34TH AMERICA'S CUP

AC72 CLASS RULE

Draft 2.0
6 October 2010

Pursuant to Article 29.1 of the Protocol governing the 34th America's Cup, this AC72 Class Rule is hereby adopted on [date] by:

_____ on behalf of the Defender

_____ on behalf of the Challenger of Record

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This **AC72 Class Rule** (herein "rule") is intended to produce a fleet of high-performance racing catamarans that utilize commercially-available materials, are similar in performance, and are exciting to race in a wide range of wind conditions on short, inshore courses.

Competitors are responsible for the structural integrity of their **AC72 Yachts,** and compliance with the **Class Rule** does not necessarily assure structural integrity nor otherwise relieve the **Competitor** of this responsibility.

Competitors shall ensure that their **AC72 Yachts** comply with the **AC72 Class Rule** at all times while racing and, unless permitted under the **Rules**, that any alterations, replacements and repairs do not invalidate the measurement certificate once issued.

SECTION A

1. LANGUAGE AND DEFINITIONS

1.1 The official language of the **AC72 Class Rule** is English. If translated into another language, the English text shall prevail. Except for words defined herein, the meaning of any word shall be determined by reference to the Oxford English Dictionary, Second Revised Edition (2009) – CD Rom Version 4.0 (Oxford University Press 21 May 2009) or any later published version. When there is more than one definition in the Dictionary, the Measurement Committee shall determine the appropriate definition.

1.2 When a term is used in its defined sense, it is printed in bold type. In Appendix F, several **wing** and sail terms are also defined and these are used in bold type within that Appendix.

1.3 In interpreting this **AC72 Class Rule** the definitions in Article 1.1 of the **Protocol** shall apply, and:

(a) **cross structure** means structure used to connect the **hulls** or to support the **wing**, **standing rigging** or sails, including any part of this structure which extends into the **hull** and is removed from the **hull** when the **AC72 Yacht** is disassembled (as per rule 4.11); **cross Structure** does not include trampolines;

(b) **daggerboard** means a retractable item primarily used to affect leeway; for the purposes of the AC72 Class Rule, the term daggerboard is synonymous with bilge board, centerboard, lifting keel and sliding keel.

(c) **fiber modulus** means the batch-nominal elastic modulus of the fibers in an **FRP** laminate with the modulus measured with impregnated tows, by extensometers, between 1000 and 6000 microstrains; the **Measurement Committee** will accept the following testing methods (and may accept other similar methods): SACMA-SRM16, ASTM D 4018, or JIS R 7601;

(d) **FRP** means fiber-reinforced polymer matrix composites;

(e) **hoist point (or Hoist Point A or Hoist Point B as further defined herein)** means the point on the **wing** where the **rigging** or fitting supporting the sail head intersects the leading edge of the **wing** while in **wing measurement position** (see Appendix E);

(f) **hull** means a canoe body that carries 45% or more of the **AC72 yacht's**

displacement in **measurement condition**;

(g) **hull centerplane** means a longitudinal plane of symmetry of a hull;

(h) **inboard beam waterline** means the shortest distance between the **hulls** at **MWP**;

(i) **interpretation** means an interpretation issued in writing by the **Measurement Committee** in accordance with rule 2;

(j) **Measurement Committee** means the committee appointed under Article 4.4 of the **Protocol**;

(k) **measurement condition** means the condition of the **AC72 Yacht** as specified in rule 25;

(l) **measurement weight** means the weight of the **AC72 Yacht** in **measurement condition;**

(m) **measurer** means a person appointed by the **Measurement Committee** to provide measurement or compliance services; a **measurer** may or may not be a member of the **Measurement Committee**;

(n) **MWP** is the flotation plane in **measurement condition;** vertical direction shall be defined as an orthogonal axis; the three major orthogonal axes of the **AC72 Yacht**: are vertical, longitudinal, and transverse related to **MWP** and to the **AC72 Yacht centerplane;**

(o) **rigging** means ropes, cables or rods that are primarily loaded in tension and are essentially ineffective in compression;

(p) **rudder** means a movable hull appendage primarily used to affect steerage.

(q) **sailing weight** means the sum of the **measurement weight** and the weight of the **wing** when the **wing** is in **wing measurement condition**;

(r) **stem plane** means the vertical transverse plane that passes through the forward-most point of the **hulls**;

(s) **stern plane** means the vertical transverse plane that passes through the aft-most point of the **hulls;**

(t) **tack point** (or **Tack Point A** and **Tack Point B** as further defined herein) means the point on the **cross structure** where the **rigging** or fitting that supports the sail tack is attached as defined in rule 11.3;

(u) **wing** means a rigid or semi-rigid structure (encompassing a traditional yacht's mast and mainsail structures), similar to an aircraft wing fixed approximately vertically to provide propulsion from the wind;

(v) **wing base plane** means the plane at the base of the wing grid in Appendix E perpendicular to the **wing centerplane**;

(w) **wing centerplane** means the plane of symmetry parallel to the measurement grid when the wing is in **wing measurement position**;

(x) **wing measurement condition** means the condition used to measure the weight and center of gravity of the **wing** detailed in rule 9.14;

(y) **wing measurement position** means the position of the **wing** used to determine it's area detailed in rule 9.6;

(z) **wing rotation point** means the point about which the lowest compressive load-bearing component of the **wing** rotates relative to the **AC72 Yacht**; and

(aa) **yacht centerplane** means the vertical lon.gitudinal plane of symmetry of the **AC72 Yacht** that is perpendicular to **MWP**

2. INTERPRETATIONS

2.1 A **Competitor** may seek an **Interpretation** by submitting a request in writing to the **Measurement Committee**, or the **Measurement Committee** may initiate an **Interpretation**. The **Measurement Committee** shall issue **Interpretations** publically within 30 days of the request unless otherwise agreed with the **Competitor**.

2.2 A **Competitor** shall not rely on any advice or opinion from a member of the **Measurement Committee** other than through an **Interpretation**.

2.3 If a **Competitor** fails to obtain an **Interpretation** on a design feature that is not explicitly permitted by the **AC72 Class Rule,** the **Measurement Committee** may not issue, or may withdraw, the **AC72 Yacht's** measurement certificate until such design feature is the subject of an Interpretation.

3. AMENDMENTS

3.1 The **AC72 Class Rule** may be amended at any time by unanimous consent of Competitors still competing, except:

(a) at any time the **Measurement Committee**, with the approval of the Regatta Director, may amend the **AC72 Class Rule** in respect of rules in Appendix H; and

(b) prior to February 1, 2011, the **Measurement Committee**, with the approval of the Regatta Director and a majority of the **Competitors,** may amend the **AC72 Class Rule** in any respect.

SECTION B

4. GENERAL

4.1 The **AC72 Yacht** shall be a vessel, generally known as a catamaran, with two **hulls** that are symmetrical about a **centerplane** connected by **cross structure,** and that has two **rudders** and two **daggerboards.**

4.2 The **AC72 Yacht** shall have one **wing** and the only permitted sails are a Jib, Code Zero and a Gennaker.

4.3 The overall length of the **hulls** between the **stem plane** and **stern plane**, including fittings but not including **cross structure, rigging** and equipment required or provided by **ACRM,** shall not be more than 22.000 m.

4.4 The **cross structure**, including fittings, shall not extend more than 26.200 m forward of the **stern plane**.

4.5 With all components in their widest possible positions, and the **AC72 Yacht** in **measurement condition**, the maximum overall beam shall be not greater than 14.000 m. The beam shall be measured between vertical planes at the transverse extents of the **AC72 Yacht** parallel to the **AC72 Yacht's centerplane**.

4.6 Any surface of the **AC72 yacht** that is not part of the **wing**, sails, **rigging**, **rudders**, **daggerboards**, or ACRM-mandated equipment, and that:

(a) is greater than 2.000 m above **MWP**;

(b) has a chord length/thickness ratio greater than 3:1; and

(c) makes an angle of greater than 10 degrees to **MWP.**

is prohibited.

4.7 The **inboard beam waterline** shall be not less than 11.500 m.

4.8 With **rudders**, **daggerboards** and any other component in their lowest possible positions, no part of an **AC72 yacht,** when in **measurement condition,** shall extend more than 4.400 m below **MWP**.

