

## MINUTES OF PRE-BID MEETING

An Open Tender Enquiry was floated on 14-08-2020 on [www.eprocure.gov.in](http://www.eprocure.gov.in) (**Tender Reference Number: IITK/EE/MJA/2020/01**) for suitable bidder to carry out the work of Establishment of EMI/EMC Test Facility including Semi-Anechoic Chamber (SAC), Related Equipment and Accessories for Testing of Medical, Electrical, and Electronic Devices.

Due to covid-19 situation in the country a pre bid meeting was held through video conferencing on 25<sup>th</sup> August, 2020 at 4 PM. However, all the issues were not resolved on 25<sup>th</sup>, hence a next session of the meeting was held on 26<sup>th</sup> August 2020 at 4 PM.

The representatives of following bidders along with IIT Kanpur team were present during the pre-bid meeting

1. ETS-Lindgren Engineering India Pvt.Ltd
2. Rohde & Schwarz India Pvt. Ltd.
3. Frankonia India Emc Solutions Pvt Ltd
4. Scientific Mes-Technik Pvt. Ltd

The meeting started with a small briefing about the tender, and the purpose of the pre-bid meeting was summarized by the IIT Kanpur team. Thereafter, all the bidders were requested to put up their queries and suggestions.

The representatives were also requested to send their queries in writing through email. Afterwards queries from all the bidders were compiled together. These queries along with their responses are summarized in **Annexure-A**.

After the prebid meeting, few amendments are now suggested by the purchase committee in the original bid document. These amendments are now uploaded as amendment -01 to the original Tender **IITK/EE/MJA/2020/01**.

# Annexure-A

## Non-Technical Query

**Query: Section II:** MSME exemption applicable against EMD fees.

**Answer:** MSME Exemption is applicable against MSME Certificate. Bidders have to upload an MSME certificate to claim EMD fees exemption.

**Query: Section II:** From the placement of PO we can finish in one year. Civil building to be made ready by IIT-K sooner to avoid delays later

**Answer:** This clause is already specified in the original tender document and it was clearly discussed in the pre bid meeting.

**Query: Section IV: 4:** Kindly explain with the formula for L1 evaluation for foreign and Indian currency. Can we quote in split quotes? Eg. USD and INR

**Answer:** all prices will be quoted in INR only ( please refer Amendment)

**Query: Section IV: 4i:** This must be clarified. We can't include such taxes from Germany.

**Answer:** We want all items to be FOR IIT Kanpur. So include all taxes and freight charges in the final price of the item..

**Query: Section IV: 9 Phase-I:** Non-demonstration of the previously installed facility by the bidder may result in disqualification. This can only be done with the agreement of the respective customer.

**Answer:** **This is required,** bidder may take prior approval from the respective customer.

**Query: Section IV: 10:** Late delivery fine is 1% per week, maximum upto 10%

Bidder 1: LD to be revised to 0.5% per week

Bidder 2: 10% is a lot. Usual international rules are 5% with a rate of 0,1% per day.

**Answer:** 0.5% per week upto max.10% ( please refer Amendment)

**Query: Section VI : Terms and Conditions:7:** As per NABL rule, the NABL audit shall be taken by the user only, it cannot be taken by a supplier on behalf of user because it requires quality manual, processes, training of personnel's, which are qualitative and varies depending on user, hence R&S can facilitate by providing necessary certificates for instruments and chamber to IIT for further taking up with NABL for certification. We request to remove this clause.

**Answer:** Bidder will provide necessary certificate for instrument and chamber and would also facilitate the NABL accreditation procedure.

**Query: Section VI: Terms and Conditions:19:**

Documents for Clearance/receipt of Goods The bidder shall send all the relevant documents

well in time to IIT Kanpur to enable us to clear or receive (as the case may be) the goods. & (SECTION VI- Terms and Conditions:12) All prices are to be FOR IIT Kanpur.) With reference to above two points kindly confirm if IIT Kanpur will clear shipment from customs.

**Answer:** Custom clearance will be done by the bidder, any supporting document for custom clearance required by the bidder will be provided by central store IIT Kanpur. Custom Duty Exemption Certificate @5.5% will be provided by IIT Kanpur so that custom charge could be relaxed. In case Indian good GST will be charged @ 5% Certificate will be given for the same. Please note all prices quoted should be FOR IIT Kanpur.

**Query: Section VI: Terms and Conditions:12:** All prices are to be FOR IIT Kanpur. Since FOR IIT, Kanpur prices have been requested, kindly confirm if bidders are allowed in foreign currency or only INR prices are to be offered.

**Answer:** Bidder can quote in INR only

**Query: Section VI: Terms and Conditions:20:** On site calibration, comprehensive service, and maintenance should be for a minimum period of three years.

Onsite calibration is not feasible for such a system due to the complex nature of calibration setup requirements e.g. anechoic chamber, controlled accredited environmental conditions, fixed installations, requirements etc. Hence, we request that calibration of equipment be allowed in OEM labs in India or abroad as per their recommended calibration interval.

**Answer:** calibration of equipment is allowed in OEM labs in India or abroad. ( please refer Amendment)

**Query: Section VI: Terms and Conditions**

Bidder has to complete work within 01 years from date of tender allotment or within 06 months of building Handover, whichever is later.

We request to amend delivery period as follows be defined as within 01 years from date of tender allotment and receipt of export license or within 06 months of building Handover, whichever is later. IIT should allow deliveries on readiness of material and ensure proper storage.

**Answer:** This clause is already specified in original tender document and it was clearly discussed in pre bid meeting (No change in clause)

**Query: Price bid format:**

We require in BOQ a separate field/provision to add pricing of additional items required to meet tender specs, installation commissioning and training etc. This is required as per government taxation norms and also while clearing consignment from customs.

**Answer:** you can add price under the line item of (B: 4.2 Accessories for Conducted Emission Test) provision to add other accessories that have been incorporated in B:4.2.8 ( please refer to the Amendment).

**Query: Price bid format:**

We require in BOQ a separate field/provision to offer educational discounts on our offered prices. Please appreciate that R&S offers special education discounts for premier institutes like IIT. This discount can only be provided on the total project value, not on the individualized item price. Hence kindly make a provision for the same in your Price bid BOQ format.

**Answer:** There is a provision to upload additional sheets along with BOQ excel file. Educational discount, if any, can be mentioned in the additional sheet.

