Indian Standardization Landscape

March 2025

Table of Contents

1. Acronyms

S. No.	Acronym	Expansion
1	3GPP	3rd Generation Partnership Project
2	A2LA	American Association for Laboratory Accreditation
3	AI	Artificial Intelligence
4	ANSI	American National Standards Institute
5	APLAC	Asia Pacific Laboratory Accreditation Co-operation
6	APT	Asia Pacific Telecommunication
7	ARAI	Automotive Research Association of India
8	ARIB	Association of Radio Industries and Businesses
9	ASSOCHAM	Associated Chambers of Commerce and Industry of India
10	ASTM	American Society for Testing and Materials
11	ATMA	Automotive Tyre Manufacturers' Association
12	BEE	Bureau of Energy Efficiency
13	BIS	Bureau of Indian Standards
14	BOs	Branch Offices
15	BSI	BSI Group India Pvt. Ltd.
16	CAB	Conformity Assessment Bodies
17	CAF	Conformity Assessment Framework
18	CAREL	Core Advisory Group for Research and Development (R&D) in Electronics Hardware
19	CASCO	Committee on Conformity Assessment
20	CBIP	Central Board of Irrigation & Power
21	CCA	Controller of Certifying Authorities
22	CCPA	Central Consumer Protection Authority
23	C-DAC	Centre for Development of Advanced Computing
24	C-DOT	Centre for Development of Telematics
25	CEA	Central Electricity Authority
26	CED	Civil Engineering Department
27	CEN	European Committee for Standardization
28	CENELEC	European Committee for Electrotechnical Standardization
29	CHD	Chemical Department
30	CII	Confederation of Indian Industries
31	COAI	Cellular Operators Association of India
32	CPCB	Central Pollution Control Board
33	CPRI	Central Power Research Institute
34	CRS	Compulsory Registration Scheme
35	CSIR	The Council of Scientific and Industrial Research
36	DHI	Department of Heavy Industry
37	DIN	German Institute for Standardization

38	DIPP	Department of Industrial Policy & Promotion
39	DoT	Department of Telecommunications
40	DQS	Delhi Quality Services
41	DRDO	Defence Research and Development Organisation
42	DSCI	Data Security Council of India
43	DST	Department of Science & Technology
44	EED	Environment and Ecology department
45	EIAs	Export Inspection Agencies
46	EIC	Export Inspection Council
47	EMS	Environmental Management Systems
48	EPC	Export Promotion Councils of India
49	ERTLs	Electronics Regional Test Laboratories
50	ETDC	Electrotechnical Department
51	ETSI	European Telecommunications Standards Institute
52	FAD	Food and Agricultural Department
53	FICCI	The Federation of Indian Chambers of Commerce and Industry
54	FMCS	Foreign Manufacturers Certification Scheme
55	GCS	General Certification Scheme
56	GISFI	Global ICT Standardization Forum for India
57	GRs	Generic Requirements
58	GSC	Global Standards Collaboration
59	GSM	Global System for Mobile
60	HAPS	High Altitude Platform Station
61	IAF	International Accreditation Forum
62	IBSA	India-Brazil-South Africa
63	ICA	Indian Cellular Association
64	ICT	Information and Communications Technology
65	IEC	International Electrotechnical Commission
66	IEEE	Institute of Electrical and Electronics Engineers
67	IISc	Indian Institute of Science
68	IoT	Internet of Things
69	IP	Intellectual Property
70	IPR	Intellectual Property Rights
71	IRC	Indian Roads Congress
72	IRs	Interface Requirements
73	ISI	Indian Standards Institute
74	ISMS	Information Security Management System
75	ISO	International Organization for Standardization
76	ITA 2000	Information Technology Act 2000
77	IT-ITeS	Information Technology - Information Technology Enabled Services
78	ITU	International Telecommunication Union
79	KYC	Know Your Customer

80	LIFE	Lifestyle for Environment
81	LITD	Electronics and Information Technology Department
82	LRS	Laboratory Recognition Scheme
83	M2M	Machine To Machine
84	MAIT	Manufacturers' Association for Information Technology
85	MED	Mechanical Engineering Department
86	MEITY	Ministry of Electronics & Information Technology
87	MHD	Medical Equipment and Hospital Planning Department
88	MLA	Multilateral Recognition Arrangement
89	MNRE	Ministry of New and Renewable Energy
90	MoCA	Ministry of Consumer Affairs
91	MoEFCC	Ministry of Environment, Forests and Climate Change
92	MoHI&PE	Ministry of Heavy Industries & Public Enterprises
93	MOHUA	Ministry of Housing and Urban Affairs
94	MoP	Ministry of Power
95	MoRTH	Ministry of Road Transport & Highways
96	MoU	Memorandum of Understanding
97	MRA	Mutual Recognition Agreement
98	MSD	Management and Systems Department
99	MTD	Metallurgical Engineering Department
100	NABCB	National Accreditation Board for Certification Bodies
101	NABET	National Accreditation Board for Education and Training
102	NABH	National Accreditation Board for Hospitals and Healthcare Providers "
103	NABL	National Accreditation Board for Testing and Calibration Laboratories
104	NASSCOM	National Association of Software and Services Companies
105	NFV	Network Function Virtualization
106	NGN	Next Generation Network
107	NIC	National Informatics Centre
108	NIP	New Item Proposal
109	NIUA	National Institute of Urban Affairs
110	NT	Network
111	PASC	Pacific Asia Standards Congress
112	PCD	Petroleum, Coal and related Products Department
113	PGD	Production and General Engineering Department
114	QCI	Quality Council of India
115	QCO	Quality Control Order
116	QMS	Quality Management System
117	QoS	Quality of Service
118	R&D	Research and Development
119	RC	Regional Coordination
120	RDSO	Research Design and Standards Organisation
121	RNES	Radio Network Evolution and Spectrum

122	ROs	Regional Offices
123	SACEP	South Asia Co-operative Environment Programme
124	SARSO	South Asian Regional Standards Association
125	SCS	Simplified Certification Scheme
126	SDN	Software Defined Networking
127	SDO	Standard Development Organization
128	SDoC	Self-Declaration-of Conformity
129	SEPs	Standards Essential Patents
130	SESEI	Seconded European Standardization Expert in India
131	SG	Study Groups
132	SNAP	Standards National Action Plan
133	SR	Service Requirements
134	SSD	Service Sector Department
135	STQC	Standardization Testing and Quality Certification
136	TCs	Technical Committees
137	TDSAT	Telecommunications Dispute Settlement and Appellate Tribunal
138	TEC	Telecom Engineering Centre
139	TED	Transport Engineering Department
140	TRAI	Telecom Regulatory Authority of India
141	TSDSI	Telecommunication Standards Development Society for India
142	TSs	Technical Standards
143	TXDC	Textile Department
144	WG	Working Groups
145	WRD	Water Resources Department
146	WTO/TBT	World Trade Organization - Technical Barriers to Trade

2. Context

Project SESEI is a longstanding "**Standardisation & related Policies"** focused action of the European Commission (EC) together with EFTA and the three European Standardisation Organisations (CEN, CENELEC and ETSI). The Project was commenced in 2013 to initiate cooperation & collaboration between Indian and EU/EFTA.

At a time when Europe and India have engaged in a strategic partnership & dialogue through "EU-India Strategic Partnership: A Roadmap to 2025" giving birth to a joint "Trade and Technology Council (TTC)" focusing on Digital Governance & Connectivity, Green & Clean Tech and Trade, the key topics of cooperation are around Security, Climate Change, Clean Energy, ICT, Transport, Green Deal, Resource Efficiency, Circular Economy, Clean Tech, e-Mobility, Renewables, Artificial Intelligence, Research & Innovation etc. **Standards are an important enabler of these topics** and will be fundamental to the objectives / goals set by India and EU for sustainable growth and to be technology leaders.

As part of the SESEI Project deliverables **"The Indian Standardisation Landscape Report"** is an important deliverable, providing deep insight into the Indian standards ecosystem, crucial for the Project partners to forge ahead through Project SESEI and align the priorities with the appropriate Indian players for collaboration in areas of mutual interest and explore harmonization.

The report consists of sections covering main standards making bodies (SDO's), other governmental bodies engaged or entrusted with standardisation in their concerned fields, Certification and Accreditation organisations and their main functions, Foreign SDO's having presence in India etc.

3. Executive summary

India, a South Asian nation, is the seventh-largest country by area, and is the populous country with over 1.46 billion people, and as well the most populous democracy in the world. A huge population, mostly comprising of youth, is a strong driver for demand and an ample source of workforce. India has emerged as the fastest-growing major economy in the world and is expected to be one of the top three economic powers in the world over the next 10-15 years, backed by its robust democracy and strong partnerships.

India's ongoing evolution spans across numerous sectors, each contributing to its impressive growth trajectory. Through ambitious initiatives and strategic investments, India is fostering **innovation, efficiency, and sustainability**, positioning itself as a global player. Embracing digitalisation and modernisation, the nation is driving inclusive growth, job creation, and improved living standards. This comprehensive transformation reflects India's resilience, adaptability, and steadfast dedication to forging a prosperous and progressive future for all its people.

Over the years, the Indian government has introduced many initiatives to strengthen the nation's economy. In recent decades, India's rapid economic growth has led to a substantial increase in its

demand for exports. Besides this, several of the government's flagship programmes, including Make in India, Start-up India, Digital India, the Smart City Mission etc. are aimed at creating immense opportunities in India. The Digital Public Infrastructure (DPI) by India is one of the largest and unique in the world and its commitment towards sustainable economy is reflective through the surge in renewable energy production, hydrogen mission, etc.

We have also witnessed an unprecedented momentum in the strategic cooperation between EU and India on Trade and Technology (TTC) to which Standards are quite integral. The visit of EU Commissioner with its entire delegation of "College of Commissioners" to India for bi-lateral talk in February 2025 and the decision to expedite the dialogue on FTA closure by the end of 2025 are indicative of the close ties between these two partners in progress.

This is the "Indian Standardisation Landscape" Report prepared by Project SESEI with an objective to provide an introduction and overview of the Standards Development Process in India. The sections of the report consist of the Main Standards Development Organizations, role of industry associations in driving the standards, overview of the accreditation and certification bodies in India and as well as the information on other SDO's and International Standards Development Organizations having their presence in India.

The first section of the report provides information on the three main standardisation bodies in India.

First & foremost is the **Bureau of Indian Standards (BIS) - the National Standards Body** functioning under the Ministry of Consumer Affairs, Food and Public Distribution, Govt. of India. One of the key functions of BIS is the Standards formulation, through its various divisional council under which there are technical committee structure comprising of Sectional Committees set up for specific technologies and economic sectors. Till date, Bureau of Indian Standards (BIS) has formulated over 23,700 Standards for products, process specification, service sectors, code of practice, methods of test terminology. During the process of Standard development, BIS technical committees consider the availability of an International Standard ISO/IEC on the subject and try to align the standard with the international standards to the extent possible at times, while being mindful of the country specific concerns on health, safety, environment, national security and prevention of deceptive practices.

Apart from the development of standards, the other important function of BIS includes Product certification, through its various certifications' schemes, primarily to assure quality, safety, and reliability of products to the customer. There is certification scheme for domestic manufacturers, a separate scheme for foreign manufacturers and the Eco- mark Scheme.

BIS acts a central agency which coordinates with the Standardisation cells of various Ministries and has the power to recognise or accredit any institution within India as SDOs. Awareness on standards for consumers, and trainings for its members, MSMEs etc. are also noteworthy initiatives of BIS.

BIS is an active member of ISO and IEC and holds the Secretariat of eleven ISO committees (TC & SC level from +/- 760) and Convenorship of twenty-one ISO working groups. BIS is a member of many other regional standards bodies like Pacific Area Standards Congress (PASC), South Asian Regional

Standards Organization (SARSO) and has also established MoUs with NSBs of many countries. European Standards Organisation (ETSI, CEN and CENELEC) have also signed MoU's with BIS.

Emerging Technologies are taking precedence globally, **Telecom Engineering Centre (TEC)** and the **Telecommunication Standards Development Society for India (TSDSI)** are present in India as the main standardisation Bodies for Telecommunication & Information & Communication technologies (ICT).

The **Telecommunication Engineering Center** (TEC) is a technical body and a nodal agency of the **Department of Telecommunications (DoT)**, Ministry of Communications, towards ITU-T and is responsible for standards, generic requirements, interface requirements, service requirements and specifications for telecom products, services, and networks.

TEC, in its capacity as the SDO, provides technical support to DoT and technical advice to telecom Regulator TRAI & dispute resolution tribunal - TDSAT, and interacts with multilateral agencies like APT, ETSI and ITU etc. for standardization. TEC is the Designated National Enquiry point for WTO –TBT (Technical Barrier to Trade) for telecom sector.

The technical activities at TEC are carried out through various specialized core divisions of TEC such as Mobile Technology, Quantum Technology, Radio-communication, Satellite communication, Future Networks, Telecom Security, Internet of Things (IoT), Information Technology, Transmission, Fixed Access, Broadcasting & Convergence, Standardization, MTCTE, Indigenous Manufacturing Promotion & TBT Enquiry Point etc.

One of the most important functions of TEC is the implementation of Mandatory Testing & Certification of Telecom Equipment (MTCTE), in which, various telecom equipment needs to undergo mandatory testing and certification prior to sale, import for use in India. The testing is to be carried out for conformance to [Essential Requirements](#) for the equipment, by Indian Accredited [Labs designated by TEC](#) and based upon their test reports, certificates are issued by TEC. It is also the Designating Authority (DA) for Telecom Equipment and as DA TEC designates Conformity Assessment Bodies (CABs)/ Certification Bodies (CBs) located in India to perform testing and certification of telecom products.

For adoption of telecom standards as National Standards, TEC policy document called ['Standardization Guide'](#) based on [ISO/IEC Guide 21-1](#) outlines the process to be followed and the procedure to be used by TEC, while ratifying/adopting TSDSI developed/transposed standards as National standard in India. TEC has approved adoption of TSDSI transposed standards of oneM2M & 3GPP Standards as National Standards in India.

Telecommunications Standards Development Society of India (TSDSI) is the Standards Development Organization (SDO) for Telecom/ICT products and services in India. TSDSI is a constituent SDO of Global Standards Collaboration (GSC), Partner Type I for oneM2M - one of the leading forums driving M2M service layer standards and as well one of the Seven Organizational Partners (OPs) of 3GPP.

TSDSI develops standards for access, back-haul, infrastructure systems, solutions and services that best meet India specific Telecom/ICT needs, based on research and innovation in India. TSDSI works closely with global standards' bodies to reflect Indian requirements into international telecom/ICT standards.

Technical activities of TSDSI are conducted in two Study groups, namely, Study Group-Networks (SGN) and Study Group-Services & Solution (SGSS). The SGN is responsible for standardization of Wireless communication systems, interfaces between networks, Overall system architecture, SDN and NVF access & core networks, backhaul and spectrum related studies. As of December 2024, SG-Networks has transposed 10,032 technical standards and published 13 technical reports. The SGSS focuses on services and applications and features for various domains and applications, development of end-to-end service capabilities and architecture, based on the requirements, Security and Privacy aspects and energy performance for telecom networks and equipment. As of December 2024, SG-Services & Solutions has transposed 226 technical standards and published 140 technical reports.

In its Standardization Roadmap 3.0 for the period of 2024-2026, TSDSI has aligned topics with the expected future course of technological development like Security, 5G Enhancements, 6G, AI/ML, Quantum Communications, Cloud, Intelligent Transport Systems, Spectrum Studies etc. In its Vision 2025 document, TSDSI recognizes the convergence of Telecom and ICT technologies and has re-scoped to address Digital Communication Standards. TSDSI aims to create a leadership position through India's participation and contribution to emerging digital communication standards in global SDOs.

In India, there are many other industries and professional bodies which formulate sector specific standards, which may be referred as Standards Developing Organizations (SDOs). The statutory provisions given under Section 10 (2) (c) of the BIS Act 2016 and Section 30 of the BIS Rules, 2018 confer upon BIS, powers to recognize any SDO in India for development of standards. In this chapter, we provide a brief overview of the key organizations engaged in sector-specific standardization efforts within the priority sectors of Project SESEI and more.

In our next section, we have provided overview of the other main actors in the process of formulation of standards. These actors include the government bodies, specifically Ministries and the Industry Associations having representation of specific sectors or Industry. These Industry Associations provide inputs, expertise, and recommendations to influence the development of standards that are relevant to their respective industries. In this report, details of the important Industry Associations have also been provided, concerning our priority sectors only.

Certification and Accreditation is an integral process of Standards Implementation through regulation. Quality control also plays a vital role in the manufacturing industry as it ensures that products meet the desired standards of quality, reliability, and safety.

Accreditation helps establishing the competence and credibility of conformity assessment bodies (CABs) which perform testing, certification, inspection, etc. The National Accreditation System as per international standards in India is established by the Quality Council of India (QCI). The rise in India's accreditation ranking is attributed to the steady growth of conformity assessment bodies (CABs) under

national accreditation system and these are testing labs, medical labs, product certification bodies, and management systems certification bodies.

In the recent times, compliance to Indian Standards is made compulsory by the Government under various considerations viz. public interest, protection of human, animal or plant health, safety of environment, prevention of unfair trade practices and national security for many products. For such products, the Government directs mandatory use of Standard Mark under a Licence or Certificate of Conformity (CoC) from BIS through issuance of Quality Control Orders (QCOs). A total of **187 Quality Control Orders**, covering **769 products** are under compulsory BIS registration & certification.

With an aim to assist, guide and provide deep insight into the Market Access related issues, Lab Recognition Scheme, Mandatory Testing & Certification of Telecom Equipment's, Quality Control Orders (QCO), Foreign Manufacturers Product Certification and other Conformity assessment issues have been provided in detail under the section on Main Certification and Accreditation Bodies.

We have concluded the report with the list of Foreign / international SDO's having presence in India and their core area of activities.

The revised edition of the Indian Landscape around Standardizations, Policy & Legislation report prepared by SESEI during its VI Phase is comprehensive guide to the Indian standardisation system and its key players in the field of Digitization and Clean & Green Technologies.

4. Main Standards Development Organizations in India

In India, there are three as following main standardization bodies for standards formulation, especially concerning the Project priority sector of Digitization and Green & Clean Technologies.

- Bureau of Indian Standards (BIS)
- Telecom Engineering Centre (TEC)
- Telecommunications Standards Development Society of India (TSDSI)

4.1 Bureau on India Standards (BIS)

4.1.1. Overview

BIS is the National Standard Body of India under Department of Consumer affairs, Ministry of Consumer Affairs, Food & Public Distribution, Government of India. It is established under the BIS Act 2016 for the harmonious development of the activities of standardization, marking and quality certification of goods and for matters connected therewith or incidental thereto.

The Bureau of Indian Standards Act, 2016, came into effect on 12 October 2017. The highlights of the BIS Act are:
-    Positions BIS as the National Standards Body.

- Align various conformity assessment schemes with global practices.
- Enables the Government of India to authorize any agency apart from BIS to certify and enforce conformity to underlying standards.
- Enables the Government to list products under a compulsory certification program on the ground of safety, health, national security, environment, and mitigation of deceptive practices.
- Enables the Government to enact the hallmarking scheme for precious metals under mandatory certification.
- Provides end-user protection measures such as security against sub-standard or generic products, compensation to the end-users, etc.

BIS through its core activities of standardization and conformity assessment, has been providing traceability and tangibility benefits to the national economy in a number of ways-
- Providing safe reliable quality goods
- Minimizing health hazards to consumers
- Promoting exports and imports substitute
- Control over proliferation of varieties etc. through standardization, certification and testing.

BIS has its Headquarters at New Delhi, and its 05 Regional Offices (ROs) are at Kolkata (Eastern), Chennai (Southern), Mumbai (Western), Chandigarh (Northern) and Delhi (Central). Under the Regional Offices are the 38 Branch Offices (BOs) located at Ahmedabad, Bangalore, Bhubaneswar, Bhopal, Coimbatore, Dehradun, Faridabad, Ghaziabad, Guwahati, Hyderabad, Jaipur, Kochi, Lucknow, Nagpur, Parahoo, Patna, Pune, Rajkot, Raipur, Durgapur, Jamshedpur and Vishakhapatnam, which offer certification services to the industry and serve as effective link between State Governments, industries, technical institutions, consumer organization etc. of the respective region.

