



REGATTA NOTICE # 56

14 February 2007

To: All Competitors, 32nd America's Cup

From: Dyer Jones, Regatta Director

Cc: Ken McAlpine, Technical Director
Measurement Committee
Keith Catchpole, ACTV Host Broadcast
AC Management

Subject: Video, Audio, Telemetry, and Umpire Signal System Equipment and Installation

Ref. Protocol Article 17
ACC Rule 20.7 & ACC Rule Public Interpretation # 4 (attached)
Regatta Notices # 5, 11, 14, 33, and 37
Typical Media Hold Layout (attached)
AF Equipment Distribution 2007 – Drawing AFED-2007 Rev E (attached)
Typical Camera and Microphone Positions (attached as PowerPoint file)

Regatta Notices Rescinded

Regatta Notices # 5, 11, 14 and 37 are herewith rescinded and no longer in effect.

Regatta Notice Confirmed

Regatta Notice # 33 is confirmed as still in effect. The "Broadcast Box" is the compartment referred to in Protocol Article 20.7 and herein as the "Media Hold".

INTRODUCTION

This Regatta Notice # 56 is referenced in and may be amended by the Notices of Race and/or Sailing Instructions for the Event as published or amended from time to time. This Regatta Notice and its attachments provide information and instructions concerning the Video, Audio, Telemetry, and Umpire Signal System ("USS") Equipment that may be required, provided, and/or installed on each ACC yacht by AC Management and ACTV during the Event in 2007.

1. IN GENERAL

- a. AC Management may specify that the equipment noted in Attachment A is to be installed on each competing ACC Yacht to facilitate the transmission of video, audio, and positional information from each yacht.
- b. Competitors shall permit the installation of and not interfere with the daily maintenance, testing, and normal operation of all supplied equipment and wiring. This includes reasonable, scheduled access to each Competitor's base compound and each competing ACC Yacht by AC Management authorized and credentialed technical personnel.
- c. With certain exceptions, all of the equipment and wiring will be supplied by AC Management, ACTV or their authorized contractors. The Aerial Frame and the Media Hold compartment are to be fabricated and installed by Competitors.

- d. ACTV will supply the batteries to power the ACTV telemetry, audio and video equipment, and will be responsible for charging them in preparation for each racing day.

The USS is powered from the yacht's own 12V service battery. Competitors are required to ensure this battery is fully charged for racing each day and that the USS power-lead connection is secure.

The Measurement Committee may specify the location(s) where batteries are to be mounted.

- e. Under no circumstance is any equipment (including all wiring and connectors) supplied by AC Management or its authorized contactors to be cut or altered without the consent of the Measurement Committee.
- f. All equipment installed on the yacht, including cameras, batteries, Aerial Frame, transmitter cases, compass, etc, required by AC Management for the production of telemetry, television and audio signals shall be considered "outside" of measurement. That is, the equipment shall not be included in the weight of the yacht in the calculation of rating, nor be present at flotation (except with permission of the Measurement Committee), and an allowance will be given for the equipment's weight at any post-race measurement. The Media Hold and its cover(s) are "inside" measurement.
- g. The wiring, connection and installation of the various pieces of equipment specified are to be carried out at the direction of AC Management and the Measurement Committee.

In 2007 the equipment referenced on Attachment A is intended to be the same for each yacht scheduled to race. If, on a particular day, this cannot be accomplished, the yacht(s) shall carry corrector weights in lieu of operational equipment.

- h. All equipment and installations are subject to inspection by the Measurement Committee.

2. PUBLIC INTERPRETATION # 4

Public Interpretation # 4 remains in full force and effect. The Media Hold compartment is to be fabricated and installed by Competitors as set out in the Interpretation. In addition, to facilitate consistent installation of broadcast equipment from yacht to yacht, the Technical Director also requires the following for the Media Hold on each yacht:

The interior shape of the Media Hold shall be cubical with a minimum depth of 340 mm. There shall be side and end partitions to constrain the broadcast and telemetry equipment in a vertical orientation. The end and side partitions are to be fitted with tie-down points for strapping of the media equipment cases to prevent movement of the cases whilst sailing. If possible, the bottom of the Media Hold is to be parallel with the deck. If this is not possible, suitable chocks are to be arranged in the base of the Media Hold to stow the cases with their top surface parallel to the deck.

