IIT PALAKKAD

INDIAN INSTITUTE OF TECHNOLOGY PALAKKAD
भारतीय प्रौद्योगिकी संस्थान पालक्काड
Under Ministry of Human Resource Development, Govt. of India
मानव संसाधन विकास मंत्रालय के अधीन, भारत सरकार

Ref No: IITPKD/ELE/SD/046/2019-20 /01 **Dt: 06.11.20119**

CORRIGENDUM – I

Sub: Corrigendum for Supply, Installation, Testing And Commissioning of RF Anechoic Chamber With Frequency Range From 0.8 To 40 Ghz With VNA Interfacing For Automatic 3D Pattern Measurement For Transit Campus .
Ref : Tender No. IiTPKD/ELE/SD/046/2019-20, dated 25.10.2019

Sl No.	Existing Clause	To be read as
1	Page No. 5 Clause No. 5.9 (ii) Have an Average Annual Turnover of Rs.90 Lakh during each of the last three financial years (2016-17, 2017-18, 2018-19). The bidder shall enclose the audited statements of the indicated financial years, which should have been certified by a Chartered Accountant	**Page No. 5** **Clause No. 5.9 (ii)** Have an Average Annual Turnover of **Rs.60 Lakh** during each of the last three financial years (2016-17, 2017-18, 2018-19). The bidder shall enclose the audited statements of the indicated financial years, which should have been certified by a Chartered Accountant.
2	**Page No. 15** **Annexure II,Clause No. 3** The bidder must have a registered office and/or service center in Karnataka/Tamil Nadu/Telangana/Andhra Pradesh/Maharashtra or Kerala. Certificate of registration for the offices to be provided. Details about scope of service activities provided by the service centres must be provided. The contact details of the service engineers must be provided	**Page No. 15** **Annexure II, Clause No. 3** The bidder must have a registered office and/or service center in Karnataka/Tamil Nadu/Telangana/Andhra Pradesh/Maharashtra/**Delhi-NCR** or Kerala. Certificate of registration for the offices to be provided. Details about scope of service activities provided by the service centres must be provided. The contact details of the service engineers must be provided.
3	**Page No. 15** **Annexure II, Clause No. 4** The bidder must also have a service center in Karnataka/Tamil Nadu/ Telangana/Andhra Pradesh/ Maharashtra or Kerala. Certificate of registration for the centers to be provided	**Page No. 15** **Annexure II, Clause No. 4** The bidder must also have a service center in Karnataka/Tamil Nadu/Telangana/Andhra Pradesh/ Maharashtra/**Delhi-NCR** or Kerala. Certificate of registration for the centers to be provided.
4	**Page 13, Annexure – I** **Under Measurement setup, Position A** Nil	**Page 13, Annexure – I** **Under Measurement setup, Position A** **The following clause to be added** **a)Software must be lab view-based** **b)Real-time monitoring of graphs during measurement.** **c)Single screen includes measurement and graphs.**
5.	Measurement : Nil	**The following clause to be added** **Minimum six plots should be plot simultaneously in a single run of measurement.**

All other terms and conditions of tender cited in reference shall remain unchanged.

Registrar

Name of the Facility: RF Anechoic Chamber with Frequency Range from 0.8 to 40 GHz with VNA interfacing for Automatic 3D pattern measurement

Purpose:

S. No	Main item description	Qty.	Unit price (Approx.) (INR)	Total Amount (Approx.) (INR)
1	RF Anechoic Chamber with Frequency Range from 0.8 to 40 GHz with VNA interfacing for Automatic 3D pattern measurement. It will be used for measurement of Antenna automated 3D radiation pattern from 0.8 to 40 GHz frequency for defense, space and biomedical applications	1	1	

Technical Specification:

S.No	Name of the Equipment	Technical Specification	Qty.
1	Anechoic Chamber (in Room)	**Anechoic Chamber (in Room)** **Size of chamber: 5.5 x 2.5 x2.5 meter (LWH)** **Shielding Effectiveness : 60-80 dB** **Quiet Zone level : -40 dB** 1. Frequency of operation: 800 MHz to 40 GHz 2. Construction of chamber is of Frame skeleton structure made up of square hollow pipes &thick Galvanized Iron sheet, Welded at joints & overlapped. 3. All four Walls & Roof & Floor covered with absorbers. Models FU 4, FU 6, FU 9, FU 12,FU 18, Corner & Walk On Absorbers 4. Door Size : 3 ft x 6 ft (WH)- Triple latch mechanism 5. Connector Panel (4SMA, 2N):- Female to female adapters – 01Nos 6. Power Line Filter (16 A, 230 VAC) – 01Nos 7. Internal Lightening , Power sockets, switches & Wiring (2 lights, One set of Extension Board & Wiring) 8. Earthling : From single pit two points connection to chamber – 01 Job 9. Honey comb air vents with frame size: 300 x 300 mm (required for air ventilation for air inlet & outlet) – 02Nos **10. Installation & Testing – 01 Job** **11. Fire Alarm, Fire Extinguisher , 1.5 Tonner AC**	01

