Invitation of budgetary quotes for test instruments for setting up of EMI/EMC Lab by TEC, New Delhi.

The National Digital Communication Policy 2018 provides, creating framework for testing of new products & services and enhancing institutional capacity to perform testing, including establishing domestic testing hubs and laboratories with state of art testing facilities. TEC has already accredited several (28 nos.) but all these labs are offering testing facilities on commercial basis.

EMI/EMC testing is a critical step in bringing a new product to the market. Now indigenisation of 4G/5G technologies is underway, this lab in TEC will give impetus to domestic manufacturers, MSME, start-ups etc. All these units can take advantage of this lab for the design of their products. Therefore, establishment of the lab in TEC will be a step for facilitating the 'Atma Nirbhar Bharat'.

The lab will also be used for surveillance of MTCTE process. The equipment seized during surveillance will be tested for EMI/EMC parameters in the lab. The lab will also be used for validating the process of EMI/EMC testing in case of dispute between the accredited lab and OEM.

The list of equipments of the proposed lab, with specifications attached at Annexure 'A'. The Lab will be set up in compliance of TEC Standard TEC/SD/DD/EMC-221/05/OCT-16. The EMI/EMC lab is proposed to be installed in ALTTC Campus, Ghaziabad. It will be used for testing of Telecom and IoT equipments.

Interested Test & Measurement Equipment Manufacturer (OEM)/ their channel partners are invited to submit the technical and cost details about the latest Testing Instruments. Budgetary quotes may be submitted latest by dtd. 31 .08.2021 through mail to the email id dirgp.tec-dot@gov.in,. The format for submission of budgetary quotes is enclosed at Annex. 'A'.

The cost details shall include the following components:

a) Initial purchase cost inclusive of taxes and duties applicable. All the prices should be quoted in Indian Rupees and will be for Supply, installation, testing, validation and commissioning of equipments including supply of minor accessories such as connectors, chords etc. at ALTTC, Ghaziabad.

b) Full-fledged training (theoretical as well as hands on) for 10 persons after commissioning and add on training every six months for 2 years for all test instruments.

c) Annual support and maintenance for five years after the warranty period of two years including renewal of subscription license and calibration of equipments and SAC.

In addition of budgetary quotes, you may also offer your comments on the equipment requirement or alternate equipment that fulfils the requirement etc.

Annexure A

SCHEDULE OF QUANTITY FOR SETTING UP OF EMI/EMC LAB IN TEC, NEW DELHI					
Sn	Equipment	Specification	Accessories	Cost in INR	Remarks, if any
3M SAC Chamber Tests : 1-Radiated Emission 2-Immunity to Radiated RF					
1	A room of size 11.5m(L)x 7.5m(W) x 5.8 m (H) will be provided, the work to make it 3M SAC including calibration, may be included in the scope.	as per CISPR 16-1-4, ANSI 63.4	CP (Control Panel) - 3 Nos AP (Access Panel) - 3 Nos RF Connectors		
2	Turn Table	2M			
3	EUT Table	0.8M Height			
4	Antenna Mast	4M Adjustable			
5	Bi-log Antenna	30MHz - 6GHz	*Bi-log=Biconical+log periodic		
6	Horn Antenna	6GHz - 18GHz	Bi-log+Horn=Dual Stack log periodic		
7	Amplifier	250W / 6GHz			
8	Shielding of AR (Amplifier Room)	Shielded			
9	Field Probe	upto 300V/m			
10	Signal Generator	9KHz - 6GHz			
11	Signl Analyzer / Spectrum Analyzer	9KHz - 30GHz			
12	EMI Test Receiver	9KHz - 6GHz	2-Line V-network, 9KHz - 30MHz, 16A continuous current		
13	PC and Software with EMI & EMS				
14	CCTV Camera / Monitor				
15	Immunity Antenna	80MHz - 6GHz			

16	Chamber Calibration	NSA (30MHz ~1GHz), SVSWR(1GHz~18GHz), 16 Point Field Uniformity			
Conducted Emission Room : 1-Conducted Emission Test					
Sn	Equipment	Specification	Accessories		
1	EMI Test Receiver (Test receiver should be able to detect Quasi Peak and Average signal levels.)	9KHz - 30MHz or More			
2	LISN (suitable for Ethernet (Electrical / optical), STM, Antenna RF port, USB/Micro USB, Telephone line & others)	150KHz - 30MHz	2-Nos with Grounding Plate		
3	ISN	150KHz - 30MHz, 4 Wire & 8 Wire	2-Nos		
4	Isolation Transformer	3KV	RF Cables & connectors		
5	Test Table	1.6M x 0.8M x 0.8M (Non-Conductive)			
6	VGP & HGP	2M x 2M			
7	PC & Software	for Graph / Observation			
Immunity Test Room : 1-Electrostatic Discharge 2-Electric Fast Transient 3-Surge Immunity 4-Conducted Susceptibility 5-Voltage Dips & Interruption					
Sn	Equipment	Specification	Accessories		
1	Table	1.6M x 0.8M x 0.8M (Conductive Table) as per Standard	10 cm. Non-Conductive Plate		
2	VGP & HGP	470 KΩ Resistance, 4-Nos			

