



**प्रक्रियाएं और मार्गदर्शिकाएँ**

**टीईसी ०५००९:२०२०**

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**PROCEDURES AND GUIDELINES**

**TEC 05009:2020**

(Supersedes No. CSSP 01 MAY 08)

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**टीईसी मानकों/दस्तावेजों के नियमन के लिए प्रक्रियाएं  
और मार्गदर्शिकाएँ**

**PROCEDURES AND GUIDELINES FOR  
FORMULATION OF TEC STANDARDS/DOCUMENTS**



ISO 9001:2015

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**दूरसंचार अभियांत्रिकी केंद्र**

**खुर्शीदलालभवन, जनपथ, नई दिल्ली-११०००१, भारत**

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## HISTORY SHEET

S.No	Document No.	Title	Remarks
1	SSP-002 Oct.06	Standard and Specifications Formulation Procedure	
2	CSSP (01 MAY 2008)	Network Conformity Standards System & Procedures	
3	TEC 05009:2020 (Dec,2020)	Procedures and Guidelines for formulation of TEC Standards /Documents	Includes revised Numbering Scheme, timelines for formulation of documents, ERs with the launch of MTCTE and other related matter

# PROCEDURES AND GUIDELINES FOR FORMULATION OF TEC STANDARDS/DOCUMENTS

No. TEC 05009:2020

## **1.0 BACKGROUND**

Network Conformity Standards System & Procedures CSSP (01 MAY 2008) 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 also provide a new numbering scheme.

This revised version of Procedures and Guidelines for Formulation of TEC Standards/Documents erstwhile CSSP (01 MAY 2008) 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 01.08.2019.

## **2.0 SCOPE OF THE DOCUMENT**

The purpose of this document is to outline the process to be followed and the procedure to be used by Telecommunication Engineering Centre (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.

### **3.0 ABOUT TEC**

- 3.1 TEC is the technical arm of Department of Telecommunications, entrusted with the task of framing Standards/Specifications/Guidelines for Telecom Equipment & Telecom Network in the country with an objective to establish State-of-the-Art, seamlessly interoperable Telecom Networks. Telecom Equipment Manufacturers/Suppliers get their products tested and certified against these Standards.
- 3.2 TEC is driven by a vision consistent with the new demands of a competitive telecom environment wherein it would leverage its capability 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. Standards are formulated/adopted in consultation with its various stakeholders viz. Manufacturers, Traders, Telecom Service Providers, Labs, Academia etc.
- 3.3 Indian Telegraph (Amendment) Rules 2017, notified vide Gazette Notification No G.S.R. 1131(E) Part XI dated 5<sup>th</sup> September 2017, stipulate prior Mandatory Testing and Certification of Telecom Equipment (MTCTE) in respect of parameters as determined by the Telegraph Authority. TEC has been designated as the Telegraph Authority for the purpose of administration of MTCTE procedure, Surveillance Procedure and for

formulation of Essential Requirements (ERs). Telecom Equipment would be tested and certified against respective Essential Requirements.

3.4 TEC also issues the following certificates after conformance testing against relevant documents (TEC Standard document / Manufacturers Specifications and prototype of a telecom product).

- Type Approval Certificate (TAC)
- Interface Approval certificate (IAC)
- Certificate of Approval (CoA)
- Technology Approval

3.5 TEC has been notified as the Designating Authority (DA) on behalf of DoT for 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 recognize foreign CABs/CBs as Mutual Recognition Arrangement (MRA) partner to perform testing and certification of telecom products as per India's requirements. Further, various state of the art labs are also being setup in TEC, New Delhi. These labs would provide test bed and would help in finalizing test processes and procedures, besides capacity building of the officials and surveillance.

