

Annexure 1

The Hand held spectrum analyser along with isotropic radiator system should be battery operated & provide the following capabilities.

- 1. Spectrum Analysis – 100 KHz to 8 GHz**
- 2. Electromagnetic Field Strength Measurement – 30 MHz to 6 GHz**

Spectrum Analyzer Specifications

S. No.	Parameters	Specifications
1	Frequency range	100 kHz to 8 GHz
2	Internal reference frequency, aging	1 ppm/year
3	SSB phase noise@ 500 MHz, Offset 30 kHz	< -95 dBc/Hz
4	Detector	Positive peak, Negative, Sample, auto peak, rms
5	Trigger functions	Free run, Video, external
6	Resolution bandwidths (-3dB)	1 Hz to 3 MHz in 1/3 sequence
7	Video filter bandwidths	1 Hz to 3 MHz in 1/3 sequence
8	Sweep time	20 ms to 1000 s upto 600 MHz span
9	Level Display Range	DANL to 30 dBm
10	Average Noise level	<-145 dBm (1 MHz < f < 8 GHz),
11	Total level uncertainty	<1 dB (10 MHz to 3 GHz) < 1.5 dB (3 GHz to 8 GHz)
12	Demodulation	AM/FM
13	Connetectors	Type N, 50Ω
14	Vector Reflection and Transmission Mesurements	300 kHz to 8 GHz
15	Frequency Counter Resolution	0.1 Hz
16	Field Strength Measurement	Isotropic antenna option to cover frequency upto 6 GHz.Antenna specification follows
17	Software for EMF Measurement	With inbuilt software that have electroinc swiching with each element of the antenna as well as a windows based GUI to operate it.

Isotropic Antennas (Two No.)

Specifications for first Isotropic antenna

18	Measurement principle	isotropic reception antenna elements, electronically switched
19	Frequency range	30 MHz to 3 GHz
20	Field-strength measurement	Approx. 1 mV/m to 100 V/m
21	Isotropy	< ±1.5 dB at 900 MHz and < ±1.8 dB at 1800 MHz
22	RF connector	Type N, 50Ω

Specifications for Second Isotropic antenna

23	Measurement principle	isotropic reception antenna elements, electronically switched
24	Frequency range	700 MHz to 6 GHz
25	Field-strength measurement	Approx. 1 mV/m to 100 V/m
26	Isotropy	≤ ±3 dB (upto 6 GHz)
27	RF connector	Type N, 50Ω

Interfaces & General requirement

1	Interfaces	LAN, USB
2	External Storage	SD card & USB stick should be supported
3	Display	6.5" color display, VGA resolution
4	Battery operating time	back-up time upto 3 hours.
5	Operating temperature range	0 to 50 deg C

Following Accessories & Services to be supplied with the Instrument -

1	LAN Cable.
2	USB Cable
3	2 Nos. RF Cable

4	Load/Open/Short Calibration Kit DC to 8 GHz for Vector Reflection and Transmission	
5	S/w for remote connection with lifetime license.	
6	Hard Carrying case for Antenna System	
7	Soft/ hard Copy of Operating Manual.	
8	Calibration Certificate for Both Antenna System and Spectrum/ VNA to be supplied	
9	Battery with AC to DC Adapter.	
10	Warranty	Two years for the system
11	The vendor shall provide a training for the operation of the instrument on mutually agreed date.	