STRATEGIC ROAD MAP

ELECTRONICS AND IT DIVISION COUNCIL (LITDC)

Executive Summary

The Information Technology (IT) & Electronics industry are the fastest-growing industries inIndia, both in terms of production and export. Information Technology and Business processmanagement (IT-BPM) industry revenue grew 7% y-o-y to reach US$ 191 billion in FY20 and is estimated to grow to US$ 350 billion by 2025. IT currently contributes 10% of the India's export and a major sector to provide jobs to the Indian citizens. Electronic Manufacturing is also increasing at fast pace and with recent initiatives from Govt of India itis going to increase further. The Government attaches high priority to electronics hardware manufacturing and design led electronics and S/w products manufacturing/ development asit is one of the important pillars of "Make in India" and "Digital India" Programme of Government of India. Because of the several initiatives taken by the GoI, the electronics production in India has increased from USD 29 billion in 2014-15 to USD 75.7 billion in 2019-20 at a Compound Annual Growth Rate (CAGR) of 23%. The electronics hardware production is slated to increase from 76Bn$ p.a. in 20-21 to 250 Bn$ p.a. in 2025-26. Propelled by the PLI schemes that will drive 200Bn$ of export led manufacturing over five years.

The Electronics and IT Division Council (LITDC) is primarily responsible for developing Indian Standards in the field of Electronics and IT products. The standards are broadly classified into product functionality, product safety and quality; security and privacy; interoperability; methods of test, terminology and definitions and guidelines. . The standards have an important global role in managing the complexities and cost of adopting the new technologies by Industry and society in Indian context.

The Strategic Road Map document for LITDC is prepared with aim of providing mid and long term Goals and identifying programs towards strengthening the standardization process in the field of Electronics, H/w and S/w Products and Technology towards enabling India industry to bring out the latest and Indian society

having access to the latest technology andproducts. This road map will be reviewed from time to time to evaluate the progress as wellto formulate new strategies to deal with new challenges. This will enable India to establish itself as a major player in the field of Electronics Manufacturing and IT Products and Services and to ensure National Security Interest.

The strategic roadmap covers an up-to-date overview of the Division Council's work that would form the basis for the Sectional Committees functioning under the Council to developtheir respective standardization plan and can be shared with all interested stakeholders.

1 LITDC Division Council

Introduction

Electronics and Information Technology Division Council (LITDC) is one of the divisions of Bureau of Indian standards that is responsible for standardization in the field of Electronics, IT and ICT. The work of the division is managed by the Electronics and Information Technology Division council (LITDC) through several Sectional committees under it. LITDCis also responsible for harmonizing the national standards with that of the international standards primarily developed by ISO and IEC. The Strategic Road Map of the Council reflects its vision of national standardization in the field of Electronics and IT and provide a broad standardization roadmap with a five-year perspective. The aim is to align thestandardization work with expressed business environment needs and trends and to allow sectional committees to prioritize among different projects, to identify the benefits expected from the availability of Indian Standards, and to ensure adequate resources for their development.

An Indian Standard embodies the essential principles of national openness and transparency, consensus and technical coherence. These principles are safeguarded through its development in the sectional committees, representation of all interested parties,supported by a public comment phase.

The Road Map covers the following main objectives taking into consideration the economic,social, regulatory and business environment of the country.

- ✓ To provide a national framework for the development of unambiguous and reliablemarket/society driven standards in the areas of economic and social activities.
- ✓ To review the standards for their efficacy and relevance to market / societal needsfor their continuance or revision / amendment.
- ✓ To emphasize safeguards in the areas affecting environment, health and safety foroverall community benefit.
- ✓ To identify emerging areas in which standards needs to be developed
- ✓ Contribute to the UN Sustainable Development Goals (SDGs) through its standards.

2 BUSINESS ENVIRONMENT OF THE DIVISION COUNCIL

The global IT industry is expected to surpass $5.5 trillion in 2021 with a growth rate over thecoming decade that exceeds that of global GDP. In India as well, the IT & Electronics industry ae the fastest-growing industries, both in terms of production and export.

Pandemic restrictions and economic conditions have combined to disrupt ways of working,and resulted in adoption of digital modes of communication, procurement and service delivery. The need for governance, management and support of new and existing technologies increased as organizations responded to staff and customers working from home. New business models rely on data governance, privacy and security, analytics to anticipate customers' needs, and data visualization to keep organizations financially viable.Regulators, academia and industry bodies continued focusing on ethical and trust issues relating to technology use, especially with regard to Artificial intelligence (AI), machine learning and data privacy.

GoI attaches high priority to electronics hardware manufacturing as it is one of the importantpillars of "Make in India" and "Digital India" Programme of GoI. Because of the several initiatives taken by the GoI, the electronics production in India has increased from USD 29 billion in 2014-15 to USD 75.7 billion in 2019-20 at a Compound Annual Growth Rate (CAGR) of 23%

Further, many Acts and Technical Regulations by Govt of India referred Indian standards time to time. It is high time that the ministries, regulating authorities and the BIS should work in sync while drafting the policies so that the same can be implemented smoothly enabling the growth of Indian Industry.