		MicrowaveAbsorbers 1. P.U. Foam based absorber tested as per IEEE STD. 1128. 2. All Absorbers to be used are Fire Retarded: Passes NRL-8093, USA test 1, 2 & 3 With Zero Halog Means. 3. Chamber Construction Details- 4. PAN Type Shielded structure. 5. 2mm thick hot galvanized sheets used for PAN manufacturing. 6. Cutting and bending by Laser / CNC machines. 7. Radiography quality TIG welding of comers of panels. 8. Joining of PANs using Rail Road wire mesh based metallic Gasket. 9. **Shielded Window-** 10. Windows are designed to open approx.180 11. Rail Road gasket used between the window frame and the basic Pan structure	
2	**Measurement Set-Up**	**Measurement Set-up:** **T-X & R-X POSITIONER SYSTEM with VNA Interfacing for Automatic Measurements** **Position A:** 3Axis-2D/3D-Radiation Pattern Measurement Systems (Automatic Measurement with single software Command) **Positioner System:** Receiver & Transmitter Positioner System a) Automatic 3 Axis Receiver positioner system (Polarization, elevation & Azimuthal rotations) b) Minimum step angle of 0.18 degree. c) Interfaced with VNA & PC for automatic measurements. d) Software must be lab view based e) Real time monitoring of graphs during measurement. f) Single screen includes measurement and graphs. g) Transmitter positioner system remains fixed with provision for mounting of antennas. **Measurement :** a) VNA interfacing for fetching data from VNA with moment of positioned b) 3 Axis positioning system Control with PC. c) Both positioner & VNA will operate through software. d) Minimum six plots should be plot simultaneously in single run of measurement. e) Measuring the S-Parameters (S11,S12,S21 and S22), Gain, Beam width, 2-D, 3- D radiation	01

		pattern) f) Graph plotting & data saving after each test. **Report & Data Analysis:** a) The data will be saved in excel format in the PC. b) The Plots can also be saved in desired format. **T-X & R-X Positioner System** **Transmitter Detail** a) Mechanical alignment. b) Height same as Receiver centre. Centrally located. c) Manual Height adjustable. d) Maximum load Capacity : 10kg **Receiver 3 Axis Positioner System: 01 (Azimuth, Elevation & Polarization Movement)** a) The System has the ability to adjust the antenna position in Polarization, Azimuthal & elevation directions. Azimuthal from 0 to 360 degree; Elevation from 0 to 360 degree; Polarization from vertical to horizontal. b) Angular Motion can be done in different step sizes and it is user selectable. c) Wide range of step sizes like from 0.18 deg to 0.9, 1.8, 9, 18....any angle in multiple of 0.18 deg. d) Elevation Movement will be -90 to +90 degree. e) Polarization Movement Vertical & Horizontal. f) Maximum load Capacity : 6kg **Position B:** **1 Axis-2D-Radiation Pattern Measurement System (Automatic Measurement with single software command)** **Positioner System:R-X & T-X Positioner System** a) Automatic 1 Axis Receiver positioner system (Azimuthal rotation only) b) Minimum step angle of 0.18 degree. c) Interfaced with VNA & PC for automatic measurements. d) Transmitter positioner system remains fixed with provision for mounting of antennas **Measurement :** a) VNA interfacing for fetching data from VNA with moment of positioned b) 1 Axis positioning system Control with PC. c) Both positioner & VNA will operate through	

		software. d) Measuring the S-Parameters(S_{11},S_{12},S_{21} and S_{22}), Gain, e) Beam width, 2-D, radiation pattern f) Graph plotting & data saving after each test. **Report & Data Analysis:** a) The data will be saved in excel format in the PC. b) The Plots can also be saved in desired format. c) User can retrieved the past data on the software for analysis. **T-X & R-X POSITIONER SYSTEM:** Mechanical alignment. a) Height same as Receiver centre. Centrally located. b) Manual Height adjustable. c) Maximum load Capacity: 10kg **Receiver Details:** **1Axis Positioner System (Azimuth Movement only)** a) The System has the ability to adjust the antenna position in Azimuthal direction only. Azimuthal from 0 to 360 degree. b) Angular Motion can be done in different step sizes and it is user selectable. c) Wide range of step sizes like from 0.18 deg to 0.9, 1.8,9,18.....any angle in multiple of 0.18 deg. d) Maximum load Capacity : 6 kg	
3	**Broadband Horn Antenna**	**Specification:** a) Antenna Type: Double Ridged Broadband Horn Antenna b) Frequency: 800MHz to 40GHz c) 0.8 GHz to 40GHz VSWR: 2:1; High Gain:3-22 dBi d) RF Counter : N-Female Connector e) Customized **Tripod Antenna Mounting Stand**, Variable height adjustment from fixed base height 1000mm to 1500mm. **Test Equipment** a) Cable : 8M DC to 40 GHz Cable b) Test Distance: 3m c) HD Camera with LCD for monitoring inside chamber positioner system: 01 set d) movement- 01 set	02
4	**Environmental Condition**	a) Test Site Temperature: 25ºC b) Test Site Humidity: 65% c) Control Room Temperature: 23ºC d) Control Room Humidity: 55%	