## PRE-BID Queries Responses to Tender Document

### Technical Query

Page No.	Section	Serial Number	Statement as per tender document	Query by bidder	Response
15	V: Part A	A: 1.1.1	<p><b>Type of Chamber:</b> 3-Meter EMC Semi Anechoic Shielded Chamber (Modular Pan Type)</p>	<p><b>Bidder 1:</b> Can we offer sandwich panels S-81? Which meets as per standards. They are lighter and easy to handle meet shield effectiveness as per tender requirement</p>	<p>Semi Anechoic Shielded Chamber should be Modular Pan Type as mentioned in tender.</p>
15	V: Part A	A: 1.1.5	<p>Quiet zone :2m X 2m X 2m (L X W X H)</p>	<p><b>Bidder 3:</b> A quiet zone is a cylinder. Not a cube.H=2m and diameter = 2m</p>	<p>Refer to Amendment (A: 1.1.5)</p>
15	V: Part A	A: 1.1.7	<p><b>Power:</b> <b>Maximum power supply rating EUT:</b> AC: 230 V, 20 A, 50 Hz, 1 Ø and 440 V, 50 A, 50 Hz, 3 Ø.  Gas supply should provide the provision for medical gas (e.g. O<sub>2</sub>, N<sub>2</sub>, N<sub>2</sub>O, and Air)inside the chamber. Fourpipes of 12 mm</p>	<p><b>Bidder 2:</b> Please specify if only supply of 12mm FT or piping up Connection panel also be required.  <b>Bidder 3:</b> What type of liquid ? Water ?</p>	<p>Refer to Amendment (A: 1.1.7)  Connection panel is required.  The liquid will pass through a tube which passes through the specified pipe of diameter 12mm.  Type of liquid : Water</p>

			diameter.  Provision for taking in and bringing out liquid.		
16	V: Part A	A: 1.1.8	<p><b>Chamber Performance Criteria:</b></p> <p><b>Shielding Effectiveness (SE):</b>  Magnetic Field : 1 MHz: <math>\geq 80</math> dB  Electric Field: 200 KHz - 50 MHz: <math>\geq 100</math> dB  Plane wave field: 50 MHz – 1 GHz: <math>\geq 100</math> dB  Microwave Field: 1 GHz – 40 GHz: <math>\geq 100</math>  As per EN 50147-1</p> <p><b>Normalized Site Attenuation (NSA):</b>  <math>\pm 4.3</math> dB from 30 MHz – 1 GHz at 3 m distance in the above defined Quiet zone(QZ), as per ANSI C63.4, CISPR 16-1-4.</p> <p><b>Site Voltage Standing Wave</b></p>	<p><b>Bidder1:</b></p> <p>NSA needed as per standard is 4.0 db. As per tender specifications NSA of 3.5dB guaranteed. Why such low NSA? This may reduce the operability of the chamber for testing requirements. Medical equipment being very critical testing may be compromised</p> <p><b>Bidder2:</b></p> <p>Many medical devices use magnetic fields for diagnostic applications. This magnetic field starts from 10 kHz. In order to have more accuracy, we highly recommend Shielding performance starting from 10 kHz, 80 dB onwards. As per standard NSA should be <math>\pm 4</math>dB, hence request that same</p>	Refer to Amendment (A: 1.1.8)

			<p><b>Ratio (SVSWR) :</b>  &lt; 6 dB for 1 GHz – 18 GHz, As per CISPR 16-1-4, ANSI C 63.4</p> <p><b>Field Uniformity (FU) :</b>  0 to +6 dB at 80 MHz – 6 GHz (75% points in 16 points) as per IEC 61000-4-3.  As per IEC 61000-4-3, the analytical result should be provided confirming to given standards EN 50147-1, 2, IEEE 299, ANSI 63.4, CISPR 16-1-4, IEC 61000-4-3.  The chamber shall be validated by third party or independent laboratory which is accredited as per ISO 17025: 2005.  The bidder shall attach the sample certificate along with technical bid.</p>	<p>be changed to <math>\pm 4</math>dB instead of <math>\pm 4.3</math> dB.. Some standards mentioned for Analytic results are for SE, NSA measurement and not for Field uniformity. Applicable standard for field uniformity is IEC 61000-4-3. Please confirm.</p> <p><b>Bidder3:</b></p> <p>We can warrantee between <math>\geq 90</math> dB and 100 dB in the GHz range.  The standard request max <math>\pm 4.0</math> dB</p>	
17	V: Part A	A:1.2.1	<p>Minimum External Dimension:  9 m x 6 m x 6 m approx.  Building site is an existing laboratory.  Floor plan is given in Annexure IV.</p>	<p><b>Bidder 1:</b>  Why the minimum external dimension? We can design a smaller chamber, cost will be less and space utilization will</p>	Refer to Amendment (A: 1.2.1)

			<p>Suggested modifications to the building for optimum placement of the chamber should be mentioned by the bidder. The suggested modifications to the building will be carried out by IIT Kanpur.</p>	<p>be better. Tolerance for dimension?</p> <p><b>Bidder 2:</b> We request IIT to provide internal dimensions of the chamber, which is required for system design. For 3m Chamber, 8 x 5 x 5m internal clear is sufficient.</p> <p><b>Bidder 3:</b> In annexure 4 the building height available is 5,5 m ?</p>	
17	V: Part A	A: 1.2.2	<ul style="list-style-type: none"> <li>● Pan type Shielding panels with ferrite tiles on all side walls and ceiling.</li> <li>● Fully dismantlable and transferable.</li> <li>● Supporting steel structure for the chamber</li> <li>● Panels to be made of single sheet of steel (at least 2 mm thick) with environmental coating (e.g. zinc)</li> <li>● Proper RF shielding gasket to be used between panels.</li> </ul>	<p><b>Bidder 1:</b> We can quote with S81 panels the modular structure and light weight greatly enhances the dismantling and transferable capability.</p> <p><b>Bidder 2:</b> As fully dismantlable and transferable shielding material is required. The same is only possible with ferrite screwing and not possible with ferrite glueing. Ferrite screwing shall</p>	<p>Same as item number: A:1.1.1</p> <p>PAN type shielding fully dismantlable and transferable.</p>



				<p>be specified to make the requirement more clear. When PAN type shielding is installed, it has one smooth surface and another uneven surface due to PAN folds. A smooth surface outside looks aesthetically good and PAN folds outside does not look so good. If PAN folds are outside, ferrites and absorbers can be glued directly on inside of a smooth surface and is effectively cheaper. Please suggest your preference.</p>	
18	V: Part A	A:1..2.3	<p>Full coverage non-drooping with polyurethane foam or latest thin film technology absorbers</p> <ul style="list-style-type: none"> <li>● High Field withstand capacity (at least 200 V/m)</li> <li>● Fire retardant as per UL/DIN/IEC as per DIN 4102</li> <li>● Removable and replaceable</li> <li>● Clean room compatible absorbers according to ISO 14644-1 class 5 / class 100000</li> </ul>	<p><b>Bidder 2:</b></p> <p>As commercial chamber performance can be achieved with partial coverage, please advise expected application for full coverage.</p> <p><b>Bidder 3:</b> EN 13501-1 Capron Philippe IEEE1128.</p>	Refer to Amendment (A: 1.2.3)