The following Govt initiatives and policies describe the business environment of the industrysector, products, materials, disciplines or practices related to the scope of LITDC, and theymay influence how the relevant standards development processes are conducted and the content of the resulting standards.

Government initiatives

Digital India

The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. The three key vision areas of Vision Areas of Digital India are 1. "Digital Infrastructure as a Core Utility to Every Citizen"; 2. "Governance & Services on Demand"; and 3. Digital Empowerment of Citizens.

Smart Cities Mission:

The smart cities mission was launched by GoI with the objective to promote cities that provide core infrastructure, clean and sustainable environment and give a decent quality of life to their citizens through the application of 'smart solutions'.

National Policies

National Electronic Policy of India

The new Electronics Policy 2019 formulated by the Government of India is aimed at positioning India as a global hub for Electronics System Design and Manufacturing - (ESDM) by encouraging and driving capabilities in the country for developing core components, including chipsets, and creating an enabling environment for the industry to compete globally.

The NPE 2019 when implemented will lead to formulation of several schemes, initiatives, projects, etc., in consultation with the concerned Ministries/ Departments, for the development of ESDM sector in the country. It will enable flow of investment and technology, leading to higher value addition in the domestically manufactured electronic products, increased electronics hardware manufacturing in the country and their export, while generating substantial employment opportunities.

National Policy on Software Products (2019)

National Policy on Software Products (2019) has been designed with a vision to develop India as a Software Product Nation and a global leader in conception, design, development and production of intellectual capital driven Software Products, thus, accelerating growth of entire spectrum of IT Industry of the country.

National Cyber Security Policy -2013

Further, National Cyber Security Policy -2013 envisage to protect information and information infrastructure in cyberspace, build capabilities to prevent and respond to cyber threats, reduce vulnerabilities and minimize damage from cyber incidents through a combination of institutional structures, people, processes, technology and cooperation.

National Digital Communications Policy, 2018

The National Digital Communications Policy, 2018 seeks to unlock the transformative power of digital communications networks - to achieve the goal of digital empowerment and improved well being of the people of India; and towards this end, attempts to outline a set ofgoals, initiatives, strategies and intended policy outcomes.

The aforementioned initiatives from the government of India provides a huge thrust and brings lot of opportunities to industries and entire set of stakeholders, in the area of Electronics and IT. There has been unprecedented growth in the electronics and IT sector in the recent past.

PLI for Electronic H/w Manufacturing

The National Policy on Electronics 2019 envisions positioning India as a global hub for Electronics System Design and Manufacturing (ESDM) by focusing on size and scale, promoting exports and enhancing domestic value addition by creating an enabling environment for the industry to compete globally. The scheme proposes production linked incentives to boost domestic manufacturing and attract large investments in the value chainof these IT Hardware products.

Start up India

Startup India is a Government of India flagship initiative to build Startups and nurture innovation. Through this initiative, the Government plans to empower Startup ventures to boost entrepreneurship, economic growth and employment across India. The Government'sAction Plan will help accelerate the growth of Startups throughout India, across all importantsectors – in Tier 1, 2 and 3 cities, including semi-urban and rural areas – and includes promoting entrepreneurship among SCs/STs and women communities.

The 19-point Action Plan, organized by the Department of Industrial Policy & Promotion (DIPP), focuses both on restricting hindrances and promoting faster growth by way of:

- ☐ Simplification and Handholding
- ☐ Funding Support and Incentives
- ☐ Industry-Academia Partnership and Incubation.

Emerging Technologies

In the recent past, we have been witnessing a technological revolution triggered by several digital and disruptive technologies that are emerging at an incredible pace. The technologies today such as AI, IoT, Digital Twin, Blockchain are disruptive in nature and are connected in many ways – the way they extend digital capabilities, in the way they scale, emerge and embed themselves in our lives.

These emerging technologies upend existing ways of sensing & acting, processing, organizing and delivering.

While these technologies provide entirely new ways of creating value for organizations and citizens with their extended capabilities, they also poses new threats and challenges such as challenges in efficient integration and optimization of highly complex systems, security and privacy related concerns ethical/societal concerns, etc.

Like any other area, Standards play a key role in the electronics and IT landscape too. In the context of the digital era, the technology and data-driven paradigm, Standards have to address new challenges like ensuring safety, cyber security, Interoperability, system integration and optimization, ethical and societal concerns etc..

There is a need for a roadmap/strategy for the sector for the coming years that would continue and hasten the process of standardization in all the areas of Electronics and IT, by prioritizing standards from the point of view of health, environment, safety and security. As far as safety of Electronic and IT equipment's are concerned, mandating of certain items has been done and some more are under consideration by the government.