4.1.2. Technical Activities

Keeping in view, the interest of consumers as well as the industry, BIS is involved in various technical activities as given below:

1. Standards Formulation
2. Product Certification Scheme
3. Compulsory Registration Scheme
4. Foreign Manufacturers Certification Scheme
5. Hall Marking Scheme
6. Laboratory Services
7. Laboratory Recognition Scheme
8. Sale of Indian Standards
9. Consumer Affairs Activities
10. Promotional Activities
11. Training Services, National & International level
12. Information Services

SESEI | Seconded European Standardisation Expert in India
Enabling Europe–India Cooperation on Standards

1. Standards Formulation

One of the major functions of the Bureau of India Standards (BIS) is the formulation, recognition and promotion of the Indian Standards. BIS as the National Standards Body and India a signatory to the WTO-TBT Agreement, the standards formulation activity of BIS is aligned with the 'Code of Good Practice for the Preparation, Adoption and Application of Standards' (see Article 4 and Annex 3 of WTO-TBT Agreement).

BIS has identified **17 sectors** (see table 1) which are important to Indian Industry. For formulation of Indian Standards, BIS functions through the technical committee structure comprising of Sectional Committees under respective Division Councils set up for specific technologies and economic sectors. The Sectional Committees may be supported by Subcommittees, Panels and Working Groups which may be set up for dealing with specific group of subjects. The committee structure of BIS seeks to bring together all stakeholders' interest in relevant standardization areas, so that standards are developed keeping in view national interests and after taking into consideration all significant viewpoint through a process of consultation. Decisions in BIS technical committees are reached through a process of consensus.

Till date, Bureau of Indian Standards (BIS) has formulated over 23,700 Standards for products, process specification, service sectors, code of practice, methods of test terminology. These cover important segments of economy, which help the industry in upgrading the quality of their products and services.

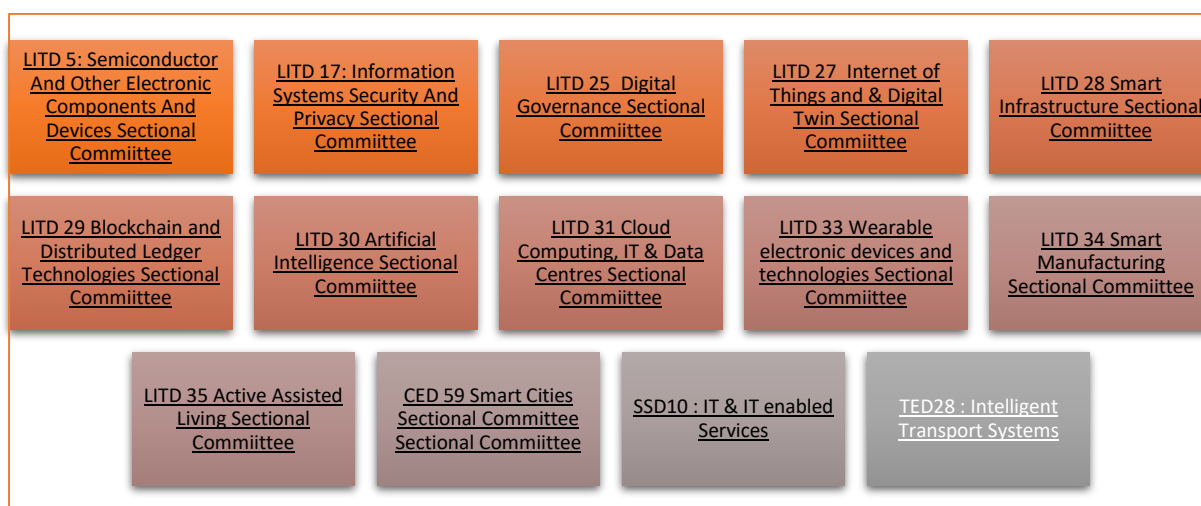| S. No	Technical Department	Total Standards
	Table 1: No. of Standards published by each technical department of BIS	
1	Ayush Department (AYD)	155
2	Civil Engineering Department (CED)	1986
3	Chemical Department (CHD)	2137
4	Environment and Ecology Department (EED)	91
5	Electrotechnical Department (ETD)	1973
6	Food and Agriculture Department (FAD)	2329
7	Electronics and Information Technology Department (LITD)	1585
8	Mechanical Engineering Department (MED)	1505
9	Medical Equipment and Hospital Planning Department (MHD)	1818
10	Management and Systems Department (MSD)	530
11	Metallurgical Engineering Department (MTD)	1720
12	Petroleum, Coal and Related Products Department (PCD)	1555

13	Production and General Engineering Department (PGD)	2667
14	Service Sector Department (SSD)	155
15	Transport Engineering Department (TED)	1408
16	Textiles Department (TXD)	1647
17	Water Resources Department (WRD)	477
Total		**23738**

Source: Published standards

As a policy, while developing any Indian Standard, BIS technical committees consider the availability of an International Standard (International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) on the subject. The committees try to align the standard with the international standards to the extent possible at times, ISO/IEC standards are not adopted in totality by the concerned technical committee taking into account the country specific concerns on health, safety, environment, national security and prevention of deceptive practices. At present, as per the statement issued in PIB, over 90% of Indian standards have been harmonised with the International Organisation for Standardisation (ISO) and the International Electrotechnical Commission (IEC) standards[1]. BIS is transforming the way; Standards are formulated and making concerted efforts through experts to ensure that the sustainability dimension to the Indian Standards is deeply ingrained so that it leads to inclusive growth of the industry and results in achieving orderly and sustainable development.

Key Technical Committees at BIS in Digital and Green & Clean Technologies:

Key TCs in Digital Technologies

LITD 5: Semiconductor And Other Electronic Components And Devices Sectional Commiittee

LITD 17: Information Systems Security And Privacy Sectional Commiittee

LITD 25 Digital Governance Sectional Commiittee

LITD 27 Internet of Things and & Digital Twin Sectional Commiittee

LITD 28 Smart Infrastructure Sectional Commiittee

LITD 29 Blockchain and Distributed Ledger Technologies Sectional Commiittee

LITD 30 Artificial Intelligence Sectional Commiittee

LITD 31 Cloud Computing, IT & Data Centres Sectional Commiittee

LITD 33 Wearable electronic devices and technologies Sectional Commiittee

LITD 34 Smart Manufacturing Sectional Commiittee

LITD 35 Active Assisted Living Sectional Commiittee

CED 59 Smart Cities Sectional Committee Sectional Commiittee

SSD10 : IT & IT enabled Services

TED28 : Intelligent Transport Systems

---

[1] https://pib.gov.in/PressReleasePage.aspx?PRID=2090616

<u>Key TCs in Green & Clean Technologies</u>

MED4: Renewable Energy Sources	MED39 : Energy Management and Energy Savings Sectional Committee	ETD 43 Standardization of Environmental Aspects for Electrical and Electronic Products Sectional Commiittee	ETD 46 Grid Integration of Renewables Sectional Commiittee	ETD 51 Electrotechnology in Mobility Sectional Commiittee	ETD 52 Electrical Energy Storage Systems Sectional Commiittee
ETD 28 Solar Photovoltaic Energy Systems Sectional Commiittee	ETD 42 Wind Turbines Sectional Committee	ETD 54 Marine Energy Conversion Systems Sectional Commiittee	ETD 10 Primary Cells And Batteries Sectional Commiittee	ETD 11 Secondary Cells And Batteries Sectional Commiittee	EED 1:Environmental Management
	EED 6:Biodiversity	EED 7:Sustainability in Building Construction	MSD 10:Social Responsibility	TED27 : Electric And Hybrid Vehicles	

These technical committees demonstrate BIS's dedication to advancing standardization in digitization and green technologies, aligning with global sustainability and technological trends.

4.1.3. Key new initiatives taken by BIS

I. Standards National Action Plan (SNAP)

Standards National Action Plan (SNAP) 2022-27 developed by BIS in 2022 defines the standardisation vision and mission of BIS, identifies the strategic imperatives of BIS, draws an action plan towards addressing these through various initiatives, enumerates a set of transcending priorities in standardisation, identifies key standardisation topics/subjects that are to be taken up assigning the priorities, to be implemented over the five-year period from 2022 to 2027. For all these initiatives and associated actions, the BIS technical committees would play a key role and serve as a guiding force.

SNAP 2022-27 will play an important role in steering the national standardization efforts which would lead to standards becoming a key enabler of India's economic aspirations. The implementation of key recommendations and strategies of the document will be pivotal in enriching and strengthening "Quality Culture" in the Nation. Read more/download>>

II. Coordination with Standardisation Cell of Ministries/ Govt. Depts./ Industry Association, etc.

The Standardization Cell is an institutional mechanism for effective coordination & synergy with Bureau of Indian Standards (BIS) for a robust quality ecosystem in the country. The Standardization Cell in Ministries/Departments/Industry Associations is envisaged to act as a channel of

communication among the government, industry and BIS to facilitate the identification of new subjects and relevant experts for standardization in different sectors. The cell will also facilitate the availability of timely inputs on standardization and enhance implementation of standards. Please click here for the list of standardization cells in ministries, departments and industry associations.

III.   SDO Recognition Scheme

As per BIS Act, 2016, BIS may recognize or accredit any institution in India, or outside which is engaged in standardization. As the National Standards Body, it is the responsibility of BIS, to ensure that there is synergy in the standardization work taking place in the country and that there is no overlap or duplication of the work carried out by other Standards Developing Bodies.

To attain the One Nation One Standard vision of the Government of India, BIS launched a scheme which provides for Recognition of SDO. A number of government organizations have applied to Bureau of Indian Standards (BIS) for recognition under the BIS scheme of Standards Development Organizations (SDOs). In May 2021, the Research Design and Standards Organization (RDSO), Ministry of Railways, has been granted the first recognition under the Scheme for Recognition of SDOs in the country.

IV.   Learn Science by Standards initiative

BIS has announced the launch of 'Learning Science via Standards', a unique initiative for students for learning science via standards. The 'Learning Science via Standards' initiative focuses on a series of lesson plans aimed to use scientific concepts, principles and laws to help students understand their practical applications in manufacturing, functioning and testing of quality characteristics of different products as stated in the relevant Indian Standards. The subjects for the lesson plans are largely related to products used in day-to-day life and have been chosen based on their relevance to education as part of the course curriculum as well as to industrial applications. The 'Learning Science via Standards' initiative is expected to benefit a wide range of students, including those in schools, colleges, and technical institutions. It will also contribute towards their capacity building to engage successfully in a variety of economic sectors in the country.

V.   Education in Standards: MoUs with Institutions

BIS has entered into the Memorandum of Understanding (MoU) with Premier Technical & Professional Institutions of the country to develop collaborative activities in the field of Standardization and Conformity Assessment and has also appointed a Standardization Chair in these institutes.

This is expected to provide leadership in coordinating R&D efforts towards development of standards in new and emerging technologies and undertaking review of Indian Standards involving thorough analysis of technical developments. Please click here for the list of institutes.

VI.   Institutionalization of Annual Programme for Standardization

To broad base the stakeholder participation in formulation and review of standards, BIS now closely working with Government Ministries and premier industry associations. A dashboard of new study items/ standards, review of existing standards by each Ministry is provided in the Annual Program for Standardization to be taken up by the BIS. BIS through its various divisions/ TC's addresses the products/processes/ systems/services on which BIS needs to formulate or revise Indian Standards. Click here for more information.

VII.   Schemes through Standards

The Bureau of Indian Standards (BIS) has mapped over 3200 Indian Standards to 75 government schemes/missions across 29 ministries/departments to ensure products procured by government adhere to quality standards and to identify gaps in standards coverage. Read more/Download>>

VIII.   BIS CARE app

BIS CARE app is a one stop utility platform to empower consumers. BIS CARE App 3.0 comes with the following set of new features:

a) **Standards** – A section where you can get latest information related to Standards such as Standard of the week and month, Weekly Standards Bulletin and anymore.
b) **Certification** – A section where you can get latest information related to Conformity Assessment such as lists of products under simplified procedure and notified for mandatory certification, procedure to apply for licence under simplified and normal processes and many more.
c) **Training** – List of upcoming training programmes at NITS and provision to apply for the same.
d) **About BIS** – A section for consumers to know their Rights and the provisions of penalties for the offenders under the BIS Act 2016.
e) **Memes and Reels** – A section on memes and reels about BIS to disseminate useful information in a fun and engaging manner.

Download the app now from **Google Play Store/Apple** App Store.

4.1.4. International Collaborations

International Cooperation and Agreements:

Bureau of Indian Standards (BIS) as the National Standards Body of India has been participating in International Standardization activities and projecting India's interest during various stages of the development of International Standards. BIS is a member of International Organization for Standardization (ISO) and through the Indian National Committee (INC) is a member of International Electrotechnical Commission (IEC). BIS is also a member of regional standards bodies like Pacific Area Standards Congress (PASC), South Asian Regional Standards Organization (SARSO) and under the framework of IBSA (India, Brazil and South Africa).

To facilitate acceptance of Indian products in the International Market, BIS has been to extent possible harmonizing its standards with ISO/IEC standards by adopting these standards as Indian Standards. At present, over 90% of the Indian standards are harmonized with ISO/IEC standards for which the International Standards exists.

BIS has also entered into MoUs with NSBs of many countries (refer section Bilateral Co-operations below).

BIS and ISO:

BIS has been an active member and has been contributing to policy as well as in technical matters related to international standardization. BIS has also been to the extent possible harmonizing its standards with the standards of ISO by adopting these standards as Indian standards.

At the policy level, India:

- Periodically served as a member of the ISO Council.
- Currently a Member of Technical Management Board of ISO from January 2023 to December 2025.
- Participating member of ISO Policy Development Committees on Developing Country Matters (DEVCO), Committee on Conformity Assessment (CASCO), Committee on Consumer Policy (COPOLCO), Committee on Reference Materials (REMCO) and Technical Management Board – Groups (TMBG).
- Holds Convenorship of the DEVCO Working Group on 'Resources to enhance NSB capabilities in standards development and use.

India (BIS) is actively involved in the international standardization work in the various technical committees and working groups of ISO by participating in these committees, proposing and leading new subjects of standards development, holding Secretariat responsibilities of technical committees, holding Chairmanships or Convenorships of Committees/Working Groups, etc. At present, India is a Participating (P) member of 564 committees and Observer (O) member in 148 committees of ISO out of 760 committees. India participates in the ISO technical committees through corresponding National Mirror Committees of BIS. Participation in ISO work is through participation of delegation of experts where important in the committee meetings, by commenting on documents and by voting on documents through electronic voting system. Indian experts are participating in work of over 400 different working groups of ISO TCs.

India also holds the Secretariat of 11 ISO committees (TC & SC level from +/- 760) and Convenorship of 21 ISO working groups.

The committees for which BIS holds the Secretariat are as follows:

S. No	BIS Committee No.	BIS Committee Title	International Committee No.	International Committee Title
1	FAD-9	Spices And Condiments	TC 34 / SC 7	Spices, Culinary Herbs and Condiments
2	LITD-14	Software And System Engineering	TC 1 / SC 7	Software and Systems Engineering
3	CHD-17	Leather, Tanning Materials and Allied Products	TC 120	Leather
4	CHD-17	Leather, Tanning Materials and Allied Products	TC 120 / SC 1	Raw hides and skins, including pickled pelts
5	CHD-17	Leather, Tanning Materials and Allied Products	TC 120 / SC 2	Tanned Leather
6	CHD-17	Leather, Tanning Materials and Allied Products	TC 120 / SC 3	Leather Products
7	MED-24	Security Equipment	TC 332	Security equipment for financial institutions and commercial organizations
8	CHD-35	Air Quality	TC 146 / SC 1	Stationary Source Emissions
9	WRD 1	Hydrometry	TC 113	Hydrometry
10	WRD 1	Hydrometry	TC 113/SC 1	Velocity area methods
11	WRD 1	Hydrometry	TC 113/SC 6	Sediment transport

BIS and IEC:

India started taking part in IEC from 1911. BIS took over the responsibility of Indian National Committee of IEC (INC-IEC) in 1949 from Institution of Engineers. Since, then the INC-IEC is actively participating in the activities of the IEC both at the policy level and technical work and carrying out the responsibilities as member body of IEC Council.

- Presently, India is a member of IEC Standardization Management Board (SMB) and Market Strategy Board (MSB), the highest policy-making bodies of IEC responsible for technical matters and for identifying relevant subject areas for future work, respectively.
- IEC Board ((2024-2026) & IEC SMB (2024-2026) & IEC VP (SMB) from India
- Currently, India is Participating member of 129 Technical Committees and observer member in 51 Technical Committees of IEC out of 180 technical committees.
- Participation in IEC work is done through participation of delegation of experts in the committee meetings, by commenting on documents and by voting on documents through electronic voting system.
- India holds the Chairmanship of the IEC Systems Committee on 'Low Voltage Direct Current (LVDC) and LVDC for electricity access' and of IEC/TC 33 'Power capacitors and their applications.

Bilateral Co-operations:

BIS is also actively involved in bilateral cooperation with National Standards Bodies of other countries and with other Standards Developing Organizations for co-operation in areas of standardization, testing, certification, training etc. BIS has signed Memorandum of Understanding (MoU) in the fields of standardization and conformity assessment and is in the process of having such arrangements with several other countries. In addition, BIS has also signed Bilateral Cooperation Agreements (BCA)/Mutual Recognition Agreements (MRA) with the National Standards Bodies of several countries.

BIS also plays an active role in formulation and implementation of regional standards and on conformity assessment scheme for the SAARC countries under the South Asian Regional Standards Organization (SARSO).

List of important MoUs and BCAs/MRAs signed with countries/organizations:

List of important MoUs and BCAs/MRAs				
S. No.	Country	Organization	Total of MoU/Bilateral Cooperation	Document
1	------	ISO	Memorandum of Understanding (MoU) the Bureau of Indian Standards (BIS) – National Institute of Training for Standardization (NITS) and the International Organization for Standardization (ISO)	View
2	European Union	CEN	MoU for national adoption of CEN Standard EN 115:1995 + A1:1998 + A2:2004 "Safety rules for the construction and installation of escalators and passenger conveyers" in India	View
3	European Union	ETSI	Memorandum of Understanding between The Bureau of Indian Standards and The European Telecommunication Standards Institute	View
4	European Union	CEN-CENELEC	Memorandum of Understanding between Bureau of Indian Standards and European Committee for Standardization and European Committee for Electrotechnical Standardization	View
5	Germany	DIN	Memorandum of Understanding (MoU) between Bureau of Indian Standards, New Delhi represented by the Director General Mr. Svayam Prakash Sharma and DIN Deutsches Institut für Normung, Berlin represented by Director Dr-Ing. Torsten Bahke on cooperation and mutual interest in the fields of standardization and certification	View

6	Germany	DKE	Memorandum of Understanding between Bureau of Indian Standards, New Delhi and DKE German Commission for Electrical, Electronic and Information Technologies of DIN and VDE, Frankfurt am Main	View
7	Greece	The National Quality Infrastructure system/ Hellenic Organization for Standardization (NQIS/ ELOT)	Memorandum of Understanding (MoU) between the Bureau of Indian Standards (BIS) and The National Quality Infrastructure system/ Hellenic Organization for Standardization (NQIS/ ELOT) in the field of standardization	View
8	Slovenia	Slovenian Institute for Standardization (SIST)	Memorandum of Understanding between Bureau of Indian Standards (BIS) and Slovenian Institute for Standardization (SIST)	View
9	Slovak Republic	UNMS SR	MoU on Cooperation in the field of Standardization and Conformity Assessment	View
10	USA	BIS, ANSI & CII	MoU to establish an India - U.S. Standards Portal between BIS, CII and the American National Standards Institute (ANSI)	View
11	USA	American National Standards Institute (ANSI)	MoU between BIS and the American National Standards Institute	View
12	USA	Underwriters laboratories (UL)	Memorandum of Understanding between Bureau of Indian Standards and Underwriters Laboratories Inc. (UL)	View

BIS also participate and follow India-Brazil-South Africa (IBSA) Dialogue Forum. http://www.ibsa-trilateral.org/

Complete list of MoUs and BCAs/MRAs signed by India with countries/organizations is available here

BIS WTO-TBT Enquiry Point:

Ministry of Commerce, the nodal ministry for WTO matters in India, has designated Bureau of Indian Standards as the WTO TBT Enquiry Point for India for all queries except those related to the telecom sector (for which the TBT Enquiry Point is Telecommunication Engineering Centre - TEC). For more details about the WTO-TBT Enquiry Point and to see WTO-TBT Notifications please click here

4.2 Telecommunication Engineering Centre (TEC)

4.2.1. Overview

The **Telecommunication Engineering Center** (TEC) is a technical body and a nodal agency of the **Department of Telecommunications**, Ministry of Communications, Government of India responsible for drawing up of standards, generic requirements, interface requirements, service requirements and specifications for telecom products, services and networks.