## **4.0 DEFINITIONS AND STRUCTURE OF TEC STANDARD DOCUMENTS**

### **STANDARD**

A Standard is a document that applies collectively to codes, specifications, recommended practices, classification, test methods and guides, which have been prepared by an organization or group after due consultation and published in accordance with established procedures. Most important advantages/needs of using TEC Standards, with regard to telecom equipment/network/services, are to:

- Ensure quality and reliability
- Comply with regulatory requirements & Improve market acceptance
- Ensure system interoperability & facilitate interchangeability of parts
- Comply with customer requirements & ensure safety of user
- Achieve economies in purchase of equipment

The TEC Standard documents are as follows:

Sr.No	Description of the Standard	Earlier Nomenclature
1.	TEC Standard for Generic Requirements for a Product/Equipment	Generic Requirements (GRs)
2.	TEC Standard for Interface Requirements for a Product/Equipment	Interface Requirements (IRs)
3.	TEC Test Guide associated with TEC Standards	Test Schedule and Test Procedure (TSTP)
4.	Standard for Service Requirements	Service Requirements (SRs)
5.	Standard document of TEC	Standard

Table-1

The details of TEC Standards are as follows:

#### 4.1 STANDARD FOR GENERIC REQUIREMENTS FOR A PRODUCT/EQUIPMENT

The Standard for Generic Requirements for a Product/Equipment (erstwhile Generic Requirements (GR)) for a telecom network element or a set of network elements, lays down its requirements for the product/equipment to work seamlessly in Indian Telecom Network. These requirements refer to the following:

- Interconnectivity and interoperability requirements
- Quality requirements
- EMI/EMC requirements



- Safety requirements
- Security requirements
- Any other equipment requirements that are considered generic
- Desirable requirements, if any

Type Approval Certificate (TAC) is issued for conformance testing against the clauses of Standard for Generic Requirements for a Product/Equipment.

#### 4.2 STANDARD FOR INTERFACE REQUIREMENTS FOR A PRODUCT/EQUIPMENT

The Standard for Interface Requirements for a Product/Equipment (erstwhile Interface Requirements (IR)) refers to the requirements of an interface between two network elements at different layers of protocol stacks as applicable. Interfaces are defined at different layers for convenience of peer-to-peer communication:

- Layer 1 Physical (Cable, RJ-45, E1 etc.)
- Layer 2 Link (MAC, Switches, PPP etc.)
- Layer 3 Network (IP, Q. 931 etc.)
- Layer 4 Transport (TCP, UDP, etc.)
- Layer 5 Sessions (Call setup, teardown, syn, ack, duplex/simplex operation etc.)
- Layer 6 Presentation (Encryption, ASCII, MPEG etc.)
- Layer 7 Application (SNMP, HTTP, FTP, WebSocket etc.)

Interface Approval Certificate (IAC) is issued for conformance testing against the clauses of Standard for Interface Requirement for a Product/Equipment.

#### 4.3 STANDARD FOR SERVICE REQUIREMENTS

The Standard for Service Requirements (erstwhile Service Requirements (SR)) details the services and network related requirements for specific applications, which should be met by service providers in accordance with the requirements specified by the Licensing Authority.

#### **4.4 STANDARD DOCUMENT OF TEC**

The Standard Document of TEC refers to a set of standard/common requirements or specifications inter-alia, in respect of protocols, numbering, routing, switching, safety, security, EMI/EMC, environmental related requirements etc. issued by TEC for the equipment or product or network. It can be used either independently or can be referred to in Generic Requirements/Interface Requirements/Service Requirements of the telecom products/services.

#### **4.5 TEC TEST GUIDE**

The Test Guide of TEC (erstwhile Test Schedule and Test Procedure (TSTP)) is associated with erstwhile Specifications i.e GRs/IRs/SRs. Test Guide involves testing and measurements to be performed as per Standard for Generic Requirements of a Product/Equipment, Standard for Interface Requirements of a Product/Equipment and Standard for Service requirements.

In view of the multi-functionality of the equipment with the advancement of technology, the testing method/procedure may broadly specify the expected/specified outcomes without insistence / adherence to particular testing equipment.

#### **5.0 FORMAT AND NUMBERING FOR STANDARD DOCUMENT**

5.1 Broad format of TEC Standard document shall be as under:

1. Contents
2. History Sheet
3. References
4. Introduction (of network element, or system, if any)
5. Description (of network element, or system in terms of components, architecture, etc.)

6. Functional/Operational Requirements
7. Interconnectivity and Interoperability Requirements
8. Quality requirements
9. EMI/EMC requirements
10. Safety requirements
11. Security requirements
12. Other Mandatory Requirements
13. Desirable Requirements
14. Glossary

The broad templates for TEC Standard for Generic Requirements for a Product/Standard for Interface Requirements for a Product/Standard for Service Requirements/Standard Document of TEC and Test Guide are annexed as Annexure A, B, C, D and E respectively. The template for cover page of TEC adopted Standard document is annexed as Annexure H.