3 BENEFITS EXPECTED FROM THEWORK OF DIVISION COUNCIL

Standards developed by LITDC are primarily specification, test methods and Code of Practices which provide the means to enable objective assessment of process and product.

Sectional Committees under LITDC are structured to develop the specifications and test methods for the variety of Electronics Equipment's, Components and IT Products and Services that the market generates. In recognition of this responsibility, the work programmeincludes standards that pertain to products, their components, wires/cables, Software Systems, Smart Cities and IT Services. The Electronics and IT Division has also developedimportant standards relevant to Safety and Security for keeping faith of the user in the service.

LITD committees has also been working on areas like Data Privacy, Biometrics, Mobile Security, CCTVs, PCBs, Data Governance and the market developments related to the future network like 5G. Standards in these areas are helping building confidence of the usersin the products/ services used at mass scale. Standardization in the field of security is helping in enhancing the safety and resilience of society.

The Sectional Committees under LITDC are working on some of the emerging technologies areas like Internet of Things, Smart Cities, Blockchain and DLT, Artificial Intelligence, Wearable Devices. The technical committees in these area are primarily targeting to develop foundational standards such as standards on Terminology, Concept, Reference architectures, Use cases etc. these standards provides a firm/solid foundation/basis whereinnovations can flourish. Standards in these areas will also guide Industry to develop products, solutions and sevices that are interoperable.

UN Sustainable Development Goals

The UNSDGs calls on the contribution from all elements of society, including local and national governments, business, industry and individuals.

To be successful, the process requires consensus, collaboration and innovation. The standards published under the division council are harmonized with that of international

standards that represent globally recognized guidelines and frameworks. Built around consensus, standards provide a solid Foundation on which innovation can thrive and are essential tools to help governments, industry and consumers contribute to the achievementof every one of the SDGs.

With the integration of IT technologies in almost every aspect of life, the IT standards developed by LITD are a part of every UN SDGs (directly or indirectly) but these standardsare directly responsible for achieving 5 UN SDGs in particular, SDG 4 Quality Education, SDG 8 Decent Work and Economic Growth, SDG 9 Industry, Innovation and Infrastructure and SDG 11 Sustainable Cities and communities.

Climate change is one of the major challenge faced by the world and UN has actions towardsClimate change as SDG 13. LITD standards plays a vital role in adopting and promoting new technologies which helps in mitigating climate change through sustainable development.

4 STAKEHOLDER REPRESENTATION

The Electronics and IT Division Council (LITDC) and all its Sectional Committees as adequately represented by all important stakeholders in a balanced way. They include manufacturers, consumers, organized buyers, scientific and technical organizations, academic and research institutions, government and regulatory bodies etc. In some cases,eminent scientific persons with established credentials have also been given representationin personal capacities. The composition of each sectional committee is reviewed every threeyears by the Division Council based on their participation in the work of the committee. Therecommendations of the sectional committees on co-options and withdrawals are also considered and approved by the Division Council.

Each sectional committee under LITDC function as the national mirror committees of one ormore ISO and IEC technical committees and the activities of the sectional committees are harmonized with the relevant ISO and IEC technical committees. The list of committees is given in Annex A.

In order to encourage participation in the committee meetings, it is ensured that

meetings are organized at a place that would ensure maximum participation. The meetings are also organized in virtual mode through video conferencing for the convenience of members.

Stakeholder representation

At present, LITD Committees have 27% representation from Govt, 12% from Academia, 44% from Industry/Private Entities, 11% from Industry Associations, and 6% Individual Experts

Stakeholder representation
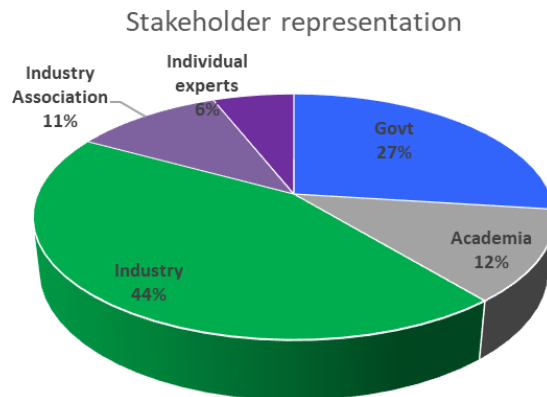
LITDC seeks to:

a) Grow participation of stakeholders in the standards development activities
b) Increase use of virtual meetings to enable increased participation from all members
c) Encourage consumers and governments to participate in LITDC's work to a greaterdegree
d) Attract more and more domain experts to participate in the work program

5 OBJECTIVES AND STRATEGIES

LITDC recognizes its role is to provide electronics and IT standards that are domain specificas well as applicable across domains (sometimes referred to as horizontal or foundational standards), and to work together with other relevant technical committees of BIS as well asother SDOs.