Vision:

TEC shall leverage its status as a "Centre of Excellence" in Telecom to position India as a "Lead Telecom Knowledge and Manufacturing Hub" of Asia-Pacific Nations by driving Telecom Standards, Manufacturing Support and Network Building Skill sets in the interests of this region and market.

Mission:

- Develop new specifications and update the existing ones in order to keep pace with the global development.
- Establishment of state-of-art telecom laboratories.
- Active participation in professional bodies such as ITU, IETF, APT etc. to protect country's interest.
- Technology approval for C-DoT in order to develop telecom technology aimed specifically for local manufacturer.

Functions:

- TEC is a technical body representing the interest of Department of Telecom, Government of India.
- Prepare specification of common standards with regard to Telecom network equipment, services and interoperability.
- Specifications released as Generic Requirements (GRs), Interface Requirements (IRs) and Service Requirements (SR).
- Issuing Interface Approvals, Certificate of Approvals, Service Approvals & Type Approvals.
- Formulation of Standards and Fundamental Technical Plans.
- Interact with multilateral agencies like APT, ETSI and ITU etc. for standardization.
- Develop expertise to imbibe the latest technologies and results of R&D.
- Provide technical support to DoT and technical advice to TRAI & TDSAT.

- Coordinate with C-DOT on the technological developments in the Telecom Sector for policy planning by DoT.
- Designated National Enquiry point for WTO –TBT (Technical Barrier to Trade) for telecom sector.

TEC has four Regional Centres called RTECs. These are RTEC (NR) at New Delhi, RTEC (ER) at Kolkata, RTEC (WR) at Mumbai and RTEC (SR) at Bengaluru. RTECs are responsible for testing and certification of products, equipment and systems. It carries out Certification & Approval of Telecom Products against TEC standards/specifications i.e.GR/IR/ER of TEC or applicant's own specifications. RTECs carry out testing, evaluate the test reports and accord approval for issue of Type Approval Certificate (TAC)/ Interface Approval certificate (IAC)/ Certificate of Approval (COA). RTECs also carry out evaluation of test reports for MTCTE certification and recommends for issue of MTCTE certificate to TC Division.

Each of the RTEC is headed by a Dy. Director General. The coordination of activities of RTECs and issue of certificate is vested with Regional Coordination (RC) Unit at TEC New Delhi headed by a DDG.

Main Functions of RTEC:

- Acceptance of application for issue of new certificate or renewal of old certificate against TEC standards/specifications i.e. GR/IR/ER or manufacturers own specifications
- Issue of demand letter for test fee as per latest TEC tariff
- Acceptance of fee and Registration of application for issue of certificate
- Testing of equipment and evaluation of test reports as per TEC standards
- Renewal/ Modification of IAC and TAC for cases related to change of name/address of applicant/OEM.
- Handling of queries and interaction with Manufacturers/ Traders/Vendors under their jurisdiction

Other Functions:

- Evaluation of test reports for MTCTE Certification and submission of comments to TC Division.
- Assessment of infrastructure for the testing capability of test labs for CAB designation along with MRA division.
- Involvement in testing of Equipment for Technology Approval as per TEC GR along with concerned Expert Groups of TEC.
- Testing and evaluation of test reports for Proof of Concept (PoC)/ Traffic Trial of telecom various projects.
- Participation in Development Coordination Committees (DCC) and Sub-DCC committees for development of TEC standards i.e. GR/IR/SRs of products.
- Dissemination of knowledge about technological developments and coordination of research and industry in the field of Telecommunication

For more information, please click here>>

4.2.2. Technical Activities

The technical activities at TEC are carried out through various specialized core divisions of TEC such as Mobile Technology, Quantum Technology, Radio-communication, Satellite communication, Future Networks, Telecom Security, Internet of Things (IoT), Information Technology, Transmission, Fixed Access, Broadcasting & Convergence, Standardization, MTCTE, Indigenous Manufacturing Promotion & TBT Enquiry Point etc. List of Divisions and their work areas in short is given in below table.

	Divisions in TEC	
S. No.	**Division**	**Work Areas**
1	Access Lab (AL)	Establishment of State of Art Testing Infrastructure for Protocol & Radio conformance with available standards
2	Administration (A)	Administration, management, and material management related activities etc.
3	Control Lab (CL)	Setting up of Control Lab
4	Convergence & Broadcasting (C&B)	Artificial Intelligence; Broadcasting; Convergence; Distributed Ledger Technology/ Blockchain; Emerging Technologies etc.
5	Customer Premises Equipments & Terminals Lab (CPE & TL)	Setting up of Customer Premises Equipments & Terminals Lab (CPE & TL)
6	Fixed Access (FA)	Fixed Access Technologies, Power Plant & Batteries, NWG-15
7	Future Networks (FN)	Future Network & Technology Development, Broadband Network Policy Initiatives & Technology Solutions, Preferential Market Access (PMA) methodology etc.
8	Indigenous Manufacturing Promotion & TBT Enquiry Point (IMP & TEP)	Matters related to policy & implementation of DoT PPP MII order, handling all matters related to TEC in DoT PLI scheme, Establishment & Operation of WTO TBT Enquiry Point (of telecom sector) in TEC and other works related to WTO TBT Agreement, Working with DoT and other organizations for devising & promoting special schemes like Phased Manufacturing Programme (PMP) in telecom & related ICT sector.
9	Information Technology (IT)	IPv6 implementation, Standardization of IT equipment & Services etc.
10	Internet of Things (IoT)	IoT/M2M, Study and Standardization of M2M Gateway and Architecture, Smart Power, Smart Automotive, Smart Health, Smart Safety and Surveillance solutions etc.
11	Mobile Technologies (MT)	5G, LTE-Advance, LTE, WCDMA (including HSDPA, HSUPA, HSPA, HSPA+ etc.), CDMA 2000 1X, WIMAX, Numbering Plan etc.

12	MTCTE	Policy and Operational Aspects of MTCTE, Management of TBT Enquiry Point etc.
13	Next Generation Switching (NGS)	Framing GR/IR/SR/ER/SD and associated Test Schedule & Testing Procedures (TSTP) for TDM based Switching Networks, Media Gateways, Next Generation Networks (NGN) & devices, PABXs (TDM and IP based), ISDN devices, Session Border Controllers, Signaling Transfer Points, SIP terminals, Network Interfaces (2MB & STM), PSTN Lawful interception & monitoring System, Routing and Signalling Plans.
14	Personnel & Training (P&T)	Handling personal matters of staff and the organization
15	Quantum Technology	Preparation of National Standards; Study of the various technologies and preparation of study papers on latest technologies; Contribution to Global standardization bodies such as ITU –T, IEEE, etc.; Testing and Certification; Creating awareness and fostering collaboration among industry/start-ups, academia and R&D institutions.
16	Radio (R)	Terrestrial Radio Communication & Ground Equipment for Satellite Communication Systems, Radio wave propagation Studies, Spectrum, EMI/EMC Standard, Disaster management, Safety etc.
17	Regional Coordination (RC)	Activities related to testing & certification of telecom products of the RTECs etc.
18	Safety Lab (SL)	Work related to ISO 9001: 2015 Certification etc.
19	Standardization (SD)	Standardization in ICT, Cross-sector standardization co-ordination etc.
20	Telecom Security (TS)	Operation of NGN Transport lab, IPv6 Ready lab, Setting up a Telecom Security Test lab in TEC etc.
21	Telecom Skill Development (TSD)	Facilitating manpower training for MTCTE, students training in telecom sector, etc.
22	Transmission (TX)	Optical Transport and Optical Fiber Cables/systems, Transmission synchronization equipment etc.

For more information please click here>>

Labs in TEC:

- Access Lab (AL)
- Control Lab (CL)
- Customer Premises Equipments & Terminals Lab (CPE & TL)
- IPv6 Ready Logo Test Lab
- Next Generation Network (NGN)
- SAR Lab
- Security Lab (SL)

I. Procedures and Guidelines for formulation of TEC Standards / Documents

In May 2008, Network Conformity Standards System & Procedures CSSP was formulated for Standardization of process & procedures, numbering scheme, structure of TEC documents viz. Generic Requirements (GR)/Interface Requirements (IR)/Service Requirements (SR)/ Test Schedule and Test Procedure (TSTP). It also envisaged the process for formulation of documents i.e., GR/IR/SR etc. through involvement of Groups, Committees and Forums along with their modification, withdrawal, and review.

Subsequently, it was decided to convert existing TEC documents (GR/IR/SR etc.) into Standard documents and provide a new numbering scheme. This revised version of Procedures and Guidelines for Formulation of TEC Standards/Documents erstwhile CSSP after consultation with concerned TEC Divisions, also includes the formulation of Essential Requirements (ERs) with the launch of Mandatory Testing and Certification of Telecommunications Equipment (MTCTE) from August 1, 2019.

The purpose of this document is to outline the process to be followed and the procedure to be used by TEC, for formulation of:
- TEC Standards (erstwhile specifications viz. GRs/IRs/SRs/SDs)
- Test Guide (erstwhile TSTP) associated with TEC Standards.
- Essential Requirements (ERs) and
- Adoption of Standards.

The document also contains the framework for the procedure for formulation of:
- Committees
- Sub-Committees and
- Forums

These Committees/Sub-Committees/Forums are formed for development of TEC documents including revision of documents, as mentioned above. Read more/Download>>

4.2.3. New initiatives taken by TEC

I. Standards adoption Policy

Telecommunications Engineering Centre (TEC), Department of Telecommunication (DOT) has approved a policy for adoption of standards of Telecom Standards Development Society, India (TSDSI)/international standards bodies into National Standards. TEC's policy document called 'Standardization Guide' based on ISO/IEC Guide 21-1 outlines the process to be followed and the procedure to be used by TEC, while ratifying/ adopting TSDSI /international telecom standard as National standard in India. It has further been notified by TEC vide Office Memorandum No. 2-1/2018/SD/TSDSI/TEC/5 dated 8th May 2020.

The main points of the Standardization Guide are as given below:

- TEC will adopt the standards after wide public consultation process instead of ratification (ratification doesn't include public consultation).
- For adoption, ISO/IEC – Guide 21 has been used as guide document.
- The standards should be adopted by TEC as National Standards. National Standards adopted shall be voluntary unless made mandatory by its use, reference or adoption by regulation/ Government directive.
- The adoption may be parallel adoption i.e. during standard development phase (where TEC is participating in standard development) or after publication of the standard by TSDSI / international standard body.
- TEC shall implement the standard adoption process with the help of institutional framework which will consist of:
  o Telecom Standards Advisory Committee (TSAC)
  o Consultative Committees (CC)
  o Task Force (TF) setup for the purpose
  o Standardization Secretariat
- IPR shall not be subject matter of adoption.
- If subsequent to adoption of TSDSI/ any other SDO standard by TEC, the Global Standards Body like ITU etc. accepts/adopts a revised/ amended version of the parent International Standard, then TEC may adopt such revised/ amended version.

Please click here to download "Standardization Guide"

II.   Annual Action Plan

TEC prepares an "Annual Action Plan" each year, outlining priority items, including new and existing standards, technical guidelines, generic requirements, interface requirements, essential requirements, and test schedules & procedures etc. The plan also identifies new topics for future work.

III.   Technical reports/study papers/guidelines

The Telecommunications Engineering Centre (TEC) prepares technical reports, study papers, and guidelines based on an in-depth study of national and international standards and frameworks issued by organizations such as ITU, 3GPP, APT, IEEE, ETSI, ISO/SAE, and 5GAA etc. These reports elaborate on the technologies and standards essential for the development of new and emerging technologies.

Additionally, the reports cover use cases and trials conducted in India and abroad. The recommendations provided—particularly on standards, spectrum, and security aspects—serve as valuable references for stakeholders involved in developing the ecosystem for new and emerging technologies. Please click here for more information.

4.2.4. International Collaborations

TEC has established international cooperation with various organizations and countries to enhance the exchange of knowledge and expertise in the field of telecommunications.

- 3rd Generation Partnership Project (3GPP)
- European Telecommunications Standards Institute (ETSI)
- OneM2M
- International Telecommunication Union (ITU): National Working Groups corresponding to ITU Study Group
- Institute of Electrical and Electronics Engineers (IEEE)
- Internet Engineering Task Force (IETF)
- Asia Pacific Telecommunity (APT)
- Open Community for Ethics in Autonomous and Intelligent Systems (OCEANIS)

I.   3rd Generation Partnership Project (3GPP)

TEC has taken individual membership of 3GPP through Department of Telecommunications. Through this, TEC participates in various meetings, seminars, workshops of 3GPP. TEC has also taken up adoption of 3GPP standards transposed by Indian SDOs like TSDSI. Recently, TSDSI transposed 3GPP standards (402 nos., same as recommendations ITU R M.2012-4) have been approved for adoption as national standards by TEC. These radio interface standards detail the features and parameters of IMT Advanced like compatibility, international roaming, and access to high-speed data services.

TEC also refers various 3GPP standards and specifications in its various specifications like Generic Requirements (GR), Interface Requirements (IR), System Requirements (SR) and Essential requirements (ER) for telecom equipment, networks, systems and services.

II.   European Telecommunications Standards Institute (ETSI)

TEC has been an associate member of ETSI as other government body. As associate member of ETSI, TEC participated in the ETSI meetings, submit contributions for the meetings, work with technical bodies work programme etc. Officers of TEC participates in the various Technical Groups/ Committees of ETSI as follows.

Note: Renewal of ETSI membership is pending and is under consideration by TEC

S. No.	Name of the Committee/ISG of ETSI	Description of the Committee/ ISG
1	Access, Terminals, Transmission and Multiplexing (ATTM)	Responsible for the standardization of access, terminals, transmission and multiplexing.
2	Broadband Radio Access Networks (BRAN)	Responsible for the standardization of Broadband Radio Access Networks.

3	Augmented Reality Framework (ARF)	Responsible for defining the framework for the interoperability of Augmented Reality (AR) components, systems and services that specifies relevant components and interfaces required for an AR solution.
4	European Common Information Sharing Environment Service and Data Model (CDM)	Responsible for defining technical standards to allow data exchange among different maritime legacy systems in a cooperative network.
5	EBU/CENELEC/ ETSI on Broadcasting (BROADCAST)	It is a joint Technical Committee (EBU, CENELEC and ETSI) coordinating the drafting of standards in the field of broadcasting and related fields.
6	Integrated Broadband Cable Telecommunication Networks (CABLE)	Responsible for the creation, development and maintenance of standards and other ETSI deliverables related to integrated broadband cable telecommunication network technologies like network terminals e.g. cable CPE devices and network terminating devices, network infrastructure.
7	Cross Cutting Context Information Management (CIM)	Cross-cutting Context Information Management is the exchange of information, with proper formal definitions, between vertical applications, so that these applications get the original meaning. This group works towards enabling interoperable software implementations for Context Information Management.
8	Europe for Privacy-Preserving Pandemic Protection (E4P)	Responsible for developing a framework and consistent set of specifications for proximity tracing systems, to enable the development of applications and platforms, and to facilitate international interoperability.
9	Cyber Security (CYBER)	Responsible for security standardization, which includes developing solutions for protection of Internet, maintaining the security of Information and Communications Technologies (ICT) systems and networks.
10	Digital Enhanced Cordless Telecommunications (DECT)	Responsible for the development and maintenance of DECT TM standards.

III. OneM2M

TEC through TSDSI participates in standardization activities at oneM2M. TEC has also approved adoption of TSDSI transposed oneM2M Release 2 in September 2020 and Release 3 in August 2022. These National standards are available on the TEC website. These national standards shall be voluntary unless made mandatory by its use, reference, or adoption by regulation or Government directive.

IV. International Telecommunication Union (ITU)

Department of Telecommunications is the nodal department representing government of India in ITU and TEC is the body coordinating the Indian activities corresponding to ITU-T study groups. TEC is having following National Working Groups (NWGs) in line with ITU-T Study Groups:

S. No.	Name of the NWG	Corresponding Study Group	Activities
1	NWG 2	ITU-T SG 2	Operational aspects of Service provision and Telecommunication Management
2	NWG 3	ITU-T SG 3	Tariff and Accounting Principles and international telecommunication/ICT economic and policy issues
3	NWG 5	ITU-T SG 5	EMF, environment, climate action, sustainable digitalization, and circular economy
3	NWG 9	ITU-T SG 9	Broadband Cable and TV
4	NWG 11	ITU-T SG 11	Signalling requirements, protocols, test specifications and combating counterfeit telecommunication/ICT devices
5	NWG 12	ITU-T SG 12	Performance, QoS and QoE
6	NWG 13	ITU-T SG 13	Future Networks and emerging network technologies
7	NWG 15	ITU-T SG 15	Networks, technologies and infrastructures for transport, access and home
8	NWG 16	ITU-T SG 16	Multimedia and related digital technologies
9	NWG 17	ITU-T SG 17	Security
10	NWG 20	ITU-T SG 20	IoT, smart cities & communities
11	NSG 5	ITU-R SG 5	Radiocommunication

4.3 Telecom Standards Development Society of India (TSDSI)

4.3.1. Overview

Telecommunications Standards Development Society of India (TSDSI) is an autonomous, membership based, Standards Development Organization (SDO) for Telecom/ICT products and services in India. TSDSI was formed in 2014 with the support of the Indian government, and its members include government agencies, industry players, academia and R&D organizations to create an Indian Telecom Standards Development Organization (TSDO), for contributing to next

generation telecom standards and drive the eco-system of IP creation in India. It is registered as a not-for-profit society, under the Indian Societies Registration Act XXI of 1860.

The Telecommunications Standards Development Society, India (TSDSI) signed a cooperation agreement with ETSI, strengthening relations after the establishment of a first Letter of Intent to cooperate with ETSI in November 2014. Collaboration between the two standards organizations now happens at the level of the Global Standards Collaboration (GSC) initiative where TSDSI is a full member.

Objectives of TSDSI are:

- Developing, promoting and standardizing India-specific Telecom/ICT requirements and solutions
- Working closely with global standards' bodies to reflect Indian requirements into international telecom/ICT standards
- Help creating standards-based manufacturing expertise in the country
- Providing guidance and leadership to developing countries

TSDSI develops standards for access, back-haul, and infrastructure systems, solutions and services that best meet India specific Telecom/ICT needs, based on research and innovation in India. TSDSI works closely with global standards' bodies to reflect Indian requirements into international telecom/ICT standards.

IPR Policy: TSDSI also plays an important role in encouraging generation of Indian IPRs in this technology intensive field and get them incorporated into international standards. This in turn promotes indigenous research, product development and manufacturing. Department of Telecommunications & Ministry of Electronics and Information Technology, Govt. of India are jointly supporting TSDSI as India's Telecom/ICT SDO. TSDSI has a sound IPR policy in place. The respective IPR Policies of TSDSI and ETSI are aligned.

You can read/download TSDSI IPR Policy here>>

Department of Telecommunications & Ministry of Electronics and Information Technology, Govt. of India are jointly supporting TSDSI as India's Telecom/ICT SDO. For more information about TSDSI please click here>>

4.3.2. Technical Activities

Technical activities of TSDSI are conducted in two Study groups, namely, Study Group-Networks and Study Group-Services & Solution.