## 5.2 NUMBERING OF STANDARD DOCUMENT

In order to maintain alignment/uniformity with the International pattern of numbering of Standards, TEC has adopted the following numbering scheme

### 5.2.1 NUMBERING SCHEME FOR TEC STANDARDS

TEC Standard documents shall be numbered as:

TEC ABCDE: YYYY

- TEC denotes TEC Standard
- ABCDE is Five-digit numeric number given to standard document

**AB (00-99)** indicates Domain /Major Technologies

**CD (00-99)** –Numeric number of Standard document; may be decided by respective TEC Division

**Digit E (Type of document):** Standard for Generic Requirements for a Product/ Standard for Interface Requirements for a Product/ Standard for Service Requirements (Earlier GRs/IRs/SRs) and their TSTPs may be numbered serially by respective Divisions. i.e digit E can be even number i.e. 0,2,4,6 for Product/Interface/Service/Standard and +1 i.e. 1,3,5 for related TSTP/Test Guide.

7&8 - Spare/reserve for future allotment by RC Division

9 - Guidelines (Division Specific)

YYYY: Document Approval Year.

If a document is revised during a year, then the revision should be mentioned in bracket after YYYY e.g. ABCDE: YYYY (Rev1.0). Where Rev1.0 means first revision, Rev 2.0 means second revision and so on during a year.If revision is done in subsequent years, then YYYY shall describe the revision whereas ABCDE will remain same.

#### 5.2.2 NUMBERING SCHEME FOR ADOPTED STANDARDS:

TEC has adopted two line numbering scheme for the adoption of Standards. As an example, if TEC has adopted TSDSI Standard document, it shall be represented as:

TEC Standard Document No.... → First Line

Adopted from

TSDSI STD No..... → Second Line

In case of adoption of documents, digit E shall be allotted by the concerned Division, giving a range of 000-999 (digits CDE) per domain (digits AB).

## 6.0 CONSTITUTION OF COMMITTEES, GROUPS AND FORUM

TEC Standard formulation mechanism envisages involvement of following Committees, Groups and Forum:

- a. Development Coordination Committee (DCC)
- b. DCC Sub-Committee
- c. Draft for Comments (DFC) Group
- d. Manufacturers' Forum (MF)

- e. Mandatory Testing Consultative Forum (MATCOF)(ref: para 9.2)
- f. Core Groups of TEC

Further, the Standard Adoption process by TEC consists of the following Institutional Framework:

- Telecom Standards Advisory Committee (TSAC)
- Consultative Committee (CC)
- Task Force

## 6.1 DEVELOPMENT COORDINATION COMMITTEE (DCC)

- i. DCC shall be the apex body approved by Sr. DDG / Head of TEC, which should consist of representatives from various stakeholders viz. DoT, C-DOT, LSAs, NTIPRIT, BBNL, TCIL, ITI, NCCS, other associated Govt. Departments/Societies, Service Providers and Associations etc. Each Division shall constitute a DCC for formulating Standard document. Being a technical body, special effort would be made to identify appropriate experts in telecom domain, while seeking nominations for DCC. DCC shall be the final body for recommending the draft TEC Standard. The draft TEC Standard shall be approved by Sr.DDG/Head of TEC and shall be called TEC Standard document.
- ii. Technical subjects dealt by TEC are sub-divided into seven broad categories:
  - a. Switching (Core Networks, Interoperability between networks Associated Services & Applications etc.)
  - b. Transmission (Optical, Radio, Satellite transport for Core, Edge and Access etc.)
  - c. Customer Networks (Access and Terminals etc.)
  - d. Information Technology (LAN, WAN, Routers, Switches etc.)
  - e. Wireless Systems (GSM, CDMA, WiMAX, LTE, NR, WiFi, Spectrum etc.)
  - f. Passive Infrastructure (Cable, Power Plant, Towers, Antennas etc.)
  - g. IoT, M2M, Smart devices, Future Networks, AI etc.