			- RF testing as per EEE1128		
18	V: Part A	A: 1.2.4	<p><b>Hybrid pyramidal absorbers</b></p> <p>Floor absorbers Movable type partially covering absorbers Immunity testing – hybrid absorber with ferrite 16 pieces of 2 ft x 2 ft absorbers on sixteen floor carts. Emission testing – 28 pieces of 2 ft x 2 ft removable pyramidal absorber placed in front of the quiet zone and three rolling non conductive platforms with integrated casters.</p>	<p><b>Bidder 3:</b></p> <p>Immunity requested is from 80MHz, so no need for Hybrid on the floor. Stand alone pyramids are enough</p>	Hybrid absorber with ferrite required
18	V: Part A	A: 1.2.5	<p><b>Floor and ground plane :</b></p> <p>Raised floor of required height with load bearing capacity of at least 1500 kg/m<sup>2</sup> with floor entry panels included.</p> <ul style="list-style-type: none"> <li>● Anti-moisture mat should also be included under the shielded floor.</li> <li>● Multi sheeted mat located inside the main door and it has the same width as that of the shielded door.</li> </ul>	<p><b>Bidder 3:</b></p> <p>There will be no multi sheeted mat inside the main door, please change it. However if you want DoorMat this can be provided. So please change to DOOR MAT.</p>	
18	V: Part A	A: 1.2.7	<p><b>RF Shielded Door (Main):</b></p> <p>2.0m x 2.1m Double leaf knife edge swing door, electrically and pneumatically operated (1500 kg load capacity).</p>	<p><b>Bidder 1:</b></p> <p>Option to quote with sliding door, reason double leaf knife edge is outdated technology and offers poor shield effectiveness near door area. Sliding doors are easier to</p>	Refer to Amendment (A: 1.2.7)

			<ul style="list-style-type: none"> <li>● Test in progress” Display with an Interlock Switch.</li> <li>● Easy to operate, light weight with standard sealing.</li> <li>● Should be able to shut off the RF in the event of door being opened during Immunity Testing</li> <li>● Should provide door maintenance kit</li> <li>● Provide compressor in case of pneumatic door</li> <li>● Provide the separate price for all types of doors.</li> </ul>	<p>use and offer excellent shield effectiveness.</p> <p><b>Bidder 2:</b> Please be informed that fully electrical and pneumatically operated doors are different technology. We suggest the use of a Pneumatically operated door for the same.</p> <p><b>Bidder 3:</b> Electrically or pneumatically</p>	
19	V: Part A	A: 1.2.8	<p><b>RF shielded Door between SAC and CR:</b></p> <p>Semi-automatic Single leaf swing door of size 1.2m x 2.1m</p> <ul style="list-style-type: none"> <li>● RF shielded swing door and limit switch to accommodate immunity interlock</li> </ul>	<p><b>Bidder 2:</b> Please be informed that Semi automatic refers to pneumatic. We suggest the same be clearly defined under A:1.2.8 as well as A:1.2.7</p>	Refer to Amendment (A: 1.2.8)

			<ul style="list-style-type: none"> <li>● Test in progress” Display with Interlock Switch.</li> </ul>		
20	V: Part A	A:1.2.10	<p><b>Lighting:</b> EMI-Free LED lights (minimum 5 in number) of (60W-100W) and (with electrical distribution and filtering. Capable of withstanding the produced field strength. Test in Progress Lights over SAC door and CR door; EMI Free Emergency lighting system with rechargeable battery backup to be provided above the exit door. Signal lights over SAC, CR and AR doors. Ladder provided for lighting maintenance.</p>	<p><b>Bidder 2:</b> Please confirm use of fluorescent illumination sign boards as they are more reliable, EMI free and also maintenance free (no battery)</p> <p><b>Bidder 3:</b> For LED lights maintenance is not required, however if you insist suitable ladder can be provided</p>	Refer to Amendment (A: 1.2.10)
20	V: Part A	A:1.2.11	<p><b>EUT Monitoring system:</b> Three EMI-shielded full HD digital cameras one for chamber wall and other two on tripod having 30x optical zoom and 10x digital zoom with minimum 330° pan tilt, built-in Audio system and</p>	<p><b>Bidder 2:</b> Audio monitoring applicability is not clear, please advise if intercom can be provided.</p>	Refer to Amendment (A: 1.2.11)

			<p>battery backup.</p> <p>One rack control should be provided to select cameras for various types of controls: -joystick control, Pan/tilt control and audio Monitoring (built-in speaker);</p> <p>Video Recording capability with 1TB hard disk and one LED monitor of 42" min.</p> <p>Audio monitoring / Intercom system between SAC and Control Room and NSR and AR</p>		
21	V: Part A	A:1.2.12	<p><b>Reference radiator</b></p> <p>To evaluate chamber and test instrument performance.</p>	<p><b>Bidder 2:</b></p> <p>The same is specified also at B: 4.2.3 as Reference generator. Request that same be removed from here. Please confirm in case 2 reference generators are required.</p>	Refer to Amendment (A: 1.2.12)
21	V: Part A	A:1.2.13	<p><b>RF Filters</b></p> <p>Power line Filters with more than 100 dB insertion loss from 9 kHz to 40 GHz as per CISPR17</p>	<p><b>Bidder 1:</b></p> <p>We can give you 100 dB @ 14KHz to 40GHz onwards which is more than sufficient.</p> <p><b>Bidder 3:</b></p>	Refer to Amendment (A: 1.2.13)

			<p>For EUT</p> <ul style="list-style-type: none"> <li>- 1 Ø, 230V AC, 50 Hz,20 A,</li> <li>2 lines (1 Ø + neutral) - 2 number</li> <li>- 3 Ø, 4 Line, 440 V, 50 Hz, 50 A – 2 number</li> <li>- DC, 2 line, 300 V, 25A – 2 number</li> </ul> <p>Filters are to be provided as per requirement of Lighting, Antenna mast, Turntable, Fire detection system, CCTV, Intercom, VOIP phone and Ethernet.</p>	<p>We guarantee 100 dB from 14 kHz-40GHz</p>	
21	V: Part A	A: 1.2.14	<p><b>Device controller:</b></p> <p>The device controller, being operated using software from the control room, shall control various devices such as RF source, external receivers, amplifiers, power meters, antenna mast, turntable, and other equipment in the test loop etc.</p> <p>Provision should be there to control the devices manually.</p> <p>This should facilitate all the testing being carried out in the chamber, including</p>	<p><b>Bidder 3:</b></p> <p>For antenna mast,turntable there is no provision to manually control</p> <p>For controlling the RF source, external receivers, amplifiers, power meters the controller will be provide with a system and it has both manually and software control.</p>	Refer to Amendment (A: 1.2.14)