I. **Study Group (SG)-Networks:** SG-Networks is responsible for standardization activities for the following:

a) Wireless communication systems including Radio-based access and Mobile core networks, the functional elements constituting these networks and the interfaces between these networks.
b) Overall system architecture as well as the protocol interface between various user equipment or customer premises equipment and the elements in the access network e.g., base stations, relay stations, etc.
c) Software defined networking (SDN) aspects and Network function virtualization (NFV) of the access and core networks.
d) Backhaul using wireless & wireline, microwave, optical and/or packet-based transport networks and related SDN & NFV aspects, systems, equipments, optical fiber cables, along with the related control plane, network management, performance monitoring & reporting, synchronization, interfaces, multi-layer optimization techniques and testing aspects.
e) Spectrum studies related to the above areas, and technical recommendations.
f) Interference studies including co-channel, adjacent channel, and inter-system interference.

SG-Networks works closely with SG-Services & Solutions for service-level requirements. As of December 2024, SG-Networks has transposed 10,032 technical standards and also published 13 technical reports. **For more information about SGN please** click here

II. **Study Group-Services & Solution: SG-Services & Solutions** is responsible for standardization activities for the following:

a) Definition of requirements for telecom industry and related services and applications, including:
   o Service level requirements and features for various domains and applications (e.g., IoT/M2M, Automotive, Public safety, Health).
b) Development of end-to-end service capabilities and architecture, based on the requirements, including:
   o Technical specifications for application layer functional elements and interfaces.
   o System aspects such as QoS, interoperability, etc.
   o Data management aspects such as schemas, analytics, provisioning, etc.
   o Localization components in services and systems e.g., Indian languages.
c) Security and Privacy aspects in the end-to-end telecom networks. It includes.
   o Determining the security and privacy requirements for telecom networks including the mobile cellular and fixed-line networks across user equipments, access network, transport network, core network and service layer security aspects.
   o Specifying the related security architectures and protocols.
d) Energy performance for telecommunication networks including access, user equipment, aggregation, core including the underlying transport systems, including:
   o Setting the energy performance related requirements across the end-to-end network
   o Benchmarking network energy performance
   o Energy optimization for networks
   o Energy performance testing

e) Recommendations of test requirements and evaluation methodologies for any service level conformance testing activities.

SG-Services & Solutions works closely with SG-Networks for those aspects that are related to security in access network, core networks or wireless/wireline based backhaul networks. As of December 2024, SG-Services & Solutions has transposed 226 technical standards and also published 140 technical reports. For more information please click here

Standards formulation:

All technical activities are conducted in specific Study Groups (SGs). These groups may have dedicated work groups (WGs) to work on identified study and/or standardization items. A member organization can subscribe to any technical group (SG or its WG) and participate in its proceedings.

1. **Formulation of draft standards:** The formulation process for a new Standard shall be as under:

   a. A Member of the Society may identify a Telecom / Digital communication issue in need of Standardisation. Alternatively, DoT may ask TSDSI to take up Standardisation of an issue of National interest.
   b. For a new issue to be taken up, it is necessary that a number of members commit to support the work.
   c. The Member shall submit the suggested research item to the Governing Council which shall allocate it to the relevant SG.
   d. The SG shall approve the issue as a Study Item and allocate it to the relevant WG.
   e. The WG will work to formulate a new Standard, in consultation with all interested members. It will develop text for the draft Standard taking all relevant inputs into account and consulting other relevant parts of the Society.
   f. The issues will be addressed through technical studies in a particular area of Telecom / Digital communication Standardisation and are driven by contributions. An issue will normally be terminated once the defined work has been completed, or the task is revised in the light of developments, which can be technical, market-oriented, network or service driven.
   g. The finalised draft Standard, on the basis of a series of deliberations and resolution of issues, will be submitted to WG/SG meeting for approval.

2. **Approval of Standards:** After a draft Standard is considered to be mature, and is consented by WG/SG, it shall be sent for approval as under:

   a) The draft Standard shall be circulated electronically to all the members who may send their comments, if necessary.
   b) If no comments, other than editorial changes, are received, the draft is considered as approved after the editorial changes are duly made.
   c) If substantive comments are received, all these comments shall be further discussed in WG/SG meetings.
   d) The process of seeking comments and discussions shall be repeated to resolve all the unsettled issues. After completion of this process, the draft shall be finalised for submission for approval to the General Body.

e)   After approval by the General Body, the proposed Standard shall be sent to DoT for approval and adoption as National Standard.

All Study Groups and their constituent Work Group(s) have a Chair and a Vice Chair each, elected in their individual capacities by the members to moderate/conduct the activities of the group following the principles of openness, transparency, fairness, consensus, and due process. For more information about TSDSI Rules, Procedures, SOPs and Policies, please click here>>

3. **Adoption of Standards:** TSDSI enters into agreements with other standards bodies whereby TSDSI gets the right to convert the latter's specifications into its own specifications. Such adoption agreements contain conditions which apply to the conversion. Typically, the copyright is retained by the owner organization. Patent policy of the owner organization applies for the patents contained in the adopted standards.
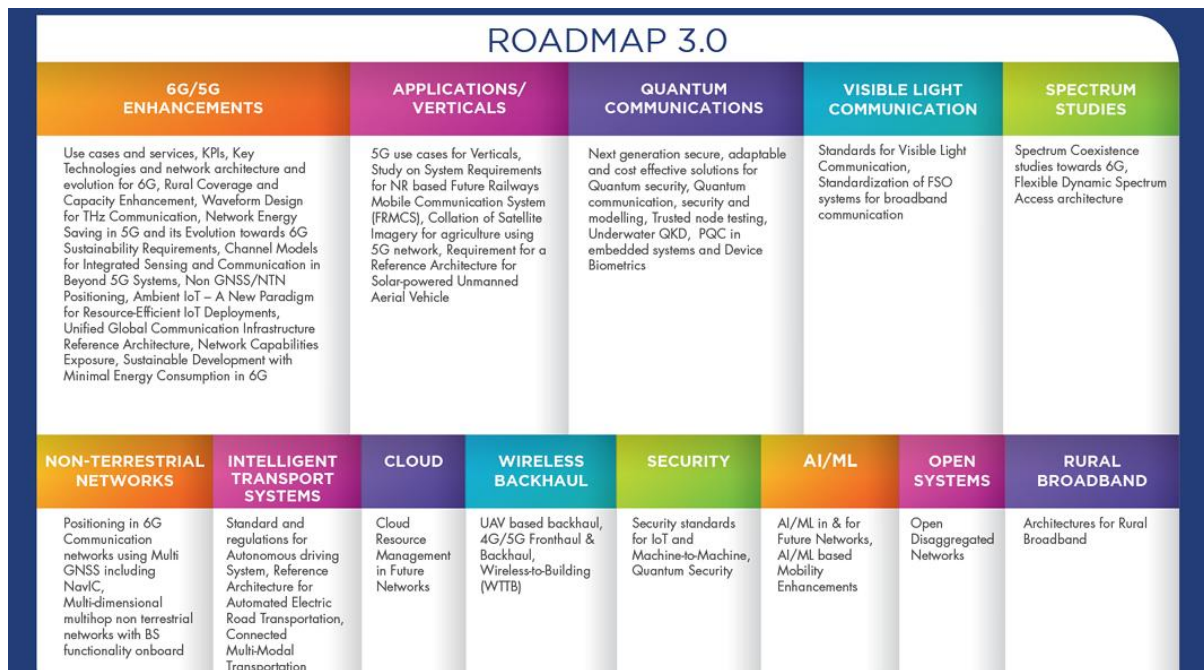
Conversion of the specifications into TSDSI standards is done through the process of transposition which involves, inter-alia, putting TSDSI numbers for each specification, incorporating appropriate disclaimers, statements on copyrights and patent policy etc.

Details of the patent policy and the declared patents are required to be obtained from the concerned standards body if the same are not available on their respective website. For more information, please click here>>

4.3.3. New initiatives taken by TSDSI

I.   Standardization roadmap 3.0 (2024-2026)

The Telecommunications Standards Development Society, India (TSDSI) has released its Standardization Roadmap 3.0 for the period of 2024-2026 to identify technology topics that are strategically important for carrying out technical studies or developing standards. The topics identified in roadmap are aligned with the expected future course of technological development as may be noted from the titles of the clusters like Security, 6G/5G Enhancements, AI/ML, Quantum Communications, Cloud, Intelligent Transport Systems, Spectrum Studies etc.

ROADMAP 3.0

6G/5G ENHANCEMENTS	APPLICATIONS/ VERTICALS	QUANTUM COMMUNICATIONS	VISIBLE LIGHT COMMUNICATION	SPECTRUM STUDIES
Use cases and services, KPIs, Key Technologies and network architecture and evolution for 6G, Rural Coverage and Capacity Enhancement, Waveform Design for THz Communication, Network Energy Saving in 5G and its Evolution towards 6G Sustainability Requirements, Channel Models for Integrated Sensing and Communication in Beyond 5G Systems, Non GNSS/NTN Positioning, Ambient IoT – A New Paradigm for Resource-Efficient IoT Deployments, Unified Global Communication Infrastructure Reference Architecture, Network Capabilities Exposure, Sustainable Development with Minimal Energy Consumption in 6G	5G use cases for Verticals, Study on System Requirements for NR based Future Railways Mobile Communication System (FRMCS), Collation of Satellite Imagery for agriculture using 5G network, Requirement for a Reference Architecture for Solar-powered Unmanned Aerial Vehicle	Next generation secure, adaptable and cost effective solutions for Quantum security, Quantum communication, security and modelling, Trusted node testing, Underwater QKD, PQC in embedded systems and Device Biometrics	Standards for Visible Light Communication, Standardization of FSO systems for broadband communication	Spectrum Coexistence studies towards 6G, Flexible Dynamic Spectrum Access architecture

NON-TERRESTRIAL NETWORKS	INTELLIGENT TRANSPORT SYSTEMS	CLOUD	WIRELESS BACKHAUL	SECURITY	AI/ML	OPEN SYSTEMS	RURAL BROADBAND
Positioning in 6G Communication networks using Multi GNSS including NavIC, Multi-dimensional multihop non terrestrial networks with BS functionality onboard	Standard and regulations for Autonomous driving System, Reference Architecture for Automated Electric Road Transportation, Connected Multi-Modal Transportation	Cloud Resource Management in Future Networks	UAV based backhaul, 4G/5G Fronthaul & Backhaul, Wireless-to-Building (WTTB)	Security standards for IoT and Machine-to-Machine, Quantum Security	AI/ML in & for Future Networks, AI/ML based Mobility Enhancements	Open Disaggregated Networks	Architectures for Rural Broadband

Source: TSDSI

Topics covered in the roadmap are in addition to the ongoing work in the Study Groups or any other item introduced in the Study Groups for development of standards. Roadmap is a dynamic document as the needs for standardization in different areas will continue to emerge and TSDSI will remain responsive to India specific standardization needs. For more information please click here>>

II.   TSDSI Vision 2025

TSDSI recognizes the convergence of Telecom and ICT technologies and has been re-scoped to address Digital Communication Standards.

Strategic objectives by 2025

- Become a leading technical contributor to global digital communication standards
- Establish requirements and standards for India/developing countries and incorporate them in suitable global digital communication standards
- Maximize collaboration between Industry, Academia and Indian Administration

TSDSI's vision is to ensure that Digital Communication Standards increasingly drive domestic economic and policy activities and enhance India's competitiveness for ICT goods and services in global markets. It aims to do this by creating a leadership position through India's participation and contribution to emerging digital communication standards in global SDOs. To achieve the above objectives and vision, TSDSI will focus on the following three pillars:

- Creating an Enabling Environment for a Standards Oriented Approach to Product Development and Adoption

- Developing TSDSI as a World Class National Digital Communications SDO
- Leadership in Global Digital Communications Standards

For more information, please click here>>

4.3.4. International Collaborations

TSDSI Alliances:

1. **Organizational Partner of 3GPP:** TSDSI has been a full Organizational Partner in 3GPP since January 2015, joining six other national and regional SDOs and taking their IPR into the global arena. This also enables them to contribute to the development of upcoming standards such as 5G and beyond.
   - ✓ In December 2024, TEC has initiated the process of adoption of TSDSI transposed standards corresponding to the new and updated specifications of 3GPP Release 13 to 17 and Release 18 (total 1657 documents) as National Standards.
   - ✓ TSDSI's 5Gi standard has also been formally merged with the 3GPP 5G Standard and implemented into the 3GPP Rel-17 NR specifications.

2. **Partner Type1 of oneM2M**: TSDSI is Partner Type I of oneM2M, one of the leading forums driving M2M service layer standards. This entitles TSDSI member organizations to become Individual Members of oneM2M and contribute to standards development in M2M space. A few TSDSI members have already developed prototype oneM2M framework compliant platforms and are actively engaged in contributing to further refinement of the oneM2M framework.
   - ✓ TSDSI transposed oneM2M release 2 and release 3 have been adopted as National standards in September 2020 and August 2022 respectively. The important benefits of implementing oneM2M standards-based solutions includes interoperability of device and application; authentication & authorization of devices; and Data security & privacy. These specifications will enable the development of standardized IoT ecosystem in the country including smart cities.

3. **Member of Global Standards Collaboration (GSC):** TSDSI is a constituent SDO of Global Standards Collaboration (GSC) – a voluntary forum of the world's leading information and communication technologies standards organizations (SDOs). This forum meets once a year to deliberate upon strategic topics around ICT based standardization that has a global impact.

TSDSI partnership agreements: TSDSI's charter includes contribution to global telecommunications standardization process by facilitating representation of Indian requirements in international SDOs and to act as a catalyst for adoption of indigenously developed IP in global Standards. https://tsdsi.in/list-of-tsdsi-partners/

1. **Cooperation Agreement:**
   - ✓ European Telecommunications Standards Institute (ETSI)
   - ✓ Open Connectivity Foundation (OCF)

The Telecommunications Standards Development Society, India (TSDSI) signed a cooperation agreement with ETSI, strengthening relations after the establishment of a first Letter of Intent to cooperate with ETSI in November 2014. The collaboration between the two standards bodies will facilitate exchange and work on identified common areas such as M2M and IoT, energy efficiency, mobile terminal safety, to name a few. As TSDSI wished to use ETSI standards, recognized as high quality and globally implemented standards, the cooperation agreement grants TSDSI the right to adopt ETSI standards. TSDSI has adopted ETSI standards on NFV and IoT required by the National Centre for Communication Security (NCCS), a wing of DoT for use in the Indian Telecom Security Assurance Requirements (ITSAR).

2. **MoUs:**
   - ✓ 5G Infrastructure Association (5G IA)
   - ✓ Advanced Television Systems Committee (ATSC)
   - ✓ Global Certification Forum (GCF)
   - ✓ The Institute of Electrical and Electronics Engineers Standards Association (IEEE-SA)
   - ✓ Taiwan Association of Information and Communication Standards (TAICS)
   - ✓ Telecommunications Industry Association (TIA), US
   - ✓ Telecommunications Technology Association (TTA), Korea
   - ✓ Wireless World Research Forum (WWRF)
   - ✓ O-RAN Alliance

3. **Letter of Intent to Co-operate:**
   - ✓ Association of Radio Industries and Businesses (ARIB), Japan
   - ✓ Alliance for Telecommunications Industry Solutions (ATIS), US
   - ✓ China Communications Standards Association (CCSA)
   - ✓ Telecommunications Technology Committee (TTC), Japan

   TSDSI at ITU:

   - TSDSI is Sector member of ITU
   - TSDSI engagements in ITU-T SG13 - Future networks, SG11 - Protocols, testing & combating counterfeiting, SG17 - Security, Focus Group on Artificial Intelligence Native for Telecommunication Networks (FG AINN) and Focus Group - Costing Models for Affordable Data Services.
   - TSDSI had successfully introduced an indigenous developed 5G candidate standard at the International Telecommunications Union (ITU) WP-5D Meeting in Geneva held during December 10-13, 2019.

TSDSI's 5Gi standard has been formally merged with the 3GPP 5G Standard and implemented into the 3GPP Rel-17 NR specifications in RAN#95e meeting in March 2022. 3GPP RAN approved two Rel-17 Change Requests (CRs) that enables Pi/2-BPSK waveform with filtering to be implemented in the 5G Networks. This indigenously developed technology enables the deployment of 5G cell sites with long range – an important requirement for improving cellular and IoT connectivity in rural India.

Adoption of this technology in the 5G standards will enable India to leap forward in the 5G space, with key innovations introduced by Indian entities accepted as part of global wireless standards for the first time. The nation stands to gain enormously both in achieving the required 5G penetration in rural and urban areas as well as in nurturing the nascent Indian R&D ecosystem to make a global impact.

In addition, TSDSI is also a member of the Multilateral MoU for conducting Global 5G events (other members being 6G-IA, XGMF, 6G Forum, 5G Americas, IMT-2020 (5G) PG, 6G Brazil)

For more information on TSDSI's a) Rules & Regulation click here *b) Working Procedures click* here *c) IPR Policy click* here *d) Guidelines click* here *e) published standards click* here *f) technical reports click* here

5. Other organizations/departments of Government of India formulating Standards & Technical Regulations

In India, there are many other industries and professional bodies which formulate sector specific standards, which may be referred as Standards Developing Organizations (SDOs). The statutory provisions given under Section 10 (2) (c) of the BIS Act 2016 and Section 30 of the BIS Rules, 2018 confer upon BIS, powers to recognize any Standards Developing Organization in India for development of standards.

In this chapter, we provide a brief overview of the key organizations engaged in sector-specific standardization efforts within the priority sectors of Project SESEI. These organizations include relevant ministries, regulatory bodies, public sector undertakings, technical development agencies, commodity boards, and industry and professional associations.

Table 2: Other organizations/departments of Government of India formulating Standards & Technical Regulations	
Automotive Research Association of India (ARAI)	The Automotive Research Association of India (ARAI), established in 1966, is the leading automotive R&D organization in the country, set up by the Automotive Industry in collaboration with the Government of India. ARAI has been playing a crucial role in assuring safe, less polluting and more efficient vehicles. ARAI provides technical expertise in R&D, testing, certification & Standardization, homologation and framing of vehicle regulations. ARAI is certified to ISO 9001, ISO 14001, ISO 27001 and ISO 45001; and is also accredited for its testing and calibration scope as per ISO/IEC 17025 by NABL. Website: https://www.araiindia.com/

Research Designs & Standards Organization (RDSO), Ministry of Railways	RDSO is responsible for development of standards for materials and products specially needed by Indian Railways was set up in 1957, under Ministry of Railways at Lucknow. Website: https://rdso.indianrailways.gov.in/index.jsp
e Governance Standards & Guidelines Portal – Ministry of Electronics and Information Technology	In the current century, Technology and Innovation have to be leveraged to serve the country's vast population and its dream. Information and Communication Technologies today play a crucial role in economic and societal transformation. Digital India aims to harness this potential. The government is implementing the Digital India project as an umbrella program to prepare India for knowledge-based transformation into a digitally empowered society and knowledge economy. e-Governance uses information and communication technology (ICT) to enable more efficient, cost-effective, and participatory government, facilitate more convenient government services, allow greater public access to information and make government more accountable to citizens. These practices reinforce other reforms that are helping countries to better compete in the regional and global economy by strengthening markets and individual choices that promote economic growth and poverty reduction. However, to implement e-Governance projects successfully, the solution must be interoperable, secure, scalable, reusable, leading to efficiency, effectiveness, reduction in cost and risk. To harness this, MeitY has entrusted to Standardization Testing & Quality Certification (STQC) Directorate and Centre for Development of Advanced Computing (C-DAC) to formulate new or revise the existing standards, guidelines and/or framework in allied areas of e-Governance under the project name "e-Governance Standards and Guidelines (EGSG)". e-Governance Standards, Guidelines, Frameworks make government services accessible to the common man through common service delivery outlets, ensuring efficiency, transparency, and reliability at affordable costs. At the same time, all the relevant information, data and functionalities within an e-governance application or system of one government organization shall be made available to other e-governance applications/ systems through Open APIs, which should be platform and language independent. Website: https://egovstandards.gov.in/
Central Electricity Authority - Ministry of Power	The Central Electricity Authority (CEA) is a statutory organization constituted under Section 3 of the repealed Electricity (Supply) Act, 1948. It was established as a part-time body in the year 1951 and made a full-time body in the year 1975. With the objective of reforming the Power Sector, the Electricity Act, 2003 (No. 36 of 2003) has been enacted and the provisions of this Act have been

	brought into force with effect from 10th June 2003. With the coming into force of the Electricity Act, 2003, the Indian Electricity Act, 1910, Electricity (Supply) Act, 1948 and Electricity Regulatory commissions Act, 1998 stand repealed.
	