- iii. A DCC member shall ordinarily be from the top management of an organization capable of articulating the vision, plan and objective of his/her organization.
- iv. Each DCC shall have a nominated Deputy Director General (DDG) of TEC from concerned Division as its Chairperson and Director as Convener. Any DCC may have more than one DDG as member depending upon the subjects dealt with and for inter-disciplinary co-ordination. Steering of specific subjects within a discipline shall be carried out by the concerned DDG. DDG can also seek advice/input from industry experts not covered in the DCC.
- v. DCC shall be constituted on yearly basis (Financial year wise). Members of Government Departments shall be nominated by designation. Experts from users/service providers shall be nominated by name and the same shall be approved by Sr. DDG/Head of TEC, on a yearly basis.
- vi. Formation of DCC i.e. seeking nomination of members for DCC, receipt, compilation of nominations, approval of DCC by Head of the TEC and circulation shall be completed in 10 weeks (as per Table-2) from the date of seeking nominations for DCC.
- vii. DCC may be reconstituted at any time by Sr. DDG/Head of TEC, if found necessary.
- viii. Minutes of DCC Meeting shall be approved by the concerned DDG, being DCC Chairperson. The suggestions / recommendations of DCC Meeting shall be incorporated in Pre-DCC draft. The document, so formulated shall be called TEC Draft Standard document which is submitted to Sr. DDG / Head of TEC for approval.

## 6.2 DCC SUB-COMMITTEE

- i. Each DCC shall have a DCC Sub-Committee for dealing with specific subjects and creating TEC draft documents. Nomination of members of DCC Sub-Committee shall be approved by concerned DDG. DCC Sub-Committee shall be a group of working-level experts drawn from Service-providers / User organizations, Laboratories (NABL accredited/TEC designated), Associations and Director level officers of DoT/TEC & other DoT Institutes. Any other known experts can also be nominated in the DCC Sub-Committee.
- ii. Prior to conduction of DCC Sub-Committee meeting, Sub-DCC Draft shall be prepared by incorporating the comments of DFC Group members, if any and suggestions emerged during MF meeting in the initial draft prepared by Core Division. DCC Sub-Committee shall deliberate on this Sub-DCC Draft and offer further suggestions, if any. The suggestions/recommendations of DCC Sub-Committee members should be incorporated by Core Division in Sub-DCC Draft to formulate Pre-DCC Draft.
- iii. Director of the concerned Core Division shall be the Chairperson and should moderate the proceedings of the DCC Sub-Committee.
- iv. Formulation of DCC Sub-Committee (including seeking nomination of members, receipt and compilation of nominations, approval of DCC Sub-Committee by concerned DDG and circulation to nominated members) should be completed within 10 weeks (as per Table-2) from the date of seeking nomination of members for DCC Sub-Committee.
- v. Minutes of DCC Sub-Committee Meeting shall be approved by concerned Director.

## 6.3 DRAFT FOR COMMENTS (DFC) GROUP

- i. DFC Group consists of experts for a particular family of network elements from R&D Institutions, reputed academic institutions such as IITs etc.,

Research units of user organizations, service providers etc.

- ii. DFC Group constituted by respective DDGs shall be approved by Sr.DDG/Head of the TEC.
- iii. Formulation of DFC Group (including seeking nomination of members for the group, receipt and compilation of nominations, approval of DFC group by Head of TEC and circulation) shall be completed within 10 weeks (ref: Table-2) from the date of seeking nomination of members for DFC Group.

#### 6.4 **MANUFACTURERS' FORUM (MF)**

- i. Manufacturers' Forum shall be a group of technical representatives of manufacturers/OEMs, suppliers, representatives of a network element or a group of network elements and any related Industry Associations etc.
- ii. Manufacturers' Forum shall be constituted by concerned DDG for a specific network element (e.g. modem, router etc.) or a system comprising of interconnected network elements (e.g. GPON System etc.) as per the requirement.
- iii. Manufacturers' Forum shall be chaired by concerned DDG. Director of the concerned Division shall be the Convener and should moderate the proceedings of the MF.
- iv. Formulation of Manufacturers' Forum (including seeking nomination of members, receipt and compilation of nominations, approval of MF by concerned DDG and circulation) shall be completed within 10 weeks (as per Table-2) from the date of seeking nomination of members for Manufacturers' Forum.
- v. DCC Sub-Committee and MF Meeting may be held jointly which then shall be chaired by concerned DDG. In such case, the Minutes of the Joint Meeting shall be approved by concerned DDG.