4.9 No part of the measured area of the **Wing** shall extend more than 40.000 m above **MWP**.

4.10 The **sailing weight** shall be not less than 5200 kg nor greater than 5400 kg.

4.11 An **AC72 Yacht** shall be capable of being assembled and disassembled by a **Competitor** as follows:

(a) within 24 hours, **wings** shall be disassembled and packed in shipping boxes of the following outside dimensions:

(i) two of 19.000 m x 5.000 m x 2.500 m;

(ii) additional boxes which shall fit within a volume 5.000 m x 1.500 m x 19.000 m;

(b) within the same 24 hours, **hulls**, **cross structure**, **rudders** and **daggerboards** shall be disassembled and packed in shipping boxes of the following outside dimensions::

(i) two of 22.500 m x 2.500 m x 2.000 m;

(ii) two of 14.500 m x 1.500 m x 1.250 m;

(c) within 48 hours**,** from packed in the foregoing shipping boxes to totally assembled and ready to sail.

Competitors shall satisfy the **Measurement Committee** that they are capable of meeting these requirements.

4.12 When in **measurement condition AC72 Yachts** shall be capable of being weighed by a single load cell and, when lifted, shall be approximately horizontal.

4.13 Devices in, on or near the surface of any **hull**, **rudder** or **daggerboard**, the purpose or

effect of which is or could be to bleed off or alter the water or air flow of the boundary layer, are prohibited, including (but not limited to) holes in surfaces, textured surfaces, riblets, Large Eddy Break-Up Devices (LEBUs), and compliant surfaces. For the avoidance of doubt, fairings or covers on the primary lower load-bearing support of **daggerboards,** and normal through-**hull** fittings (such as self-bailers, drains, boatspeed transducers, weed-removal devices) are permitted.

4.14 Electric, magnetic, sonic, thermal and other methods, the purpose or effect of which is to modify the flow characteristics of the water or air in the boundary layer of any **hull**, **daggerboard**, **rudder** or **wing**, are prohibited.

5. HULLS

5.1 Other than sails and **rigging**, no component shall extend forward of the **stem plane** within 1.000 m of the **hull centerplane**.

5.2 Water, the weight of which could increase performance, shall not be retained in the bilge, any recess, or other volume. Any recess in the **hull** capable of retaining water at any heel angle less than 25 degrees or at any trim angle less than 10 degrees must be self draining with the size of the drain at least 0.006 m^2 per 1.000 m^3 of the recess volume that could contain water in **measurement condition**.

5.3 No part of a **hull** shall be adjusted or trimmed, except for permitted fairings under rule 4.13.

5.4 **Hulls** and **cross structure** shall not be adjusted, relative to each other, by any mechanism. For the avoidance of doubt, this rule does not prohibit normal deflections caused by sailing loads.

5.5 The intersection of any **hull**, **cross structure** or **rigging** shall be at least 1.000 m forward of the **stern plane,** and shall be no further forward than the forward watertight bulkheads required under rule 5.10.

5.6 The intersection of the **hull centerplane** and the **stern plane** shall be no greater than 10 degrees from vertical.

5.7 Each **hull** shall be symmetrical, within +/- 0.005 m, about its **hull centerplane** except **hull** surface that is:

(a) between transverse planes 1.000 m forward and 13.000 m forward of the stern plane that is also 0.300 m or more above MWP measured to the inboard side of the hull and mirrored about the hull centerplane as shown in Appendix E;

(b) within 0.200 m of the **daggerboard** and **rudder** openings or their bearings and also within 0.200 m of the local hull surface; and

(c) for local reinforcement necessary for fittings.

5.8 Between 1.000 m forward of the stern plane and 1.000 m aft of the stem plane, the highest point of the hull surface in any transverse section shall always be higher than a point at this section and a line between: a point 1.000 m forward of the **stern plane** and 0.850 m above **MWP,** and a point 1.000 m aft of the **stem plane** and 1.100 m above **MWP**.

5.9 The **hull** between the **stem plane** and a plane between 0.900 m and 1.000 m aft of the **stem plane**, and the **hull** between the **stern plane** and a plane between 0.900 m and 1.000 m forward of the **stern plane,** shall be replaceable by “replacement sections” as

follows:

(a) each Competitor shall have one forward replacement section and one aft replacement section available for use at a regatta;

(b) the Competitor shall notify the **Measurement Committee** before any replacement section is installed; and

(c) the **Measurement Committee** shall be satisfied that an **AC72 Yacht** fitted with a replacement section complies with the **AC72 Class Rule**.

5.10 A watertight bulkhead shall be located in each **hull** in two locations**:** between 1.000 m and 1.500 m from the **stem plane,** and between 1.000 m and 1.500 m from the **stern plane**.

5.11 Hatches shall be allowed in the **hull** provided they shall:

(a) be closed by a cover permanently attached to the **hull** by hinges, slides or similar arrangement;

(b) be watertight, meaning a closed hatch shall prevent the ingress of water from a garden hose applied from any direction;

(c) meet the **hull** construction requirements in rule 7 or meet CE Area 2 requirements; and

(d) be at least 0.500 m above **MWP**.

5.12 Ports for hand access are permitted, provided each does not exceed 0.100 m^2 and is secured by a watertight cover.

5.13 Small openings in **hulls** for **rigging** to pass through and for attachments are permitted provided they shall:

(a) be no larger than required for their specific task;

(b) have a rubber gaiter boot or other means of closing the opening if the area exceeds 0.005 m^2;

(c) be aft of 13.000 m from the **stern plane**; and

(d) be at least 0.600 m above **MWP**.

5.14 **AC72 Yachts** shall have media bays to accommodate the **ACRM**-provided media equipment per Appendix F. The media bays shall be located aft of the **wing rotation point** and forward of the aft-most watertight bulkhead, and shall be easily accessible between races.

6. CROSS STRUCTURE

6.1 No part of the **cross structure**, including fittings, shall be less than 1.000 forward of the **stern**.

6.2 No part of **cross structure**, including fairings or other surfaces, shall be adjusted or trimmed while racing.

6.3 No part of **cross structure** shall move (translate or rotate about any axis) relative to any other part of the **cross structure**, except for normal deflections caused by sailing loads.

6.4 Any recess in the **cross structure** capable of retaining water at any heel angle less than 25 degrees or at any trim angle less than 10 degrees must be self draining, with the size of the drain at least 0.006 m^2 per 1 m^3 of the recess volume that could contain water in **measurement condition**.

6.5 **Cross structure** shall be easily demountable from the **hulls**, such that no part of the **cross structure** shall be laminated or bonded to the **hulls**;

6.6 No part of **cross structure,** external to any **hull,** shall be below **MWP** or greater than 2.500 m above **MWP**.

7. RUDDERS

7.1 Each **hull** shall have one rudder. The rudder or rudder stock shall penetrate the **hull**.

7.2 No part of a rudder, through its entire range of motion, shall be less than 1.000 m or greater than 3.000 m forward of the **stern plane.**

7.3 Rudders shall rotate about an axis within 10 degrees of perpendicular to **MWP**.

7.4 Rudders shall not translate in any direction.

7.5 Rudders (including rudder stocks) shall not exceed 5.000 m in any direction, measured along a straight line.

7.6 Rudders shall not have components such as trim tabs or moveable winglets that can be adjusted while racing; however, a movable or retractable device whose sole purpose is the removal of weed or debris is permitted.

7.7 While an **AC72 Yacht** is moored, rudders shall be capable of:

(a) freely rotating through 360 degrees; or

(b) being removed without the assistance of a shore-based or floating crane.

8. DAGGERBOARDS

8.1 Each **hull** shall have one daggerboard.

8.2 Daggerboards shall penetrate the **hull** forward of the rudder and aft of the forward watertight bulkhead under rule 5.10.

8.3 The maximum dimension of any daggerboard shall be 7.000 m in any direction, measured along a straight line.

8.4 The primary lower load bearing support of each daggerboard may rotate about a single axis and shall not translate in any direction.

8.5 A daggerboard shall not translate along the longitudinal axis more than 0.020 m within its primary lower load-bearing support.

8.6 Daggerboards shall not have components such as trim tabs or moveable winglets that can be adjusted while racing; however, a movable or retractable device whose sole purpose is the removal of weed or debris is permitted.

8.7 Daggerboards shall be capable of being raised (without the assistance of a shore-based or floating crane) so that, when the **AC72 Yacht** is moored, the daggerboards do not extend more than 0.300 m below the local hull surface.

9. WING

9.1 The **wing** shall be symmetrical about the **wing centerplane** within a tolerance of 0.005 m in **wing measurement position**.

9.2 If shrouds are adjustable, port and starboard shrouds shall be connected in a master-slave relationship so they always have the same extension. For the avoidance of doubt, this is to prohibit canting the **wing** to windward.