	As per section 73 of the Electricity Act, 2003, the functions and duties of CEA includes following:
	
	   a) advise the Central Government on the matters relating to the national electricity policy, formulate short-term and perspective plans for development of the electricity system and coordinate the activities of the planning agencies for the optimal utilization of resources to sub serve the interests of the national economy and to provide reliable and affordable electricity to all consumers.
	   b) specify the technical standards for construction of electrical plants, electric lines and connectivity to the grid.
	   c) specify the safety requirements for construction, operation and maintenance of electrical plants and electric lines.
	   d) specify the Grid Standards for operation and maintenance of transmission lines.
	
	For further information relating to regulations and standards, please click here>>

Central Electricity Regulatory Commission	The Commission intends to promote competition, efficiency and economy in bulk power markets, improve the quality of supply, promote investments and advise government on the removal of institutional barriers to bridge the demand supply gap and thus foster the interests of consumers. In pursuit of these objectives the Commission aims to –
	   • Improve the operations and management of the regional transmission systems through Indian Electricity Grid Code (IEGC), Availability Based Tariff (ABT), etc.
	   • Formulate an efficient tariff setting mechanism, which ensures speedy and time bound disposal of tariff petitions, promotes competition, economy and efficiency in the pricing of bulk power and transmission services and ensures least cost investments.
	   • Facilitate open access in inter-state transmission
	   • Facilitate inter-state trading
	   • Promote development of power market
	   • Improve access to information for all stakeholders.
	   • Facilitate technological and institutional changes required for the development of competitive markets in bulk power and transmission services.
	   • Advise on the removal of barriers to entry and exit for capital and management, within the limits of environmental, safety and

	security concerns and the existing legislative requirements, as the first step to the creation of competitive markets. Website: https://www.cercind.gov.in/index.html
Central Board of Irrigation & Power	Central Board of Irrigation and Power is a Premier Institution set up by the Government of India in the 1927. CBIP has been rendering dedicated services to the professional organization, engineers and individuals in the country related to Power, Water Resources and Renewable Energy Sectors for the last 90 years. CBIP has grown into an eminent organization of international importance while serving the nation equally with great distinction. Indian chapter for 10 international organizations related to Power & Water resources sectors. Today, Central Board of Irrigation and Power presents a shining example of a pioneer organization and has enabled Indian industry to set higher benchmarks and attain international standards in excellence by creating a unique platform for growth and development of Power, water Resources and Renewable Energy Sectors. It is a knowledge bank and an exchange for dissemination of experience and technical knowledge. The CBIP is a "CATALYST FOR GROWTH OF WATER RESOURCES AND POWER SECTORS". It is a knowledge bank and an exchange for dissemination of experience and technical knowledge. Website: https://www.cbip.org/index.aspx
Ministry of Environment, Forests and Climate Change (MoEFCC)	The Ministry of Environment, Forests and Climate change (MoEFCC) is the nodal agency in the administrative structure of the Website: Central Government for the planning, promotion, co-ordination and overseeing the implementation of India's environmental and forestry policies and programmes. The primary concerns of the Ministry are implementation of policies and programmes relating to conservation of the country's natural resources including its lakes and rivers, its biodiversity, forests and wildlife, ensuring the welfare of animals, and the prevention and abatement of pollution. While implementing these policies and programmes, the Ministry is guided by the principle of sustainable development and enhancement of human well-being. The Ministry also serves as the nodal agency in the country for the United Nations Environment Programme (UNEP), South Asia Co-operative Environment Programme (SACEP), International Centre for Integrated Mountain Development (ICIMOD) and for the follow-up of the United Nations Conference on Environment and Development (UNCED). The Ministry is also entrusted with issues relating to multilateral bodies such

	as the Commission on Sustainable Development (CSD), Global Environment Facility (GEF) and of regional bodies like Economic and Social Council for Asia and Pacific (ESCAP) and South Asian Association for Regional Cooperation (SAARC) on matters pertaining to the environment. The broad objectives of the Ministry are: • Conservation and survey of flora, fauna, forests and wildlife • Prevention and control of pollution • Afforestation and regeneration of degraded areas • Protection of the environment and • Ensuring the welfare of animals These objectives are well supported by a set of legislative and regulatory measures, aimed at the preservation, conservation and protection of the environment. Besides the legislative measures, the National Conservation Strategy and Policy Statement on Environment and Development, 1992; National Forest Policy, 1988; Policy Statement on Abatement of Pollution, 1992; and the National Environment Policy, 2006 also guide the Ministry's work. Website: https://moef.gov.in/
Central Pollution Control Board - Ministry of Environment, Forest & Climate Change	The Central Pollution Control Board (CPCB), statutory organisation, was constituted in September 1974 under the Water (Prevention and Control of Pollution) Act, 1974. Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981, under ministry of environment forest and climate change. CPCB Lays down standards for the quality of air, water quality criteria from different sources, emission norms for vehicles, emission norms & sound levels for diesel engines & generator sets. CPCB also prepares manuals, codes and guidelines relating to treatment and disposal of sewage and trade effluents as well as for stack gas cleaning devices, stacks and ducts. Website: https://cpcb.nic.in/index.php
Ministry of Road Transport and Highways (MoRTH)	The Ministry of Road Transport and Highways, a ministry of the Government of India, is the apex body for formulation and administration of the rules, regulations and laws relating to road transport, national highways and transport research, in order to increase the mobility and efficiency of the road transport system in India. The Ministry has two wings: Road's wing and Transport wing. Website: https://morth.nic.in/

	The Export Inspection Council (EIC) was set up by the Government of India under Section 3 of The Export (Quality Control and Inspection) Act, 1963 (22 of 1963), in order to ensure sound development of export trade of India through Quality Control and Inspection and for matters connected thereof.
Export Inspection Council (EIC), Ministry of Commerce and Industry	EIC is an advisory body to the Central Government, which is empowered under the Act to: • Notify commodities which will be subjected to quality control and / or inspection prior to export, • Establish standards of quality for such notified commodities, and • Specify the type of quality control and / or inspection to be applied to such commodities. Website: https://www.eicindia.gov.in/WebApp1/pages/public/landingPage.xhtml

For more information about organizations/departments of Government of India formulating Standards & Technical Regulations and their area of activity, please click here

6. Other key actors influencing standards development in India

In addition to the Bureau of Indian Standards (BIS) and other Standards Development Bodies (SDOs) as described above, there are several other key actors such as government agencies, industry associations and Research Institutions and Academia etc. that influence standards development in the country. These actors include:

1. **Government Agencies:** Government agencies play a role in standards development. These include the Ministry of Electronics and Information Technology (MEITY), Ministry of Power (MoP), Ministry of New and Renewable Energy, Ministry of Environment, Forest and Climate Change (MoEF&CC), and Ministry of Commerce and Industry (MCI), Ministry of Housing and Urban Affairs (MOHUA), Ministry of Road and Transport Highways (MoRTH) among others. These agencies ensure that standards are aligned with their respective sectors and regulatory requirements.

2. **Industry Associations:** Various industry associations in India actively participate in the standards development process. These associations represent specific sectors, such as the Confederation of Indian Industry (CII), Federation of Indian Chambers of Commerce and Industry (FICCI), Associated Chambers of Commerce and Industry of India (ASSOCHAM), Manufacturers` Association for Information Technology (MAIT), Federation of European Business in India (FEBI) , Cellular Operators Association of India (COAI), Data Security Council of India (DSCI), Global ICT Standardization Forum for India (GISFI), Broadband India Forum (BIF), Digital Infrastructure Providers Association (DIPA), IET, India and The Energy and

Resources Institute (TERI) etc. They provide inputs, expertise, and recommendations to influence the development of standards that are relevant to their respective industries.

- **Confederation of Indian Industry (CII):** CII works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society, through advisory and consultative processes. For more than 125 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

  Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, livelihoods, diversity management, skill development, empowerment of women, and sustainable development, to name a few.

  Sectoral Portfolio:

  - **Food and Agriculture**: Agriculture, Food Processing, Water
  - **Manufacturing**: Aerospace, ASCON, Auto Components, Automobiles, Capital Goods, Chemicals, Defence, Electronics, Family Business, FMCG
  - **Services**: Artificial Intelligence, Biotechnology, Capital Market, Corporate Governance, Design, Drugs & Pharmaceuticals, Education, Healthcare, Information & Communication Technology, IT enabled Services & e-Commerce
  - **Infrastructure**: Civil Aviation, Climate Change, Housing, Hydrocarbons, Infrastructure, Railways, Real Estate, Roads & Highways, Surface Transport, Technology.

  For more information please click here>>

- **Federation of Indian Chambers of Commerce and Industry (FICCI):** FICCI, a non-government, not-for-profit organisation, is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry.

  Key sectors include:

  - Foreign trade and trade facilitation
  - Clean Energy
  - Environment and Climate Change
  - Electric Vehicle
  - Transport infrastructure
  - E-commerce
  - Technology etc.

It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies. FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community. For more information please click here>>

- **Associated Chambers of Commerce and Industry of India (ASSOCHAM):** It is the country's oldest apex chamber. It brings in actionable insights to strengthen the Indian ecosystem, leveraging its network of more than 4,50,000 members, of which MSMEs represent a large segment. With a strong presence in states, and key cities globally, ASSOCHAM also has more than 400 associations, federations and regional chambers in its fold.

  Aligned with the vision of creating a New India, ASSOCHAM works as a conduit between the industry and the Government. The Chamber is an agile and forward-looking institution, leading various initiatives to enhance the global competitiveness of the Indian industry, while strengthening the domestic ecosystem.

  ASSOCHAM is driving four strategic priorities - **Sustainability, Empowerment, Entrepreneurship** and **Digitisation**. The Chamber believes that affirmative action in these areas would help drive an inclusive and sustainable socio-economic growth for the country.

  ASSOCHAM is working hand in hand with the government, regulators and national and international think tanks to contribute to the policy making process and share vital feedback on implementation of decisions of far-reaching consequences. In line with its focus on being future-ready, the Chamber is building a strong network of knowledge architects. Thus, ASSOCHAM is all set to redefine the dynamics of growth and development in the technology-driven 'Knowledge-Based Economy. The Chamber aims to empower stakeholders in the Indian economy by inculcating knowledge that will be the catalyst of growth in the dynamic global environment. For more information please click here>>

- **Manufacturers` Association for Information Technology (MAIT)**: Set up in 1982 for purposes of scientific, educational and IT Industry promotion, **MAIT** has emerged as an effective, influential, and dynamic organization in these 30 years. Representing Hardware, Training, R&D & Hardware Design and other associated service segments of the Indian IT Industry, **MAIT's** charter is to develop a globally competitive Indian IT Industry, promote the usage of IT in India, strengthen the role of IT in national economic development, promote business through international alliances, promote quality consciousness in the IT Industry and transform the Indian IT Industry into a World Scale Industry leading to a World Class Usage and thus a World Size Market.

  MAIT is represented on all concerned Government of India forums and works in close association with the Ministry of Electronics & IT (MEITY), Department of Telecom (DoT), Ministry of Communications & IT, Ministry of Commerce & Industry, Ministry of Environment & Forests, Directorate General of Foreign Trade (DGFT) under Ministry of Commerce and Industry, Directorate General of Supplies and Disposals (DGS&D) under

Ministry of Commerce and Industry, Department of Industrial Policy and Promotion (DIPP), Ministry of MSME, Ministry of Finance, Planning Commission, UIDAI, BEE, BIS, NPC, CPCB, ESC, NIC, STQC, CII, FICCI, ASSOCHAM, etc. for the advancement of the IT Industry in India. For more information about MAIT please click here

- **Federation of European Business in India (FEBI):** FEBI is the unified, independent, and influential voice of the European Businesses in India, bringing together companies and national bilateral chambers to strengthen the collective EU policy advocacy voice and acting as a credible intermediary between government and businesses. FEBI is supported by the EU Delegation in India and the Embassies of the EU Member States in India who have constituted a Task Force composed of companies and National Chambers of Commerce to establish it. FEBI will sound out the EU business community on existing or impending policies, to shape them to facilitate business, through its structured engagement with the help of EU businesses based in India, FEBI would also play a crucial role in supporting the ongoing EU-India trade and investment negotiations. For more information, please click here>>

- **Cellular Operators Association of India (COAI):** Over the years COAI has emerged as the official voice for the Indian telecom industry and interacts directly with Ministries, Policy Makers, Regulators, Financial Institutions and Technical Bodies. It provides a forum for discussion and exchange of ideas between these bodies and the Service Providers, who share a common interest in the development of mobile telephony in the country. COAI collaborates with other Industry Associations such as CII, FICCI, ASSOCHAM, AUSPI, ISPAI, VSAT association etc., with the objective of presenting an industry consensus view to the Government on crucial issues relating to the growth and development of the Indian telecom Industry. COAI also interacts with various international organizations such as ITU, GSMA, UMTS, TIA, ITIC, GSA, MMF, Digital Europe, WWRF and 3GPP etc.; Country Embassies as well as the Press & Media to ensure that the issues pertaining to the mobile phone industry are discussed, understood and debated on a wider platform. For more information, please click here>>

- **Data Security Council of India (DSCI):** DSCI, is a not-for-profit, industry body on data protection in India, setup by NASSCOM, committed to making the cyberspace safe, secure and trusted by establishing best practices, standards and initiatives in cyber security and privacy. To further its objectives, DSCI engages with governments and their agencies, regulators, industry sectors, industry associations and think tanks for policy advocacy, thought leadership, capacity building and outreach activities. For more information please click here

- **Global ICT Standardization Forum for India (GISFI)**: GISFI is an Indian standardization body active around Information and Communication Technologies (ICT) and related application areas, such as energy, telemedicine, wireless robotics, biotechnology. GISFI addresses the research and product development of ICT in India and provides a bridge towards the globalization of the Indian achievements; the issues of technology, governance, and development; and a platform for raising an awareness of the importance and the internationalization of the higher education in the field are supported by the partnership with the Government of India. The working groups organized in GISFI draw knowledge from

academia, business, civil society, and Government/policy-making circles. For more information please click here>>

- **Broadband India Forum (BIF):** BIF functions as an independent policy forum and think-tank that works for the development & enhancement of the entire broadband ecosystem in a holistic, technology-neutral, and service-neutral manner. BIF's endeavour is to promote, support and enhance all policy, regulatory & standards initiatives for the proliferation of high-quality broadband in the country to empower consumers with efficient and economical broadband to realize the true Digital India. BIF works closely with the Government and the Regulator in this mission and is dedicated forum with participation from all stakeholders, including Technology Providers, Telecom Operators, Internet Service Providers, Value-Added Service Providers, Satellite Operators and service providers, MSOs, Start-ups, and professional entities, as well as seasoned Industry professionals who are familiar with different technologies, operations, regulations, and policies. For more information about BIF, please click here>>

- **Digital Infrastructure Providers Association (DIPA):** Digital Infrastructure Providers Association (Erstwhile Tower and Infrastructure Providers Association) was constituted in 2010 as an industry representative body registered under the Indian Society Registration Act, 1860. Digital Infrastructure Providers Association (DIPA) represents the India's digital infrastructure industry that develop, build, own and operate the nation's wireless infrastructure. From infrastructure providers and equipment manufacturers to EV charging infrastructure and fibre deployers, DIPA brings together a dynamic group of companies that enable consumers to lead a 21st Century connected life. The association is dedicated to interact, discuss and deliberate with Indian Government Ministries, Policy Makers, Regulators, Financial institutions, and technical bodies etc. for the knowledge collection & dissemination for promotion of healthy growth in telecom services. Read more>>

- **Internet Service Providers Association of India (ISPAI):** ISPAI was set up in 1998 with a mission to "Promote Internet for the benefit of all". ISPAI is the collective voice of the ISP fraternity and by extension the entire Internet community. Over the years, ISPAI has played a pivotal role by providing its inputs on various policy matters assisting the Government in policy formulation. ISPAI has helped influence, shape and mould the telecom policies, so that ISPs and entrepreneurs in the business of Internet can setup and grow their services in an environment that is supportive and enabling. For more information, please click here>>

- **Internet and Mobile Association of India (IAMAI):** IAMAI is a not-for-profit industry body (Trust), registered under the Societies Registration Act 1860. With 540 members, including Indian and multinational corporations, as well as start-ups, IAMAI has been instrumental in shaping India's digital economy. IAMAI advocates free and fair competition, and progressive and enabling laws for businesses as well as for consumers. The overarching objective of IAMAI is to ensure the progress of the internet and the digital economy. Its major areas of activities are public policy and advocacy, business to business conferences, research, promotion of start-ups and promotion of consumer trust and safety. For more information, please click here>>

- **The Institution of Engineering and Technology (IET) India:** The IET office started operations in India in 2006, in Bangalore with vision to become the most relevant and therefore the most preferred institution for engineering and technology professionals in India. IET India strategy is to be a key influencer in academia, industry and government in order to impact standards, innovation and policy to help create a future-ready engineering workforce and solve societal challenges of national importance. IET India's focus areas include future technologies, the Future of Work (education and skilling) and the Future of Mobility and Transport.

  For more information about IET India, please click here>>

- **The Energy and Resources Institute (TERI):** TERI is an independent, multi-dimensional organization, with capabilities in research, policy, consultancy and implementation. TERI's mission is to usher transitions to a cleaner and sustainable future through the conservation and efficient use of energy and other resources, and innovative ways of minimizing and reusing waste.

  TERI pursues its mission by working towards the following key goals:
  - Enhancing access to clean energy for all
  - Helping a global transition to renewable energy pathways
  - Enhance energy efficiency, especially in industries, public utilities and buildings
  - Facilitating more efficient use of materials, especially iron and cement
  - Enhancing conservation, utilization of and access to water, including watershed management
  - Enabling the planning and governance of environmentally sustainable cities through green buildings and through management of solid waste, sewage, sanitation, mobility and air quality
  - Building resilience to adverse impacts of climate change due to cyclones and variations in hydrology and temperature
  - Accelerating pollution abatement through innovative policies and environment treatment products
  - Enhancing ecosystem services, especially in forestry and biodiversity
  - Developing green mobility solutions
  - Enabling sustainable food production and nutritional security through quality planting material, bio-based agricultural inputs and crop diversification
  - Developing innovative solutions for clean air, regionally and in cities

  For more information about TERI please click here>>

- **Indian Federation of Green Energy (IFGE):** Indian Federation of Green Energy (IFGE) is the forefront organization driving renewable energy initiative in India. Established in 2014, functioning as a non-governmental and not-for-profit organization, IFGE is driven by the mission to promote Green, Renewable and Bio Energy through activities such as policy advocacy, organizing seminars, conferences, exhibitions, B2G and B2B meetings, as well as comprehensive awareness programs. IFGE is dedicated to creating a sustainable energy

ecosystem with a committed group of visionaries and stakeholders from diverse industries, businesses, and services, all sharing a similar and complementary vision, and addressing the challenges. For more information, please click here>>

3. **Research Institutions and Academia:** Academic institutions and research organizations in India also contribute to standards development. They conduct research, provide technical expertise, and participate in standardization activities. Institutions like the Indian Institutes of Technology (IITs), Indian Institute of Science (IISc), DST, C-DOT, CEWiT, C-DAC, Council of Scientific and Industrial Research (CSIR) and National Laboratories etc. play a crucial role in shaping standards in their respective domains.

   a) *Department of Science and Technology (DST)*

   Department of Science & Technology (DST) was established in May 1971, with the objective of promoting new areas of Science & Technology and to play the role of a nodal department for organizing, coordinating and promoting S&T activities in the country. It gives funds to various approved scientific projects in India. It also supports various researchers in India to attend conferences abroad and to go for experimental works. For more information, please click here>>

   b) *Centre for Development of Telematics (C-DOT)*

   The Centre for Development of Telematics (C-DOT) is the Telecom Technology Development Centre of the Government of India. It was established in August 1984 as an autonomous body. It was vested with full authority and total flexibility to develop state-of-the-art telecommunication technology to meet the needs of the Indian telecommunication network.