The Media Hold shall be fitted with 2x 50-60mm diameter openings in each of the forward and aft faces. These holes are to be as close as possible to the deck. If possible, 2x 50-60mm diameter cable path flexible conduits (with suitable mousing or messenger lines) are to be run from the aft Media Hold holes to the 2x 50mm diameter exit points in the cockpit sole/bulkhead port and starboard adjacent to both of the forward stanchions of the Aerial Frame.

Competitors are reminded that the Media Hold must be "freely draining to the bilge."

A description and diagram of a typical Media Hold Layout is attached.

3. AERIAL FRAME

The Aerial Frame is to be fabricated and installed by Competitors as set out in Regatta Notice # 33. The Measurement Committee further directs that:

The Aerial Frame stanchions shall be made using the AC Management supplied continuous aluminum extrusion, without offsets from the horizontal top beam to the cockpit sole/bulkhead or hull.

A suitably de-burred 50-60mm diameter access hole for cabling shall be arranged at the base of each Aerial Frame stanchion, port and starboard, preferable on the inside face of the stanchion. A suitably de-burred 50-60mm access hole for cabling shall be made at the top of each stanchion just below the horizontal top beam (crossbar), port and starboard, preferably on the outside of stanchion leg. A suitably de-burred 50-60mm access hole for cabling shall be made on the underside of the horizontal top beam near the upper hole in the stanchion, port and starboard. These holes may be covered with "sticky-back" or similar. This is a total of 6x 50-60mm holes; the only other holes permitted are for the mounting of other equipment on the Aerial Frame and shall not be any larger than absolutely necessary; i.e. no other holes of any size are permitted for the purpose of making the Aerial Frame lighter.

Each Competitor shall either:

- a. present the completed Aerial Frame to the Measurement Committee for inspection and weighing; or
- b. provide a signed declaration of the construction and weight of the Aerial Frame accurate to 0.1kgs.

Competitor's equipment or antennae which are placed on the Aerial Frame must be located at least 200mm from AC Management supplied equipment and shall not interfere either physically or electronically with the AC Management supplied or installed equipment.

4. TELEVISION CAMERAS & AUDIO TRANSMISSION

The attached PowerPoint slides show typical camera and microphone positions for stages of the Event in 2007. A = Agile camera(s); F = Fixed camera(s). The actual positions of fixed "pencil" cameras shown in PowerPoint page 3 are under discussion by ACTV. Mounting plates for boom-mounted cameras will be supplied by ACTV to suit the type of boom used.

5. TV RIGGING & TESTING

- a. Beginning on 17 February 2007, ACTV Host Broadcast will start to distribute camera and audio cable looms to Competitors for installation on their yachts. One end of the cable loom will be terminated when distributed; ACTV will terminate the other end after the Competitors advises it has been installed.
- b. ACTV Host Broadcast will conduct RF testing with ETNZ, +39, China Team, and UITG beginning on 12 March 2007. These Competitors were not available for the testing conducted last September and October.
- c. ACTV and Pilotfish (USS) will be available from 16 March 2007 to conduct "static" RF testing with any Competitors upon request.

- d. ACTV intends that to ensure that all equipment installations and testing has been completed by 31 March 2007.
- e. Keith Catchpole, in charge of Technical Operations for ACTV, is now located in Valencia. He will be calling on the “technical team” of all Competitors regarding installation and operational matters.

