

**BOSE INSTITUTE
KOLKATA**

Tender No. CAPSS/15/20/(SMS/AM)/13-14

Date:11/06/2013

Tender Type: OPEN

Due Date:26/06/2013

**Tender submission place: Centre for Astroparticle Physics & Space Science
Bose Institute, Block EN, Sector V, Salt Lake City,
Kolkata 700 091**

Tender Specification for

Outdoor Housing for Microwave Transceiver System on a mast

General description:

Quotations are invited from interested firms for fabrication of **an Outdoor Housing** for Microwave Transceiver System with provision of antenna mounting (refer to **Fig.1**), on slotted angle frame structure, fitted over a variable height mast(12 to 24ft)on an Instrumentation Van (Fig.2). The slotted angle frame based Outdoor Housing will be fitted on the annular ring(refer to **Figs.2b & 2c**) of the mast's circular plate. The housing should have adequate number of fans for proper ventilation fitted with various RF, GPIB, LAN, RS 232 and power connectors(as per list enclosed in **Annexure I**). The housing should also have provision for antenna(max 2 ft dia) mounting(not more than four antennas at a time).

Details of Housing(refer to **Fig.1**): It should have four tiers with approx dimensions of

- i) 838 mm(L) X 584mm(W) X 152mm(H) --Tier 1
- ii) 838 mm(L) X 584mm(W) X 305mm(H) --Tier 2
- iii) 838 mm(L) X 584mm(W) X 280mm(H) --Tier 3
- iv) 838 mm(L) X 584mm(W) X 152mm(H) --Tier 4

with 890mm(approx) overall height with a canopy on the top with provisions for ventilation between the racks. The bottom plate of Tier 1 should have two panel cutouts for bulkhead adapters and other electrical sockets and there should be provision for similar cut out at the side wall of Tier 3. The Tier 2 will contain heat generating electronic instrument of weight 40kg approx., while other two tiers, Tiers 3 & 4 will house discrete electronic components. The base plate of each rack should be detachable. Absolute protection from rain, dust, insects & birds with vibration isolators have to be provided for the Housing with sufficient air circulation. The locations of various cut out panels with its connectors' specification are shown in **Figs. 1 to 5 & Annexure I**.

Cabling: Cables of various natures (RF, data, power, etc.) will run from inside of the Instrumentation vehicle through a cut out panel located on the wall of the Instrumentation van (refer to **Fig.2a**) to different cut out panels located on the Housing as shown in **Figs. 2 to 5**.

Antenna mounting structure: The antenna(each weighing 8 kg max.) facing would be towards back of the vehicle (for maximum two pairs of dish antenna of max. diameter of 2 ft). Provision have to be kept for mounting the antenna in two rows(each row will contain two antenna) on the slotted angle frame hanging from the housing structure. Adequate dummy load should be provided at the other side of the structure(refer to **Fig.1**). Universal manual mounting(limited azimuth(± 60 deg min.) and elevation(± 10 deg min.) for each antenna has to be provided.

Few specific issues to take care:

- Slotted Angle: min. 40mm/4 to 5mm M.S.
- Box/Canopy: min. 14 SWG (2.032mm) powder coated M.S. sheet
- Plat form 1 Dimension: 1270(L) mm x 1143(W) mm x 38(H) mm
- Distance between Plat form 1 and Plat form 2: 1500 mm
- The overall weight of the Housing structure as per indicative Figure 1 should not exceed 180kg.
- The Housing structure should be based on nut and bolt fixtures catering provision for dismantling for storing/transportation.
- All the dimensions are indicative and not critical.
- Adequate arrangement should be provided for the Housing to arrest vibration during wind(30km max.)

General terms and condition:

Quotation should have two parts: fabrication cost and material cost including the items mentioned in Annexure I with Taxes as applicable.

Delivery time: 45 days

Bidders may execute the job(part or full) at the site (above address) with prior permission.

