

ITI Limited, Bangalore Plant
Doorvani Nagar, Bangalore – 560016

Ref: ITI/BGP/S&M/2022/TTL/1

Date: 17/11/2022

EOI for Marketing of Test Lab Services offered by ITI Telecom Test Labs (TTL)

ITI Limited, a Public Sector Undertaking (PSU) under Ministry of Communications & IT, Government of India, is a leading Telecom equipment manufacturer in India offering total Telecom solutions. The major supplies of equipment are to BSNL, MTNL, Defence and other PSUs (“**Customers**” of ITI). With state-of-the-art manufacturing facilities spread across six locations and a countrywide network of marketing/service outlets, the company offers a complete range of telecom products and total solutions covering the whole spectrum of Switching, Transmission, Access and Subscriber Premises Equipment. In addition to these manufacturing plants, ITI has a dedicated Network System Unit (NSU).

ITI has a state-of-the-art Telecom Test Labs offering EMI/EMC & Safety Test services to customers from various sectors like commercial, industrial, scientific, medical, communication, IT, etc. EMC Lab is NABL accredited combined with ILAC certified and TEC designated. NABL for safety lab is in progress. Through this EOI, ITI invites offers from interested parties (“**Bidders**”) to address “**Marketing of various Telecom Test Lab Services**” (hereafter referred as ‘TTL’) listed in **Annexure I**. The interested parties are required to furnish general information as per **PART A**, eligibility information as per **PART B** and provide compliance to the technical requirements as per **PART C** and submit commercial offer as per **PART D**.

Interested **Bidders** shall submit their offer in two separate sealed envelopes as follows:

- The first envelope on the Eligibility Compliance and Technical Offer shall contain the following:
 - Clause by clause compliance to **PART A** (General Requirements and Conditions) of the EOI including supporting documents.
 - Clause by clause compliance to **PART B** of the document (Eligibility Conditions) including submission of the documents sought as per clauses 1, 2, 3, 4, 5,6 and 7 in **PART B**.
 - Clause by Clause compliance to **PART C** (Technical Requirements) including supporting documents as per clauses 1, 2, 3 ,4 &5.

- The second envelope on Commercial Offer shall include a document giving compliance to the clauses 1 to 6 of **PART D** (Commercial Offer).

The offer (in two separate sealed envelopes as stated above) shall be sent to:

Additional General Manager-IMM,
ITI Limited,
Bangalore - 560 016
Ph: +91 80- 28503679, 28503695, 25657640
Email: avmurdeshwar_bgp@itilttd.co.in

On or before 10.12.2022 at 3.00 pm

Any request for clarifications on the EOI may be sent to the above email ID on or before 29.11.2022

Pre-bid meeting 30-11-2022 at 11.00 am in First Floor – Admin Block, Dooravani Nagar, ITI Limited , Bangalore-560016

PART A – General Requirements and Conditions

1	Name and Address of the Bidder .
2	Contacts:
	Telephones:
	Fax:
	E-mail:
	Mobile No:
3	Year of Establishment & Registration number of the Bidder . Provide Certificate of Incorporation.
4	Enclose details on Services/Product Profile of the Bidder .
5	Enclose action plan/ milestone for marketing of different services offered by ITI Telecom Test Labs.
6	Willingness to furnish clause by clause compliance to applicable TTL Services as and when launched by the TTL.
7	As applicable to your system mentioned above, please provide applicable quality certification, if any.
8	Provide Annual report of the Bidder , for the last 3 years 2019-20, 2020-21, 2021-22.
9	Provide Turn Over and Profit for 2019-20, 2020-21, 2021-22.
10	Current Net worth of the Bidder .
11	The bidder should furnish, as part of its bid, an Earnest Money Deposit (EMD) of Rs.50,000/-. The EMD should be demonstrated in the Indian