6. UMPIRE SIGNAL SYSTEM

- a. The Umpire Signal System consists of a Yacht Control Unit, the Display Unit, and an antenna which mounts on the Aerial Frame. The only substantial changes to the system in 2007 are that the modem is located with the Yacht Control Unit Pelican Case, a filter has been added to eliminate interference with other broadcast equipment, and the power lead provided for connection to the Competitor's ship service battery will be shorter.
- b. The Yacht Control Unit and associated modem and filter is to be installed in the compartment required in ACC Rule 20.7. The Yacht Display Unit may be located at the discretion of each Competitor. The Yacht Control Unit also has an external signal interface port for connection of a Competitor's own display unit.
- c. The functions and operation of the system will be as determined by the Chief Umpire and the Addendum to the Notices of Race.
- d. New cabling for the USS will be supplied and is to be installed only on yachts to be declared.
- e. Pilotfish technical support personnel will be present after 12 March 2007 to advise and assist with USS installations.
- f. **Previous USS Cabling** – Any yacht that has existing cabling installed for the USS as used in 2006 should remove this cabling and leave a messenger line in its place. Please return the used cabling and connectors to Tom Waterhouse in the Regatta Operations Department.
- g. The Umpire Signal System will not be used for Act 13.

Issued by:

Wm. H. Dyer Jones
Regatta Director
32nd America's Cup

ATTACHMENT A

Broadcast & Telemetry Equipment

The On-board Broadcast & Telemetry Equipment may include, but is not limited to:

- 1x Aerial Frame (“AF”) for the mounting of specialized AC Management supplied equipment. Also refer to Regatta Notice # 33.
- 1x Media Hold (“MH”) used exclusively for the housing of AC Management equipment. Also refer to Regatta Notice # 33.
- 2x GPS Rx aerials mounted on AF.
- 1x Data Transmission Aerial mounted on AF.
- 1x Pelican Case with GPS receiving and transmitting equipment mounted in the MH.
- For Valencia Louis Vuitton Act 13 (“Act 13”) and the Rounds Robin (“RR”) of the Louis Vuitton Cup (“LVC”): 1x composite unit housing an agile broadcast camera, microwave transmitter, audio microphone and data receiving aerial that will be located on either the starboard or port end of the AF.
- From and after the Semi-finals of the LVC: 2x composite units housing an agile broadcast camera, microwave transmitter, audio microphone and data receiving aerial that will be located on the starboard and port ends of the AF.
- 2x Pelican cases housing the camera and audio control and switching equipment mounted in the MH.
- 2x Duplexer unit mounted in the MH.
- From the Semi-finals of the LVC: 2x agile broadcast cameras will be mounted on either side of the boom.
- For Act 13 and RR: 1x fixed “pencil” camera to be located either by the instrument panel, sewer, or steering pedestal.
- From and after the Semi-finals of the LVC: 2x fixed “pencil” camera locations as above. Negotiations are underway to have a fixed camera located in the bow of the yachts for the LVC Final and the AC Match.
- For the Act 13 and the RR: 2x radio microphones are to be worn by selected crew members.
- From and after the Semi-finals of the LVC: 3x radio microphones are to be worn by selected crew members.
- For Act 13 and RR: 2x “effects” microphones will be located on each yacht one on the camera located on the AF, and the other located close to the instrument panel.
- From and after the Semi-finals of the LVC: up to 4x “effects” microphones will be located on each yacht.
- The Umpire Signal System, with associated cabling, and aerial mounted on the AF.
- Associated cabling for the above equipment which shall be of approximately equal weight and length will be supplied to each Competitor by ACTV.



AMERICA'S CUP CLASS

PUBLIC INTERPRETATION No 4

March 14, 2005

Page 1 of 2

This Public Interpretation is issued as required by ACC Rule 20.7 to specify dimensions and construction specification for a compartment to house regatta organisation supplied media equipment.

Rule 20.7 states:

A compartment or compartments, freely draining to the bilge, with a watertight hatch cover, shall be provided in the cockpit sole or the deck located not more than 2 m forward of AGS. The sole purpose of this compartment shall be to house the regatta supplied media equipment. The dimensions and construction specifications of these compartment(s) shall be specified in a Public Interpretation which shall be issued no later than January 1, 2005.