9.3 Further to Protocol Article 29.6, the **wing spar** shall be capable of being disassembled into two separate sections, both of which shall be at least 18.000 m in length; for the purposes of this rule, fittings shall not be considered part of the **wing spar**.

9.4 The **AC72 yacht** shall have a single **wing rotation point** that shall be:

(a) within 0.005 m, of the **centerplane**;

(b) located on the plane of symmetry of the **wing** in **wing measurement position**; and

(c) between 2.000 m and 2.500 m above **MWP.**

9.5 In addition to the **wing** rotation point, motion of all measured **wing** surfaces are limited to:

(a) a maximum of two axes of rotation through any wing reference chord;

(b) no other translations or rotations are permitted; and

(c) when in **wing** measurement position, the axes of rotation shall lie on the **wing** centerplane and be within 15° of perpendicular to the reference chords.

9.6 A **wing** measurement grid shall be established per Appendix E. The **wing**, when all movable measured **wing** surfaces are oriented symmetrically about the **wing centerplane**, shall be placed over the grid with the **wing centerplane** parallel to the grid surface so the top of the **wing** is at the 40.000 m reference chord and the perimeter line of the **wing** lies within the permitted zone.

9.7 If, in the opinion of the **Measurement Committee**, the **wing** area is not accurately measured by this method, they may devise and use another method.

9.8 Elements with a measured girth of less than 150 mm shall not be included in the area calculation, provided such elements do not increase the effective **wing** area.

9.9 The total area enclosed within the outline of the **wing** in **wing measurement position** shall not be greater than 260.00 m^2 nor less than 255.00 m^2 which shall be calculated using the chord length measured at the reference chords (between Appendix E C1 and C11 inclusive) and integrated using Simpson's rule. **Wing** areas above reference chord 39.500

m and below reference chord 2.500 m shall be measured and included in the total **wing** area. The perimeter line shall:

(a) be taken as a line drawn around the largest extent of the measured area of the **wing**;

(b) not have hollows except in it's edges, and these hollows shall be bridged by the perimeter line as shown in Appendix E; and

(c) not include **wing** components used to connect the **wing** to the **wing rotation point** that have with a planform area of less than 0.400 m2.

9.10 The half-girth of the convex side of the **wing** in any chordwise camber orientation shall not increase more than 1.50% from its half-girth in **wing measurement position**. See Appendix E. The maximum measured girths shall be limited by a mechanical system, which may be sealed by the measurement committee.

9.11 When the **wing** is in **wing measurement position**, and when viewed perpendicular to the **wing** base plane, the projected area of any component of the **wing** above 35.000 m, or below 2.000 m, from the wing base plane shall not exceed 2.00 m^2.

9.12 The leading edge of the wing shall be straight (within a tolerance of 0.003 m) below grid C3.

9.13 The weight of the **wing** in **wing measurement condition** shall be not less than 1200 kg; and the center of gravity shall be not less than 17.000 m above **MWP.**

9.14 The **wing** in **wing measurement condition** shall**:**

(a) be capable of being weighed by suspension from only two points;

(b) be oriented as per **wing measurement position**;

(c) include all **rigging**, spreaders, jumpers and jumper systems, diamonds, all backstays, runner fly blocks (but excluding runner tails), check stays, instruments, instrument sensors, cameras, cables, permanently-installed ACRM media equipment, hydraulic rams, and pipework;

(d) include all wing fittings required to sail the yacht, including mast jacks if an integral part of the wing, halyard locks, spreader fittings;

(e) exclude all **halyards**, however, halyards may be replaced with light weight mouse lines not exceeding 4 mm diameter

(f) have all **rigging** in place and pulled down tight along the **wing**; and

(g) be the configuration which achieves the lowest center of gravity.

9.15 Any component that remains attached to the **wing** when the **wing** is removed from the **AC72 Yacht** is deemed to be part of the **wing** for measurement purposes, and equipment (including halyards) not weighed, as part of the **wing** weight and center of gravity shall be included in the **measurement weight.**

10. RIGGING

Rigging and non load-bearing **rigging** fairings shall have a maximum girth of 150 mm, and the chord length shall not be more than three times the width of the cross-section.

11. SAILS

11.1 The following sail definitions shall apply:

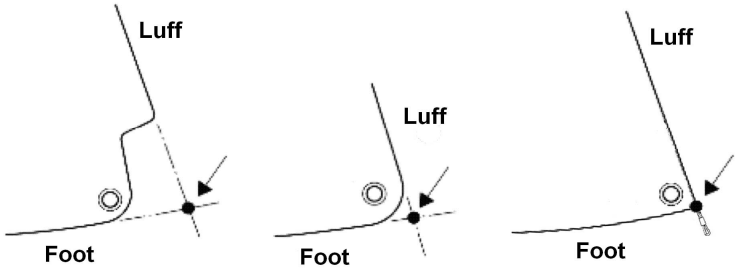
(a) **foot** means the bottom edge of the sail in its normal configuration when in use;

(b) **head** means the top edge or point of the sail in its normal configuration when in use;

(c) **luff** means the forward edge of the sail;

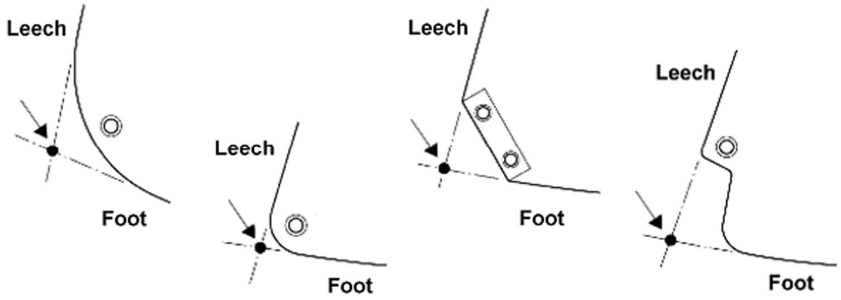
(d) **leech** means the aft edge of the sail;

(e) **tack** means the point where the **luff** and **foot** meet, projected as necessary;



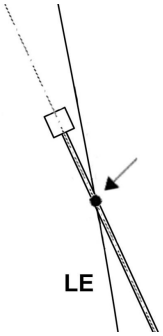
(f) **clew** means the area within 1.000 m of the **clew point**;

(g) **clew point** means the intersection of the **leech** and **foot**, projected as necessary; and



(h) **LP** means the distance, measured perpendicular to the **luff**, from the **luff** to the **clew point** of a sail.

11.2 **Hoist points** in **wing measurement position** shall be:



(a) **Hoist Point A** shall be between 34.000 m and 37.000 m above the **wing base plane**;

(b) **Hoist Point B** shall be between 34.000 m and 35.000 m above the **wing base plane**; and

(c) measured as the intersection of a line which is the extension of the **luff** of the sail or, if used, the **luff** support device, with the leading edge of the **wing** in **wing measurement position**; the **luff** or luff support device shall be oriented so that its extension passes through the measurement position of the **tack point**.

11.3 **Tack points** shall be:

(a) **Tack Point A,** which shall not be forward of 26.000 m from the **stern plane**, and not be forward of a point that would result in a JA measurement, per **AC72 Class Rule** 11.4, greater than 13.000 m;

(b) **Tack Point B,** which shall not be forward of 22.000 m from the **stern plane**, and shall not be forward of a point that would result in a JB measurement, per **AC72 Class Rule** 11.4, greater than 9.000 m;

(c) measured as the intersection of a line which passes through the attachment point to the **cross structure** at an angle, for **Tack Point A**, of 69 degrees to **MWP**, and, for **Tack Point B**, at 74 degrees to **MWP**;

(d) between 1.800 m and 2.000 m above **MWP**; and

(e) within 0.030 m of the **yacht centerplane.**

11.4 No sail shall be set so that its **head** is above its **hoist point** or so that its **tack** is below the **tack point**.

11.5 **JA** and **JB** shall be measured horizontally from a vertical line that passes through the intersection of C2 and the leading edge of the **wing** in **wing measurement position** to **Tack Point A** and **Tack Point B**, respectively, as shown in Appendix E.

11.6 Jibs:

(a) shall not be tacked forward of **Tack Point B**;

(b) shall be flown within the region allowed for **Hoist Point B**;

(c) shall have an **LP** measurement less than 9.270 m;

(d) shall have a three-quarter girth (measured perpendicular from luff to leech) not greater than 33% of the **foot** length;

(e) may have battens;

(f) shall have no battens within 3.000 m of the **head**; and

(g) shall have no battens below a line joining points 1.000 m above the **clew** and 1.000 m above the **tack**.