	<p>rupees and should be in the form of DD Demand Draft/Banker's Cheque/ Bank Guarantee issued by a Nationalized / Scheduled Commercial Bank/NEFT.</p> <p>All payments should be on the name of "ITI Limited" payable at Bangalore through Cheque/DD or RTGS/NEFT as below: A/c: 36429021133 IFSC: SBIN0001438, MICR:560002016, SBI-Dooravani Nagar, Bangalore-560016 GST: 29AAACI4625C1ZVPAN: AAACI4625C</p>
12	<p>Procurement of EoI Document</p> <p>The tender document can be downloaded from ITI website http://www.itilttd-india.com or the CPP portal. Tender fee of Rs. 1000/- (non-refundable) to be remitted through a Demand Draft, from any commercial Nationalized/ Scheduled bank, drawn in favour of "ITI Limited, Bangalore Plant", payable at Bangalore. The Bid will not be considered in the absence of the tender fee. The Demand Draft should be enclosed in the Earnest Money Deposit (EMD) envelope along with the draft of EMD.</p>

- a. Period of Validity of offers: The offer shall remain valid for a period of at least 90 days from the due date of offer submission. Offers valid for a shorter period shall be rejected.
- b. Offer Opening: Offers would be opened at next working day after due date of submission.
- c. Late offer : Any offer received after the prescribed timeline shall be rejected and shall be returned unopened to the **Bidder**.
- d. Offer Evaluation: The evaluation of the offers will be based on the offered margin of those offers that have been qualified with respect to eligibility conditions and technical requirements.
- e. Language of offers: The offers prepared by the **Bidder** and all the correspondences and documents relating to the offers exchanged by the **Bidder**, shall be written in the English language.
- f. Award of Contract: ITI intends to employ single/multiple Bidders for marketing of TTL Services. After completing evaluation and selection of Bidder based on the offer, 3 lower bids will be selected for award of contract. L2 and L3 will be offered the L1 rates. If L2 & L3 do not accept the L1 rates, ITI can offer the L1 rates to the next bidder and so on. ITI shall enter into a Memorandum of Understanding (MoU) with the 3 Bidders selected for the service contract.

A detailed Agreement will be made between the successful Bidder and ITI.

- g. Authorized Signatory: All certificates and documents received as part of the offer shall be signed by the Authorized Representative. The power or authorization, or any other document consisting of adequate proof of the ability of the signatory to bind the **Bidder** shall be submitted.
- h. ITI reserves the right to suspend or cancel the EOI process at any stage, to accept, or reject any, or all offers at any stage of the process and / or to modify the process, or any part thereof, at any time without assigning any reason, without any obligation or liability whatsoever.
- i. Cost of EOI: The **Bidder** shall bear all costs associated with the preparation and submission of its EOI, including cost of presentation for the purposes of clarification of the offer, if so desired by the ITI. ITI will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the EOI process.
- j. The **Bidder** shall be ready to give clarifications on any part of the offer to ITI.
- k. Amendment of EOI: At any time prior to the last date for receipt of offers, ITI, may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective **Bidder**, modify the EOI document by an amendment. In order to provide prospective **Bidder** reasonable time in which to take the amendment into account in preparing their offers, ITI may, at their discretion, extend the last date for the receipt of offers and/or make other changes in the requirements set out in the Invitation for EOI.
- l. Disclaimer: ITI and/or its officers, employees disclaim all liability from any loss or damage, whether foreseeable or not, suffered by any person acting on or refraining from acting because of any information including statements, information, forecasts, estimates or projections contained in this document or conduct ancillary to it whether or not the loss or damage arises in connection with any omission, negligence, default, lack of care or misrepresentation on the part of ITI and/or any of its officers, employees.
- m. ITI reserves the right to reject any or all the tenders or to accept in part without assigning any reason therefore and ITI's decision in the matter will be final and binding on all the bidders.