## 6.5 TIMELINES FOR COMMITTEE / FORUM FORMATION

The broad timeline for various activities for formation of Committee, Sub-Committee, Group and Forum as required for formulation of TEC Standard document is as follows:

Sr. No.	Activity Description	Duration			
		DCC	Sub-DCC	DFC	MF
1	Seeking Nominations of members for Committee/Group/Forum	1 week			
2	Receipt and compilation of Nominations	2 weeks			
3	Issue of 1 <sup>st</sup> reminder to non-responders	2 weeks			
4	Receipt and compilation of additional Nominations for Committee/Group/ Forum				
5	Issue of 2 <sup>nd</sup> reminder to non-responders, if required	1 week			
6	Receipt and compilation of additional Nominations for Committee/Group/ Forum				
7	Formation/Finalization of Committee/ Group/Forum	1 week			
8	Approval of Committee/Group/Forum by Competent Authority	2 weeks			
9	Circulation of list of members of Committee/Group/Forum to concerned	1 week			
	<b>Total</b>	<b>10 weeks</b>			

Table-2

## 6.6 TELECOM STANDARDS ADVISORY COMMITTEE (TSAC)

TEC shall implement the Standard Adoption process with the help of institutional framework, which may consist of Telecom Standards Advisory Committee (TSAC), Consultative Committee (CC) and Task Force setup for this purpose.

Telecom Standards Advisory Committee (TSAC) shall be headed by DDG (Standardization), TEC. It will have maximum eleven members including the Chairman. The constitution of TSAC shall be as follows:

- DDG (Standardization), TEC (Chairman)
- DDG (Telecom Security), TEC
- Chairman consultative committee
- Member CDOT
- Member TSDSI
- Other members - Member(s) from other Govt. bodies /cross-Sector organizations, technology experts from industry(OEMs), Members from Network/service providers and academia /R&D
- Director (Standardization) TEC – as Member Convener

The members from industry / organizations other than those from TEC/ DOT shall be nominated from amongst the persons of repute /having sufficient experience in the field of telecom technology /standardization.

TSAC shall be constituted for a period of two years. However, a member may be re-nominated for another term, if the competent authority so decides.

TSAC shall function at the apex level and has following responsibilities.

- a. Examine the issues e.g. whether a TSDSI or an international standard can be adopted as national standard or whether to waive off wide circulation etc.

- b. Evaluate and endorse standards for approval/ adoption
- c. Perform an oversight role in reviewing the standardization program
- d. Strategize and prioritize work areas /standardization activities
- e. Advise TEC on matters like ratification / adoption of standards, formulate standardization policies and strategies to be adopted, best practices to be followed and setting up and dissolution of consultative committee(s)/ task force(s)etc.
- f. Collaborate with other standard formulating bodies/organizations within country and abroad

## 6.7 CONSULTATIVE COMMITTEE (CC)

Consultative Committee shall be a working group constituted under TSAC. Members of Consultative committee shall be technical experts in the respective fields of ICT industry, based in India, who are nominated to participate in the standardization related work allocated to the committee.

Consultative committee shall collate public comments against any standard, review them and accordingly prepare a report towards inclusion or rejection of those comments. It may also offer recommendations, if any. Only technical content / Amendments affecting the technical content of standard shall be open for public comments and therefore discussion/ review by consultative committee.

Consultative committee shall consist of a minimum of ten members. DDG of concerned technology division shall be the Chairman and concerned Director shall be the 'convener cum co-rapporteur' respectively of the committee.

The Members of Consultative Committee shall be drawn from the following organizations depending upon the standard to be adopted.

- a. TSPs
- b. OEMs of Telecom NW equipment and mobile hand sets
- c. VAS providers

- d. R&D including CDOT
- e. Academia
- f. TSDSI/ SDO
- g. Govt. bodies & cross sector standardization organizations
- h. Technical officers (Mobile, Radio, Security, IoT, SN, IT etc.)  
from TEC
- i. Technical officers (Licensing, NT, Policy, WPC and security  
etc.) from DOT

## **6.8 TASK FORCE**

TSAC /Standardization Division of TEC may constitute a Task Force for a specific or inter-related work. Task force will submit its recommendations to Consultative Committee or TSAC.