			radiated emission and immunity.		
22	V: Part A	A: 1.2.16	<p><b>Antenna mast</b></p> <p>Scanning range from 1m to 4m with accuracy of <math>\pm 2</math> cm or better</p> <ul style="list-style-type: none"> <li>● Remotely controllable with fiber optic control lines</li> <li>● Centerline Polarization for better accuracy</li> <li>● Variable Speed Drive</li> <li>● Electrically operated</li> </ul> <p>All the fittings, wiring is to be carried out by the bidder</p>	<p><b>Bidder 3:</b></p> <p>Boresight mast as FCC is required. Our Boresight Masts tilt function is pneumatic</p>	Refer to Amendment (A: 1.2.16)
22	V: Part A	A: 1.2.17	<p><b>Turntable</b></p> <p>One optimum size duty turntable with standard diameter 2m, payload 1500 kg and variable drive speed. Fiber optic controllable and terminal box with access cover plate. More information is required on specification, drive, hold, positioning accuracy, etc.</p>	<p><b>Bidder 2:</b></p> <p>Kindly advise if it is necessary to have TT position in the centre of chamber? Or it can be positioned to one of the corners, (offset to door)?</p>	Refer to Amendment (A: 1.2.17)
23	V: Part A	A: 1.2.21	<p><b>Electrical Distribution panel:</b></p> <p>Power distribution box with ELCB, MCB/MCCB and RCCB – 1 Number</p>	<p><b>Bidder 1 , Bidder 2 , Bidder 3:</b></p> <p>ELCB will not work due to the EMC filter. The same may</p>	Refer to Amendment (A: 1.2.21)

			<ul style="list-style-type: none"> <li>● Light ON/OFF switches as per requirement.</li> <li>● ON/OFF control switches for turntable and antenna mast</li> <li>● EUT outlets 32 A - 3 phase with neutral and single phase</li> </ul>	please be removed.	
24	V: Part A	A: 2.1	<p><b>RF SHIELDED CONTROL ROOM (CR)</b></p> <p>Modular Pan Type Shielded Control Room.</p> <ul style="list-style-type: none"> <li>● Hot galvanised sheet steel / conductive material</li> <li>● Zinc galvanisation on every side of the shielding to resist corrosion.</li> <li>● Corners of the shielded room should be secured properly</li> <li>● Aesthetically pleasing floor tiles applied with adhesive over the exposed steel surface.</li> </ul> <p>Suitable size 4.0m (L) x 7.0m (W) x 3.0 m (H)</p>	<p><b>Bidder 1 :</b></p> <p>We will offer you an S81 sandwich panel as per standard.</p>	same as A:1.1.1



24	V: Part A	A: 2.2	<p><b>RF shielded Door between Outside and CR</b></p> <p>Semi-automatic RF shielded swing door. Should have “Test in progress” Display</p>	<p><b>Bidder 2:</b> Size of the door be specified</p>	<p>Refer to Amendment (A: 2.2)</p> <p>Size :1.2m (W) x 2.1m (H)</p> <p>Semi-automatic, single leaf</p> <p>Pneumatically operated door .</p> <p>“Test in progress” Display with Interlock Switch.</p>
25	V: Part A	A: 2.7	<p><b>Power line filters</b></p> <p>RF Power line Filters with 100dB insertion loss from 9 kHz to 40 GHz</p> <ul style="list-style-type: none"> <li>● For Instrumentation, Lighting and other accessories: 3 Ø, 4Line, 440 V, 50 Hz, 25 A – 1 Number.</li> <li>● Shielded optical converter for Ethernet - 1 each.</li> </ul>	<p><b>Bidder 3:</b></p> <p>We guarantee 100 dB from 14 kHz-40GHz</p>	<p>Refer to Amendment (A: 2.7)</p>
25	V: Part A	A: 2.8	<p><b>Electrical Distribution panel for CR</b></p> <p>Power distribution box with ELCB, MCB/MCCB or RCCB – 1 Number</p> <ul style="list-style-type: none"> <li>● Light ON/OFF switches as per requirement.</li> <li>● Power points (1 Ø, 230V - 5/15A) with switch along the wall of the CR.</li> <li>● 3 Ø outlets at specific locations.</li> </ul>	<p><b>Bidder 2:</b></p> <p>Kindly specify quantities.</p>	<p>Refer to Amendment (A: 2.8)</p>

25	V: Part A	A: 2.9	<p><b>Test environment</b></p> <p>Must provide a user-friendly system with a required number of tables, racks, trolleys and furniture.</p>	<p><b>Bidder 3:</b></p> <p>From Local</p>	Refer to Amendment (A: 2.9)
31	V: Part A	A:4.1	<p><b>RF SHIELDED AMPLIFIER ROOM</b></p> <p>Modular Pan Type Shielded Amplifier Room.</p> <ul style="list-style-type: none"> <li>● Hot galvanised sheet steel / conductive material</li> <li>● Zinc galvanisation on every side of the shielding to resist corrosion.</li> <li>● Corners of the shielded room should be secured properly</li> <li>● Aesthetically pleasing floor tiles applied with adhesive over the exposed steel surface</li> </ul>	<p><b>Bidder 2:</b></p> <p>Please specify amplifier room size</p>	<p>Refer to Amendment (A: 4.1)</p> <p>Size: 4.0m (L) x 2.0m (W) x 3.0 m (H) minimum</p>
31	V: Part A	A:4.2	<p><b>RF shielded Door between Outside and AR</b></p> <p>Single leaf swing door of size - 1.2m(W) x 2.1m(H)</p> <p>Should have “Test in progress” Display and automatic lock facility</p>	<p><b>Bidder 2:</b></p> <p>Kindly advise if the door should be manual or pneumatic. Since Amplifier room access is not required frequently. The same is suggested to be manual</p>	Refer to Amendment (A: 4.2)

32	V: Part A	A:4.5	<p><b>Power line filters</b> RF Power line Filters with 100dB insertion loss from 9 kHz to 40 GHz For Instrumentation / Lighting and Others: 3 Ø - 4 Line, 440 V, 50 Hz, 50 A – 1 number</p>	<p><b>Bidder 1:</b> Start freq will be from 14KHz which meets the requirements as per standard</p> <p><b>Bidder 3:</b> We guarantee 100 dB from 14kHz-40GHz</p>	Refer to Amendment (A: 4.5)
32	V: Part A	A:4.6	<p><b>Electrical Distribution panel for AR</b> Power distribution box with ELCB, MCCB, and RCCB – 1 Number.</p> <ul style="list-style-type: none"> <li>● Light ON/OFF switches as per requirement.</li> <li>● ON/OFF switches for instruments with at least 3 extra for future</li> </ul>	<p><b>Bidder 2:</b> ELCB will not work due to the EMC filter. The same may be removed</p>	Refer to Amendment (A: 4.6)
32	V: Part A	A:4.7	<p><b>Connector panels and penetration in the amplifier room.</b> Appropriate size panels containing the following connectors with RF shielded connector caps.</p> <ul style="list-style-type: none"> <li>● BNC (F), SMA (F), 7/16 DIN (F) (Quantity- 4 each)</li> <li>● N type(F)- Quantity 6</li> <li>● Fiber optic (FO) cables, connectors, adaptors: as</li> </ul>	<p><b>Bidder 2:</b> Kindly specify qtys and type for Fiber optic (FO) cables, connectors, adaptors: as per requirement... ? Please specify an application for RS232 and RS485 is for which application? Is it expected to be FO shielded?</p> <p><b>Bidder 3:</b> Additional optic converters ?</p>	<p>Amendment-</p> <p>ST penetration for FO cables – 4 Number</p> <p>FSMA penetration for FO cables – 4 Number</p> <p>FO shielded required</p> <p>other things as per tender</p>