PART B – Eligibility Conditions: The **Bidders** shall meet the following eligibility conditions:

1. The **Bidder** shall be a firm registered in India and should be in operation for at least last five years. The Bidder shall furnish a copy of the certificate of incorporation.
2. The **Bidder** shall show a record of accomplishment in handling marketing of various TTL services as mentioned in Annexure I at least past two years. The Bidder shall furnish the details in support of these claims.
3. **Bidder** shall have experience of working with PSUs/Government organizations/Ministries/private sector/Accreditation bodies like NABL, TEC, etc. for Test Labs Services. Documentary proof to be furnished (experience certificate or work order copy) in support of their claim. Certificate of Performance from at least one (1) Service Provider, to whom such services have been carried out, shall be submitted.
4. The **Bidder** shall have annual turnover of Rs. 1 Cr. per year for the past 2 Financial Years and copies of the audited financial reports shall be submitted along with the offer.
5. The **Bidder** shall be an **ISO-9001-2008** certified (& any other relevant ISO certifications as applicable) company for carrying out for the services as on the date of the EOI.
6. The **Bidder** should not have been black listed by any State Government/ Central Government/ PSU or a Corporation or any other Autonomous Organization of Central or State Government

Part C: Technical Requirements: The **Bidders** shall meet the following Technical requirements:

1. **Bidder** shall have skilled work force capable of marketing TTL services listed in **Annexure I**. Provide details of resources to be engaged to carry out sales and Presales activities of Test Labs Services.
2. The **Bidder** shall have in house work force resources / processes to carry out TTL services listed in **Annexure I**. Details in this regard may be furnished.
3. **Bidder** shall be responsible for forward/reverse logistic of their resources, who will be engaged for the marketing of TTL services.
4. The selected bidders will be exclusively responsible for Marketing of TTL Services and fetching the orders to M/s ITI Ltd for TTL. The minimum rates for quoting to customers for various types of TTL Services will be worked out

jointly by selected bidders and M/s ITI Ltd for different type of customers. In this regard M/s ITI Ltd.'s decision will be final.

5. The Bidder shall have capability to handle marketing of large TTL services Bids jointly with ITI Test Labs.

Part D: Commercial Conditions: The **Bidders** shall meet the following Commercial Conditions:

1. Necessary records may be maintained as required by ITI **to** be made available whenever required by ITI for claiming payments from ITI.
2. Margin required to be given to Bidder from ITI (i.e., the percentage of basic value of Purchase Order (excluding taxes)) obtained by the Bidder for ITI's TTL services by marketing, shall be indicated. Please mention the absolute figure of the % margin offered to Bidder.
3. Payment due to the successful bidders shall be paid only on receipt of payment from the Customer on back to back basis irrespective of whether the payment is advance or after the service period is completed. If payment is received in installments (as agreed in customer PO), the % margin will be paid as per payment received for that installment.
4. There will not be any fixed amount payable to the Bidder other than the percentage on the Purchase order basic value arranged by the Bidder. Purchase Orders materializing from the quotes ITI has submitted earlier to this contract with the Bidder should not form part of the orders on which ITI pays margin to the Bidder.
5. ITI reserves the right to reject any or all the tenders or to accept in part without assigning any reason therefore and ITI's decision in the matter will be final and binding on all the bidders.

Commercial Bid Format	
Bidder name	% of Margin for Bidder

PRE-CONTRACT INTEGRITY PACT

GENERAL

This pre-bid pre-contract agreement (hereinafter called the Integrity Pact) is made on day of the month of , between, ITI Limited, ITI Bhavan, Dooravaninagar, Bangalore – 560016, India, (hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s (*address of the Bidder*) (hereinafter called the "BIDDER " which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to invite Expression of Interest (EoI) for selection / empanelment of technology partner for a technical tie-up with ITI LTD for the marketing / manufacturing of (*name of the product*) and the BIDDER is willing to participate in the EoI as per the terms and conditions mentioned thereon;

WHEREAS the BIDDER is a private company/public company / Government undertaking / partnership company (*strike off whichever is not applicable*), constituted in accordance with the relevant law in the matter and the BUYER is a PSU under the Department of Telecommunications, Ministry of Communications & IT, Government of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence / prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to :-