The regatta organisation media supplied equipment shall be provided in three (3) Pelican model 1450 watertight cases. The dimensions of each of these cases is 406.4mm x 330.2 x 174.6mm. Each shall have electrical connectors in the aft-most shortest side face. These electrical connectors shall connect the media cases to aerials, cameras, microphones and one or more dedicated battery power supplies.

The cases are to be mounted in a compartment, housing, recess or rack which supports the cases clear of the **hull** bottom and as close as possible to the underside of the hatch cover(s).

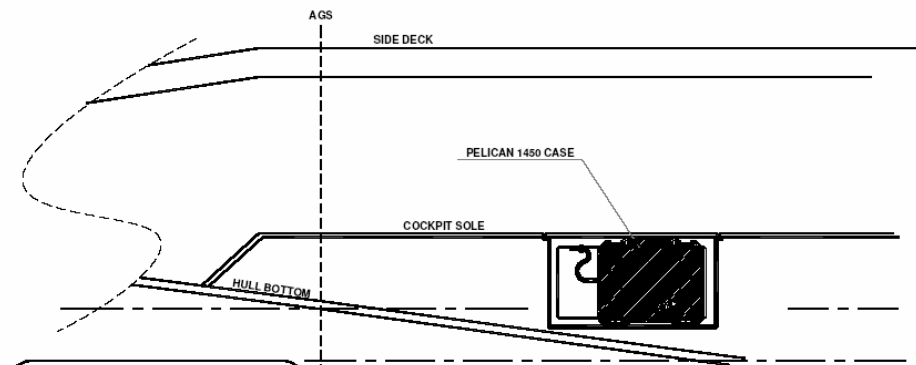
The nominal minimum clear opening dimensions of the hatch shall be 650mm x 650mm. The maximum corner radius in the clear opening shall be 20mm. The maximum distance from the clear opening to AGS shall be 2 m. The hatch may be split into more than one hatch provided the total minimum clear opening area and cable clearance is maintained and each individual clear opening is within 2 m of AGS.

The hatch(s) shall be closed by a cover permanently attached to the **cockpit** sole or **deck** by hinges, slides or similar arrangement. The cover(s) shall be able to be dogged or latched in the closed position. The hatch cover(s) shall be watertight. Watertight in this context means a closed hatch shall prevent the ingress of water from a hose applied in any direction. The weight of hatch cover(s) without hinges, dogs, latches or slides attached shall be equal to or greater than the rule minimum weight of **cockpit** or **deck** area they replace.

The attached sketch is provided for information and forms part of this interpretation but should not be regarded as binding as to orientation or transverse position. It is anticipated that intended structural and deck arrangements may impact on the position of this media hatch(s). The **Measurement Committee** is prepared to review and approve proposed alternative arrangements prior to construction however the distance to AGS, the ability of house 3 Pelican Model 1450 cases and a minimum clear area of 0.422 sq m shall be maintained. END.