   C-DoT over the years, has evolved into a full-fledged telecom R&D institution, that complies with level -5 maturity on CMMI model, and has capabilities to undertake large scale state of the art telecom technologies development programs. C-DoT as a torch bearer of indigenous telecom R&D continues to develop latest technology products in areas like Optical, Switching, Wireless, Security and Network Management while also working on futuristic technologies like M2M/IoT, 5G, AI etc. For more information on CDOT Solutions, Products and Services please click here

   c) *Center of Excellence in Wireless and Information Technology (CEWiT)*

   The Centre of Excellence in Wireless Technology (CEWiT) is an autonomous research Society of IIT Madras set up by Ministry of Communications and IT in partnership with the Indian telecom industry. CEWiT's vision is to provide technological leadership to the Indian wireless industry and address the needs of the Indian market through advanced R&D and value creation. CEWiT works as a neutral partner to industry stakeholders and policy makers on various technological aspects of the wireless communication industry. The Centre has several experts in the Radio access technologies, specifically focusing on 4G and 4G-Advanced technologies like LTE and WiMAX. CEWiT also provides technical leadership to the Broadband Wireless Consortium of India. For more information on CEWiT please click here

d) *Centre for Development of Advanced Computing (C-DAC)*

Centre for Development of Advanced Computing (C-DAC) is the premier R&D organization of the Ministry of Electronics and Information Technology (MeitY) for carrying out R&D in IT, Electronics and associated areas. At present, most of the R&D activities fall into following categories.

- High Performance Computing
- Multi-lingual Computing
- Professional Electronics
- Information and Cyber Security
- Health Informatics
- Software Technologies
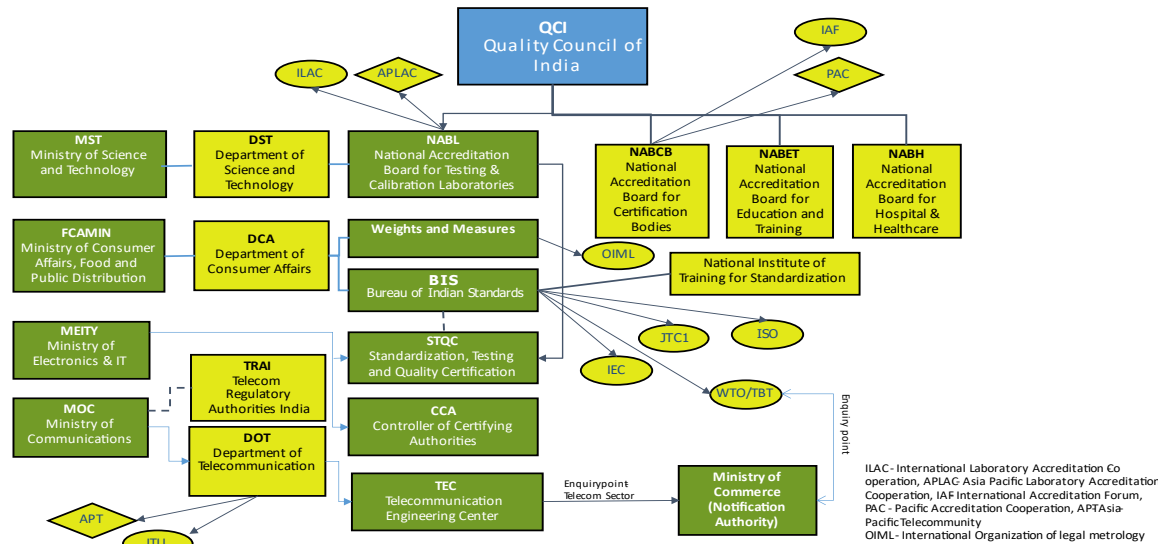
For more information please [click here>>](#)

- **Council on Energy, Environment and Water (CEEW):** A leading policy research organization focused on sustainable development, including circular economy and clean energy initiatives.

It is important to note that while these actors influence standards development in India, the BIS remains the primary authority responsible for the formulation and implementation of national standards.

7. Main Accreditation, Testing & Certification Bodies in India

In India, unlike Europe, there is very little, if any, market-surveillance, almost no product liability court cases and it is common to find non-conformant inferior quality products. Official sanctions are minimal and very time consuming and so most consumers do not even report non-conformance. This has resulted in consumers and entities relying on (company) branded products which guarantee quality and/or government approved certifications and logos such as ISI Mark, Gold hallmarking which provide the necessary trust. The only entities which do have power to impose sanctions, confiscate products, etc. are the Indian export councils which provide the guarantees. Thus, it is common to see local products being promoted as "Export Quality" since products for exports from India are monitored and certified by the certification bodies.

Accreditation, testing and certification

ILAC- International Laboratory Accreditation Co operation, APLAC- Asia Pacific Laboratory Accreditation Cooperation, IAF International Accreditation Forum, PAC - Pacific Accreditation Cooperation, APT Asia-Pacific Telecommunity
OIML- International Organization of legal metrology

7.1. Quality Council of India (QCI)

Quality Council of India (QCI) was established as a National body for Accreditation on recommendations of Expert Mission of EU after consultations in Inter-ministerial Task Force, Committee of Secretaries and Group of Ministers through a Cabinet decision in 1996. Accordingly, QCI was set up through a PPP model as an independent autonomous organization with the support of Government of India and the Indian Industry represented by the three premier industry associations, (i) Associated Chambers of Commerce and Industry of India (ASSOCHAM), (ii) Confederation of Indian Industry (CII) and (iii) Federation of Indian Chambers of Commerce and Industry (FICCI).

QCI is a non-profit organization registered under the Societies Registration Act XXI of 1860. The Department of Industrial Policy and Promotion, Ministry of Commerce and Industry was designated as the nodal point for all matters connected with quality and QCI to structure and help implementation of the Cabinet decision.

QCI has been established to create a mechanism for independent third-party assessment of products, services and processes. It plays a pivotal role at the national level in propagating, adoption and adherence to quality standards in all important spheres of activities including education, healthcare, environment protection, governance, social sectors, infrastructure sector and such other areas of organized activities that have significant bearing in improving the quality of life and wellbeing of the citizens of India.

The mission of QCI is to lead nationwide quality movement in India by involving all stakeholders for emphasis on adherence to quality standards in all spheres of activities primarily for promoting and protecting interests of the nation and its citizens.

To achieve the Mission of QCI by playing a pivotal role in propagating, adoption and adherence to quality standards in all important spheres of activities including education, healthcare, environment protection, governance, social sectors, infrastructure sector and such other areas of organized activities that have significant bearing in improving the quality of life and wellbeing of the citizens of India and without restricting its generality shall inter-alia include:

1. To lead nationwide quality movement in the country through National Quality Campaign aimed at creating awareness amongst citizens, empowering them to demand quality in all spheres of activities.

2. To develop apropos capacities at the level of Governments, Institutions and enterprises for implementing & institutionalizing continuous quality improvement.

3. To develop, establish & operate National Accreditation programmes in accordance with the relevant international standards & guides for the conformity assessment bodies certifying products, personnel, management systems, carrying out inspection testing, calibration & medical laboratories, proficiency testing providers, reference material producers & test facilities, etc.

4. To develop, establish and operate National Accreditation Programmes for various service sectors such as education, healthcare, environment protection, governance, social sectors, infrastructure sector, vocational training etc., to site a few, as may be required, based on national/ international standards and guidelines and where such standards are not available, to develop accreditation standards to support accreditation programmes.

5. To build capacities in the areas of regulation, conformity assessment and accreditation to overcome TBT/SPS constraints.

   o To establish and maintain strong linkages with international and regional fora such as International Laboratory Accreditation Cooperation (ILAC), International Accreditation Forum (IAF), Asia Pacific Laboratory Accreditation (APLAC), Pacific Accreditation Cooperation (PAC), International Society for Quality in Healthcare (ISQua), Organization for Economic Cooperation and Development (OECD) etc. and to participate in Plenary Sessions, Committee Meeting etc. in order to keep pace with the latest development and for promoting Multi-lateral Recognition Arrangements/Mutual acceptance of Data and

   o To undertake all the activities which promote Bi-lateral/ Multi-lateral Recognition Arrangements between QCI/ Constituent Boards and Accreditation Bodies in other countries.

6. To encourage development & application of third-party assessment model for use in government, regulators, organizations and society.

7. To promote quality competitiveness of India's enterprises especially MSMEs through adoption of and adherence to quality management standards and quality tools.

8. Promoting the establishment of quality improvement and benchmarking centre, as a repository of best international / national practices and their dissemination among the industry in all the sectors.

9. To encourage industrial / applied research and development in the field of quality and dissemination of its result in relevant publication and trade journals.

   o To Publish books, literature & periodicals and disseminate information related to the objectives of   QCI and

   o To organize / participate in trade fairs, exhibitions, seminars etc. at National & International forum.

10. To build capacities including development of appropriate quality accreditation mechanism for other emerging areas.

11. To facilitate effective functioning of a National Information & Enquiry Services on standards & quality including an appeal mechanism to deal with unresolved complaints.

12. To develop and operate an appeal mechanism to deal with unresolved complaints

QCI has following Accreditation Boards involved in accreditation programmes. Each board is functionally independent and works within their core area of expertise.

I. **National Accreditation Board for Certification Bodies (NABCB):** NABCB provides accreditation to Certification, Inspection, and Validation & Verification Bodies based on assessment of their competence as per the Board's criteria and in accordance with International Standards and Guidelines. NABCB is internationally recognized and represents the interests of the Indian industry at international forums through membership and active participation with the objective of becoming a signatory to international Multilateral / Mutual Recognition Arrangements (MLA / MRA).

NABCB is a member of International Accreditation Forum (IAF), International Laboratory Accreditation Cooperation (ILAC) and Asia Pacific Accreditation Cooperation (PAC) as well as signatory to their MLAs / MRAs for Quality Management Systems, Environmental Management Systems, Product Certification. GlobalG.A.P., Food Safety Management Systems, Information Security Management Systems, Energy Management Systems, Occupational Health Safety Management Systems, Medical Devices – Quality Management Systems, Personnel Certification & Inspection. NABCB is also MRA signatory of Asia Pacific Accreditation Cooperation (APAC) for Greenhouse Gas (GHG), ICAO CORSIA Version 1, and Business Continuity Management Systems.

List of foreign/EU certification/validation & verification bodies accredited by NABCB:
- TUV India Pvt. Ltd.
- TUV SUD South Asia Pvt. Ltd.
- SGS India Private Limited

- UL India Pvt. Ltd.

For the complete list of Accredited Bodies, please click here>>

II. **National Accreditation Board for testing & calibration Laboratories (NABL):** NABL is an accreditation body, with its accreditation system established in accordance with ISO/ IEC 17011. "Conformity Assessment –Requirements for Accreditation bodies accrediting conformity assessment bodies." NABL provides voluntary accreditation services to:

- o Testing and Calibration laboratories in accordance with ISO/ IEC 17025 'General Requirements for the Competence of Testing and Calibration Laboratories'
- o Medical testing laboratories in accordance with ISO 15189 'Medical laboratories - Requirements for quality and competence'
- o Proficiency Testing Providers (PTP) in accordance with ISO/IEC 17043 "Conformity assessment — General requirements for proficiency testing" and
- o Reference material producers (RMP) in accordance with ISO 17034 "General requirements for the competence of reference material producers".

NABL, with an objective to ensure the acceptance of test/ calibration results issued by the accredited conformity assessment bodies (CAB) across the borders, maintains linkages with the international bodies-

- International Laboratory Accreditation Co-operation (ILAC) and
- Asia Pacific Accreditation Co-operation (APAC)

NABL is a full member of **ILAC** and **APAC** and regularly takes part in their meetings.

NABL is **Mutual Recognition Arrangement (MRA)** signatory to **ILAC** as well as **APAC** for the accreditation programs – Testing and Calibration (ISO/IEC 17025), Medical (ISO 15189), Proficiency Testing Providers (PTP) (ISO/IEC 17043) and Reference material producers (RMP) (ISO 17034).

Such international arrangements/ MRA are based on peer evaluation and acceptance of other MRA Partner accreditation systems. MRA facilitate acceptance of test/ calibration results between countries which MRA partners represent. Certificate issued to NABL for **APAC/ ILAC** MRA Signatory.

III. **National Accreditation Board for Hospitals and healthcare providers (NABH):** NABH is set up to establish and operate accreditation programme for healthcare organisations on patient safety and quality of healthcare based upon national/international standards. NABH is an Institutional Member of the International Society for Quality in Health Care (ISQua), a member of the Accreditation Council of International Society for Quality in Health Care (ISQua) and on board of Asian Society for Quality in Healthcare (ASQua).

IV. **National Accreditation Board for Education & Training (NABET):** NABET provides accreditation to schools, training course providers and auditors that meet the Board's criteria and also offers a mechanism for their international recognition.

NABET has established MRAs with the following international agencies:
- American National Standard Institute (ANSI), USA

- [Scottish Qualification Authority (SQA), Scotland](#)

This means that products from EEA area may have to go through additional certification by QCI accredited body since SDoC or certification from non-accredited entity may not be accepted, unless there is an MLA.

7.2. Bureau of Indian Standards (BIS)

BIS, national standardization body of India, also grants BIS certification to ensure products, services and systems meet high-quality, reliability, and safety in accordance with Indian Standards (IS).

7.2.1. Mandatory BIS Certification Schemes

The Bureau of Indian Standards (BIS) mandates several certification schemes to ensure product quality and safety. These include:

a) Scheme-I: ISI Mark Certification Scheme
b) Scheme-II: Compulsory Registration Scheme (CRS)
c) Scheme-IV: Grant of Certificate of Conformity (CoC)
d) Scheme-X: Certification for LV Switchgear & Control gear
e) Hallmarking Scheme: Jeweller Registration Scheme

a) Scheme-I: ISI Mark Scheme

BIS through BIS Act, 2016 operates a product certification scheme for standardization of goods that enter the market for sale to consumers. Under the product certification scheme – I, BIS grants licence to use the standard mark or grants certificate of conformity as per conformity assessment schemes given in [BIS (Conformity Assessment) Regulations, 2018](#) . The conformity assessment schemes are laid down in BIS (Conformity Assessment) Regulations, 2018 which are based on principles laid down in IS/ISO/IEC 17067: 2013.

The Product Certification Scheme aims at providing Third Party assurance of quality, safety, and reliability of products to the customer. Presence of BIS certification mark, known as Standard Mark, on a product is an assurance of conformity to the specifications. The manufacturer is permitted to self-certify the licenced products after ascertaining its conformity to the standard. Though its surveillance operations, the Bureau maintains a close vigil on the quality of certified goods. The conformity is ensured by regular surveillance of the licensee's performance by surprise inspections and testing of samples, drown both from the market/factory.

Quality Control Orders (QCOs): BIS product certification scheme is basically voluntary in nature. However, for a number of products, compliance to Indian Standards is made compulsory by the Government under various considerations viz. public interest, protection of human, animal or plant health, safety of environment, prevention of unfair trade practices and national security. For such products, the Government directs mandatory use of Standard Mark under a Licence or Certificate of Conformity (CoC) from BIS through issuance of Quality Control Orders (QCOs).

The Central Government, after consulting BIS, publishes QCOs in exercise of the powers conferred by sub-sections (1) and (2) of section 16 read in conjunction with section 17 and sub-section (3) of section 25 of the BIS Act, 2016 thereby bringing the products under BIS Mandatory Certification.

The products under QCOs shall conform to corresponding Indian Standard(s) mentioned in the QCO and shall bear the Standard Mark under a Licence or CoC from BIS as per the relevant Scheme of BIS (Conformity Assessment) Regulations, 2018 as notified in the Order.

To date, various regulators and line ministries of the Government of India in close coordination with BIS have notified a total of **187 Quality Control Orders**, covering **769 products** under compulsory BIS certification.

Table 3: List of products under ISI Mark Scheme of BIS	
Products category	**Sub-Category**
Cement	Different kind of Portland cement, sulphated cement
Household Electrical goods	RCCBs, RCVOs, Lamps, Iron, Water Heater, Electric Stoves, Room Heaters, Switches, Cables
Batteries	Multi-Purpose dry batteries
Feeding Bottles	Plastic Feeding Bottles, Glass Feeding Bottles
Oil Pressure Stoves	Oil pressure stove, offset burner type, multi-burner oil pressure stoves
Automobile Accessories	Tubes for pneumatic tyres, Pneumatic tyres for 2W, 3W, passenger car vehicles, commercial vehicles
Cylinder, Valves and Regulator	LPG Cylinders, Valves, Regulators
Medical Equipment	Clinical thermometers, Diagnostic Medical X-Ray Equipment
Steel and Iron Products	Steel wires, steel bars, steel tubes, steel Ply, structural steel
Electrical Transformers	Outdoor type Oil immersed Distribution Transformers up to and including 2500kVA
Electrical Motors	Energy Efficient Induction Motors - Three Phase Squirrel Cage
Capacitors	A.C. motor capacitors, Power Capacitors of Self-healing Type, Shunt Power Capacitors of the Non-Self-Healing Type
Chemicals, Fertilizers, Polymers & Textiles	Caustic Soda, Boric Acid, Poly Aluminium Chloride, Acetic Acid, Aniline, Methanol, Phthalic Anhydride, Pyridine, Gamma Picoline, Beta Picoline, Morpholine, Sodium Sulphide…
Kitchen Appliances	Hand-held Blender, Domestic Electric Food Mixer (Liquidizers and Grinders) and Centrifugal Juicer
Domestic Water Heaters for use with LPG	Instantaneous Domestic Water Heater for use with Liquefied Petroleum Gas

Air Conditioner and its related Parts, Hermetic Compressor and Temperature Sensing Controls	Room Air Conditioners, Ducted and Package Air Conditioners, Hermetic compressor
Plugs and Socket-Outlets and Alternating Current Direct Connected Static Prepayment Meters for Active Energy	Plugs and socket-outlets, Alternating Current Direct Connected Static Prepayment Meters for Active Energy
Domestic Gas Stoves for use with Liquefied Petroleum Gases	Domestic Gas Stoves for use with Liquefied Petroleum Gases
Transparent Float Glass	Transparent Float Glass
Domestic Pressure Cooker	Domestic Pressure Cooker
Cables	PVC Insulated (Heavy Duty) Electric Cables, Polyethylene Insulated PVC Sheathed Cables, polyethylene insulated Thermoplastics sheathed cables, Aerial Bunched Cables, Elastomer Insulated Cables…
Rubber Hose for Liquefied Petroleum Gas (LPG)	Rubber Hose for Liquefied Petroleum Gas (LPG)
Aluminium Foil	Aluminium and Aluminium Alloy Bare Foil for Food Packaging
Non-Electric Toys	Safety of Toys
Electric Toys	Safety of Electric Toys
Flat Transparent Sheet Glass	Flat Transparent Sheet Glass
Safety Glass	Safety Glass
Woven Sacks	Textiles –High Density Polyethylene (HDPE)/ Polypropylene (PP) Woven Sacks
Butterfly Valves	Butterfly valves for general purpose
Reflectors for Bicycles	Retro-reflective Devices
Cattle Feeds	Compounded Feeds for Cattle
Automobile Wheel Rim Component	Automotive Vehicles Wheel Rims for 2Ws and 3Ws
Footwear	Industrial and protective rubber, Personal protective equipment, Leather safety footwear, Canvas Shoes Rubber Sole
Press Tool-Punches	Tools for Pressing

Helmet for riders of Two-Wheeler Motor Vehicles	Helmet for riders of Two-Wheeler Motor Vehicles
Refrigerating Appliances	Household Refrigerating Appliances, Freezers
Centrifugally cast (Spun) iron pipes	Centrifugally cast (Spun) iron
Flux Cored (Tubular) Electrodes	Flux Cored (Tubular) Electrodes for Gas Shielded and Self-Shielded Metal Welding of Carbon or Carbon- Manganese Steel
Sewing Machine	Household Zig-Zag Sewing Machine Head
Water Treatment System	Reverse Osmosis Based Point of Use Water Treatment System for Drinking Purposes
Jute Bag	Jute Bags
Viscose Staple Fibres	Viscose Staple Fibres
Geo Textiles	Laminated High Density Polyethylene (HDPE) Woven Geomembrane for Waterproof Lining, Jute Geotextiles, Geotextiles used in sub-grade separation in pavement structures, Geotextiles used in Subsurface Drainage Application, Geotextiles used in Sub-grade Stabilisation in pavement structures, Geocells etc.
Protective Textiles	Curtains and Drapes, Protective clothing and Gloves for firefighters, industrial workers, Protective Clothing for use in welding and allied processes, Bullet resistant jackets, Water-proof multipurpose rain poncho etc.
Upholstered Composites used for Non-Domestic Furniture	Upholstered Composites used for Non-Domestic Furniture
Flame- Producing Lighters	Lighters, Utility Lighters
Potable Water Bottles	Potable Water Bottles (Copper, Stainless Steel, Aluminium)
Welding Rods and Electrodes	Covered electrodes for manual metal arc welding of carbon and carbon manganese steel, Welding rode and bare electrodes for gas shielded arc welding of structural steel
Smart Meters	A.C. Static Direct Connected Watt Hour Smart Meter, A.C. Static Transformer Operated Watt Hour and Var-Hour Smart Meters
Electric Ceiling Type Fans	Electric Ceiling Type Fans
Water meters and accessories	Water meters (bulk type), Water meters (domestic type), Ferrules for water services

For the complete list of products under compulsory certification, please click here>>

Additionally, BIS has initiated efforts to provide details on upcoming QCOs issued by the concerned Ministry/Department of the Government of India. For more information, please click here>>

Under this "Scheme-I on ISI Mark, there are three types of product certification scheme as mentioned below:

1. Domestic Manufacturers Certification Scheme
   i. Normal Procedure
   ii. Simplified Procedure
2. Foreign Manufacturers Certification Scheme
3. Eco-mark Certification Scheme/Rules

Domestic Manufacturers Certification Scheme

The applicant may choose one of the two options available for grant of licence:

Option 1: The applicant is required to submit the filled in application along with required documents and requisite fee to the Branch Office under whose jurisdiction the manufacturing unit is located. Subsequently, after recording of the application, a preliminary factory evaluation is carried out by BIS officer to ascertain the capability of the applicant/manufacturer to produce goods according to the relevant Indian Standard and to verify the availability of complete testing facility and competent technical personnel. Samples are tested in the factory and drawn for independent testing. Grant of license is considered by BIS provided the samples pass during independent testing, preliminary evaluation is satisfactory, and the applicant agrees to operate the defined Scheme of Testing & Inspection and pay the prescribed marking fee. By this procedure, the license is expected to be granted within 4 months of recording of application by BIS and 6 months in case of all India first license for a product.