			<p>per requirement.</p> <ul style="list-style-type: none"> <li>● 1½” diameter pipe penetration with cap</li> <li>● 6-way Fiber optic feed through – 1 Number</li> <li>● RS232, RS485</li> </ul>		<p>RS232-1 Number RS485-1 Number</p>
34	V: Part A	A: 6.5	<p><b>Complete Fire detection system for SAC, CR, AR and NSR</b> For SAC, CR and AR: IITK will provide the building space required for the chamber with a rough concrete platform. All necessary chasing, drilling and allied works for trench, turntable, etc., and finishing the same has to be carried out by the bidder. The appropriate flooring works around the chamber should also be carried out by the bidder.</p>	<p><b>Bidder 2:</b> Kindly be informed that smoke detection systems are provided in the facility for such a setup, please elaborate on fire extinguisher system , type and qty etc. because of various types of critical equipment involvement.</p> <p><b>Bidder 3:</b> Hooter ?</p>	Same as given in tender
35	V: Part A	A:6.7	<p><b>Air conditioning system(SAC, CR, AR and NSR)</b> Air conditioning system to be installed as per the latest international environment guidelines. Temperature: 22 ± 2 °C Humidity: 50% ± 5% or as per the requirement of the instrument and chamber, whichever is more stringent. The system shall take into account the heat load inside the various rooms considering rating of RF</p>	<p><b>Bidder 3:</b> Exclusively depending of the EUTs to be tested</p>	Refer to Amendment (A: 6.7)

			<p>power amplifiers, filter rating, lighting system, typical EUT requirement and all measurement systems, etc.</p> <p>Ductable packaged A/C unit from reputed brands to be used.</p> <p>Bidders should advise the recommended tonnage for AC by considering the temperature and humidity factors.</p> <p>System shall provide effective humidity control .Duct noise should be within the required safe level. The duct should have adequate internal acoustic lining and thermal insulation. Return duct to package A/C unit should be provided.</p> <p>Adequate arrangement for treated fresh air inside the chamber to be considered in the design of air conditioning systems.</p>		
36	V: Part A	A: 6.8	<p><b>Audio Intercom System</b></p> <p>The bidder has to provide audio intercom system between SAC and CR and between NSR and CR</p>	<p><b>Bidder 2:</b></p> <p>EMI shielded intercom system?</p>	<p>Yes EMI shielded intercom system is required</p>
37	V: Part A	A: 6.11	<p><b>Experience</b></p> <p>The bidder should have at least 7 years of experience in the installation of similar types of EMI/EMC test facility for medical devices in various organizations in India and abroad.</p> <p>OEMs of all the products including test equipment, ferrite based absorbers,</p>	<p><b>Bidder 3:</b></p> <p>Data Protection</p>	<p>Mandatory</p>

			<p>accessories etc. quoted by the bidder to establish this facility should also have at least 7 years of experience in the supply of such products to various organizations in India and abroad.</p> <p>The bidder should have completed a similar work with a value of at least Rs. 5 crores.</p> <p>The bidder should provide a list of organizations (with contact information) within India and abroad, where such a facility has been established by the bidder in the last 7 years. This should be supported with relevant documents.</p>		
37	V: Part A	A: 6.12	<p><b>Chamber performance testing by the bidder and validation by Accredited 3rd Party</b></p> <p>The performance testing of the chamber shall be carried out by the bidder using the procedure established in accordance with the latest edition of the test standard (EN 50147-1, 2, IEEE 299, ANSI 63.4, CISPR 16-1-4, IEC 61000-4-3).</p> <p>The performance of the chamber should be validated by an external ISO/IEC 17025 accredited agency. The bidder/agency would be responsible to</p>	<p><b>Bidder 3:</b></p> <p>EN 50147-1 or IEEE299 (not both) ?</p>	Refer to Amendment (A: 1.1.8)

			<p>provide the required calibrated measuring instruments including antennas and other accessories etc. for the evaluation of the performance of the chamber.</p> <p>The bidder shall identify the 3rd party accredited testing agency and facilitate the validation process. The cost towards the same shall be borne by the bidder.</p>		
38	V: Part A	A:6.14	<p><b>Logo:</b> Both FACILITY and IITK logos to be fixed on the wall.</p>	<p><b>Bidder 2:</b> Please specify meaning of facility</p>	FACILITY means EMI/EMC test facility
39	V: Part A	A: 7	Integrated system software	<p><b>Bidder 3:</b> Please elaborate ?</p>	Refer to Amendment (A: 1.1.8)
43	V: Part B	B:1	Radiated Susceptibility Test System.	<p><b>Bidder 1 , Bidder 2, Bidder 3:</b> Please Mention Field Uniformity window size of 80MHz to 6GHz.</p>	Refer to Amendment (B:1)
43	V: Part B	B: 1.1.1	<p><b>RF Signal Generator-1</b> Frequency range : 9 kHz – 20 GHz</p>	<p><b>Bidder 1:</b> If Vector Signal Generator is needed, request to change lower frequency to 250 kHz.</p> <p><b>Bidder 2:</b> As the Radiated Susceptibility IEC 61000-4-3 test, start frequency range is 80 MHz, we suggest that start frequency be changed to 80 MHz, also max. frequency range is 6 GHz.</p>	<p>As specified in tender document</p> <p>ECU: Required separate equipment</p>

				<p>Kindly request that the same be changed to 80 MHz- 6 GHz or 100 kHz to 6 GHz as per available equipment specifications.</p> <p><b>Bidder 3:</b> We can provide the ECU it consists of a signal generator, Power meter Directional couplers in one box and the same ECU can be used for both RI &amp; CI testing. Please confirm ?</p>	
43	V: Part B	B: 1.1.8	Phase noise < -125 dBc/Hz	<b>Bidder 1:</b> IIT-K to mention at 1GHz carrier @ 20KHz offset.	Refer to Amendment (B: 1.1.8)
44	V: Part B	B:1.1.10	Level uncertainty 0.5 dB or better	<p><b>Bidder 1:</b> Request to change 1.6 dB for whole frequency and power range.</p> <p><b>Bidder 2:</b> Request that the same be changed as &lt; 1.5 dB to cover the whole frequency range as accuracy is dependent on frequency. The same conforms to CISPR requirements.</p>	Refer to Amendment (B: 1.1.10)
44	V: Part B	B:1.1.12	<b>Modulation</b>	<b>Bidder 1, Bidder 2:</b> Require Vector signal generator	As specified in tender document