## **7.0 FUNCTIONS OF THE COMMITTEES, GROUPS AND FORUM FOR FORMULATION OF TEC STANDARD DOCUMENTS**

### **7.1 DCC**

7.1.1 DCCs shall be responsible for recommending formulation of TEC Standard document to Sr.DDG / Head of TEC.

7.1.2 DCC may also recommend review or withdrawal of any Standard document. Being an Apex body, DCCs may provide vision for future network elements or technologies and provide necessary guidance to its respective DCC Sub-Committee, which engages in technical deliberations and helps in preparation of Standard draft document. DCCs may also initiate work on national level plans and give their recommendations to TEC.

## **7.2 DCC SUB-COMMITTEE**

Prior to conduction of DCC Sub-Committee Meeting, Sub-DCC Draft shall be prepared by incorporating the comments of DFC Group members, if any and suggestions emerged during MF meeting in the initial draft prepared by Core Division. DCC Sub-Committee shall deliberate on this Sub-DCC Draft and offer further suggestions, if any. The suggestions/recommendations of DCC Sub-Committee members should be incorporated by Core Division in Sub-DCC Draft to formulate Pre-DCC Draft.

## **7.3 MANUFACTURERS' FORUM (MF)**

Manufacturers' Forum shall be responsible for furnishing relevant technical information for the concerned product/equipment/interface while formulating TEC Standard document and Test Guide (erstwhile TSTP).

## **7.4 DRAFT FOR COMMENTS (DFC)**

Initial Standard Draft document prepared by concerned Core Division should be circulated to Members of DFC Group for comments via electronic mode. DFC Group members shall furnish their comments on this initial draft document in a time bound manner (say 15 days).

## **7.5 CORE GROUP**

Core Group is the concerned Division of TEC responsible for formulation of DCC, DCC Sub-Committee, DFC Group & MF, conduction of Meetings, circulation of drafts for seeking inputs & Minutes of the Meetings etc. as required for formulation of TEC Standard and Test Guide as per Annual Action Plan or any other requirement during the year with the approval of Sr. DDG / Head of TEC.

## **8.0 STANDARD DOCUMENT FORMULATION, MODIFICATION, WITHDRAWAL & REVIEW PROCESS**

### **8.1 INITIATION FOR FRAMING TEC STANDARD**

8.1.1 Framing of any TEC Standard document can be initiated after receiving a request from any of following:

- a. Department of Telecommunications (DoT)
- b. User groups including but not limited to Telecom Service Providers, Associations, R&D Organizations etc.
- c. Members of DCC
- d. Any requirement based on PPP-PMI (Preference to make in India).
- e. Any other Central/State/Autonomous Govt. agency/department.

8.1.2 Manufacturers can also request TEC to initiate document's requirement for new /upcoming technology.

8.1.3 TEC can suo-moto decide to frame Standard document based on worldwide developments and trends in telecommunications and technology.

8.1.4 After initiation and processing of document, the framing and approval of a Standard document shall be done with the approval of Sr. DDG/Head of TEC.

### **8.2 TEC STANDARD DOCUMENT FORMULATION PROCEDURE**

#### **8.2.1 INITIAL DRAFT BY CONCERNED CORE (EXPERT) DIVISION**

TEC Standard documents are framed for a telegraph, identified network element or network element family etc. Concerned Division in TEC may prepare an initial Standard document draft, after detailed study on the subject, consulting relevant journals, reports, recommendations and Standards/specifications issued by Standardization Bodies, such as ITU, ETSI, IEEE, CISPR, IEC, ISO, 3GPP, IETF, International Forums, etc., including inputs from service providers, other users of telecom equipment and

services, manufacturers, via seminars and discussions with various experts, etc. This document shall be called TEC Initial Standard draft document.

### **8.2.2 ROLE OF DFC GROUP**

- i. Initial Standard Draft document prepared by concerned Core Division should be circulated to Members of DFC Group for comments via electronic mode. DFC Group members should furnish their comments on this initial draft document in a time bound manner (say 15 days).
- ii. Comments received from Members of DFC Group and MF are compiled and incorporated in the initial draft by Core Division for formulation of Pre-MF draft.