For technical query & physical inspection of the vehicle(if required): Within one week after the publication of the advertisement

For further Technical queries please contact : Office, CAPSS, Bose Institute, Kolkata
(Mr Bikram Mahatha : 9239245542)

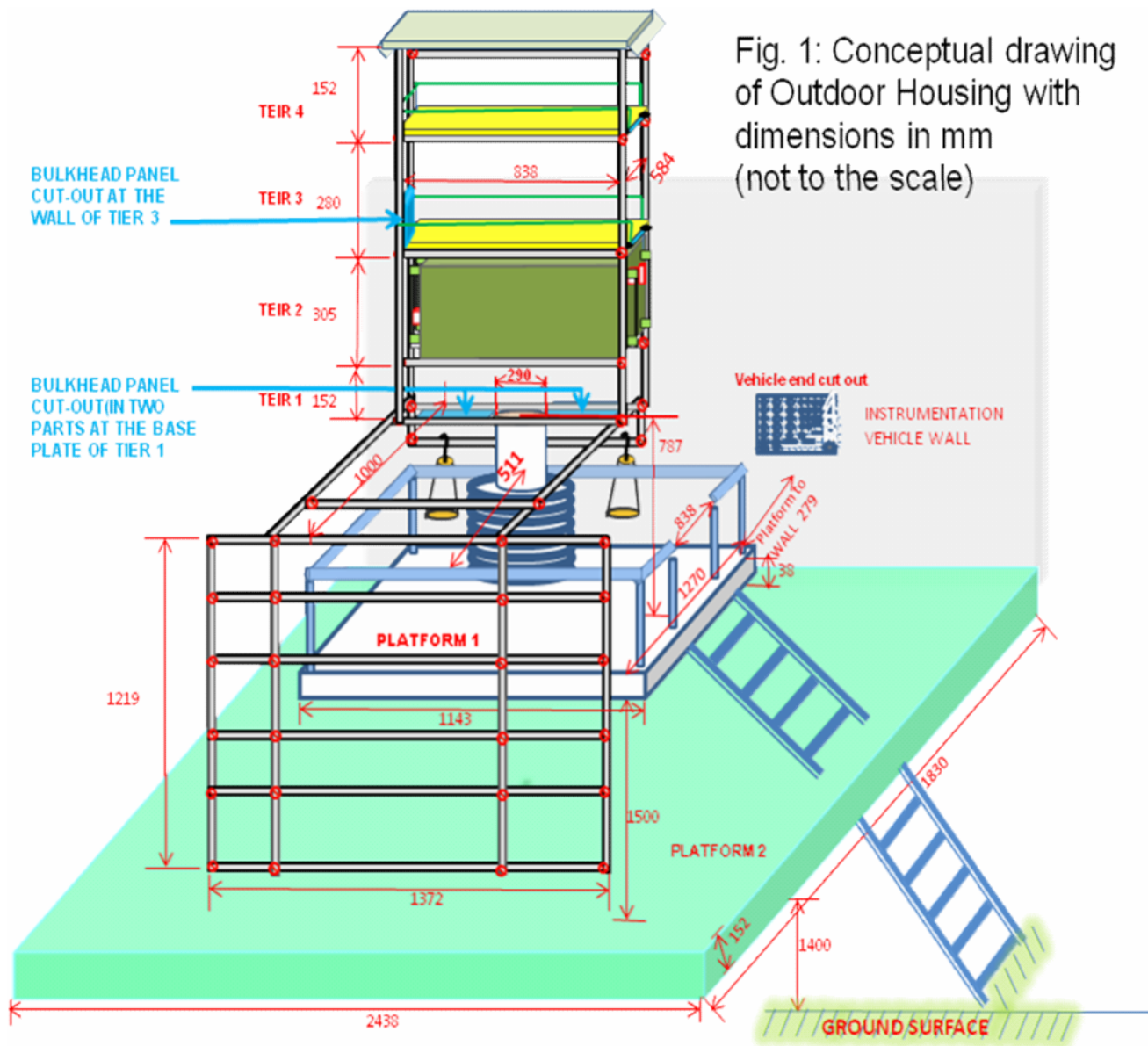


Fig. 1: Conceptual drawing of Outdoor Housing with dimensions in mm (not to the scale)