Objectives of LITDC

a) elaborate standards within the scope of committee.
b) develop Indian Standards on safety and performance requirements, test methods forElectronics and IT products for the industries as well as for the consumers and concerned parties.
c) adjust the existing programme of work to be relevant to the stated needs of the industries as well as the consumers and concerned parties and elaborate a coherentlibrary of standards.

d) make standards more relevant to the needs of the industries as well as of the consumers and concerned parties by ensuring timely delivery.

e) develop foundational standards and reference frameworks in Emerging technology areas which will provide a safe environment and a solid foundations for innovationsto flourish and will also guide Industry to make their investments in a directional manner.

f) continue working in close liaison with ISO and IEC committees to harmonize the activities and to avoid repetition and conflict.

g) increase India's participation in ISO, IEC and JTC 1 committees.

h) Strategically position ourselves at international standardization for a to seek positions to influence international standards to the best of our interests also to gaincompetitive edge and achieve economic benefits.

Strategies to Achieve the Defined Objectives

LITDC will employ the following strategies to satisfy the preceding objectives.

a) Continually monitor the structure of the Division Council to accurately reflect the changing work programme and the needs of the industries as well as the consumersand the concerned parties.

b) Establish the priority of work items within Sectional Committees and Panels.

c) Give priority to the timely development and circulation of documents and adherenceto target dates.

d) Limit physical meetings to when necessary and encourage more and more virtualmeetings to enable timely decisions and faster progress in standards development.

e) Increase participation of Academia in LITD Committees.

f) Continue close liaison with ISO and IEC committees.

g) Identify committees where regular participation in ISO and IEC committees isrequired and ensure participation of right people/domain experts.

h) Promote "Standardization Cell within Industries and recognizing their efforts towardsstandardization

i) Collaborate with various industry associations to harness Indian skills and strengthfor the development of Indian standards

6 IMPLEMENTATION OF THE STARTEGIC ROAD MAP

The strategic road map of Electronics and IT Division Council shall be implemented in the next five years and the progress to be monitored periodically in terms of measurable parameter identifiable against each item. Keeping in view the above broad objectives, it is necessary to give emphasis on its implementation strategy that will enable to work out plans,programmes, projects etc with clearly defined tasks, resources and time targets for arrivingat the desired benefits. The implementation of this Road Map should address the followingpoints to achieve the targeted benefits. This will enable India to establish itself as a major international player.

One Standard

There should be one standard for a product or service including its method of test and/or conformity assessment. There are premier Standards Developing Organizations (SDOs) in the country who have been formulating sector-specific standards and their standards are widely implemented in their concerned sectors. This diversity is welcome and it is not desirable to force every organization into a single mould. Standards developed by other Standard Developing Organizations may be adopted as Indian Standards following due process. This will also strengthen the standardization needs by allowing these organizations to pull their talent for working towards common national objectives. Good coordination and exchange of information are also necessary for better standards.

The Standard can have a built-in gradation of the product or service to enable one to choosefrom as per requirement. The standard may also contain, as a separate clause, the provisions of statutory/regulatory requirements and/or guidelines for characteristics such as performance, measurement etc. The statutory/regulatory bodies will work out the modalitiesto keep such requirements/guidelines in the public domain for easy accessibility.

Leading with Standards

Suitable programs to be developed with the objective of India achieving lead with standards. This will include like (in the west) to get India Industry, Startups & Academia to develop standards that India will want the world to adopt. Towards this

goal BIS will take up Standards Diplomacy on the global platforms.

LITD to include as part of its core objectives, declare that it will enable India to shift gears inElectronics H/w and S/w, from being a follower to a nation with Industry that brings out products with Indian IP.

Minimize Duplication of Work and EliminateMultiplicity of Standards

Suitable mechanism to be developed to minimize duplication of work and eliminate multiplicity of standards on the same product/service by other sectional committees under various Division Councils. One way to go ahead with this is by putting all relevant informationon the status of current standards and ongoing projects on the net (web). In addition, thereshould be exchange of information among various bodies to eliminate duplicity of work.

Harmonization of Standards

In the present market scenario, India is facing the challenge of global competition. To sustainin the global markets it is important to harmonize Indian Standards, as far as possible, withInternational Standards formulated by International Organization for Standardization (ISO) and the International Electro-technical Commission (IEC). Further, India is a signatory to theWTO Agreement on Technical Barriers to Trade (TBT). As per the agreement, member countries of WTO are required to align their National Standards with International Standards.However, country specific concerns on health, safety, environment, national security and prevention of deceptive practices can be considered/ incorporated while formulating National Standards. BIS uses International Standards, wherever they exist as a basis for standards development.

BIS, as a matter of practice, try to harmonize its standards with that of international standards to the extend possible. In cases, where total harmonization is not possible, the aim should be to see that the Indian standard incorporates the requirements of international/regional or other standards without giving rise to any conflict. Suitable steps may be followed for complete harmonization or alignment so that there does not arise any conflict with the requirements of the International/ regional/overseas standard. The steps ofharmonization may include the following:

- Identify the subject (extreme focus on thrust areas)
- Identify International standards in the above areas (i.e. ISO, IEC, etc)

- Identify other regional standards (like CEN, CENELEK, ETSI)

- Identify overseas standards of countries with whom India has large volume of tradeor expects larger volume.