11.7 Code Zeros shall:

(a) not be tacked forward of **Tack Point A**;

(b) be flown within the region allowed for **Hoist Point A**;

(c) have an **LP** measurement less than 12.500 m and greater than 11.000 m; and

(d) not have battens.

11.8 Gennakers shall:

(a) not be tacked forward of **Tack Point A**;

(b) be flown within the region allowed for **Hoist Point A**;

(c) have an **LP** measurement greater than 14.000 m; and

(d) not have battens.

11.9 Other than for sail hardware, intentional openings are prohibited.

11.10 Artificially thickened sails are specifically prohibited, *e.g.*, foamed sails or rigid sails and multiple-surface sails, whether inflated by the action of the wind or otherwise, except battens and batten pockets as provided below.

11.11 Battens:

(a) shall pass through a 0.075 m diameter circle;

(b) may consist of multiple elements that need not necessarily be attached to one another, provided they shall be in close proximity over their entire length, and the multi-element array complies with (a) above;

(c) shall be approximately straight within a tolerance of 0.100 m either side of a straight line;

(d) shall not be adjusted when a sail is set;

(e) shall not be inflatable;

(f) may be inside a pocket not exceeding 0.150 m width measured normal to the batten; and

(g) shall not be oriented at an angle of less than 30 degrees to the local **luff**.

11.12 The dimension of any sail hardware, in any direction, shall not exceed 0.750 m for a **clew** board, or 0.250 m for any other hardware.

11.13 Any sail may be attached to **rigging** along its **luff** provided the attachments measure no more than 0.120 m perpendicular to the **luff** and 0.075 m parallel to the **luff** and these attachments are no close than 1.000 m to each other.

11.14 No device shall control a sail except:

(a) sheets on the **clew** to a sheeting point on the **hull** or **cross structure**;

(b) a cunningham system near the **tack**;

(c) a furling system;

(d) a tacking line on or near the **foot**, the purpose of which is to bring the **clew** of the sail forward during a tack or gybe, provided the tacking line is not used to sheet the sail in any way;

(e) a **luff** support device, whose dimension measured perpendicular to the **luff** is no more than 0.075 m over a distance of 0.100 m measured parallel to the **luff**; for the avoidance of doubt, hanks to attach headsails are permitted but no **luff** support device may be used to increase sail area; and

(f) systems to control the leads of the sheets.

11.15 Not more than three sails are allowed on board while racing, one of which shall be a jib.

SECTION C MATERIALS & CONSTRUCTION

12. GENERAL

12.1 Limits on materials and construction methods in **AC72 Class Rule** 12 apply generally except where altered for specific parts of the **AC72 Yacht** as detailed in AC72 Class Rules 13-16.

12.2 A maximum of 40 kg of **FRP** constituent parts from commercially available ex-stock material (e.g. tube, plate, etc.) may be used in the construction of the **AC72 Yacht**, provided that no single constituent part exceeds 10 kg. These constituent parts are not limited by the building methods otherwise set out in **AC72 Class Rule**.

12.3 Boron and Beryllium are prohibited.

12.4 The use of electron beam or any other non-thermal radiation cure of composites is prohibited. This does not prohibit the use of conductive heating with electrical current for the cure of composites.

12.5 Sandwich construction techniques are permitted. Any component materials used in the manufacture of core shall have a modulus in any direction not exceeding 140 GPa and shall only be composed of aluminum honeycomb, meta-aramid (Nomex) honeycomb, or foam.

12.6 The temperature of any **FRP** component shall not exceed 135 degrees Celsius at any time

during construction.

12.7 No **FRP** component shall have **fiber modulus** greater than 395 GPa, unless otherwise specified herein.

12.8 Isotropic materials shall have elastic modulus less than 220 GPa.

12.9 Pressure applied at any time during construction to **FRP** components shall not exceed 7 atmospheres, but this limitation shall not prohibit building methods including the use of clamps or mechanical fastenings, wrapping, and winding etc.

12.10 Materials with elastic modulus exceeding that specified in **AC72 Class Rule** may be used provided:

(a) the largest dimension of each particle does not exceed 1 micron; and

(b) the total weight of these materials used in any composite component does not exceed 1.0% of the weight of that composite component.

12.11 Gases with a density less than standard atmosphere air to reduce the weight of an **AC72 Yacht** are prohibited.

13. HULL-SPECIFIC

13.1 **Hulls** and internal structure shall not have pressure applied at any time during construction that exceeds one atmosphere, but this limitation shall not prohibit building methods including the use of clamps or mechanical fastenings, wrapping, and winding, etc.

13.2 Minimum outer skin weight on any external **hull** surface shall be not less than 900 g/m^2, including fiber and resin but not including any paint, fairing or core bond adhesive. For the avoidance of doubt, this limit applies to all areas where the inner skin is the outermost surface of the **hull** that is not enclosed or covered by another rule-legal structural element.

14. TRAMPOLINE-SPECIFIC

14.1 Trampolines shall be directly fixed on the **hulls** and **cross structure**, and shall:

(a) be strongly secured with regular spacing on their support edges; this spacing shall not be greater than 1.000 m, when tensioned but without supporting the weight of crew or sails; gaps between the trampoline and the **hulls** or **cross structure** shall not be greater than 0.200 m when tensioned but without supporting the weight of crew or sails;

(b) be able to support local loadings equivalent to the weight of the crew and sails in normal working conditions at sea;

(c) cover all open areas between the **hulls** from the **wing rotation point** aft to aft extent of **cross structure**;

(d) cover all open areas in a triangle with a base of a 3.000 m transverse line centered on the **wing rotation point** forward to an apex of **Tack Zone B**.

(e) be constructed of a netting of rhomboid cells, of a size such that a cylinder with a diameter of 50 mm shall not fit through any cell of the netting while tensioned;

(f) have a minimum twine diameter of 2.7 mm; and

(g) be made of material with a fiber modulus not greater than 135 GPa;

15. HARDWARE AND RIGGING-SPECIFIC

15.1 Hardware and fittings shall be constructed of wood, polymer, aluminum alloys, **FRP**, titanium, or steel and steel alloys, bronze, brass or a combination thereof.

15.2 **Rigging** shall be made of one or any combination of steel, aluminum, bronze, brass, polymer and/or fibrous materials with a **fiber modulus** less than 395 GPa, consisting of carbon, aramid, or polymer fibers.

16. SURFACE FINISHES & BOUNDARY LAYER INTERFERENCE

16.1 Only paint systems generically specified as two-component linear polyester saturated aliphatic polyurethane, or two component acrylic urethane, and manufactured by International, Awlgrip, Akzo Nobel or Resene Santana, may be used as the outermost surface finish of the **hulls, rudders** and **daggerboards**. No materials other than specified manufacturer-supplied retardants, accelerants, thinners and pigments shall be added. Similarly, the specific gravity of the paint shall not be altered with any material other than those specified above. The **Measurement Committee** may authorize the use of paint products manufactured by another manufacturer if it meets the requirements for product standardization, compliance, and testing.

16.2 The application of vinyl-film over the painted surface of the **hull** is allowed, provided:

(a) it shall not be textured in any way; and

(b) It shall not be applied below **MWP** unless subsequently covered by a paint system permitted in 17.1.

16.3 The outermost surfaces of the **hull** or **appendages** may be sanded and/or cleaned with normal concentrations and quantities of detergents or similar materials. However, while afloat on a scheduled race day, no substances shall be present on the outermost surfaces of the **hull, rudder** or **daggerboard** other than those permitted in the **AC72 Class Rule**.

SECTION D

17. CREW

17.1 Crew shall not be positioned inside the **hull** enclosure except during emergencies and briefly to perform inspections.

17.2 Competitors shall only use the following devices to position their bodies outboard of the local beam:

(a) hiking straps connected to the **hull**;

(b) shrouds and shroud fittings within 0.200 m of the local hull;

(c) winches and winch handles; and

(d) sail control lines whose anchor points for hiking are connected to the **hull** or **cross structure**; making loops on sail control lines to aid hiking is prohibited.

17.3 When hiking in the sitting position no part of the crew 's body between the middle of the thigh and feet shall be outboard of the local beam. When hiking in the prone position at least half the torso, one full arm and one full leg shall be inboard of the local beam.

17.4 No part of any crew shall be below a plane 0.300 m above **MWP**.

17.5 Areas occupied by crew the crew shall not be covered.

18. STORED POWER

18.1 **Rigging,** sails, **rudders** and **daggerboards** shall be adjusted only manually, and the use of stored energy is prohibited, except:

(a) for springs, shockcord, and similar devices;

(b) low pressure hydraulic or gas accumulators of less than 6 bar which provide back pressure to a hydraulic system to prevent cavitation, but do no significant work themselves;

(c) batteries to power electric bilge pumps, provided the total capacity is not greater than 200 l/min; and

(d) batteries to power instruments and ACRM media equipment.