Fig. 2a : Instrumentation Cabin on the vehicle with mast



Fig. 2b & c : Top views of the mast

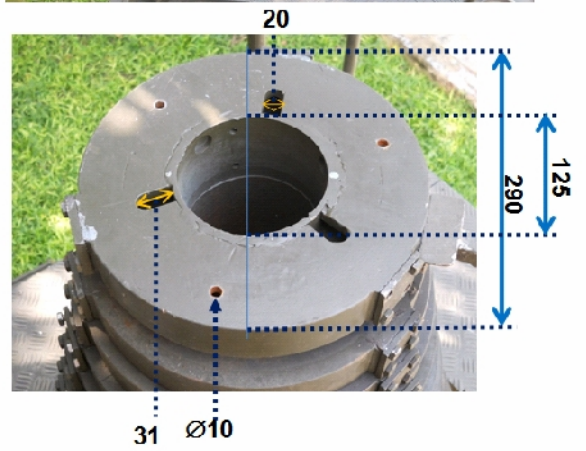


Fig.3 RF Bulkhead Connector Layout
 Location: Cut out Panel(450 mm X 330 mm) on the wall of Instrumentation cabin of Vehicle(Ref. Fig. 2a)

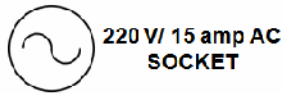
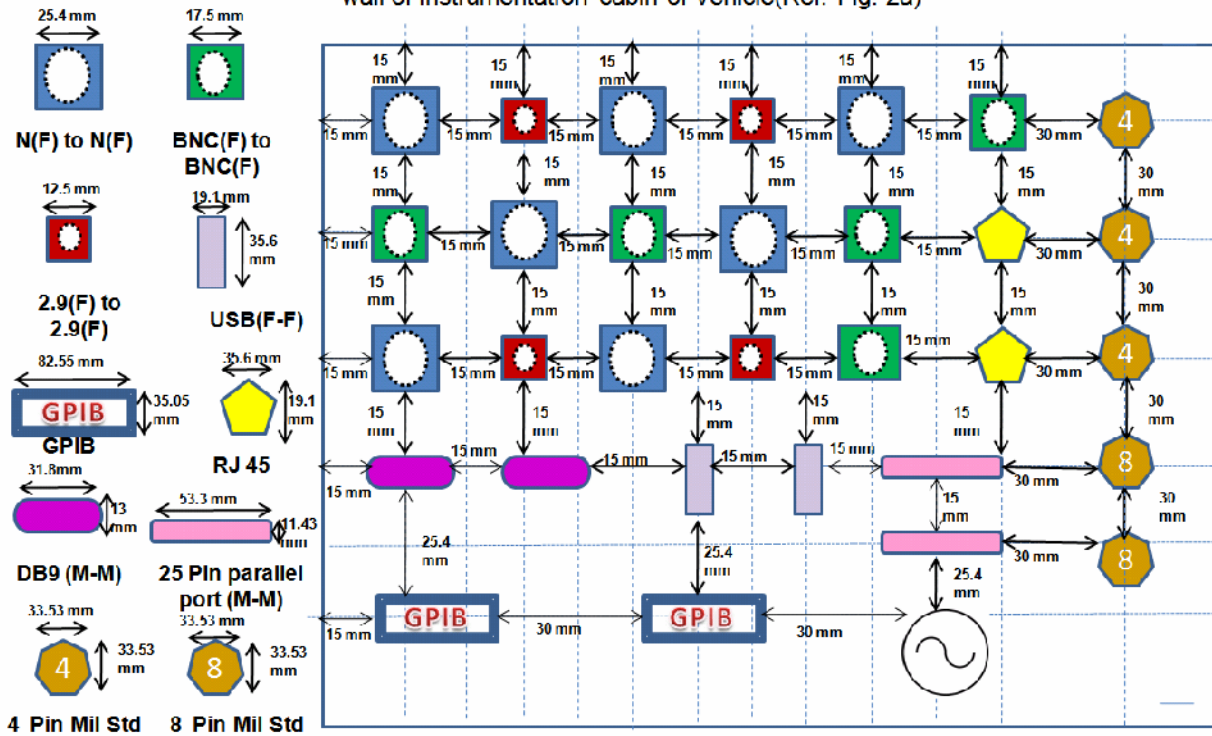
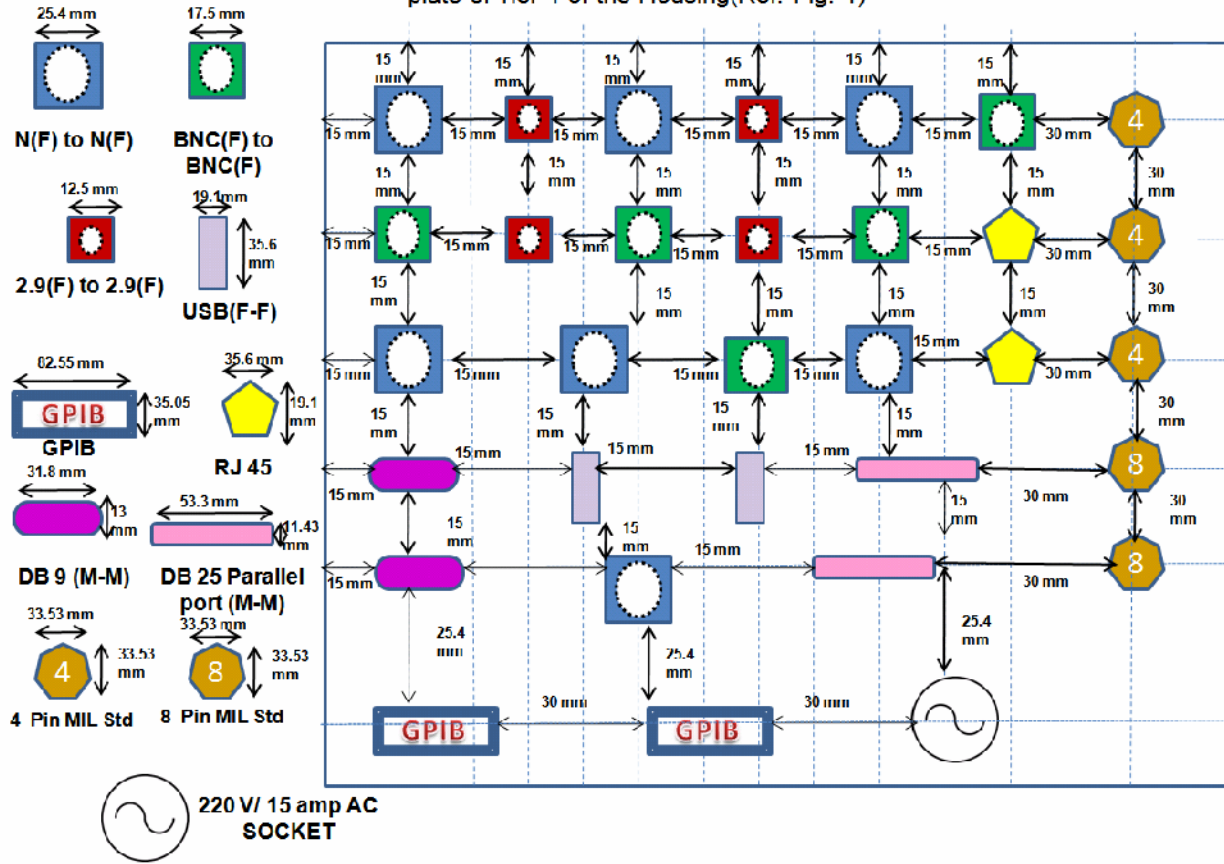