Enabling the BUYER to select/ empanel a technology partner for the marketing / manufacturing of (name of the product) through the EoI in a transparent and corruption free manner, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

1. Commitments of the BUYER

- 1.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favor or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.
- 1.2 The BUYER will during the pre-contract stage, treat all BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
- 1.3 All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
- 2 In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

3 Commitments of BIDDER

- 3.1 The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-
 - a) The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favor, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
 - b) The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favor, any

material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or, execution of the contract or any other contract with the Government for showing or forbearing to show favor or disfavor to any person in relation to the contract or any other contract with the Government.

- c) BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
- d) BIDDERS shall disclose the payments to be made by them to agents/ brokers or any other intermediary, in connection with this bid/contract.
- e) The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacturer/ integrator and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such, intercession, facilitation or recommendation.
- f) The BIDDER either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- g) The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- h) The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- i) The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- j) The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- k) The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

- l) If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the BUYER, or alternatively, if any relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender. The term 'relative' for this purpose would be as defined in Section 6 of the Companies Act 1956.
- m) The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER.

4 Previous Transgression

- 4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any 'corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.
- 4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5 Sanctions for Violations

- 5.1 Any breach of the aforesaid provisions by the BIDDER or anyone employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:-
 - a) To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.
 - b) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
 - c) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/recession.
 - d) To recover all sums paid in violation of this Pact by the BIDDER(s) to any intermediary, agent, or broker with a view to securing the contract.
- 5.2 The BUYER will be entitled to take all or any of the actions mentioned above, also

on the Commission by the BIDDER or anyone employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

- 5.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent Monitor(s) appointed for the purposes of this Pact.

6 Independent Monitors

- 6.1 The BUYER appoints Independent Monitor (hereinafter referred to as Monitor) for this Pact in consultation with the Central Vigilance Commission.
- 6.2 The task of the Monitor shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.
- 6.3 The Monitor shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 6.4 Both the parties accept that the Monitor have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 6.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.
- 6.6 The BIDDER(s) accept(s) that the Monitor has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER with confidentiality.
- 6.7 The BUYER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.
- 6.8 The Monitor will submit a written report to the designated Authority of BUYER

within 8 to 10 weeks from the date of reference or intimation to him by the BUYER / BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

7 Facilitation of Investigation

7.1 In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

8 Law and Place of Jurisdiction

8.1 This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the BUYER.

9 Other Legal Actions

9.1 The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

10 Validity

10.1 The validity of this Integrity Pact shall be from date of its signing and extend up to the contract period with the BUYER in case a contract is signed. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

10.2 Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

11 The parties hereby sign this Integrity Pact.

BUYER

BIDDER

Name of the Officer.

CHIEF EXECUTIVE OFFICER

Designation

M/s (address)

ITI Limited (address)

Place:

Place:

Date:

Date:

Witness:

1.

1.

2.

2.

Annexure – I

EMC LAB

This lab is a part of the Telecom Testing Centre, which ITI has built In-house as per the MoU signed with TEC to meet the EMC requirements of the Telecom Equipment launched in the market. This lab can test Industrial, Scientific, Medical and IT equipment for Emission and Immunity requirements of TEC.

EMC Lab is accredited by NABL combined with ILAC certification vide TC-9797 valid until 26.08.2023.

TEC Designated vide TEC/MRA/CAB/IND-D/79 dated 17.12.2021 valid until 16.12.2024.