19. AC72 YACHT IDENTIFICATION AND CLASS INSIGNIA

19.1 **AC72 Yacht** identification numbers shall be allocated sequentially by the Measurement Committee. When an **AC72 Yacht's** ownership is transferred from one country to another, it shall retain the same identification number with only the national letters being changed.

19.2 A new identification number may be reserved by a team when construction of an **AC72 Yacht's hull** has commenced.

19.3 A new identification number shall be issued to the **AC72 Yacht** when a measurement certificate is issued or when otherwise required by the Protocol.

19.4 Class insignia and **AC72 Yacht** identification number shall be displayed on the top 25% of the **wing**. Details of the insignia and identification number shall be published by the Regatta Director and may be amended from time to time.

SECTION E

20. UNITS OF MEASUREMENT

20.1 The Metric System shall be used for all measurements, with:

(a) length measured in meters to three decimal places except that sails shall be measured to two decimal places;

(b) sailing and **wing** weights measured in kilograms to the nearest 10 kg;

(c) area measured in square meters to two decimal places;

(d) volumes measured in cubic meters to one decimal place;

(e) angles measured to the nearest 1 degree; and

(f) any other measurements taken to a degree of precision determined by the **Measurement Committee** as they deem appropriate, practical, and consistent with the degree of precision otherwise required herein.

20.2 For establishing continuing compliance with rule weight limits, the **Measurement Committee** shall determine and record the weight of any other components, modifications, repairs, additions, subtractions, and/or replacements to a degree of precision and using methodology they determine to be practical and appropriate for that purpose. Competitors shall provide all necessary assistance to the **Measurement Committee** in tracking these changes.

20.3 The measuring equipment used by the **Measurement Committee** shall be the reference device for determining compliance with the **AC72 Class Rule**.

21. MEASUREMENT MARKS

21.1 The **Measurement Committee** may place measurement marks on **AC72 Yachts**. Such marks include, but are not limited to, reference screws or punch marks, measurement bands on spars, and measurers' signatures and/or seals or stickers on any component.

21.2 Measurement marks of any type placed or otherwise confirmed by a member of the **Measurement Committee** shall not be moved, removed, altered, or replaced without their written permission.

22. DECLARATIONS

22.1 Competitors shall provide the **Measurement Committee** declarations signed by the relevant designer(s), builder(s) and **Competitor's** representative affirming that:

(a) **hull(s)** have been constructed from materials (including surface finishes) and using the methods permitted by the **AC72 Class Rule;**

(b) **cross structure** has been constructed from materials and using the methods permitted by the **AC72 Class Rule;**

(c) **rudders and daggerboards** have been constructed from materials (including surface finishes) and using the methods permitted by the **AC72 Class Rule;** and

(d) the **Wing** and associated **rigging** have been constructed from materials and using the methods permitted by the **AC72 Class Rule.**

The form of this declaration shall be as shown in **AC72 Class Rule** Appendix B.

22.2 Competitors shall provide a material-usage schedule for **FRP** used in each component described in rule 22.1 to the **Measurement Committee** as shown in **AC72 Class Rule** Appendix C. However, documentation is not required for wet-laminate **FRP** materials used in the construction of any component, provided that the total quantity of wet-laminate **FRP** is less than 5% by weight of the total **FRP** materials used in the construction of that component. Nonetheless, wet-laminate **FRP** mechanical properties shall comply with the **AC72 Class Rule** governing the component.

22.3 Competitors shall provide a material manufacturer's certificate of compliance for **FRP** used in each component described in 22.1 to the **Measurement Committee**.

23. INSPECTION AND MEASUREMENT

23.1 **Competitors** shall permit and assist all inspections and measurements by a **measurer** and the **Measurement Committee** and shall afford all reasonable facility to carry out such measurements and inspections, including during construction. Competitors shall provide measurement information reports to measurers as requested.

23.2 The **measurer** shall take at least four hull laminate samples no larger than 0.065 m in diameter from a location of their choosing.

23.3 The **Measurement Committee** reserves the right to take samples of the paint from the **hull** and/or **appendages** for analysis by the manufacturer to ensure that only the specified paint systems have been used

23.4 An **AC72 Yacht** may be re-measured at the discretion of the **Measurement Committee.**

23.5 A **measurer** who becomes aware that a **Competitor** may have failed to comply with any **AC72 Class Rule** shall advise the **Measurement Committee**.

23.6 The specific gravity of the seawater shall be measured and recorded at the time of measurement afloat. When specific gravity of the water varies from 1.025, the **measurer** shall correct floatation measurements as necessary;

23.7 Weights shall be calibrated for local gravitational effects.

23.8 When carrying out measurement ashore, the **measurer** shall allow a reasonable time to drain water from the **AC72 Yacht** equipment and allow the substitution of wet **rigging** with equivalent dry **rigging**.

24. MEASUREMENT PROCEDURES

24.1 The **Measurement Committee** will create, and amend when needed, a document specifying procedures they will use to confirm compliance with the **AC72 Class Rules**. This document is to be available to all **Competitors**.

25. MEASUREMENT CONDITION

25.1 The **AC72 Yacht** shall be brought to **measurement condition** to determine the **measurement weight**. The **measurement condition** includes everything that could be on the **AC72 Yacht** during a race less:

(a) the **wing** as it was weighed in **wing measurement condition**;

(b) ACRM personnel, guests and equipment that is not permanently installed on the **AC72 Yacht**;

(c) crew;

(d) crew clothing and equipment that is normally carried on the person while racing but limited to a maximum of 6.00 kg per crewmember;

(e) sails; and

(f) food and drinking fluids.

25.2 Except for regions within 0.150 m of **daggerboards** and **rudders**, when establishing **MWP** any volume of the **hull** that is not flooded while racing shall not be flooded, and any volume that is flooded while racing shall be flooded.

26. COMPLIANCE WHILE RACING

26.1 When racing**:**

(a) the **sailing weight** of the **AC72 Yacht** shall not vary more than 100 kg;

(b) dead weight, ballast, sails and other equipment shall not be moved for the purpose of changing trim or stability; however, bilge water shall be removed.

(c) there shall be eleven crew (unless reduced while racing due to accident or injury), and the total crew weight, in clothing worn while racing, shall not be greater than 1045 kg or less than 990 kg; if eleven crew members do not reach minimum crew weight, then corrector ballast shall be added to the **AC72 Yacht** to reach 990 kg; such corrector ballast shall be fixed during a **sailing series**, and shall be located within 2.000 m of the **Wing Rotation Point**;

(d) the total weight of sails shall be between 180 kg and 220 kg inclusive; and

(e) the total weight of consumable stores shall be not greater than 10 kg.

27. MEASUREMENT CERTIFICATE

27.1 When the **Measurement Committee** concludes that the **AC72 Yacht** has satisfied all the measurement checks requested, it shall issue to the **Competitor** a measurement certificate as in Appendix A and shall retain a copy for its own records. The **Measurement Committee** shall provide a copy of the front page to the **Regatta Director** for public dissemination.

27.2 Except for repair of, or replacement for, unintended damage, the measurement certificate ceases to be valid if there is any change to:

(a) **rudders** or **daggerboards**;

(b) any information recorded on the **AC72 Yacht**'s measurement certificate;

(c) the shape of the **hull** surface;

(d) the shape of the **cross structure**; or

(e) the shape of the **wing** surface.

Competitors shall obtain written approval of the **Measurement Committee** prior to making any repairs or replacements that could affect the yacht's measurement certificate.

27.3 The **Measurement Committee** will only give written approval to replace an item when they are satisfied that the damaged item cannot be repaired in a reasonable regatta-constrained timeframe.

27.4 After repair or replacement, **Competitors** shall satisfy the **Measurement Committee** that the **AC72 Yacht** complies with the **AC72 Class Rule**

27.5 The **Measurement Committee** shall withdraw an **AC72 Yacht's** measurement certificate when they believe, on reasonable grounds, it no longer complies with this **AC72 Class Rule**.

27.6 An **AC72 Yacht** shall have only one valid measurement certificate at any one time.

27.7 The **Measurement Committee** shall hold, in perpetuity, **AC72 Yacht** data and information in strict confidence.

APPENDICES

APPENDIX A MEASUREMENT CERTIFICATE

APPENDIX B CONSTRUCTION DECLARATIONS

HULL CONSTRUCTION DECLARATION

DESIGNER'S DECLARATION

I, the designer of the yacht

declare that the hull has been designed and to the best of my knowledge, built, only from materials, and using building methods, as permitted in the AC72 Class Rule.