3	ESD Generator with Gun * including PC with software for performance measurement, PER measurement tool/device	Air discharge test voltage : ± 2KV to ± 15KV Contact discharge test voltage : ± 1KV to ± 8KV Tolerance of output voltage : ± 5% Holding time : ≥ 5s Polarity of output voltage : Positive & Negative Storage capacitance of ESD Generator : 150pF Output impedance of ESD Generator : 330 Ωs Discharge mode of operation : Single discharge (≥20 discharges/sec i.e 0.5Hz) Discharge return (grounding) cable length : 2m Interconnecting cable from ESD Generator to ESD Gun : ≥2m Input voltage of ESD Simulator : AC 230V/ 50Hz / Battery operated / long backup time VCP as per IEC 61000-4-2 : 0.5*0.5m for indirect ESD application HCP as per IEC 61000-4-2 : 1.6*0.8m for indirect ESD application ESD Verification Set as per IEC 61000-4-2 : 2Ω target/ 4GHz, Attenuator 20dB, 50Ω Coaxial Cable			
4	EFT Generator * including CDN for power and all types of communication ports	1 phase CDN : 230V/50Hz, 16A Polarity of pulse : Positive & Negative Open circuit test voltage level : ±0.5KV to ±4KV Wave shape : (5/50 ns) & (15/300 ms) Rise time of voltage wave shape : 5.0 ns (±30%) Pulse duration of voltage wave shape : 50.0 ns(±20%) Burst Repetition frequency :5KHz / 100 KHz Burst Duration : 15 ms Burst Period : 300 ms Test Duration : 1 minute Synchronization : as per IEC 61000-4-4 Output Impedance : 50Ω Angle : 0˚,90˚, 180˚ & 270˚ EFT Verification Set (Attenuator set) : One set (50Ω & 1000Ω) with connectors & cables			

5	Oscilloscope	500MHz, 3GS/s - 5GS/s			
6	Capacitive Coupling Clamp	as per IEC 61000-4-4			
7	CDN	32A / Phase, Current Handling 32A/Phase			
8	Surge Tester * suitable for ITU K20 & K1 testing	Waveform 1.2/50 µs,10/700 µs upto 6KV 1 phase CDN : 230V/50Hz, 16A Polarity of pulse : Positive & Negative Open circuit test voltage level : ±0.25KV to ±6KV Wave shape : (1.2/50 µs) & (8/20 µs) Rise time of voltage wave shape : 1.2 µs (±30%) Pulse duration of voltage wave shape : 50 µs (±20%) Rise time of current wave shape : 8 µs (±20%) Pulse duration of current wave shape : 20 µs (±20%) Waveform requirements (Telecom surge) : (10/700 µs) & (5/320 µs) Rise time of voltage wave shape : 10 µs (±30%) Pulse duration of voltage wave shape : 700 µs (±20%) Rise time of current wave shape : 5 µs (±20%) Pulse duration of current wave shape : 320 µs (±20%) Repetition rate : 1 minute (as per standard) Pulse angle : (0 to 360˚) Output impedance : as per referred subject standard 3 phase CDN : 440 VAC (3P/4W), 230VAC, 50HZ or better			
9	CS Generator *	150KHz - 80MHz, Test level : 10Vrms, 80%AM	Amplifier upto 125W, Attenuator of 6dB & 20dB RF probe : 150KHz - 80MHz Field Strength : 10Vrms Absorbing Clamp as per CISPR 16 for automatic operation		
10	CDN	M2/M3 -32A			

11	RF Probe	150KHz - 80MHz			
12	EM Clamp	150KHz - 80MHz			
13	Signal Generator	upto 1GHz			
14	RF Power Meter	150KHz - 80MHz, 80% AM			
15	PC with Software	for Graph / Observation			
16	Voltage Dips & Interruption Simulator * in compliance of IEC-610004 and IEC-610004-29	Input Voltage : 230V/50 Hz, 16A AC & 220V DC Output Voltage : 230V/50 Hz, 16A AC & 220V DC Output Current rating : upto 16A AC, 10A DC Test duration for Voltage dips /voltage variations : 0.5 to 300 cycles Phase shifting of voltage dips & interruptions : (0 to 360˚) Voltage range for 0%, 30%, 70%, 90% (variable)			
	Additional Requirements :-				
1	AMC for 5 Years	Comprehensive AMC for 5 years after completion of warranty period of two years including periodic calibration of SAC and all equipment.			
2	Manpower	Two graduate Engineers, suitably trained in performing the EMI/EMC testing for 7 years i.e. warranty period and AMC period			
3	Accreditation charges	Accreditation of the lab with NABL			
4	Training	Full-fledged training (theoretical as well as hands on) for 10 persons after commissioning and add on training every six months for 2 years for all test instruments;			