Compliance to Code of Good Practice for the Preparation, Adoption and Application of Standards

India is a member on the WTO and therefore, it has become obligatory for all standardizingbodies within the country to abide by the code of good practice for the preparation, adoptionand application of standards.

Alert System for Standardization

An effective national alert system will be required to gear up the preparedness of various economic sectors towards any change in trade or technical requirements. This will enable them to retain their competitiveness and at the same time allow India to maintain/improve its position in the world market. This system will also consider the implications on environment, health and safety aspects. The Electronics and IT Division Council may develop suitable mechanism for effective monitoring and will be in constant touch with industry/associations, chambers of commerce, NGOs, union/state governments etc.

Broadly, this alert system will

a) Identify Emerging Technologies;
b) forewarn the rapid technological obsolescence; and
c) avoid delay leveraging the current opportunities.

New Subjects

The Division Council should identify the broad areas of priority in which standardization work need to take place, linking this to the trends in business, technologies, innovations,government policies, environmental and social aspects and the market needs and the need for involvement in international/regional standardization. Some of the potential areas wherenew subjects can be identified are listed in **Annex B**.

Human Resource Development

There is a need to progressively increase the rate of generation of high quality skilled humanresource at all levels of standardization. For building up the human resource

base in relevant areas, the technical committee members be encouraged to undergo specialized trainings being organized by BIS. They must be provided significantly greater opportunities

in international participation as well as for higher education. The officers of BIS involved in standardization may also be encouraged to skill enhancement programmes organized by outside organizations in various technological sectors. Schemes for training towards enhancement in skills should be a continuous process.

Review of Standards

The large existing library of over 1670 standards under the responsibility of LITDC and its Sectional Committees needs regular review/confirmation/amendment/revision, to ensure currency. Together with a current programme in development of new standards, this is having the cumulative effect of creating an overflow. This situation may well create a few competing priorities, displace essential planning and disrupt the planned and orderlyprogress of standards development but may keep pace with the rapid technological developments.

The Road Map would form the basis for the Sectional Committees under the Electronics andIT Division Council to frame their individual Standardization Plans. The list of existing sectional committees under LITDC along with their scope is given in Annex A.

7 REVIEW OF PLAN

The Strategic Road Map of the Electronics and IT Division Council shall be approved by theCouncil. The plan be reviewed from time to time to evaluate the progress as well to formulatenew strategies to deal with new challenges. It shall also be reviewed in every meeting of the Electronics and IT Division Council which is normally held once in a year. Any changesproposed shall be discussed in the meeting and approval of the Council shall be obtained before incorporation. All stakeholders shall also recommend appropriate actions required for further progress and to analyze whether new situations call for any strategic revision fortreading on new opportunities.

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POTENTIAL AREAS OF NEW AREAS

LITDC will work on following priority areas/technologies where efforts would be made to develop standards as per Market needs and business requirements.

1) Smart Cities
2) Internet of Things
3) Blockchain and distributed ledger technologies
4) Artificial Intelligence
5) Wearable Devices
6) Cloud Computing
7) Smart Manufacturing
8) Active Assisted Living
9) As a first step, the standards would be prepared to cover
10) Terminologies,
11) Reference Architecture,
12) Security and Privacy,
13) Governance.
14) Smart Standards & Semantic Interoperability
15) Data Maturity assessment

This list is not exhaustive and is updated as per Future panel recommendation from time to time

A lot of work is already going on in ISO committees and efforts should be made to incorporate India specific requirements directly in ISO standards which may be adopted asIndian standard at later stage.

Annex B

SECTIONAL COMMITTEES UNDER LITDC

LITD 1 Environmental Testing Procedures for electronic products	
Scope	To prepare Indian Standards on testing procedure for electronic components andequipment under different environmental conditions
Liaison	IEC/TC 89 Fire Hazard Testing – O Member IEC/TC 104 Environmental conditions, Classification and method of Testing – OMember

LITD 02 Reliability Of Electronic and Electrical Components and Equipment	
Scope	Standardization in the field of availability, reliability, maintainability and maintenancesupport for electronic components and support
Liaison	IEC/TC 56 Dependability –P Member

Sectional Committee	Title	Scope	Liaison ISO/IECCommittees
LITD 01	Environmental Testing Proceduresfor electron icproducts	To prepare Indian Standards on testing procedure for electronic components and equipment under different environmental conditions	IEC/TC 89 Fire Hazard Testing – O Member IEC/TC 104 Environmental conditions, Classification and method of Testing – OMember