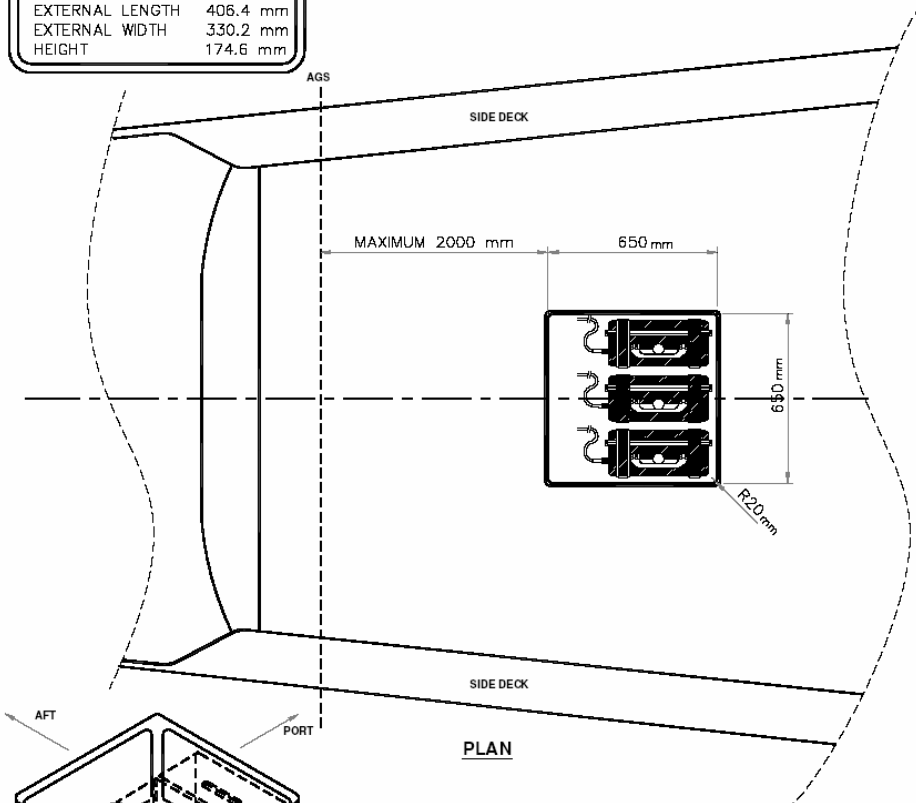
This interpretation is made by the Measurement Committee in accordance with Rule 3.3 of Version 5.0 of the America's Cup Class Rule.

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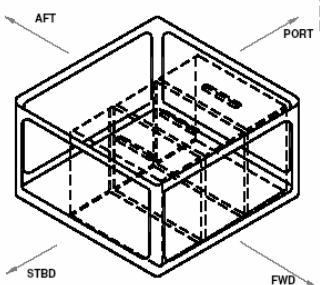


PELICAN 1450 CASE DIMENSIONS	
EXTERNAL LENGTH	406.4 mm
EXTERNAL WIDTH	330.2 mm
HEIGHT	174.6 mm

PROFILE



PLAN



PROJECT	AMERICAS CUP HOST BROADCAST TELEMETRY		
TITLE	DATA BOX STORAGE		
CLIENT	AMERICA'S CUP		
DRN.	BA	CHECKED	K McA
DATE	19/1/2005	DRAWN	
SCALE	1:20	QA4	REV. 0

Typical Media Hold Layout

Mounting/Structure

Pilotfish and ARL will use the port and starboard sides, respectively, of the broadcast box so that:

- a) The Umpire System can be permanently mounted, and
- b) Telemetry equipment with internal gyros can be securely mounted independently of other broadcast box equipment.
- c) 3G Video/Audio equipment will occupy the space between the Umpire and Telemetry systems.

Straps (to be provided by AC Management) will need to be installed by Competitors to secure the USS and telemetry equipment to the sides of the Media Hold. The two 3G equipment pelican cases will fit between the USS and telemetry systems and be restrained by the physical dimensions of the boxes. An elastic cord shall be fitted to prevent travel of the equipment fore and aft, and shall be mounted 100mm from the bottom of the Media Hold.

3G and ARL use Pelican 1450 or Storm IM220 cases, which are both approximately the same size.

Pelican 1450	16.00" x 13.00" x 6.87" (406.40mm x 330.20mm x 174.50mm)
Storm IM2200	16.20" x 12.70" x 6.60" (411.48mm x 322.58mm x 167.64mm)