			Table : Modulation Methods as per IEC 60601-1-2	<b>Bidder 3:</b> Require Vector signal generator. The 1m test distance requirement was for only above 1Ghz as per IEC 61000-4-3.	
46	V: Part B	B:1.1.13	<b>Interface</b> GPIB/ IEEE488/ USB/ Ethernet	<b>Bidder 1:</b> If a vector signal generator is needed, request to remove USB.	GPIB is mandatory.
46	V: Part B	B: 1.2.5	VSWR $\leq$ 1.5	<b>Bidder 1:</b> $\leq$ 2	Refer to Amendment (B: 1.2.5)
46	V: Part B	B: 1.2.6	Rated output power : 1000 W (typical)  The amplifier should be able to generate typically 30 V/m at a distance of 3m from the transmitting antenna while working in the linear region	<b>Bidder 1:</b> We can provide amplifier suitable for generating 30V/m at 3m distance with lesser wattage 1000 watts not necessary. It's an overkill.  <b>Bidder 2:</b> Please be informed that power at 1 dB varies over frequency range as below - < 400 MHz; min. 1000 W > 400 MHz; min. 850 W.Request that the same be changed. We confirm to generate typically 30 V/m at a distance of 3m from the transmitting antenna while working in the linear region	Refer to Amendment (B: 1.2.6)

46	V: Part B	B: 1.2.7	Power output at 1dB compression : 1000 W (typical)	<b>Bidder 1, Bidder 3:</b> Not possible	Refer to Amendment (B: 1.2.7)
47	V: Part B	B:1.2.10	Harmonic distortion :-20dBc	<b>Bidder 2:</b> Harmonic distortion performance varies over frequency range. We propose -15 dBc conforming standard as well, Request that the same be changed.	Refer to Amendment (B: 1.2.10)
48	V: Part B	B:1.2.15	Directional coupler Directional Coupler Should have – <ul style="list-style-type: none"> <li>● Low Transmission loss (0.2 dB)</li> <li>● VSWR - 1.5</li> <li>● Better Power Handling capacity (1000 W Typical)</li> <li>● Better coupling factor at least 50 dB.</li> <li>● Directional Coupler should be calibrated.</li> <li>● Frequency: 80 MHz – 1 GHz.</li> <li>● Power : 1000W</li> </ul>	<b>Bidder 2:</b> Since amplifiers with inbuilt directional couplers are available and are most suited for EMC system engineering making test setup less congestive. We request to allow both external & internal DC as per system.  <b>Bidder 3:</b> We can provide in-bulit Directional coupler , pls confirm ?	Refer to Amendment (B: 1.2.15)

48	V: Part B	B: 1.3.6	Rated output power : 200 watts min.	<b>Bidder 1:</b> Single amplifier with different O/P power rating can be provided for the requirement 120 to 300 watt.	Refer to Amendment (B: 1.3.6)
48	V: Part B	B: 1.3.7	Power output at 1dB compression: 200 watts min.	<b>Bidder 1:</b> The fixed wattage across frequency range is not needed. Range to be revised to 120 to 300 watt. <b>Bidder 2:</b> Power output at 1 dB compression varies with frequency range. Request that the same be changed to 175 W min. in complete band.	Refer to Amendment (B: 1.3.7)
48	V: Part B	B:1.3.14	Directional Coupler	<b>Bidder 3:</b> We can provide in-built directional coupler,  pls confirm ?	Refer to Amendment (B: 1.3.14)
49	V: Part B	B: 1.4.4	Dual Channel Power meter Measurement speed 500 readings/sec	<b>Bidder 1:</b> Request to change 400 readings/sec or better	Refer to Amendment (B: 1.4.4)
49	V: Part B	B: 1.5.3	Sampling rate: 20 M Samples/second	<b>Bidder 1:</b>	As specified in tender document

				Request for removing Sampling rate. Measurement speed is more than enough to see power meter performance	
49	V: Part B	B: 1.5.4	Measurement speed: ≥ 50,000 readings/second	<b>Bidder 1:</b> Request to change 400 readings/sec or better.	As specified in tender document
49	V: Part B	B: 1.5.5	Interface : USB/GPIB	<b>Bidder 1:</b> This requirement should be for power meter not sensor.	Refer to Amendment (B: 1.5.5)
49	V: Part B	B: 1.6.1	<b>Antenna-1</b> <b>Biconical Antenna -1 or Any Other Suitable Antenna Type</b> Frequency-30 MHz – 300 MHz	<b>Bidder 1:</b> Can we provide single LPDA antenna, operating from 80MHz-1GHz, with high gain) <b>Bidder 2:</b> Commercial/Medical standard IEC 61000-4-3 and as asked in the tender, the frequency range is 80 MHz – 6 GHz, hence please change antenna start frequency accordingly. <b>Bidder 3:</b> Too meet the FU requirement as per IEC 61000-4-3 at 3m distance we can provide the Double stacked log periodic antenna's 80Mhz to 6GHz, pls confirm ?	Requirement is as specified in tender document  Requirement Biconical Antenna only

50	V: Part B	B: 1.7.4	<b>Antenna 2:</b> <b>Log Periodic Antenna</b> Gain: 10 dBi	<b>Bidder 1:</b> 10dBi throughout the band is not possible, 8.5dbi is fine	Refer to Amendment (B: 1.1.7)
50	V: Part B	B: 1.8	<b>Antena 3-</b> <b>Standard Gain Horn Antenna</b> B: 1.8.1: Frequency 1 GHz – 18 GHz B: 1.8.5: Gain 10-18 dBi (Typical)	<b>Bidder 1:</b> Test is up to 6GHz only, Antenna up to 18GHz is not necessary. Broadband Standard Gain antenna(1GHz-18GHz) difficult to find one in the market. If Standard Gain Horn Antenna with high gain is required, then multiple antennas shall be provided to cover entire frequency band (1GHZ-18GHZ), else Double ridged horn antenna (1GHz-18GHz) with 5-17dBi gain shall be provided.  <b>Bidder 2:</b> *Suggest to amend to below Tender Specification: (Commercial/Medical Standards for Radiated Immunity test up to 6 GHz. Suggest to Split into 2 different Horn Antenna if required instead of 1GHz to 18GHz)*	Refer to Amendment (B: 1.8)