LITD 02	Reliability Of Electronic and Electrical Components and Equipment	Standardization in the field of availability, reliability, maintainability and maintenance support for electronic components and support	IEC/TC 56 Dependability –P Member
LITD 03	Electromechanical Components and Mechanical Structures for Electronic Equipment	To prepare Indian Standards relating to mechanical structures and similar devices such as switches, relays, connectors, sockets, for use in electronic and telecommunication equipment	IEC/TC 48 Electrical connectors and mechanical structures for electrical and electronic equipment – O Member IEC/SC 48B Electrical connectors – O Member IEC/SC 48D Mechanical Structures for Electronic Equipment – O Member
LITD 04	Electronic display devices and systems	To prepare Indian Standards relating to 0 Electronic tubes including high power and microwave tubes 1 Electronic display devices, relevant components and systems.	IEC/TC 110 Electronic display devices – P Member

LITD 05	Semiconductor and Other Electronic Components and Devices	To prepare Indian standards relating to: **1** Semiconductor devices & integrated circuits. **2** Capacitors, resistors, allied component **3** Discrete semiconductor devices & micro-electromechanical systems **4** Electronic assembly technologies and printed board assemblies. **5** Capacitors resistors and inductors for use in electronics equipment.	IEC/TC 40 Capacitors and resistors for electronic equipment. – P Member IEC/TC 47 Semiconductor devices – O Member IEC/SC 47A Integrated circuits – O Member IEC/TC 91 Electronic assembly technology. – P Member
LITD 05:1	Printed Circuit Boards Design and Manufacture for Electronic Application Sub-Committee, LITD 05: 1	Printed Circuit Boards Design and Manufacture for Electronic Application	-

LITD 06	Wires, Cables, Waveguides & Accessories	To prepare Indian Standards on LF and RF wires and cables (having metallic conductors) and waveguides and accessories, intended for use in electronics and telecommunication equipment and in devices employing similar techniques.	IEC/TC 46 Cables, wires, waveguides, RF connectors RF and microwave passive components and accessories –O Member IEC/SC 46A Coaxial Cables –O Member

			IEC/SC 46C Wires andsymmetric cables – P Member
			IEC/SC 46F R.F and microwave passivecomponents – O Member
LITD 07	Audio, Video AndMultimedia Systems &Equipments	To prepare Indian Standardsincluding safetyrequirements relating to: 2 Audio, video and multimedia systems and equipment 3 Acoustics, electroacoustics and related instruments.	IEC/TC 29 Electroacoustics – P Member IEC/TC 100 Audio, Video and Multimedia System and Equipment – P Member IEC/TC 108 Safety of Electronic Equipment within the field of audio, video, information technology and communication technology –P Member ISO/TC 43/SC 1 Noise – O Member

LITD 08	Electronic Measuring Instruments, Systems And Accessories	To prepare Indian Standards for electronic measuring instruments, systems and accessories for measurement, generation, test and analysis of electrical quantities including nuclear and mining instrumentation	IEC/SC 45A Instrumentation and Control of Nuclear facilities – O Member IEC/SC 45B Radiation Protection Instrumentation – O Member

			IEC/TC 45 Nuclear Instrumentation – O Member
			IEC/TC 85 Measuring Equipment for Electrical & Electromagnetic Quantities –O Member
			ISO/TC 85 Nuclear Energy, Nuclear Technologies and radiological protection – PMember
			ISO/TC 85/SC 2 Radiological Protection – P Member
			ISO/TC 85/SC 5 Nuclear FuelCycle – P Member

| LITD 09 | Electromagnetic Compatibility | To prepare Indian Standards relating to:

2 Electromagnetic compatibility of electrical and/or electronic equipment, between themselves and with electrical power networks including electromagnetic interference.

3 Measurement and calculation methods to assess human exposure to electric, magnetic and electromagnetic fields. | IEC/TC 77 Electromagnetic Compatibility – P Member

IEC/SC 77A Low Frequency Phenomena – P Member

IEC/SC 77B High Frequency Phenomena – P Member

IEC/SC 77C High power transient phenomena - O Member

IEC/TC 106 Methods for the assessment of electric,
magnetic and electromagnetic |

			fields associated with human exposure- P member
			CIS/B Interference relating to industrial, scientific and medical radio-frequency apparatus, to other (heavy) industrial equipment, to overhead power lines, to high voltage equipment and to electric traction – P member
			CISPR International special committee on radio interference - O Member
			CIS/A Radio-interference measurements and statistical methods -O Member
			CIS/D Electromagnetic disturbances related to electric/electronic equipment on vehicles and internal combustion engine powered devices- O Member