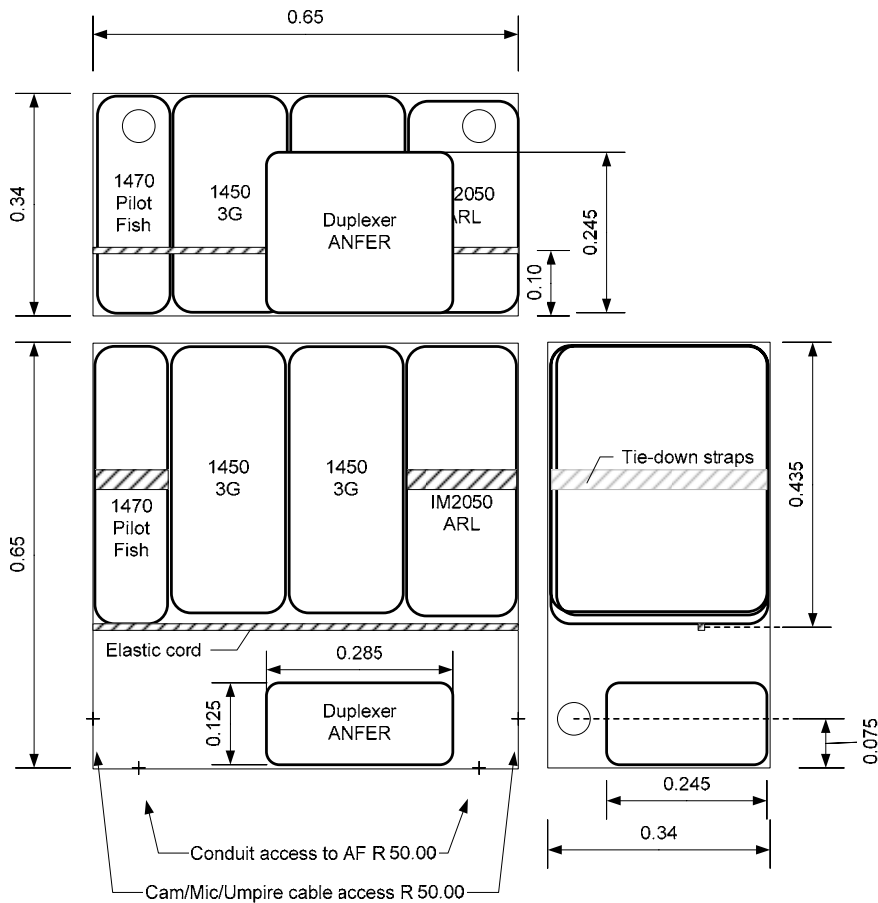


Figure 1: Media Hold Layout

Cable Access

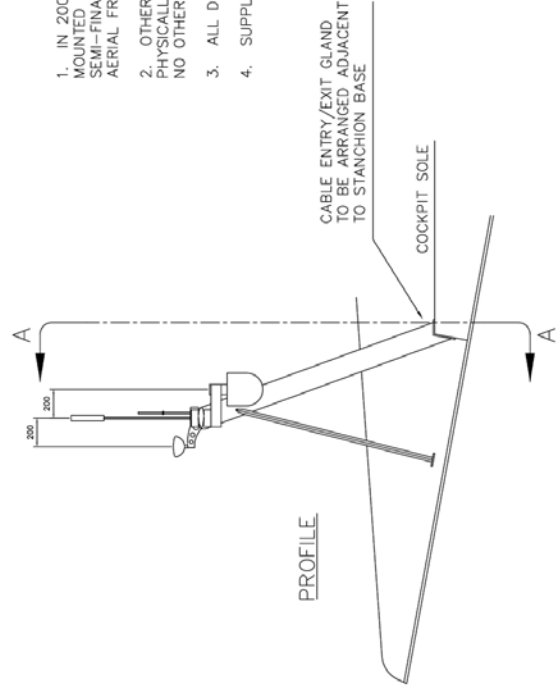
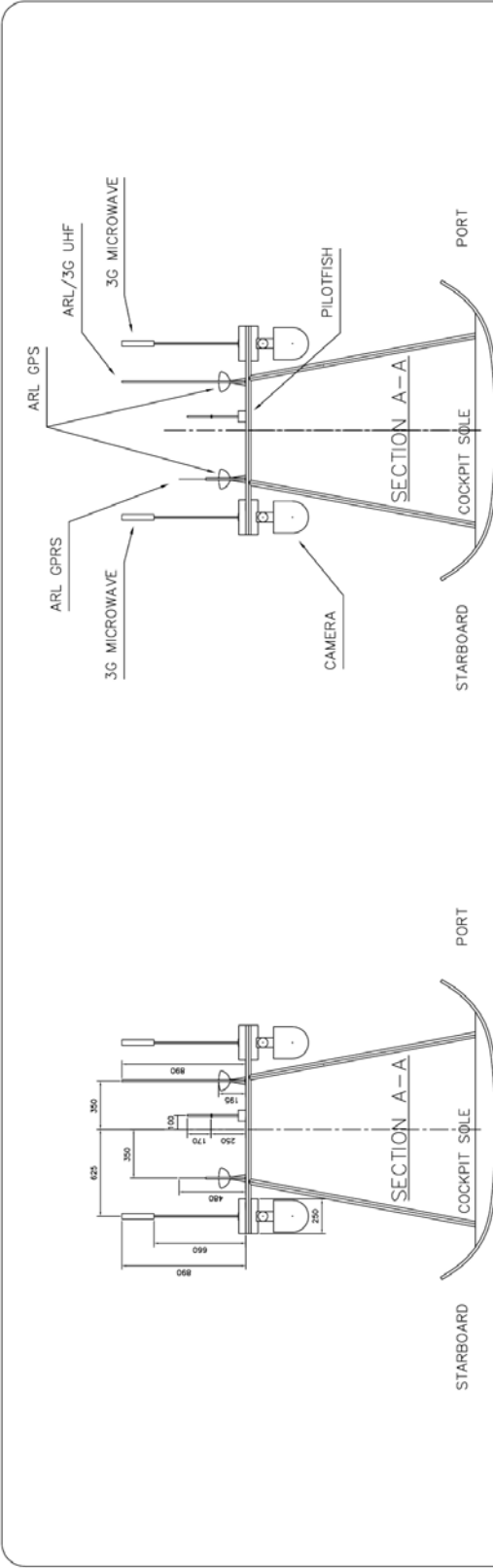
Cable paths to the Aerial Frame shall be through an unimpeded nominal 50mm diameter conduit from the broadcast box to the base of each Aerial Frame stanchion. Entry/exit should be in the upper aft side of the Media Hold and be as direct as possible to the stanchions. The implementation should maintain a 25mm bend radius in all internal surfaces without discontinuities.