### **8.2.3 ROLE OF MANUFACTURERS' FORUM (MF)**

- i. The initial Standard draft document shall also be circulated to members of MF for their comments/suggestions prior to conducting MF Meeting.
- ii. The comments/suggestions received from members of MF and DFC group, if any, should be compiled by Core Division and incorporated in initial draft for formulation of Pre-MF draft.
- iii. MF meeting should be conducted under the Chairpersonship of concerned DDG within 2 weeks of compilation of comments/suggestions from MF members, if any.
- iv. The draft Minutes of the MF Meeting, with the consent of Convener/Director shall be circulated via electronic mode to the participating members for their comments, if any. In case, no response is received from the members within

a week, the draft Minutes shall be considered as being deemed accepted by the members. Subsequently, the Minutes of MF Meeting shall be put up to concerned DDG for approval.

- v. In case, the comments are received after the approval of the Minutes of the Meeting, the concerned DDG may decide to include/exclude the same for DCC meeting.
- vi. Recording of Minutes of MF Meeting, finalizing of draft Minutes and its circulation, compilation of responses, if any, approval of finalized Minutes by concerned DDG and circulation should normally be within 3 weeks after conduction of MF Meeting.

#### **8.2.4 ROLE OF DCC SUB-COMMITTEE**

- i. The Core Division shall compile and incorporate the comments/suggestions of MF Meeting in Pre-MF draft for formulation of Sub-DCC draft.
- ii. Meeting of DCC Sub-Committee shall take place within 2 weeks after circulation of Sub-DCC draft to Members of DCC Sub-Committee. Meeting can be convened earlier also, if required.
- iii. All necessary documents shall be sent via electronic mode to all members, at least one week before the date of DCC Sub-Committee meeting.
- iv. In the DCC Sub-Committee meeting, the Sub-DCC draft including comments/suggestions given by members of DFC Group, if any and during MF meeting shall be discussed and deliberated.
- v. Member or an alternate member, present in a meeting, shall represent his/her organization, and his/her opinion shall be treated as final view of his/her organization.



- vi. All members are expected to come prepared for meeting. Members are also expected to send their comments on the document, well in advance to help arrive at conclusions in the meeting.
- vii. The draft Minutes of the DCC Sub-Committee Meeting, with the consent of Director shall be circulated via electronic mode to the participating members for their comments, if any. In case, no response is received from the members within a week, the Draft Minutes shall be considered as being deemed accepted by the members. Subsequently, the Minutes of the DCC Sub-Committee Meeting shall approved by concerned Director.
- viii. In case, the comments are received after the approval of the Minutes of the DCC Sub-Committee Meeting, the concerned Director may include the same for DCC meeting.
- ix. Recording of Minutes of DCC Sub-Committee, finalizing of draft Minutes and its circulation, compilation of responses if any, approval of the finalized Minutes by concerned Director and circulation to members shall normally be within 3 weeks after conduction of DCC Sub-Committee Meeting.
- x. DCC Sub-Committee and MF Meeting may be held jointly with the approval of concerned DDG. In such case, single Sub-DCC cum MF draft should be prepared by Core Division and the Minutes of the Joint meeting shall be approved by concerned DDG.