				<p>Frequency Range -1GHz to 6GHz. Isotropic Gain: 12 dBi to 18dBi.</p> <p>Antenna Factor- 17.5 dB/m to 26.5 dB/m.</p> <p>Maximum Input power: 1kW.</p> <p>Impedance: 50 ohm</p>	
51	V: Part B	B:1.9.1.3	<p><b>Isotropic Field Strength Probe-</b></p> <p>Field strength range:  <math>\leq 0.1 - 100 \text{ V/m}</math></p>	<p><b>Bidder 1:</b></p> <p>Probe available from 2V/m to 800 V/m</p> <p><b>Bidder 2:</b></p> <p><math>\leq 1 - 1000\text{V/m}</math></p>	Refer to Amendment (B: 1.9.1.3)
51	V: Part B	B: 2	<p><b>Conducted Susceptibility Test System:</b></p>	<p><b>Bidder 1:</b></p> <p>We can provide a solution as per required standard IEC 61000-4-6 .hope it's acceptable to IITK? Some of the specifications are not necessary and are not required as per standard.</p> <p><b>Bidder 3:</b></p> <p>We can provide all instruments in one box, its includes Signal generator : 4kHz-1.2GHz, RF power meter, directional coupler, pls confirm ?</p>	Separate instruments are required.
53	V: Part B	B:2.4.1	<p><b>Dual Directional Coupler</b></p> <p>Frequency- 4 KHz - 400 MHz</p>	<p><b>Bidder 2:</b></p>	Refer to Amendment (B: 2.4.1)

				Since amplifiers with inbuilt directional couplers are available and are most suited for EMC system engineering making test setup less congestive. Request that both internal and external directional couplers be allowed.	
55	V: Part B	B:2.4.2.7	<p>Coupling &amp; Decoupling Network</p> <p>Attenuators</p> <ul style="list-style-type: none"> <li>● 3 dB, 100 watts –1 number</li> <li>● 6 dB, 80 watts - 1 number</li> <li>● 20 dB, 15 watts - 2 number</li> </ul> <p>Connectors should be Compatible with impedance matching units or else adaptors to be included.</p>	<p><b>Bidder 2:</b></p> <p>6dB 80watts and 20dB 15 watts is not enough to protect Transducer when power amplifier is asking for 100 watts</p>	Refer to Amendment (B: 2.4.2.7)
55	V: Part B	B:2.4.2.8	<p><b>Impedance Matching</b></p> <p>150 ohm-to-50-ohm impedance for CDN calibration with connector plate: 100 mm x 100 mm – 2 number</p>	<p><b>Bidder 1:</b></p> <p>Not available in data sheet</p>	In case data is not available in your datasheet then compliant for test standard IEC 61000-4-6
55	V: Part B	B:2.4.2.9	<p><b>Insertion Loss of Impedance matching:</b></p> <p>Not more than 9.5dB ± 0.5dB</p>	<p><b>Bidder 1:</b></p> <p>Not available in data sheet</p>	In case data is not available in your datasheet then compliant for test standard IEC 61000-4-6
56	V: Part B	B:2.4.5.2	<p>Insertion Loss <math>\leq</math> 8 dB</p>	<p><b>Bidder 1:</b></p> <p>Not available in data sheet</p>	In case data is not available in your datasheet then compliant for test standard IEC 61000-4-6

56	V: Part B	B:2.4.5.3	Power Handling 100 watts	<b>Bidder 1:</b> Not available in data sheet	In case data is not available in your datasheet then compliant for test standard IEC 61000-4-6
56	V: Part B	B:2.4.6.2	Transfer Impedance 1Ω from 150kHz –230MHz	<b>Bidder 1:</b> Not available in data sheet	Refer to Amendment (B: 2.4.6.2)
57	V: Part B	B: 3.1	BI-CONICAL OR ANY OTHER SUITABLE TYPE ANTENNA	<b>Bidder 1:</b> Single Hybrid Bi-conilog can be used to cover both frequencies. <b>Bidder 2:</b> Typically for Commercial/Medical testing example IEC 60601-1-2. Requirement is 30MHz to 18GHz. There isn't a need to split antennas like Automotive CISPR 25 requirement. Please confirm if single antenna covering 30 MHz -1 GHz can be provided. <b>Bidder 2:</b> Too meet the FU	As specified in tender document  Requirement Biconical antenna only



				<p>requirement as per IEC 61000-4-3 at 3m distance we can provide the Double stacked log periodic antenna's 80Mhz to 6GHz, pls confirm ?</p>	
57	V: Part B	B: 3.1.3 & B: 3.2.4	<p>Gain 2 dBi (Typical) &amp; Gain 10 dBi (Typical)</p>	<p><b>Bidder 3:</b> Isotropic gain or dipole gain, pls confirm</p>	Isotropic gain
58	V: Part B	B: 3.3	<p>Antenna 6 - Standard Gain Horn Antenna or Any Other suitable Antenna</p>	<p><b>Bidder 1:</b> Refer to RI section horn antenna, broadband standard gain with specified gain not available. To be split to 3 or 4 antennas</p> <p><b>Bidder 3:</b> *Suggest to amend to below Tender Specification: (This will be more convenient so that there is no need to change antenna. All test labs uses the same Antenna)* Frequency Range - 30MHz to</p>	Refer to Amendment (B: 3.3)

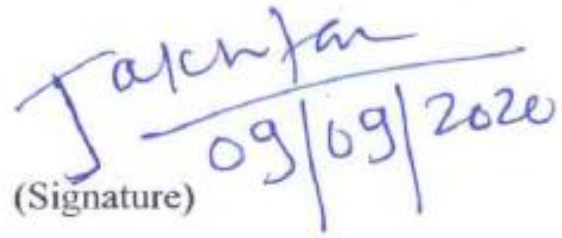
				1GHz. Isotropic Gain: Up to 7 dBi. Antenna Factor -8 dB/m to 24 dB/m. Maximum Input power: 10W. Impedance: 50 ohm	
58	V: Part B	B:3.4.1	<b>PRE-AMPLIFIER</b> Frequency- 10 MHz -18 GHz	<b>Bidder 2:</b> Request that the frequency range of the preamplifier be aligned with the antenna frequency range as 1- 18 GHz.  <b>Bidder 3:</b> We can provide in 10 MHz to 1GHz & 1GH to 18GHz, pls confirm ?	Refer to Amendment (B: 3.4.1)
58	V: Part B	B:3.5.1.1	<b>Active Loop Antenna</b> Frequency 9 kHz – 30 MHz	<b>Bidder 3:</b> Pls mention the test standard ?	Refer to Amendment (B: 3.5.1.1) and Refer to Amendment (B: 4.2.6)
58	V: Part B	B:3.5.1.2	Diameter 2 m	<b>Bidder 2:</b> Considering DUT requirements and being magnetic, a .5 m diameter is more suitable. Request .5 m diameter be allowed. Please review and advise.  <b>Bidder 3:</b> For commercial testing diameter is 50cm, but with 2m	Refer to Amendment (B: 3.5.1.1)