Camera, audio, and the USS cabling will exit the Media Hold on either the port or starboard side and require clear 50mm diameter access. The USS cabling includes a power cord for connection to the yacht's 12VDC supply. Batteries for the USS (and all other team equipment) shall not be stored in the Media Hold.

Figure 2 (below) shows typical cables that will need to be run in each stanchion. The left bundle (with green cable) is required for each camera on the frame – i.e. minimum one bundle, maximum two. The four black cables on the right of the figure complete the telemetry cabling. The USS cable is not shown, but consists of a single cable.



Figure 2: Cables required for TV and Telemetry



NOTES

1. IN 2007 DURING THE VLV ACT 13 AND LVC ROUND ROBINS 1 & 2 RACING, A CAMERA MAY BE MOUNTED ON EITHER THE PORT OR STARBOARD SIDE OF THE AERIAL FRAME. FROM THE LVC SEMI-FINALS A CAMERA WILL BE MOUNTED ON BOTH THE PORT AND STARBOARD SIDES OF THE AERIAL FRAME.
2. OTHER AERIALS MAY BE MOUNTED ON THE AERIAL FRAME BUT ONLY IF THEY DO NOT INTERFERE PHYSICALLY AND ELECTRONICALLY WITH OR BY ACM EQUIPMENT, TRANSMISSION AND RECEPTION. NO OTHER EQUIPMENT IS TO BE LOCATED WITHIN 200mm OF THE ACM EQUIPMENT.
3. ALL DIMENSIONS IN MILLIMETRES.
4. SUPPLIED CABLES SHALL NOT BE CUT BUT MAY BE COILED TO SUIT INSTALLATION.

PROJECT		AF EQUIPMENT DISTRIBUTION 2007	
TITLE		ANTENNA VIEWS	
OWNER	ACM	CHECKED	DRAWING No.
DRN. Technology Team		STATUS	AFED-2007
DATE	24-01-07	REV.	F
SCALE	N.T.S.		