Testing Capabilities of Communication Defence Testing Foundation (CDTF), IIT Kanpur

The CDTF Test lab is designed to cater the test requirements projected in the RFP & LOI provided by UPIEDA

S.N	Tests	Ranges /Specifications	Test Parameters
1	Low Noise Amplifier	Upto 20GHz	Gain, Noise Figure, 1dB Compression Point, Harmonics, VSWR, Spurious (unwanted frequency) and Modulation Quality.
2	High Power RF Switches Test	Upto 0.5W	Switching Time, Loss and VSWR
3	Antenna	Upto 20GHz	Antenna Gain, (G/T), Beam Width, Radiation Pattern, Band-Width, Impedance, Efficiency and VSWR.
4	S-Parameter Characterization		S- Parameter upto 4 Ports
5	Radio Qualification and Testing	100KHz to 3GHz range and 20MHz bandwidth	SNR, Gain, RF Spectrum, Harmonics, SINAD, AM/FM modulation/ demodulation and Digital Modulations
6	Radio Communication Test	250Khz to 3GHz	SNR, Gain, RF Spectrum, Harmonics, SINAD, AM/FM modulation/ demodulation and Digital Modulations .
7	Frequency Range Test and High Frequency Test 1	10 MHz to 20GHz	Frequency
8	Wireless (RF) Transmitter Test	23.5MHz - 6GHz	Power, Harmonics, Signal Strength, Modulation and Constellation

9	Receiver Test	10MHz to 20Ghz	CONFORMAL Noise, Sensitivity, RF Spectrum, Modulation, Receiver Gain ,Receiver Noise Figure and VSWR
10	SDR Tests		SNR, Gain, RF Spectrum, Harmonics, SINAD and AM/FM modulation/ demodulation
11	Communication Protocol Testing	Wi-Fi - IEEE 802.11 Bluetooth and 5G	Protocol verification
12	Passive Component Test		LCR Tests

The test equipment's has been selected to comply with the tests specified in the DPR submitted by UPEIDA

S.N	Tests Equipment's	QTY	Ranges /Specifications	Test Parameters
1	Vector network Analyser (Type-I)	2	10MHz to 20 GHz	Gain, Noise, Noise Figure, VSWR, S-Parameter -4 Port
2	Vector network Analyser (Type-II)	1	9KHz to 20 GHz	Switching Time, LOSS, VSWR & Antenna Parameters
3	Vector Signal Generator (Type-1)	1	9KHz to 6GHz	Triggering, Internal Modulation, SSB phase Noise & VSWR
4	Vector Signal Generator (Type-2)	2	250 KHz to 20 GHz	Triggering, Internal Modulation, SSB phase Noise & VSWR.
5	Calibration Kit	2	2-Port, 5KHz to 20GHz	Fast, easy & Accurate full two port calibration.
6	Power Sensor	2	9KHz to 33GHz	Either in Single or Multiple
7	Cable Set	6	DC to 20 GHz	With Return Loss >=16db
8	RF Spectrum Analyser	2	10 Hz to 44 GHz	RF Spectrum, SNR, Gain,, Harmonics, SINAD, Noise figure and AM/FM modulation/ demodulation.
9	Radio test set	2	100KHz to 3GHz	SNR,RF Spectrum, Harmonics, AM/FM/PM Modulation /Demodulation
	5G Wireless test platform	1	Support Both RF & Protocol Testing.	VoNR/VoLTE, Video Call
11	Digital Multi-Meter	6	Volt: 400mV TO 750 V Curr: 20mA to 10A	True RMS AC Voltage & Current, DC Voltage & Current, Frequency.

12	Power supply (type-1)	6	DC: Volt: 0 TO 32V Curr: 0 TO 5A	80W Power Supply
13	Power supply (type-2)	1	DC: Volt- 0 to 30V Curr: 0 to 80A	800 W power Supply
14	Testing automation SW for instruments	6	VNA-Type 1&2,Power Sensor, VSG-Type 1&2, RF Spectrum Analyzer, PS-Type 1&2, DMM.	
15	Real Time Oscilloscope	2	>=13GHz on Min 2Channel >=8GHz on 4 Channel	Mode: Auto, Trigger & Single
16	Function generator (DC to 80 MHz)	1	80 MHz& 2 no Channels	Sine, Square, Ramp, Pluse Gaussian Noise & DC
17	Impedance analyser (DC to 30 MHz)	1	20 Hz to 30 MHz	LCR Test
18	Basic Test Equipment's /Accessories	21	IT Hardware, UPS-30KVA & Support Equipments	