Option 2: In this procedure, the applicant is required to submit test report(s) from specified laboratories along with the application. Grant of license is considered provided the verification visit is found to be satisfactory and the applicant agrees to implement the defined scheme of testing and inspection and pay the prescribed marking fee. Sample(s) is (are) drawn during the verification visit for independent testing, but the conformity of this sample does not form a pre-condition for grant of license. However, the test result is used for review purpose.

Guideline for grant of license is available [here. Click here](#) *to refer BIS Act 2016, BIS Rules 2018, BIS (Conformity Assessment) Regulations 2018 and various guidelines framed there under.*

Market Surveillance: BIS undertakes various surveillance measures for its product certification scheme which aims to check conformance of certified products to applicable standard(s). These surveillance operations also provide inputs & opportunities for improvement to licensee. The various types of conformity assessment surveillance activities are as follows:

1) Pro-active surveillance
   i. Pre-market surveillance activities (Addressed in [document CMD-I/2:12:6](#))
      i. Factory surveillance visits
      ii. Pre-despatch inspection visits
   ii. Post-market surveillance activities (Addressed in document [CMD-I/2:12:7](#))

       i.   Procurement of product samples from market

       ii.   Feedback from buyers

2) Re-active surveillance (Addressed in document CMD-I/2:12:6)

       i.   Surveillance based on consumer complaint or feedback

3) Dynamic surveillance (Addressed in both documents CMD-I/2:12:7 and CMD-I/2:12:6)

For more information about market surveillance for product certification scheme, please download "Guidelines for market surveillance during operation of licence for the conformity assessment Scheme – I of Schedule – II of BIS (Conformity Assessment) Regulations, 2018"

Foreign Manufacturers Certification Scheme

Bureau of Indian Standards (BIS) has been operating a Foreign Manufacturers Certification Scheme (FMCS) since the year 2000 under BIS Act, 2016 and Rules & Regulations framed there under. Under FMCS, license is granted to a Foreign Manufacturer for use of Standard Mark on a product that conforms to an Indian Standard and sell their products in India. The standards may be under mandatory or voluntary certification.

The license is granted by Foreign Manufacturers Certification Department (FMCD) located at BIS Headquarters, New Delhi. The BIS license is granted for a location where the product is manufactured and tested as per relevant Indian Standard(s) and Standard Mark is applied on the product conforming to such Indian Standard(s). Click here to read more about FMCS.

Note: The Scheme is applicable for grant of licence for all products except Electronics & IT Goods notified by MeitY.

Market Surveillance: The market surveillance activities of foreign manufacturers shall be planned and prepared by Foreign Manufacturers Certification Department (FMCD) with approval of the competent authority. For collection of samples from market in India, FMCD may raise a request to CSMD to utilise the services of AGENT(s). For more information, please click here>>

ECO-MARK Rules 2024

Recently, the Ministry of Environment, Forest and Climate Change (MoEFCC) notified the Ecomark Rules, 2024 in the Official Gazette, replacing the Ecomark Scheme of 1991. The Rules were notified to keep it in line with existing sustainability and environmentally friendly practices and with the Environment Ministry's Mission LIFE (Lifestyle for Environment), which promotes sustainable consumption.

The new scheme aims to promote lower energy consumption, resource efficiency and conservation, circular economy and prevent misleading information on environment aspects of products.

Products accredited under the Ecomark Scheme will adhere to specific environmental criteria, ensuring minimal environmental impact. It will build consumer awareness of environmental issues

and encourage sustainable consumption. It will also motivate manufacturers to shift towards environmentally friendly production.

The presence of ECO Logo along with ISI Mark on a product indicates that the product meets certain Environmental criteria along with the Quality requirements as specified in the relevant Indian Standard.

The combination of ISI Mark and ECO Logo is as given below:

The scheme will be implemented by the Central Pollution Control Board (CPCB) in partnership with the Bureau of Indian Standards (BIS).

The scheme marks a significant step in promoting sustainable lifestyles and, through individual and collective decision making, encourages sustainable consumption in India. It aligns with global sustainability goals and reflects the government's commitment to conservation and protection of the environment. For more information, please click here>>

b)   Scheme-II (Compulsory Registration Scheme)

Scheme-II (Compulsory Registration Scheme) was introduced by Ministry of Electronics and Information and Technology (MEITY) along with Bureau of Indian Standards (BIS) in 2012. The primary objective of this scheme is to curb sale of spurious imported products in the country. Under this scheme it is mandatory for manufacturers to get their products registered before launching them in market.

Since its inception, various ministries of Government of India have notified following **73 products** that require mandatory registration under the Bureau of Indian Standards (BIS) before sale in the country.

Sl. No.	Product	IS No.
1	AMPLIFIERS WITH INPUT POWER 2000W AND ABOVE	IS 616:2017
2	AUTOMATIC DATA PROCESSING MACHINE	IS 13252(Part 1):2010
3	ELECTRONIC CLOCKS WITH MAINS POWER	IS 302-2-26:2014
4	ELECTRONIC GAMES (VIDEO)	IS 616:2017
5	ELECTRONIC MUSICAL SYSTEMS WITH INPUT POWER 200W AND ABOVE	IS 616:2017
6	LAPTOP/NOTEBOOK/TABLET	IS 13252(Part 1):2010
7	MICROWAVE OVENS	IS 302-2-25:2014

8	OPTICAL DISC PLAYERS WITH BUILT IN AMPLIFIERS OF INPUT POWER 200W AND ABOVE	IS 616:2017
9	PLASMA/LCD/LED TELEVISIONS OF SCREEN SIZE 32"; AND ABOVE	IS 616:2017
10	PRINTERS, PLOTTERS	IS 13252(Part 1):2010
11	SCANNERS	IS 13252(Part 1):2010
12	SET TOP BOX	IS 13252(Part 1):2010
13	TELEPHONE ANSWERING MACHINES	IS 13252(Part 1):2010
14	VISUAL DISPLAY UNITS, VIDEOS MONITORS OF SCREEN SIZE 32" AND ABOVE	IS 13252(Part 1):2010
15	WIRELESS KEYBOARDS	IS 13252(Part 1):2010
16	CASH REGISTERS	IS 13252(Part 1):2010
17	COPYING MACHINES/DUPLICATORS	IS 13252(Part 1):2010
18	PASSPORT READER	IS 13252(Part 1):2010
19	POINT OF SALE TERMINALS	IS 13252(Part 1):2010
20	MAIL PROCESSING MACHINES/POSTAGE MACHINES/FRANKING MACHINES	IS 13252(Part 1):2010
21	POWER BANKS FOR USE IN PORTABLE APPLICATIONS	IS 13252(Part 1):2010
22	SMART CARD READER	IS 13252(Part 1):2010
23	MOBILE PHONES	IS 13252(Part 1):2010
24	SELF-BALLASTED LED LAMPS FOR GENERAL LIGHTING SERVICES	IS 16102(Part 1):2012
25	DC OR AC SUPPLIED ELECTRONIC CONTROLGEAR FOR LED MODULES	IS 15885(Part 2/Sec 13):2012
26	POWER ADAPTORS FOR AUDIO, VIDEO & SIMILAR ELECTRONIC APPARATUS	IS 616:2010
27	POWER ADAPTORS FOR IT EQUIPMENTS	IS 13252(Part 1):2010
28	FIXED GENERAL PURPOSE LED LUMINAIRES	IS 10322(Part 5/Sec 1):2012
29	UPS/INVERTORS OF RATING <= 5KVA	IS 16242(Part 1):2014
30	SEALED SECONDARY CELLS/BATTERIES CONTAINING ALKALINE OR OTHER NON-ACID ELECTROLYTES FOR USE IN PORTABLE APPLICATIONS PART 1 NICKEL SYSTEMS	IS 16046(Part 1): 2018
	SEALED SECONDARY CELLS/BATTERIES CONTAINING ALKALINE OR OTHER NON-ACID ELECTROLYTES FOR USE IN PORTABLE APPLICATIONS PART 2 LITHIUM SYSTEMS	IS 16046(Part 2): 2018
31	INDIAN LANGUAGE SUPPORT FOR MOBILE PHONE HANDSETS	IS 16333 (Part 3): 2022
32	Recessed LED Luminaries	IS 10322 (Part 5/Section 2): 2012
33	LED Luminaires for Road and Street lighting	IS 10322 (Part 5/Section 3): 2012

34	LED Flood Lights	IS 10322 (Part 5/Section 5): 2013
35	LED Hand lamps	IS 10322 (Part 5/Section 6): 2013
36	LED Lighting Chains	IS 10322 (Part 5/Section 7): 2017
37	LED Luminaires for Emergency Lighting	IS 10322 (Part 5/Section 8): 2013
38	UPS/Inverters of rating <= 10kVA	IS 16242 (Part 1): 2014
39	Plasma/ LCD/LED Television of screen size up-to 32	IS 616: 2017
40	Visual Display Units, Video Monitors of screen size up to 32	IS 13252 (Part 1): 2010
41	CCTV Cameras/CCTV Recorders	IS 13252 (Part 1): 2010, Essential Requirement(s) for Security of CCTV
42	Adapters for household and similar electrical appliances	IS 302 (Part 1): 2008
43	USB driven Barcode readers, barcode scanners, Iris scanners, Optical fingerprint scanners	IS 13252 (Part 1): 2010
44	Smart watches	IS 13252 (Part 1): 2010
45	Crystalline Silicon Terrestrial Photovoltaic (PV) modules (Si wafer based)	IS 14286: 2010/ IEC 61215: 2005, IS/IEC 61730 (Part 1): 2004 & IS/IEC 61730 (Part 2): 2004
46	Thin-Film Terrestrial Photovoltaic (PV) Modules (a-Si, CiGs and CdTe)	IS 16077: 2013/ IEC 61646: 2008, IS/IEC 61730 (Part 1): 2004 & IS/IEC 61730 (Part 2): 2004
47	Power converters for use in photovoltaic power system	IS 16221 (Part 2): 2015 / IEC 62109-2: 2011
48	Utility-Interconnected Photovoltaic inverters	IS 16221 (Part 2):2015/IEC 62109-2 :2011 & IS 16169 :2014/IEC 62116 :2008
49	Storage battery	IS 16270: 2014
50	Independent LED Modules for General Lighting	IS 16103 (Part 1): 2012
51	Lighting Chain (Rope Lights)	IS 10322 (Part 5/Sec 9): 2017
52	Keyboard	IS 13252 (Part 1): 2010
53	Induction Stove	IS 302-2-6: 2009
54	Automatic Teller Cash dispensing machines	IS 13252 (Part 1): 2010

55	USB Type External Hard Disk Drive	IS 13252 (Part 1): 2010
56	Wireless Headphone and Earphone	IS 616: 2017
57	USB Type External Solid-State Storage Devices (above 256 GB capacity)	IS 13252 (Part 1): 2010
58	Electronic Musical System with input power below 200 Watts	IS 616: 2017
59	Standalone Switch Mode Power Supplies (SMPS) with output voltage 48V (max)	IS 13252 (Part 1): 2010
60	Television other than Plasma/ LCD/LED TVs	IS 616: 2017
61	Rice Cooker	IS 302-2-15: 2009
62	Wireless Microphone	IS 616: 2017
63	Digital Camera	IS 13252 (Part 1): 2010
64	Video Camera	IS 616: 2017
65	Webcam (Finished Product)	IS 616: 2017
66	Smart Speakers (with and without Display)	IS 616: 2017
67	Dimmers for LED products	IS 60669-2-1: 2008
68	Bluetooth Speakers	IS 616: 2017
69	Ortho Phosphoric Acid	IS 798: 2020
70	Polyphosphoric Acid	IS 17439:2020
71	Cotton Bales	IS 12171:2019
72	Trimethyl Phosphite Technical Grade	IS 17412:2020
73	Television Sets	IS 18112:2022

As per the Orders, no person shall manufacture or store for sale, import, sell or distribute goods which do not conform to the Indian Standard specified in the Order. Manufacturers of these products are required to apply for registration from Bureau of Indian Standards (BIS) after getting their product tested from BIS recognized labs.

Bureau of Indian Standards (BIS) then registers the manufacturers under its registration scheme who are permitted to declare that their articles conform to the Indian Standard (s). The registered manufacturers are then allowed to use the Standard Mark notified by the Bureau.

Overseas Manufacturers are required to have a local representative in India who will represent the manufacturer locally and will be responsible for placing the product in the market. For more information about CRS please *Click here and for the list of product categories, please click here.* The *list of BIS approved labs is available here*.

Market Surveillance of products covered under Electronics and Information Technology Goods (Requirement of Compulsory Registration) Order, 2021

The effective surveillance is an integral part of the Compulsory Registration Order (CRO). MeitY has revamped the surveillance process wherein STPI has been entrusted to assist MeitY in activities like collection/ delivery of the test samples to the BIS-recognized labs, first-level review of test reports,

and collection of surveillance charges (as notified by MeitY) for implementation of CRO. For more information, please click here>>

c) Scheme – IV (Grant of Certificate of Conformity)

The Bureau of Indian Standards (BIS) has begun issuing Certificates of Conformity in accordance with Scheme-IV of Schedule II of the BIS (Conformity Assessment) Regulation, 2018. A Certificate of Conformity (CoC) can be issued for goods and articles (products) manufactured in compliance with the specifications outlined in the relevant Indian Standards.

Following two products are covered under Scheme-IV:
- Stampings/laminations/cores of transformers (with or without winding)
- Requirement of Retro-Reflective Devices for Bicycles

For manufacturers of products covered by a CoC, obtaining a Certificate of Conformity from BIS is essential. Each product under mandatory CoC must display the CoC Number and be manufactured using materials that carry the BIS Standard Mark (ISI Mark). To ensure national security, public interest, and the prevention of unfair trade practices, the government has mandated compliance with Indian Standards for various products through Quality Control Orders. Read more>>

d) Scheme – X (Certification)

The Bureau of Indian Standards (BIS) introduced "Scheme X" on March 16, 2022, under BIS Conformity Assessment Regulations, 2018 (amendment 2022). Under Scheme X, BIS certification is mandatory for
  i. low-voltage switchgear and control gear products notified by Ministry of Heavy Industries and
 ii. Machinery and Electrical Equipment covered under Omnibus Technical Regulation.

The mandatory certification requirements will be implemented in a phased manner, ensuring a systematic and organized rollout until May 2027. These affected product categories were formerly covered under BIS-ISI, but have now been categorized under BIS Scheme X. Nonetheless, the requirements are identical to BIS-ISI. For more information, please click here>>

e) Hallmarking Scheme

Under BIS Hallmarking Scheme, gold as well as silver jewellery sold in India needs to conform to a set of standards laid by the Bureau of Indian Standards, the national standards organization of India.

The BIS Hallmarking Scheme has been aligned with international criteria on hallmarking. As per this scheme, Registration is granted to the jewellers by BIS under Hallmarking Scheme. The BIS certified jewellers can get their jewellery hallmarked from any of the BIS recognized Assaying and Hallmarking Centres. The recognition of an Assaying and Hallmarking Centre is done against IS 15820:2009. Read more>>

Market surveillance: Under hallmark scheme of BIS, market surveillance of jewellers involves BIS representatives verifying the authenticity of HUID codes, drawing samples for testing, and ensuring compliance with display requirements, with non-compliance leading to warnings and potential registration cancellation. For more information, please click here>>

7.2.2.   Laboratory Recognition Scheme (LRS)

To protect consumer's interest, BIS operates various conformity assessment schemes. Under these schemes, BIS grants licenses/registrations to such manufacturers who are capable of producing goods conforming to relevant Indian Standards, on continuous basis. To support these scheme, which requires testing of products on regular basis for checking conformity to the relevant Indian Standards, BIS has established a network of eight laboratories. For list of BIS laboratories click here.

As it is neither physically possible nor economically viable for BIS laboratories to develop testing facilities for each and every product covered under BIS Product Certification Scheme, a Laboratory Recognition Scheme (LRS) has been formulated with the objective of having sufficient number of outside laboratories in India and abroad to cater to the needs of Product Certification Scheme. Please click here for the list of BIS Recognized Lab.

The Laboratory Recognition Scheme (LRS) is governed by the provisions under Section 13 (4) of The BIS Act 2016 and the BIS Rules, 2017 [32 (2), (3) & (4). These statutory provisions confer upon BIS, powers to recognize any laboratory in India or in any other country for carrying out testing of samples in relation to use of the Standard Mark and such other functions as may be necessary. The Rules also provide for de-recognition of a recognized laboratory by the Bureau for non-fulfilment of any condition laid down at the time of recognition. The guidelines for recognition and de-recognition of the laboratories have been laid down in this Scheme. BIS also maintains a record of such laboratories as are recognized by it for testing of samples of articles or processes in relation to relevant Indian Standards.

BIS recognized labs:

As of the latest information available, BIS has recognized 367 labs under its Laboratory Recognition Scheme, which include reputed R&D organizations, technical institutions, Government labs and labs in private sector.
-    GROUP-1 List of BIS recognised laboratories (21-03-2025)
-    GROUP-2 Lab of National Repute and Eminence, facilities of which are being utilized by BIS (as on 12-03-2025)

For more information, please click here>>

7.3.   Telecom Engineering Centre (TEC)

TEC, technical body of the Department of Telecommunications, Government of India, carries out testing and certification of telecom products/equipments in accordance with the **Mandatory Testing Certification of Telecommunication Equipment (MTCTE) regulations** to ensure their compliance with the prescribed technical standards.