Designer (Block Letters)

Signature Date

BUILDER'S DECLARATION

I, the builder of the yacht declare that the hull has been built only from materials, and using building methods, as permitted in the AC72 Class Rule.

Builder (Block Letters)

Signature Date

OWNER'S DECLARATION

I, the owner of the yacht declare that the hull has been built only from materials, and using building methods, to the best of my knowledge as permitted in the AC72 Class Rule.

Owner (Block Letters)

Signature Date

This declaration is to be preceded by a completed material usage schedule as set out in *Appendix C*.

COMPONENT DECLARATION

YACHT _____

COMPONENT _____ **DATE** _____

DESIGNER'S DECLARATION

I declare that the component named and referenced above has been designed, and to the best of my knowledge, is constructed only from materials, and using building methods, as permitted in the AC72 Class Rule.

Designer (Block Letters) _____

Signature _____ Date _____

BUILDER'S DECLARATION

I declare that the component named and referenced above, is constructed only from materials, and using building methods, as permitted in the AC72 Class Rule.

Builder (Block Letters) _____

Signature _____ Date _____

OWNER'S DECLARATION

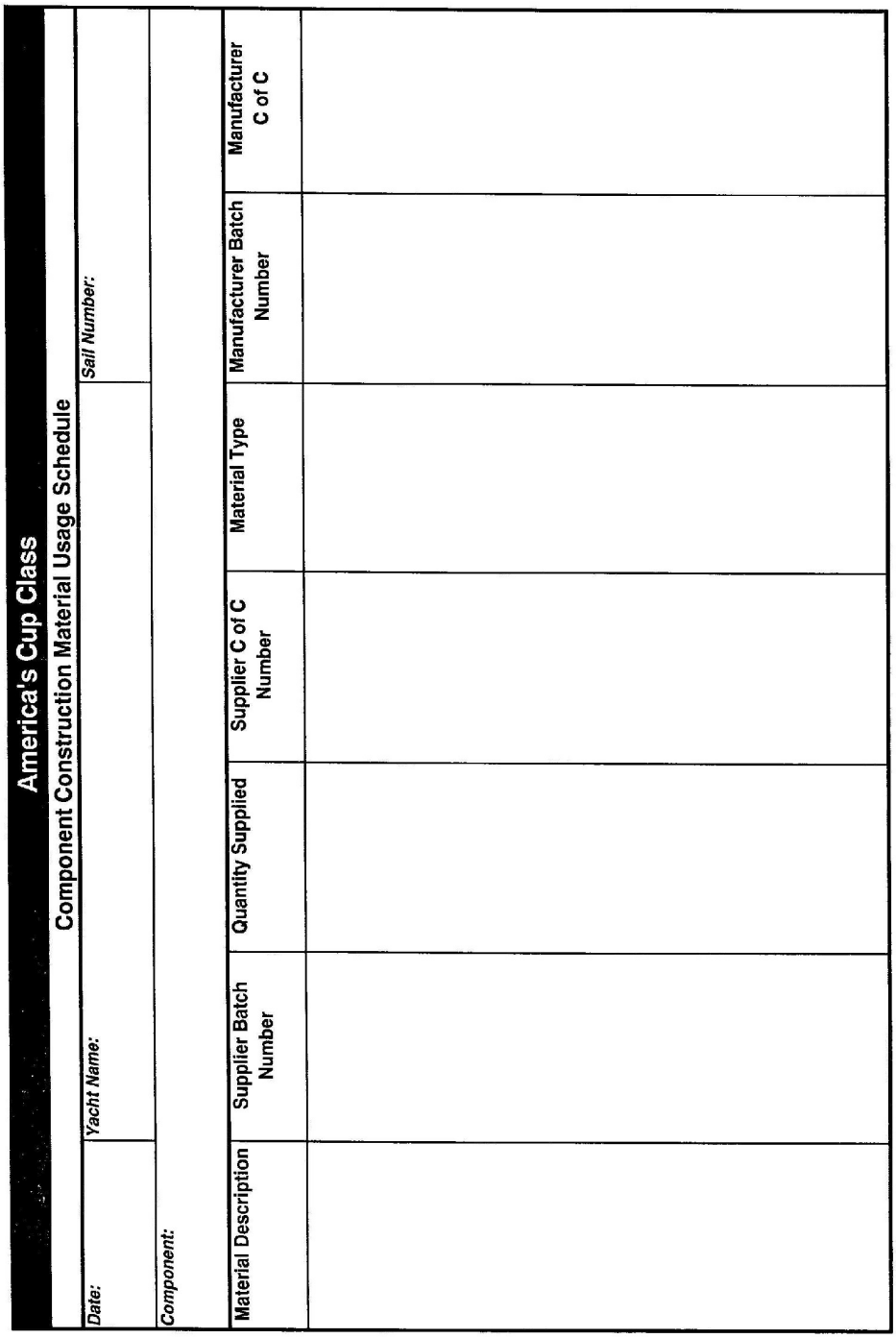
I declare that the component named and referenced above, is constructed from materials, and using building methods to the best of my knowledge as permitted in the AC72 Class Rule.

Owner (Block Letters) _____

Signature _____ Date _____

This declaration is to be preceded by a completed material usage schedule as set out in AC72 Class Rule Appendix