Fig.4 RF Bulkhead Connector Layout

Location: Cut out Panel(381mm X 274mm) at the base plate of Tier 1 of the Housing(Ref. Fig. 1)



Annexure I

List of connectors/adapters/cable/screw/tray/related to Housing

1) Cable with connectors

CABLE TYPE	CABLE LENGTH (m)	CONNECTOR SPECIFICATION	QTY
Data Cable with Connector			
D-Sub(DB-9) Standard shielded 21AWG cable	7	DB 9 (F-F) connectors	5
	1.5		5
D-Sub(DB-25) Standard shielded 21AWG cable	1.5	DB 25 (F-F) connectors	5
	7		5
USB 2.0 Cable type A-A	5	Male to Male connector	5
	2		5
Power Cable with Connector			
20Amp(min)Cable with Military Standard connector	7	i. Straight Plug Connector ii. No. of PIN Contacts- 8 iii. Contact size -16 iv. Orientation-Normal v. Environmental Resisting	3
	1.5		3
20Amp(min)Cable with Military Standard connector	7	i. Straight Plug Connector ii. No. of PIN Contacts- 4 iii. Contact size -16 iv. Orientation-Normal v. Environmental Resisting	4
	1.5		4
20Amp(min)Cable with Straight Plug Military Standard connector at one end only	7	i. Straight Plug Connector ii. No. of PIN Contacts- 8 iii. Contact size -16 iv. Orientation-Normal v. Environmental Resisting	3
	1.5		3
20Amp(min)Cable with Straight Plug Military Standard connector at one end only	7	i. Straight Plug Connector ii. No. of PIN Contacts- 4 iii. Contact size -16 iv. Orientation-Normal v. Environmental Resisting	4
	1.5		4

2) BULKHEAD (PANEL MOUNT) ADAPTER:

COMPONENTS	DESCRIPTION	QTY
Data		
IEEE-488, GPIB Bulkhead Adapter	Female-Male Size- 82.55mm/35.05mm	4
USB 2.0 type A-A Shielded	Female-Female Size- 35.6mm/19.1mm	5
DB25 gender changer	Male-Male Size- 53.3mm/11.43 mm	8
Modular coupler RJ 45 (8/8)	Female-Female Size- 35.6mm/19.1 mm	12
DB9 serial gender changer	Male-Male Size- 31.8mm/13mm	10
RF		
N-TYPE RIGHT ANGLE ADAPTOR	Male(RIGHT ANGLE)- Female(Straight) for 18 GHz operation	6
BNC-TYPE RIGHT ANGLE ADAPTOR	Male(RIGHT ANGLE)- Female(Straight) for 2 GHz operation	4
Power		
Military Standard wall mounting Receptacle	i. Straight Plug Connector ii. No. of Socket Contacts-8 iii. Contact size -16 iv. Orientation-Normal v. Environmental Resisting	6
Military Standard wall mounting Receptacle	i. Straight Plug Connector ii. No. of Socket Contacts-4 iii. Contact size -16 iv. Orientation-Normal v. Environmental Resisting	9

3) SCREW/NUT/BOLT/WASHER

COMPONENTS	DESCRIPTION	QTY
Mounting Screws	i) T10	2 doz
	ii) 4-40 UNC-2B (0.18 inch DEEP HOLES)	5 doz
M6 Cage nut, Bolt and Washers	standard	6 doz each

4) ACCESSORIES:

ITEM	DESCRIPTION	QTY
Standard 1U tray for 19" rack	i. Material- Steel ii. Load Capacity-20 Kg	7