			CIS/F Interference relating to household appliances tools, lighting equipment and similar apparatus- O Member
			CIS/H Limits for the protection of radio services- OMember
			CIS/I Electromagn etic compatibility of information

			technology equipment, multimedia equipment and receivers- O Member
LITD 10	Power System Control And Associated Communications	To prepare Indian Standards relating to: 2 Power system control equipment and systems including EMS (Energy Management System) 3 DMS (Distribution Management System) 4 SCADA (Supervisory Control and Data Acquisition) 5 Distribution automation, Smart Grid, teleprotection and associated communications used in planning, operation and maintenance of power systems	IEC/TC 57 Power system management and associated information exchange – P Member
LITD 10:1	Smart Energy Sub-Committee	To be proposed by LITD 10 Sectional Committee	IEC SyC Smart energy – PMember
LITD 11	Fibre Optics, Fibres, Cables And Devices	To prepare Indian Standard for fibre optics systems and associated components and devices intended for use with communications equipment and devices employing similar techniques.	IEC/TC 86 FibreOptics. – PMember IEC/SC 86AFibres and Cables – P Member IEC/SC 86B Fibre Optic Interconnecting Devices and Passive Components – P

			Member
			IEC/SC 86C Fibre Optic

			Systems and active devices – PMember
LITD 12	Transmitting Equipment Fo rRadio Communication	To prepare Indian standards for transmitting equipmentfor radio communication purposes and electronic devices employing similar techniques. The standardization work deals with methods of measurement, safety requirements and transmitter control and interconnection	IEC/TC 103 Transmitting equipment for radio communication – O Member
LITD 13	Interconnection and Informati onexchange among IT equipment and systems	To prepare Indian standards relating to: - Computer communication networks and interfaces to these computer Communication networks including microprocessor systems, interfaces, Protocols and associated interconnecting media for IT equipment and networks. - Home and building electronic systems in residential and commercial environments to support interworking devices (IoT-related) and applications such as energy management, environmental control, lighting, and security. - Telecommunications dealing with Information exchange between IT/ICT systems encompassing protocols and services of network layers	ISO/IEC/JTC1/SC 6 Telecommunications and information exchan gebetween systems – P Member ISO/IEC/JTC1/SC25 Interconnection of information technolo gy equipment – P Member

LITD 14	Software And System Engineering	To prepare Indian standards relating to: 5 Processes, supporting tools and supportingtechnologies for the engineering of software productsand systems. 6 IT service management and IT Governance	ISO/IEC/JTC1/SC 7 Software and systems Engineering – P Member ISO/IEC/JTC1/SC 40 IT service management and IT Governance – P Member

LITD 15	Data Management Systems	To prepare Indian Standards relating to: 6 Data Management and Interchange 7 Document Description and Processing Languages 8 Programming languages, their environments andsystem software interfaces	ISO/IEC/JTC1/SC 22 Programming Languages, their Environments and system software interfaces – OMember ISO/IEC/JTC1/SC 32 Data management and interchange – P Member ISO/IEC/JTC1/SC 34 Document Description and Processing Languages – PMember
LITD 16	Identification & Data capture techniques, Cards and SecurityDevices	To prepare Indian Standards relating to : 6 Smart Cards, Identification cards, Securitydevices and interface associated with their use in inter-industry applications and international interchange. 6 Data formats, data syntax, data structures, data encoding, and technologies for the process of automatic identification and data capture and of associated devices utilized in inter-industry applications and international business interchanges and for mobile applications	ISO/IEC/JTC1/SC 17 Cards and security devices for personal identification – PMember ISO/IEC/JTC1/SC31Automat ic identification and data capture techniques – P Member

LITD 16:1	Cards and personal Identification		ISO/IEC/JTC1/SC 17 Cards and security devices for personal identification – PMember

LITD 17	Information Systems SecurityAnd Privacy	Standardization in security and privacy aspects ofInformation Systems	ISO/IEC JTC 1/SC 27 Information securit y, cybersecurity and privacy protection JTC 1/WG 13 "Trustworthiness".
LITD 19	E-Learning	To prepare Indian Standards on E-Learning	JTC 1/SC 36 Information technology for learning, education and training – P Member
LITD 20	Indian Language Technologies And Products	To prepare Indian Standards in the field of Language Technologies including Graphic character set and their characteristics (including string ordering and associated control functions and their coded representation for information interchanges), Code extension techniques, Linguistic resources (dictionary, annotated corpora, e-dictionaries, multilingual dictionaries etc.), Phonetic standards and Keyboard layout	ISO/IEC/JTC1/SC2 Code dcharacter sets. – P Member
LITD 22	Geographic Information	To establish standards in the field of geospatial information including methods, tools, products, services for objects or phenomenon that are directly or indirectly associated with a location relative to the earth.	ISO/TC 211 Geospatial Information – P Member

LITD 23	Coding and processing of	To prepare Indian Standards relating to:	ISO/IEC/JTC1/SC24 Computer graphics, image

