

Government Of India  
Ministry of Communications  
Department of Telecommunications  
WPC Wing, Regional Licensing Office(South)

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Tel: 044-24962070

No.Q-11011/01/2021-RLO(SR) /6417

Date: 12<sup>th</sup> November 2021

To  
The All Concerned

**Subject: Technical Proposal Invite for SHF/EHF Mobile Monitoring Terminal(MMT)s for Wireless Monitoring Organization, DoT, Ministry of Communications-Reg.**

The proposal to procure Twenty Eight (28) nos. of fully integrated SHF/EHF Mobile Monitoring Terminals, ITU compliant Spectrum Monitoring System, covering the frequency band 1-80 GHz for all 28 Wireless Monitoring Stations of Wireless Monitoring Organization, DoT is under consideration by this Ministry.

The details of the requirements and measurement capabilities are given at Annexure-1.

2. Interested vendors in this field are invited to provide their technical proposal for the complete system, in the form of a document containing complete/exhaustive technical specifications, detailed installation particulars & commissioning of the equipment. **The overall system sensitivity shall be provided in dBW/m<sup>2</sup>/4kHz.** Relevant information, illustrating typical setup of the product as used in SHF/EHF MMTs and the output derived from the setup would be appreciated.

3. It would be appreciated that, if you could indicate the estimated/budgetary cost (inclusive of duties/taxes, freight charges, insurance etc.) for each SHF/EHF MMT including warranty of 03years, Comprehensive Annual Maintenance Contract (CAMC) for 05years and the cost of installation & commissioning of the SHF/EHF MMTs including training to the officers. The detailed item-wise break-up and methodology of arrival at the estimated/budgetary cost for each SHF/EHF MMT(including cost breakup for CAMC, installation, commissioning, training, duties/taxes, freight charges, insurance etc ) may also be provided

4. The above detailed information may be sent by registered post to the undersigned within 10 days from the date of issue of this letter. A copy of the same may be also be sent by email to [nk.bhola@nic.in](mailto:nk.bhola@nic.in).

The undersigned may be contacted for any query in this regard.

  
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Copy to: The Sr. Deputy Wireless Adviser (ASMS), WPC Wing for uploading the letter in the DoT website.

**1.0 Brief Details of the requirements of the system**

- (i) The SHF/EHF MMTs is envisaged to be state-of-the-art, easy to operate, rugged, automated system housed in a suitably designed small/medium utility vehicle to meet the spectrum monitoring objectives in the frequency band 1-80 GHz.
- (ii) The SHF/EHF MMT shall be designed & developed based on modular structure, which will provide flexible and upgradable configuration. This modular setup should be configurable to meet the system requirements and any subsequent expansions/updates should be easily implementable, by adding modules and software /upgrades etc.
- (iii) Portable/handheld analyser/receiver (covering the frequency band 1-80 GHz) along with light weight antenna and telescopic mast to supplement the SHF/EHF MMT for carrying out monitoring on the rooftop and in inaccessible areas.

**2.0 Each SHF/EHF Mobile Monitoring Terminal (MMT) shall be equipped with the following supplies/deliverables:**

- (i) Antennas and its assembly covering the frequency range 1-80 GHz with suitable Antenna switching unit, Antennas mount, Pedestal Rotator, Antenna Positioner, Retractable Mast for antennas (10 m above ground).
- (ii) Low Noise Amplifier (LNAs) with appropriate gain and low Noise Figure (NF).
- (iii) Spectrum Analyser/Signal Analyser/Receiver, Programmable step attenuator, high quality Pre-amplifier, low loss RF cables, connectors, accessories etc., Equipment Rack Assembly, GPS Receiver & Electronic Compass.
- (iv) Spectrum Monitoring Software, Modulation Recognition Software, Automation and control software, Graphical User Interface, OS, Drivers and Database Software etc.
- (v) Signal recorder with play back facility and external data storage.
- (vi) Computer with display and laptop etc.
- (vii) Power supply system, UPS and Low Noise and Compact power generator.
- (viii) Handheld /portable Spectrum Analyser with Antennas, tripod for mounting antennas and retractable & foldable mast.
- (ix) Any other system which may be necessary for proper functioning of this EHF/SHF MMT system like riggers, compressors, Air conditioning system etc.
- (x) Suitably designed small/medium utility vehicle to install/house this system.

**3. Measurement Capabilities:**

- 3.1 The SHF/EHF MMT shall perform measurement/monitoring function in the frequency 1-80GHz such as Frequency, Bandwidth, PFD/PSD, Channel power measurement, ACPR, Occupancy/Vacancy etc in accordance to the applicable ITU Recommendations/ Reports.
- 3.2 The SHF/EHF-MMT should also have the following monitoring function and measurement capabilities while monitoring over-the-air RF emissions/transmissions in the frequency 1-80GHz:
  - (i). Standard Demodulation / Emission Identification such as FSK, BPSK, QPSK, QAM etc;
  - (ii). Analysis and Identification of Standard Transmission / Emissions of different technologies used in terrestrial and satellite communication.
  - (iii). Spectrum measurements, I/Q, EVM, Water fall display etc.
  - (iv). Direction finding with integrated GPS and Map for Emitter/Transmitter marking & homing.
  - (v). Data Streaming & Report Generation.

- (vi). System automation for determining course of actions when signal of interest is detected;
- (vii). Recording of the spectrum, Data logging, storage and Management;
- (viii). Database for archival and retrieval of information, Data mining and information analysis,

3.3 Handheld SHF/EHF Signal Analyzer covering the frequency range 1 to 80 GHz for detection, analysis and measurement of Low power wireless emissions/usages; versatile measurement functions and display functions; recording & play back, internal DC Bias, Battery, GPS receiver etc. It should be rugged and all-weather use.

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