				diameter it's called a large loop antenna. Pls confirm ?	
59	V: Part B	B: 4.1.1	<b>EMI RECEIVER- 2</b> Frequency range : 10 Hz – 3.5 GHz	<b>Bidder 3:</b> We can provide 10Hz to 3GHz, pls confirm ?	Refer to Amendment (B: 4.1.1)
26 & 59	V: Part B	A: 3.4 & B: 4.1.4	Minimum measurable Probability: 1 x 10 <sup>-7</sup>	<b>Bidder 1:</b> Request to change Minimum measurable Probability/aging rate.	As specified in tender document
26 & 60	V: Part B	A: 3.7 & B: 4.1.7	Resolution bandwidth: 10 Hz- 10 MHz	<b>Bidder 3:</b> Request to change resolution bandwidth : 1Hz-8 MHz	Refer to Amendment (A: 3.7 & B: 4.1.7)
26 & 59	V: Part B	A: 3.5 & B: 4.1.5	Limitation of receiver noise and internally generated spurious signal (i) Random noise: Back-ground noise shall not introduce an error more than 1 dB. (ii) Continuous wave: For any input signal to the measuring receiver existence of spurious	<b>Bidder 1:</b> Not available in the data sheet. <b>Bidder 2:</b> Products specify overall error/accuracy in the datasheets. Specification at B: 4.1.16 mentions total measurement uncertainty. Parameter is not clear and non relevant, Kindly remove this specification.	Complaint for CISPR 16-1-1

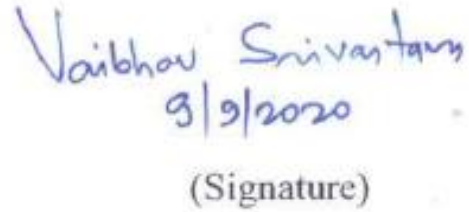
27 & 60,61	V: Part B	A: 3.12 & B: 4.1.12  A: 3.13 & B: 4.1.13  A: 3.14 & B: 4.1.14	Frequency Tuning Tolerance: $\pm 2 \%$  Intermediate frequency rejection ratio : $\geq 40$ dB  Image frequency rejection ratio: $\geq 40$ dB	<b>Bidder 2:</b> Parameters not mentioned in product datasheets may be difficult to verify. Please remove.	Complaint for CISPR 16-1-1
27 & 61	V: Part B	A: 3.16 & B: 4.1.16	Total measurement uncertainty $\leq 1$ dB	<b>Bidder 2:</b> Request that the same be changed as $< 1.5$ dB to cover the whole frequency range as accuracy is dependent on frequency. The same conforms to CISPR requirements.	Refer to Amendment (A: 3.16 & B: 4.1.16)
27 & 61	V: Part B	A: 3.17 & B:4.1.17	Tracking generator	<b>Bidder 1:</b> Request to remove tracking generator, this is OEM specific.  <b>Bidder 3:</b> Need frequency Range ?	Refer to Amendment (A: 3.17 & B: 4.1.17)
27 & 61	V: Part B	A: 3.19 & B:4.1.19	Measurement Accuracy $\leq \pm 1$ dB	<b>Bidder 2:</b> Already specified at B:4.1.16, it can be removed.	Compliant as per CISPR 16-1-1.

28 & 61	V: Part B	A: 3.23 & B:4.1.23	Characteristic of EMI Receiver	<b>Bidder 1:</b> Will IIT accept only CISPR 16-1-1 compliant, as Keysight doesn't specify specifications in the data sheet as mentioned in below tables.	Compliant as per CISPR 16-1-1.
27 & 61	V: Part B	A: 3.20 & B:4.1.20	Average Noise level: Average Detector On , RF Atten- 0dB Pre-amp OFF, $\leq 19$ dB $\mu$ V Pre-amp ON, $\leq 8$ dB $\mu$ V	<b>Bidder 2:</b> Request noise level be changed as Pre-amp OFF, $\leq 26$ dB $\mu$ V Pre-amp ON, $\leq 13$ dB $\mu$ V @ measurement bandwidths as per CISPR 16 recommendation.	Refer to Amendment (A: 3.20 & B:4.1.20)
28 & 61	V: Part B	A: 3.22 & B:4.1.22	Units of measurement	<b>Bidder 3:</b> We can provide the logarithmic units, please confirm	As specified in tender document
30 & 62	V: Part B	A: 3.24 & B:4.1.24	Other features Interface- GPIB/IEEE488/ RS232/USB/ ETHERNET	<b>Bidder 2:</b> Request to remove RS232 which is an outdated interface technology	As specified in tender document
65	V: Part B	B:4.2.2.3	Transfer Impedance	<b>Bidder 1:</b> Not available in datasheet	Refer to Amendment (A: 4.2.2.3)
65	V: Part B	B:4.2.2.4	Magnetic Saturation	<b>Bidder 1, Bidder 2:</b> Not available in data sheet	

65	V: Part B	B:4.2.2.5	Influence of external magnetic field	<b>Bidder 1, Bidder 2:</b> Not available in data sheet	
66	V: Part B	B:4.2.2.7	Influence of orientation	<b>Bidder 1, Bidder 2:</b> Not available in data sheet	
66	V: Part B	B:4.2.3.2	Frequency Spacing: 1 MHz, 5 MHz, 10 MHz	<b>Bidder 2:</b> Step size above 1 GHz frequency is 100 MHz. request you to kindly help with change.	Refer to Amendment (B: 4.2.3.2)
66	V: Part B	B:4.2.3.3	Output level, 50 $\Omega$ : 90 dB $\mu$ V @ 10 MHz, 60 dB $\mu$ V @ 6 GHz	<b>Bidder 1:</b> Not available in datasheet	Compliant as per standard IEC CISPR 11
66	V: Part B	B:4.2.3.4	Frequency Stability: < 1 ppm (0°C to +50°C)	<b>Bidder 1:</b> Not available in the datasheet.	Compliant as per standard IEC CISPR11
65	V: Part B	B:4.2	Accessories	Lastly, confirmation on requirements for standards like CISPR 14-1 CISPR 32 (it will require additional accessories)? It's part of the IEC 60601-1-2 requirement. Please advise.  Triple loop antenna	Refer to Amendment (B: 4.2)
65	V: Part B	B:4.2.8	Other Accessories	Any other additional Accessories	Refer to Amendment (B: 4.2.8)

  
(Signature)

Prof. M. Jaleel Akhtar (PI/Indentor)

  
(Signature)

Prof. K.V. Srivastava (EE)

  
(Signature)

Prof. N. Gupta (EE)

  
(Signature)

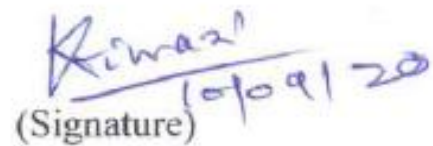
Prof. Nishchal K. Verma (EE)

  
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Prof. Kamal K. Kar (ME)

  
(Signature)

Tarun Gautam ( SE IWD)

  
(Signature)

V K Tiwari (EE) (IWD)

  
(Signature)

Raghvendra Singh (EE) (IWD)