APPENDIX C MATERIAL USAGE SCHEDULES



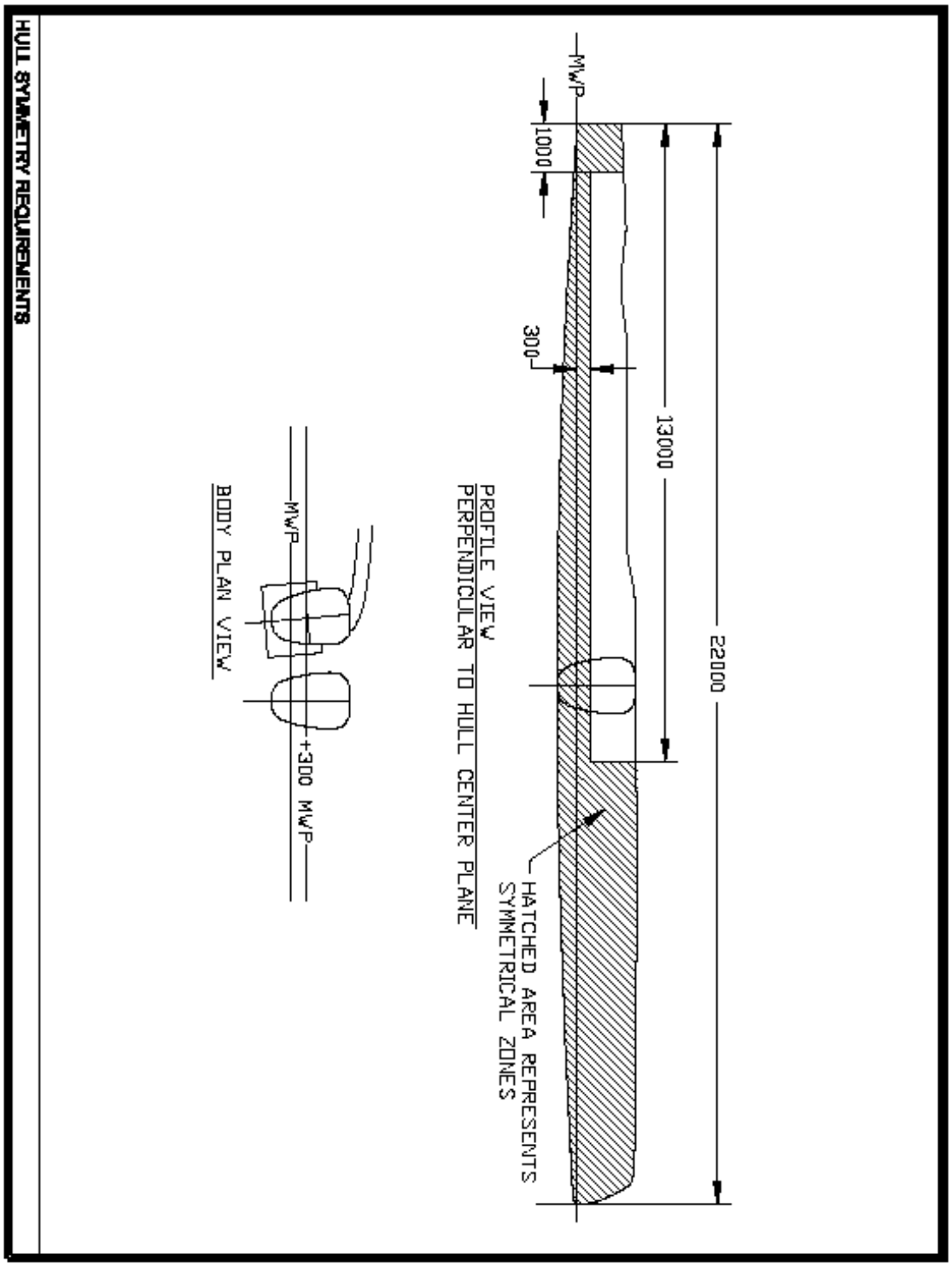
America's Cup Class

Component Construction Material Usage Schedule

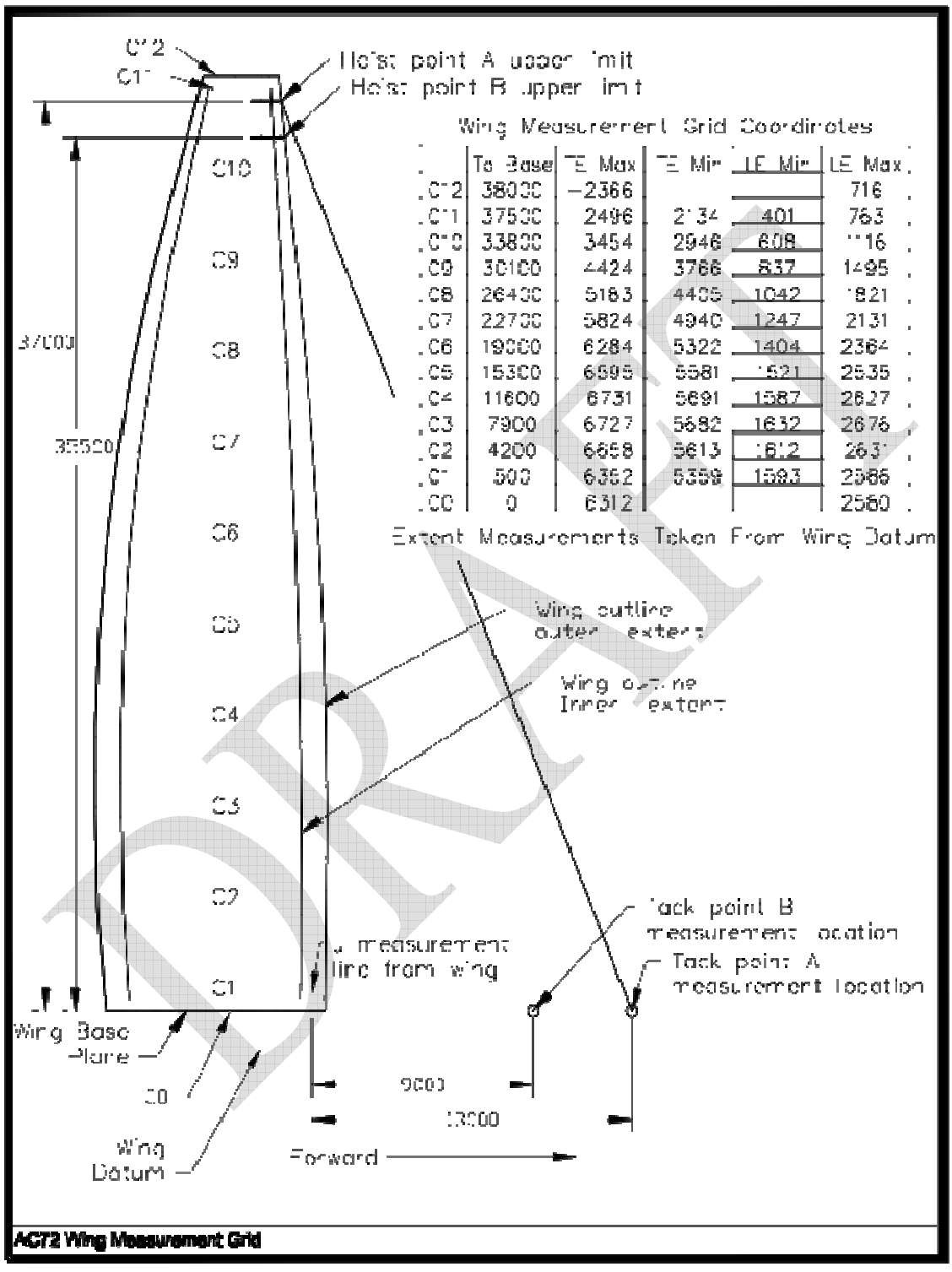
Date:	*Yacht Name:*		*Sail Number:*
Component:			

Material Description	Supplier Batch Number	Quantity Supplied	Supplier C of C Number	Material Type	Manufacturer Batch Number	Manufacturer C of C

APPENDIX D HULL SYMMETRY DIAGRAM



APPENDIX E AC72 WING MEASUREMENT GRID

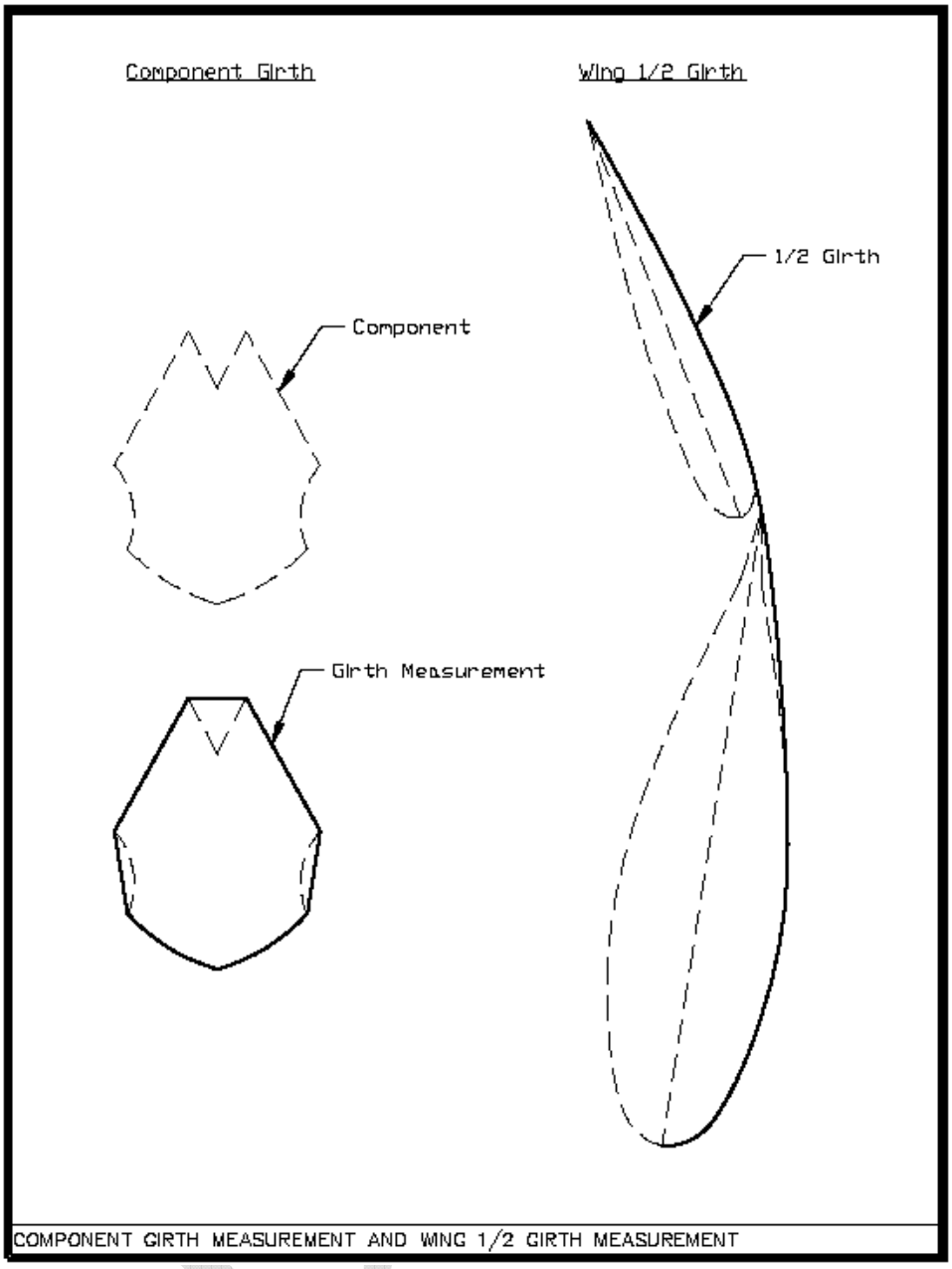


Wing Measurement Grid Coordinates

	To Base	TE Max	TE Min	LE Min	LE Max
C12	38030	−2366			716
C11	37530	2496	2134	401	763
C10	33800	3454	2946	608	1116
C9	30100	4424	3766	837	1495
C8	26430	5183	4405	1042	1821
C7	22730	5824	4940	1247	2131
C6	19000	6284	5322	1404	2364
C5	15300	6595	5581	1521	2535
C4	11600	6731	5691	1587	2627
C3	7900	6727	5682	1632	2676
C2	4200	6698	5613	1612	2631
C1	500	6362	5359	1583	2986
C0	0	6312			2560