7.3.1. Mandatory Testing and Certification of Telecom Equipment's (MTCTE)

The Department of Telecommunications, Ministry of Communications, Government of India vide Gazette Notification No. G.S.R. 1131(E) dated 5th September 2017 has amended the Indian Telegraph Rules, 1951 (Amendment 2017) to introduce Mandatory Testing & Certification of Telecom Equipment (MTCTE). Telecommunication Engineering Centre (TEC) is implementing MTCTE in India in phases. In MTCTE, every telecom equipment needs to undergo mandatory testing and certification prior to sale, import for use in India. The testing is to be carried out for conformance to Essential Requirements for the equipment, by Indian Accredited Labs designated by TEC and based upon their test reports, certificate shall be issued by TEC.

There are two types of TEC MTCTE Certification schemes:

1. **General Certification Scheme (GCS):** Under this TEC MTCTE Certification scheme, the applicant shall be required to submit test wise compliance (summary sheet provided with the test report) along with the test reports itself, in accordance with the parameters included in the Essential Requirements (ERs), from any designated Conformity Assessment Bodies (CAB) or recognized CAB of Mutual Recognition Arrangement (MRA) partner country. The test results shall be evaluated for compliance against respective ERs.

2. **Simplified Certification Scheme (SCS):** Under this TEC MTCTE Certification scheme, the applicant must test the product in accordance with the Essential Requirements and submit a test wise compliance sheet along with a Self-Declaration of Conformity (SDoC), in accordance with the parameters included in the ERs. All other rules/procedures that apply under the GCS shall apply in case of SCS, with the exception of the test reports, which are not required to be submitted by the applicant or evaluated by TEC. TEC certification, however, reserves the right to request a copy of the test report from the applicant to be submitted.

As of now, MTCTE covers 60 types of telecom products along with associated 197 product variants.

Table 4: List of Telecom products notified under MTCTE	
MTCTE Phase	**Telecom Product Name**
Phase-1	1) 2-Wire Telephone Equipment 2) G3 Fax Machine 3) Modem 4) Cordless Telephone 5) ISDN Customer Premises Equipment 6) Private Automatic Branch Exchange
Phase 2	7) Passive Optical Network (PON) family 8) Feedback Devices 9) Transmission Equipment (SDH, Multiplexing Equipment)

Phase 3	10) Base station for cellular network 11) Repeater for cellular network 12) Compact cellular network 13) Smart electricity meter 14) Tracking device 15) Internet of Things (IoT) Gateway 16) End-point device for environmental monitoring 17) Equipment operating in 2.4 & 5Ghz band
Phase 4	18) Transmission terminal equipment 19) Optical fiber (single mode) 20) Optical Fibre Cable 21) Satellite communication equipment 22) Radio Broadcast Receiver 23) Mobile radio trunk system 24) High Frequency (HF) radio 25) VHF/UHF radio system equipment 26) PTP/PMP (Point-to-Point/Point-to-Multipoint) microwave fixed radio system 27) IP security equipment 28) Router 29) LAN (Local Area Network) switch 30) Precision time control Grandmaster equipment 31) IP multimedia conferencing equipment 32) Mobile Management Entity 33) Conferencing equipment 34) Signaling Gateway 35) Media Gateway 36) Softswitch 37) Digital Subscriber Line equipment 38) Session border controller 39) Base Station Controller 40) Mobile Switching Centre (MSC) 41) Equipment Identity Register (EIR) 42) Subscriber Identity Module (SIM) 43) OTA (Over The Air) platform & device manager platform 44) Infiniband Switch 45) Home Location Register 46) Serving GPRS (General Packet Radio Service (mobile data standard on the 2G and 3G cellular communication networks)) support node 47) Serving gateway 48) Mobile management entity 49) Short Message Service Centre (SMSC) 50) Cell Broadcast Centre 51) Service Control Point (SCP) 52) Operation Maintenance Centre (OMC) 53) Gateway Mobile Location Centre (GMLC) 54) Service Mobile Location Centre (SMLC)

Phase 5	55) Base station for cellular network for 5G 56) 5G Core 57) Hypervisor 58) E-band Fixed Radio Relay System 59) Converged Multi service Application Access Equipment (C-MSAAE) 60) IP (Internet Protocol) Terminal

The certification process involves evaluating the performance, quality, and interoperability of the equipment through various tests and assessments. The testing is to be carried out for conformance to Essential Requirements for the equipment, by Indian Accredited Labs designated by TEC and based upon their test reports, certificate shall be issued by TEC.

TEC also recognises Foreign CABs/CBs located in the territory of MRA partner to perform testing and certification of telecom products to Indian requirements. This helps in promoting the use of reliable and compatible telecom equipment in the Indian market. For more information please click here>>

For more information about MTCTE, please click here>>

7.3.2.   Conformity Assessment

TEC has been appointed as the Designating Authority (DA) for Telecom Equipment. TEC as DA will be designating Conformity Assessment Bodies (CABs)/ Certification Bodies (CBs) located in India to perform testing and certification of telecom products. The role of TEC as DA is also to recognizing Foreign CABs/ CBs located in the territory of MRA partner to perform testing and certification of telecom products to Indian requirements.

The following documents lay down the procedures and criteria for designating Conformity Assessment Bodies for testing and/or certifying the MRA partnership requirements. The document also lays down the procedure for recognizing Foreign CABs/ CBs designated by the MRA partners to certify to Indian requirements. To qualify for designation/ recognition, the CABs/ CBs must fulfil the criteria as given in the scheme at clause no. 9.
o   Scheme for Designating Domestic Testing and Certification Bodies for Conformity Assessment of Telecommunication Equipment (New Scheme of CAB Designation-Issue 3-TEC 04019:2023 -effective from 19.04.2023)
o   Scheme for Recognising Foreign Testing and Certification Bodies for Conformity Assessment of Telecommunication Equipment (Issue 2- December 2017)

TEC as the Designating Authority reserves the right to amend and introduce new requirements to this scheme as and when required.
A Conformity Assessment Body (CAB)/ Certification Bodies (CBs) in India interested in certifying and/or testing of any telecom products to the requirements of a foreign country/custom territory that has entered into Mutual Recognition Agreement or Arrangement with India need to apply to TEC. Similarly, the Foreign CABs/CBs designated by the MRA partner may apply for Recognition for testing and /or certifying the Indian requirements.

At present, India has Mutual Recognition Agreement or Arrangement (MRA) with Singapore in Telecom Sector. IDA Singapore has scheme for recognition of CAB / CBs which gives details of their Telecom Specifications and Test Procedure. Details about Singapore on Telecom sector is available at Infocomm Development Authority (IDA), Singapore.

- CAB details w.r.t. Test parameters
- Click here for payment for CAB through NTRP (online)
- Provisional Designation for Domestic Conformity Assessment Bodies (CABs)
- Designation of Labs as Conformity Assessment Body (CAB) for 5G Products
- Labs (CAB) Designated by TEC
- CAB Designation withdrawn

For more information, please click here>>

7.4. Standardization Testing and Quality Certification (STQC), MEITY

Standardisation Testing and Quality Certification (STQC) Directorate is an attached office of the Meity, India, provides quality assurance services around Electronics and IT through countrywide network of laboratories and centres. The services include Testing, Calibration, IT & e-Governance, Training and Certification to public and private organizations.

STQC laboratories are having National / International accreditation and recognitions around testing and calibration.

Besides testing and calibration STQC has specialized institutions such as Indian Institute of Quality Management (IIQM) for quality related training programs and Centre for Reliability (CFR) for reliability related services. In the area of IT & e-Governance, STQC provides Quality Assurance Services for Software testing, Information Security, and IT Service Management by conducting Testing, Training, Audit and Certifications.

STQC Certification Services took lead and became the first Third Party Certification Agency of Indian origin in India in 1991 to offer QMS certification. Since then, STQC Certification Services has broaden its scope of certification and is now providing Certification Service in QMS Product Certification/ISMS/ITSM/Website quality / smart card / Biometric devices along with a host of other schemes for the benefit of the industry. It caters to the need of third-party certification for the products in line with National and International standards and schemes. STQC offers its certification services to industry and other organizations in the following domains:

- **Management System Certification Schemes**
  o ISO 9001 Quality Management System (QMS) Certification by National Accreditation Board for Certification Bodies (NABCB), India

- **Product Certification Schemes**
  o Product Safety Certification based on IEC Standards (S mark)
  o Agency Inspection Services

- **Mgmt. System, Product Certification (IT & e-Gov)**
  - o ISO 27001 Information Security Management System (ISMS) Certification
  - o Website Quality Certification
  - o Common Criteria Certification
  - o Smart Card Testing and Certification
  - o Bio-metric Devices Testing and Certification

STQC's international recognition has also been enhanced by virtue of its mutual recognition agreements with leading certification agencies across the world such as JQA, Japan; Kaitech, South Korea; KEMA, Netherlands, VDE, Germany etc. For more information about STQC, please click here

7.5. Controller of Certifying Authorities (CCA), MEITY

As per Section 18 of The Information Technology Act, 2000 provides the required legal sanctity to the digital signatures based on asymmetric cryptosystems. The digital signatures are now accepted at par with handwritten signatures and the electronic documents that have been digitally signed are treated at par with paper documents. The IT Act provides for the Controller of Certifying Authorities (CCA) to license and regulate the working of Certifying Authorities. The Certifying Authorities (CAs) issue digital signature certificates for electronic authentication of users.

The Controller of Certifying Authorities (CCA) has been appointed by the Central Government under section 17 of the Act for purposes of the IT Act. The Office of the CCA came into existence on November 1, 2000. It aims at promoting the growth of E-Commerce and E- Governance through the wide use of digital signatures.

The Controller of Certifying Authorities (CCA) has established the Root Certifying Authority (RCAI) of India under section 18(b) of the IT Act to digitally sign the public keys of Certifying Authorities (CA) in the country. The RCAI is operated as per the standards laid down under the Act.

The CCA certifies the public keys of CAs using its own private key, which enables users in cyberspace to verify that a given certificate is issued by a licensed CA. For this purpose, it operates, the Root Certifying Authority of India (RCAI). The CCA also maintains the Repository of Digital Certificates, which contains all the certificates issued to the CAs in the country. For more information please click here

8. Foreign Standards Developing Bodies (SDOs) active in India

Indian companies and consumers are looking for trusted quality and assurances of the product. This has opened the market for ISO standards based "Quality" certification and trainings for almost anything, including establishment of foreign Standards Development Organizations (SDOs) in India. These certificates based on global standards add value to the buyer as they bring a level of trust which would not be there otherwise.

8.1 ITU Area Office & Innovation Center in India

ITU is the United Nations' specialized agency for information and communication technologies (ICTs). Headquartered in Geneva, it has a network of field offices, regional Offices and area offices. India signed a Host Country Agreement in March 2022 with ITU for the establishment of Area Office. The Area Office in India is also envisaged to have an Innovation Centre embedded in it making it unique among other area offices of ITU. The Area Office, which is fully funded by India, is located on the second floor of the Centre for Development of Telematics (C-DoT) building at Mehrauli New Delhi. It will serve India, Nepal, Bhutan, Bangladesh, Sri Lanka, Maldives, Afghanistan and Iran, enhancing coordination among nations and fostering mutually beneficial economic cooperation in the region[2].

8.2 BSI Group India Pvt. Ltd. (BSI)

Since its foundation in 1901, BSI Group has grown into a leading global independent business services organization that inspires confidence and delivers assurance to customers with standards-based solutions. Originating as the world's first national standards body, BSI has a presence on every continent, with 87 offices in 31 countries across the world. Our clients range from globally recognized brands to small, local businesses. The Group's key offerings are:

o The development and sale of private, national, and international standards and supporting information.
o Second and third-party management systems assessment and certification
o Testing and certification of products and services
o Performance management software solutions
o Training services in support of standards implementation and business best practice.

BSI India is offering over **30,000 standards** which are EN, BS, ISO, and PAS standards which you can now buy locally in India in, India Rupees. BSI is registered in India as Indian "for profit" company and is the most dynamic entity with HQ in New Delhi and offices in Bengaluru, Chennai, Hyderabad, Kolkata, and Mumbai. For more information, please click here

8.3 IEEE, India

IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

IEEE and its members inspire a global community to innovate for a better tomorrow through its more than 400,000 members in over 160 countries, and its highly cited publications, conferences, technology standards, and professional and educational activities. IEEE is the trusted "voice" for engineering, computing, and technology information around the globe.

IEEE India Operations Center is headquartered in Bengaluru at the World Trade Center, located on Dr. Rajkumar Road in Rajajinagar.

---

[2] https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1909491#:~:text=The%20Area%20Office%20in%20India,building%20at%20Mehrauli%20New%20Delhi.

IEEE India Operations Center was established in 2010 with a focus on standards, technical activities, membership development, business development, and support for digital library customers. IEEE India is developing educational programs under the umbrella of the IEEE Blended Learning Program, focused on training and skills development. IEEE India Operations Center is also responsible for the territories of India, Sri Lanka, and Bangladesh for promoting the IEEE *Xplore®* Digital Library. IEEE India's Contact Center provides support for members in India and around the world. IEEE India also has a strong public-policy focus, engaging policy makers and technology experts.

IEEE India provides support to all the geographical units, which include IEEE India Council, 13 Sections, 132 Technical Society Chapters, and 1,145 Student Branches. For more information please click here

8.4   VDE

VDE, the Association for Electrical, Electronic & Information Technologies headquartered in Frankfurt am Main, and represented in Berlin and Brussels as well as with 29 branch offices throughout Germany has a local representative in India based out of National Capital Region, Sonipat Haryana supporting the local industry on VDE testing quality and safety standards.

VDE is the only organization in the world that combines science, standardization, testing, certification, and application consulting under one umbrella. For more information, please click here

8.5   DQS Certification India Pvt. Ltd. (DQS-AFNOR)

DQS Certification India Private Limited, a Delhi Quality Services initiative for Corporate Excellence since 1994, is an Authorized Transition Partner with SEI (Software Engineering Institute), Carnegie Mellon University (CMU), Pittsburgh, USA to provide CMMI Assessment and Training Services also known as CMMI Product Suite Services. DQS Certification India Private Limited in partnership with AFNOR Group of France (http://www.afnor.org/), the 5th largest Certification and Inspection Organization of the world, provides Management System Certification services also.

DQS Certification India Pvt Ltd prides itself in providing premium quality registration services on value for money costs through competent professionals of high calibre. The attempt is to provide personalized service with a human interface rather than making the client wrestle with faceless organizations and bulky procedural issues. With this intention, DQS Certification India Pvt Ltd, has been able to create a niche for itself in the intensely competitive scenario. For more information, please click here

8.6   Project Management Institute (PMI-ANSI)

The Project Management Institute Standards Program was established by the PMI Executive Director with the advice and counsel of the PMI Board of Directors and was commissioned to

improve the understanding and competency of experienced and new project management practitioners and customers worldwide. The role of the Standards Program is to identify, define, document, and champion generally accepted project management approaches and a common project management lexicon.

PMI was accredited by the American National Standards Institute (ANSI) as a Standards Developer under the accredited organization method on October 14, 1998, and has successfully completed periodic audits since that time. For more information, please click here

8.7 ASTM International-India

ASTM International is one of the largest voluntary standards development organizations in the world-a trusted source for technical standards for materials, products, systems, and services. Known for their high technical quality and market relevancy, ASTM International standards have an important role in the information infrastructure that guides design, manufacturing and trade in the global economy.

ASTM International, originally known as the American Society for Testing and Materials (ASTM), was formed in 1898. Today, ASTM continues to play a leadership role in addressing the standardization needs of the global marketplace. Known for its best-in-class practices for standards development and delivery, ASTM is at the forefront in the use of innovative technology to help its members do standards development work, while also increasing the accessibility of ASTM International standards to the world.

In 2009, technical advisor Mr. Jayakumar Gopalakrishnan, began serving as an ASTM International consultant in India to promote and enhance the awareness and use of ASTM International standards and related products and services relevant to the textile and personal protective equipment industries.

In August 2009, India's Central Institute of Plastics Engineering and Technology (CIPET) and ASTM International signed a letter of implementation for a training and collaboration program scheduled to take place in November 2009. Eight technical experts from several CIPET campuses attended an intensive two-week program that included training at ASTM headquarters and participation in the November committee week meetings of Committee D20 on Plastics.

ASTM International continues to welcome members from around the world, including India. For more information, please click here

8.8 American Society of Mechanical Engineers (ASME) India Pvt. Ltd.

ASME helps the global engineering community develop solutions to real world challenges. Founded in 1880 as the American Society of Mechanical Engineers, ASME is a not-for-profit professional organization that enables collaboration, knowledge sharing and skill development across all engineering disciplines, while promoting the vital role of the engineer in society. ASME codes and

standards, publications, conferences, continuing education, and professional development programs provide a foundation for advancing technical knowledge and a safer world.

ASME has four key offices in the United States, including its headquarters operation in New York, N.Y., and three international offices in Beijing, China; Brussels, Belgium, and New Delhi, India. ASME India office is in GURUGRAM (Haryana) INDIA. ASME has over 75,000 members in more than 130+ countries worldwide. Read more>>

9. Sources

Ministry/Department of Consumer Affairs
http://fcamin.nic.in/

Bureau of Indian Standards (BIS)
http://www.bis.gov.in/

Ministry of Communications, Department of Telecommunications (DoT)
http://www.dot.gov.in/

Telecom Engineering Centre (TEC)
http://www.tec.gov.in/

Telecommunications Standards Development Society, India
https://tsdsi.in/

Ministry of Electronics and Information Technology (MeitY)
http://meity.gov.in/

Automotive Research Association of India (ARAI)
https://www.araiindia.com/

Ministry of Environment, Forest, and Climate Change
https://moef.gov.in/
Ministry of New and Renewable Energy
https://mnre.gov.in/en/
Central Pollution Control Board - Ministry of Environment, Forests and Climate Change
http://cpcb.nic.in/

Ministry of Power (Smart Grid, Smart Meter)
https://powermin.gov.in/

Bureau of Energy Efficiency (BEE), Ministry of Power
https://beeindia.gov.in/en

Central Electricity Authority - Ministry of Power

http://www.cea.nic.in/

India Smart Grid Forum (ISGF)
http://www.indiasmartgrid.org/

Central Power Research Institute (CPRI) – Ministry of Power
https://cpri.res.in/

Ministry of Road Transport and Highways (Automotive)
http://morth.nic.in/

Ministry of Heavy Industries
https://heavyindustries.gov.in/

Ministry of Commerce and Industry, Department of Commerce
https://www.commerce.gov.in/

Department of Industrial Policy & Promotion - Ministry of Commerce and Industry
https://dpiit.gov.in/

Ministry of Housing and Urban Affairs
http://mohua.gov.in/

Ministry of Science & Technology (S&T)
http://www.dst.gov.in/

Ministry of Railways
https://www.indianrailways.gov.in/railwayboard/

e-Governance Standards portal - Ministry of Electronics and Information Technology
http://egovstandards.gov.in/

Standardisation Testing & Quality Certification Directorate - Ministry of Electronics and Information Technology
http://www.stqc.gov.in/

Quality Council of India (QCI) - Ministry of Commerce and Industry
http://qcin.org

Export Inspection Council of India (EIC) - Ministry of Commerce and Industry
http://www.eicindia.gov.in

BSI Group India Pvt. Ltd. (BSI)
http://www.bsigroup.co.in/

DQS Certification India Pvt. Ltd. (DQS – AFNOR)
http://www.dqsindia.com/

Project Management Institute (PMI – ANSI)
http://www.pmi.org/

IEEE Bengaluru Section
http://ieeebangalore.org/

ASTM International – India
https://www.astm.org/

Manufacturers' Association for Information Technology (MAIT)
http://www.mait.com/

National Association of Software and Services Companies (NASSCOM)
http://www.nasscom.in/

Data Security Council of India (DSCI)
http://www.dsci.in/

Confederation of Indian Industry (CII)
https://www.cii.in/

PM Modi inaugurates ITU Area Office & Innovation Center
https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1909491#:~:text=The%20Area%20Office%20in%20India,building%20at%20Mehrauli%20New%20Delhi.

Bureau of Indian Standards celebrates 78th Foundation Day
https://pib.gov.in/PressReleasePage.aspx?PRID=2090616

Bureau of Indian Standards notifies 187 Quality Control Order's covering 769 products under compulsory certification
https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2110935