	Audio, Picture, Multimedia and Hypermedia information	a) Coded representation of audio, picture, multimedia and Hypermedia information and sets of compression and control functions for use with such information, and) Interfaces for information technology based applications relating to computer graphics and image processing	processing and environmental data representation – O Member ISO/IEC/JTC1/SC 29 Coding of audio, picture, multimedia and hypermedia information – P Member
LITD 24	Magnetic Components, Ferrite materials, Piezoelectric and Frequency control devices	To prepare Indian standards relating to: a) Piezoelectric and dielectric devices for frequency control and selection. b) Parts and components displaying magnetic properties and ferrite materials	IEC/TC 49 Piezoelectric and dielectric devices for frequency control and Selection – P member IEC/TC 51 Magnetic components and ferrite materials – P Member
LITD 25	E-Governance	To prepare Indian standards relating to Software applications for seamless sharing of data and services for e-governance namely data, security, network, semantics, metadata and language and ensuring their integrity	–
LITD 26	Alarms and Electronic Security Systems	To prepare Indian Standards for the protection of buildings, premises, assets, inventory, persons, areas and properties against fraudulent and/or force full actions having the purpose to enter in a place or to take or to use something without permission and other	IEC/TC 79 - Alarm and electronic security systems – P Member

| | | threat to residential and nonresidential applications which includes, but not limited to:

a) Access control systems (Including perimeter access control systems)

b) Alarm transmission systems

c) Video surveillance systems (Including video analytics systems)

d) Combined and/or integrated systems even including fire alarm systems

e) Fire detection and fire alarm systems (limited to command, control software and associated Systems)

f) Intruder and hold-up alarm systems (Including perimeter intruder detection systems)

g) Remote receiving and/or surveillance centers

h) Social alarm systems (Indoor and outdoor, including social alarm management systems)

i) Electronic Guard Track Systems

j) Key management systems | |
| LITD 27 | Internet of things and related technologies | To develop standards in the field of Internet of Things and related technologies including sensor networks. | ISO/IEC/JTC1 SC 41 Internet of things and related technologies – P Member |

LITD 28	Smart infrastructure	Standardization in the field of Smart Cities (Electro- technical and ICT aspects) and related domains including Smart Home/Building and Active assisted living	IEC SyC Smart Cities, –PMember JTC 1/WG 11 Smart cities

LITD 28:1	Active Assist edLiving	Sandardization in the field AAL	IEC SyC AAL – P Member
LITD 29	Blockchain and distributed ledger technologies	Standardization in the field of Block chain technologiesand distributed ledger technologies	ISO/TC 307 Blockchain and distributed ledg er technologies – P Member
LITD 30	Artificial Intelligen ce	Standardization in the area of Artificial Intelligence &Big Data	ISO/IEC JTC 1/SC 42 Artificial Intelligence– P Member
LITD 30:1	Big Data	Standardization in the area of Big data	-
LITD 31	Cloud Computing,IT & Data Centres	To establish Indian standards in the field of B Cloud Computing and Distributed Platforms including Foundational concepts and technologies, Operational issues, and Interactions among Cloud Computing systems and with other distributed systems C Assessment methods, design practices, operation and management aspects to support resource efficiency, resilience and environmental sustainability for and by information, data centres and other facilities and infrastructure necessary for service provisioning	ISO/IEC/JTC1/SC 38 Cloud Computing and Distributed Platforms – P Member ISO/IEC/JTC1/SC 39 Sustainability, IT & Data Centres – P Member
LITD 32	Biometrics	Standardization of generic biometric technologies pertaining to human beings to support interoperability and data interchange	ISO/IEC JTC 1/SC 37 "Biometrics" – P Member

		among applications and systems	
LITD 33	Wearable electronic devices and technologies	Standardization in the field of wearable electronic devices and technologies which include patchable materials and devices, implantable materials and	IEC/TC 124 Wearable electronic devices and technologies – P Member

		devices, ingestible materials and devices, and electronic textile materials and devices	
LITD 34	Smart Manufacturing	Standardization in the field of Smart Manufacturing including systems level standardization	IEC SyC Smart Manufacturing -P Member ISO/IEC JTC 1/WG 12 3D Printing and scanning
LITD 35	Active Assisted Living	Standardization in the area of accessibility, interoperability of AAL systems, services, products and components; and standardization of system level aspects of AAL such as safety, security and privacy	IEC SyC AAL
LITD 36	Computer hardware, Peripherals, Office equipment and User Interfaces	Standardization in the field of : 1. Computer hardware and peripherals, removable digital storage media (utilizing optical, holographic, and magnetic recording technologies) and flash memory technologies for digital information interchange; 2. basic characteristics, test methods and other related aspects of office equipment such as Printers/Scanners, Copiers, Projectors, and Systems composed of their combinations. 3. user-system interfaces in ICT environments and support for these interfaces to serve all users, including people having accessibility or other specific needs.	ISO/IEC JTC 1/SC 23 Digitally Recorded Media for Information Interchange and Storage (to be migrated to P - Membership) ISO/IEC JTC 1/SC 28 Office equipment (P - Member) ISO/IEC JTC 1/SC 35 User interfaces (P - Member)