** a process to "change" the Boat´s Style or Characteristics.

A "Rule Update" could be considered successful *if we reach an agreement on the text of the rules and it fits old and new boats.*