Extent Measurements Taken From Wing Datum

AC72 Wing Measurement Grid



COMPONENT GIRTH MEASUREMENT AND WING 1/2 GIRTH MEASUREMENT

APPENDIX F COMMUNICATIONS & ACTV REQUIREMENTS

1. CAMERAS

1.1 The **AC72 Yacht** shall be fitted with seven HD agile cameras (provided by **ACRM**). Each agile camera shall be a 200 mm sphere weighing 2.0 kg, requiring a 10 mm diameter cable to the media bay and shall:

(a) be mounted on a common mounting fixture (possibly a 100 mm plate with threaded sockets and 20 mm cable duct); and

(b) have control and power modulated/bias-T'd onto coax.

1.2 Agile cameras shall be mounted at the following locations:

(a) on the antenna frame (see *Appendix H* Rule 6) aft and above the aft-most **cross structure**;

(b) on the highest extent of the **wing**;

(c) two in line with the **wing rotation point** on either side of the **wing**, these shall be positioned to allow for filming of the crew;

(d) on the forward-most extent of the **cross structure**;

(e) below the aft extent of the **wing**; and

(f) below the aft extent of the **cross structure**.

If the **Measurement Committee** deems any of the above camera locations to be impractical, they shall specify alternate camera locations, including but not limited to the following:

(g) at the intersection of the aft-most **cross structure** and **hull** on a 200 mm vertical post;

(h) below the **cross structure** which supports the **wing rotation point**; and

(i) in the **hull** above **MWP** forward of the forward watertight bulkhead.

1.3 The **AC72 Yacht** shall be fitted with three platforms for camera operators with the dimensions 740 mm x 740 mm at the following locations:

(a) one on the **centerplane**, affixed to the aft side of the aft-most **cross structure**; and

(b) two in line with the **wing rotation point** at the maximum local beam, with one each on the port **hull** and starboard **hull**.

1.4 If a camera or camera operator platform position interferes with sailing, is unsafe or degrades camera operator performance, ACRM may submit alternative locations to the **Measurement Committee** for approval.

1.5 The camera operator shall have the following equipment:

(a) one handheld HD camera with stereo microphone;

(b) one wireless kit;

(c) belt-mounted batteries that are easily replaceable underway with wet-pluggable connectors;

(d) receiver antennas on antenna frame (see *Appendix H* Rule 6) and on the structure supporting the **wing rotation point**; and

(e) safety equipment.

1.6 A four light display shall be fitted to communicate required position to camera operator, indicating the following:

(a) "Must be on platform"

(b) "Ok to weather forward"

(c) "OK to weather aft"

(d) "OK anywhere"

2. MICROPHONES

2.1 There shall be a total of 18 microphones onboard, mounted in the following locations:

(a) one Surround Sound 5.1 microphone on antenna frame (see *Appendix H* Rule 6). This microphone may be encoded into two audio channels or shall require 6 audio microphone channels;

(b) one stereo microphone on cameraman's camera, using 2 audio channels;

(c) wireless mono microphones on 11 crew & observer; and

(d) within each **hull**, one microphone shall be mounted no further aft than 3.000 m aft of the **stem** and one shall be mounted no further than 1.000 m from the longitudinal position of the **wing rotation point**.

2.2 There shall be a total 20 microphone channels if 5.1 is encoded into two channels, if not, there shall be 24 microphone channels.

3. MEDIA BAYS

3.1 The **AC72 Yacht** shall be fitted with two self-draining media bays. One media bay shall be located in each **hull**.

3.2 Media bays shall:

(a) have sufficient volume to house three 1450 Pelican cases with exterior dimensions of 407 x 331 x 175 mm and all associated connecting cables; the cases shall be oriented with handles up and all connectors exiting from the aft end of the cases;

(b) have cable access on no less than one end; and

(c) if a media bay is enclosed, it shall have no less than two 50 mm vent openings and no less than two 50 mm cable openings.

3.3 One of the six Pelican cases, to be used for the Inertial Navigation System, shall be mounted in a repeatable, rigid location by one of the following methods:

(a) wedge-plate and cam configuration customary in TV cameras;

(b) clamp or molded bed built into the bay to receive the Pelican case; or

(c) mating plates fastened to the Pelican case and the media bay.

3.4 One media bay shall be reserved for batteries with a total system consumption of 400w while operating and 100w while idle. The battery media bay shall house three 1450 Pelican cases, each of which shall:

(a) contain eight 2590/U military Li-ion batteries and associated electronics;

(b) be capable of three hours of operation; and

(c) be safe during discharge unless physically damaged (e.g. crushed or punctured).

3.5 One media bay shall be reserved for the following electronics which shall be supplied by **ACRM**:

(a) camera CCUs;

(b) video compression processor;

(c) video switch;

(d) preview compression and Octal split generator;

(e) receivers for wireless microphones;

(f) audio control, A/D converters, and modulator;

(g) CNS-5000 CPT-SPAN INS/RTK GPS, which:

(i) shall be mounted in a rigid location that is repeatable with each re-installation of Pelican case;

(ii) may be mounted onto a plate with index pins;

(iii) may be mounted with a “wedge-plate” and cam; and

(iv) shall be mounted in a location precisely surveyed on each boat for config file.

(h) control computer;

(i) ethernet switch;

(j) telemetry transceiver;

(k) microwave transmitter;

(l) power control, conditioning; and

(m) interface to **Competitor** electronics, if any.

4. CABLING

4.1 Cables for media purposes shall be provided by **ACRM** and shall have an onboard connection point that is pre-mounted and molded onto the **AC72 Yacht**.

4.2 Cable paths shall include:

(a) between media bays;

(b) to a zone near the **wing rotation point** and then to the **wing** conduit;

(c) to antenna shelf (see *Appendix H* Rule 6);

(d) to camera locations;

(e) to microphone locations; and

(f) to **Competitor** electronics;

4.3 Cabling shall be routed to the media bay via routes specified by the **Measurement Committee**.

4.4 Excess cable shall remain in a media bay and be cut off and connected by **ACRM**, who shall bag, label, and provide cutoff cable ends to **measurers** if requested by them.

5. INSTRUMENTS ATOP THE WING

5.1 The **AC72 Yacht** shall have the following antennas, each with a 100 Mm whip (provided by **ACRM**) located at the highest extent of the **wing**:

(a) microwave PA/LNA with dimensions 150 mm x 75 mm x 75 mm, weighing 1.5 kg; and

(b) two-way telemetry PA/LNA with dimensions 15.0 cm x 7.5 cm x 5.0 cm, weighing 1kg.

5.2 A conduit tube with an inner diameter of 40 mm shall be fitted from top to bottom of the **wing**. This conduit shall allow for:

(a) the passage of one LMR400, one CAT6 ethernet;

(b) conduit chosen to easily pass connectors; and

(c) cables to be pulled out and re-run when adding or removing top **wing** section.

5.3 Disconnection and re-connection of cabling and instruments shall comply with **AC72 Class Rule** 8.6 (d).

6. ANTENNA FRAME

6.1 The **AC72 Yacht** shall be fitted with one antenna frame located aft of and above the aft-most **cross structure** on **centerplane**. This antenna frame shall be large enough to accommodate the following **ACRM**-provided media equipment and any **Competitor** cableway:

(a) one cameraman antenna;

(b) two wireless microphone receiver antennas;

(c) one GPS antenna;

(d) one agile camera near the **centerplane**;

(e) one Surround Sound 5.1 microphone mounted on a post near **centerplane**; and

(f) one magnetic compass.