Scope:

S.No	Discipline / Group	Materials or Products tested	Component, parameter or characteristic tested / Specific Test Performed / Tests or type of tests performed	Test Method Specification against which tests are performed and / or the techniques / equipment used
Permanent Facility				
1	ELECTRICAL- EMI / EMC TEST FACILITY	Electrical Lighting and Similar Equipment	Conducted Emission	CISPR 15
2	ELECTRICAL- EMI / EMC TEST FACILITY	Electrical Lighting and Similar Equipment	Radiated Disturbance Measurement	CISPR 15
3	ELECTRICAL- EMI / EMC TEST FACILITY	Industrial, Commercial and Medical Equipment	High Energy/ Telecom Surge Immunity Test	IEC 61000-4-5
4	ELECTRICAL- EMI / EMC TEST FACILITY	Industrial, Commercial and Medical Equipment	Radio Interference Measurement	CISPR 11
5	ELECTRICAL- EMI / EMC TEST FACILITY	Industrial, Commercial and Medical Equipment	Voltage Dips, Short Interruptions and Voltage Variations Immunity Test	IEC 61000-4-11
6	ELECTRICAL- EMI / EMC TEST FACILITY	Industrial, Scientific and Medical, Commercial Equipment	Electrical Fast Transient (EFT)/ Burst Immunity Test	IEC 61000-4-4
7	ELECTRICAL- EMI / EMC TEST FACILITY	Industrial, Scientific and Medical Equipment	Conducted Emission	CISPR 11
8	ELECTRICAL- EMI / EMC TEST FACILITY	Industrial, Scientific and Medical, Commercial Equipment	Conducted Susceptibility Test	IEC 61000-4-6
9	ELECTRICAL- EMI / EMC TEST FACILITY	Industrial, Scientific and Medical, Commercial Equipment	Electrostatic Discharge Immunity Test	IEC 61000-4-2
10	ELECTRICAL- EMI / EMC TEST FACILITY	Industrial, Scientific and Medical, Commercial Equipment	Power Frequency Magnetic Field Immunity Test	IEC 61000-4-8
11	ELECTRICAL- EMI / EMC TEST FACILITY	Industrial, Scientific and Medical, Commercial Equipment	RF Electromagnetic Field Immunity Test	IEC 61000-4-3
12	ELECTRICAL- EMI / EMC TEST FACILITY	Multimedia Equipment	Conducted Emission	CISPR 32
13	ELECTRICAL- EMI / EMC TEST FACILITY	Multimedia Equipment	Radio Interference Measurement	CISPR 32

SAFETY LAB MANAGEMENT

Brief of Project:

Safety Lab is designed for protection of Telecommunication network service persons and users of other equipment connected to the network from likely hazards in the equipment and also protection of equipment users from over voltages on Telecommunication networks and protection of the telecommunication wiring system from overheating.

Various governments and agencies have developed stringent requirements for electrical products that are sold world-wide. In most markets it is mandatory for a product to conform to safety standards promulgated by safety and standard agencies such as UL, CE, VDE, CSA, BSI, CCC and so on. To conform to such standards, the product must pass safety tests such as the high voltage test (also called as Dielectric voltage-withstand test or high potential test), Insulation Resistance Test, Ground (Earth) Bond & Ground Continuity Test & Leakage Current Test (also called as Line Leakage Test, Earth Leakage Current Test, Enclosure Leakage Current Test or Patient Leakage Current Test).

The following parameters have to be conducted for Safety test as per IEC/ISO 60950/60065/62368 latest edition.

1. Protection from hazards
2. Protection from electric shock and energy hazards
3. Provisions for earthing and bonding
4. Over current and earth fault protection in primary circuits
5. Mechanical strength
6. Protection against hazardous moving parts
7. Resistance to fire, Touch current and protective conductor current
8. Electric strength test
9. Heating under normal operating conditions

10. Constructional requirements with regard to the protection against electric shock
11. Electric shock hazard under normal operating conditions
12. Insulation resistance test,
13. Measurement of temperature rises
14. Clearances and creepage distances
15. Abnormal operating and fault conditions
16. Ultraviolet light conditioning test
17. Hazardous radiations
18. Ionizing radiation
19. Laser radiation
20. Mandrel test
21. Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment
22. Protection of equipment users from over voltages on telecommunication networks
23. Protection of the telecommunication wiring system from overheating
24. Any other applicable test as per IEC 62368 latest version