#### **8.2.5 ROLE OF DCC**

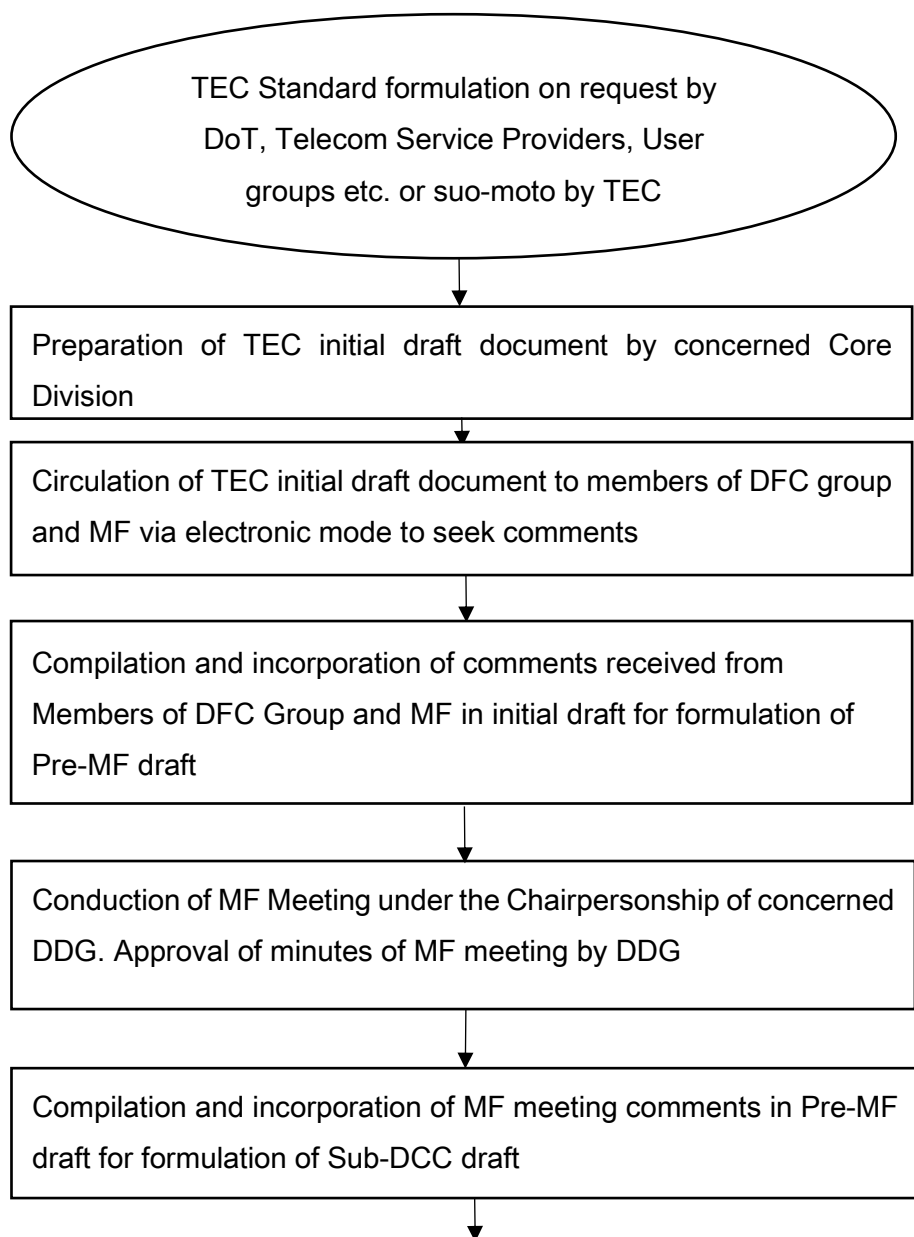
- i. The suggestions/recommendations received during DCC Sub-Committee Meeting should be complied by Core Division and incorporated in Sub-DCC draft. The revised draft so formed, after incorporation, is called Pre-DCC draft.
- ii. Pre-DCC draft should be circulated to all DCC members at least 1 week before the date of meeting after seeking approval of concerned DDG.

- iii. In DCC meeting, Pre-DCC draft along with other associated information, if any, shall be discussed and deliberated.
- iv. Member or an alternate member, present in a meeting, shall represent his/her organization, and his/her opinion shall be treated as final view of his/her organization.
- v. All members are expected to come prepared for the meeting. They are also expected to send their comments on the document, well in advance to help arrive at conclusions in the meeting.
- vi. Draft Minutes of DCC Meeting, with the consent of concerned DDG, shall be circulated via electronic mode to participating members for their perusal and consent. In case, no response is received from the members within a week, the Draft Minutes of DCC Meeting shall be considered as being deemed accepted by the DCC Members.
- vii. Convener of DCC shall issue the Minutes of DCC Meeting with the approval of concerned DDG being DCC Chairperson.
- viii. After approval of minutes of DCC meeting, Pre-DCC draft Standard document shall be modified as per the recommendations of DCC meeting (mentioned in the minutes of DCC meeting). The document, so formulated, shall be called TEC draft Standard document.
- ix. TEC draft Standard document, along with Minutes of DCC and related documents, shall be put up to Sr. DDG/Head of TEC for approval.
- x. After approval of the TEC draft Standard document by Sr. DDG/Head of TEC, the final document shall be referred to as TEC Standard document.

- xi. Concerned Core Division shall send approved TEC Standard document to RC division for verification w.r.t. template and checklist (Annexure-G) prior to uploading on TEC website. The Standard document shall be uploaded on TEC website thereafter.

Hence, the formulation of TEC Standard document should broadly follow the Procedure as depicted in the following flow chart:

**Flow chart for formulation of a TEC Standard**



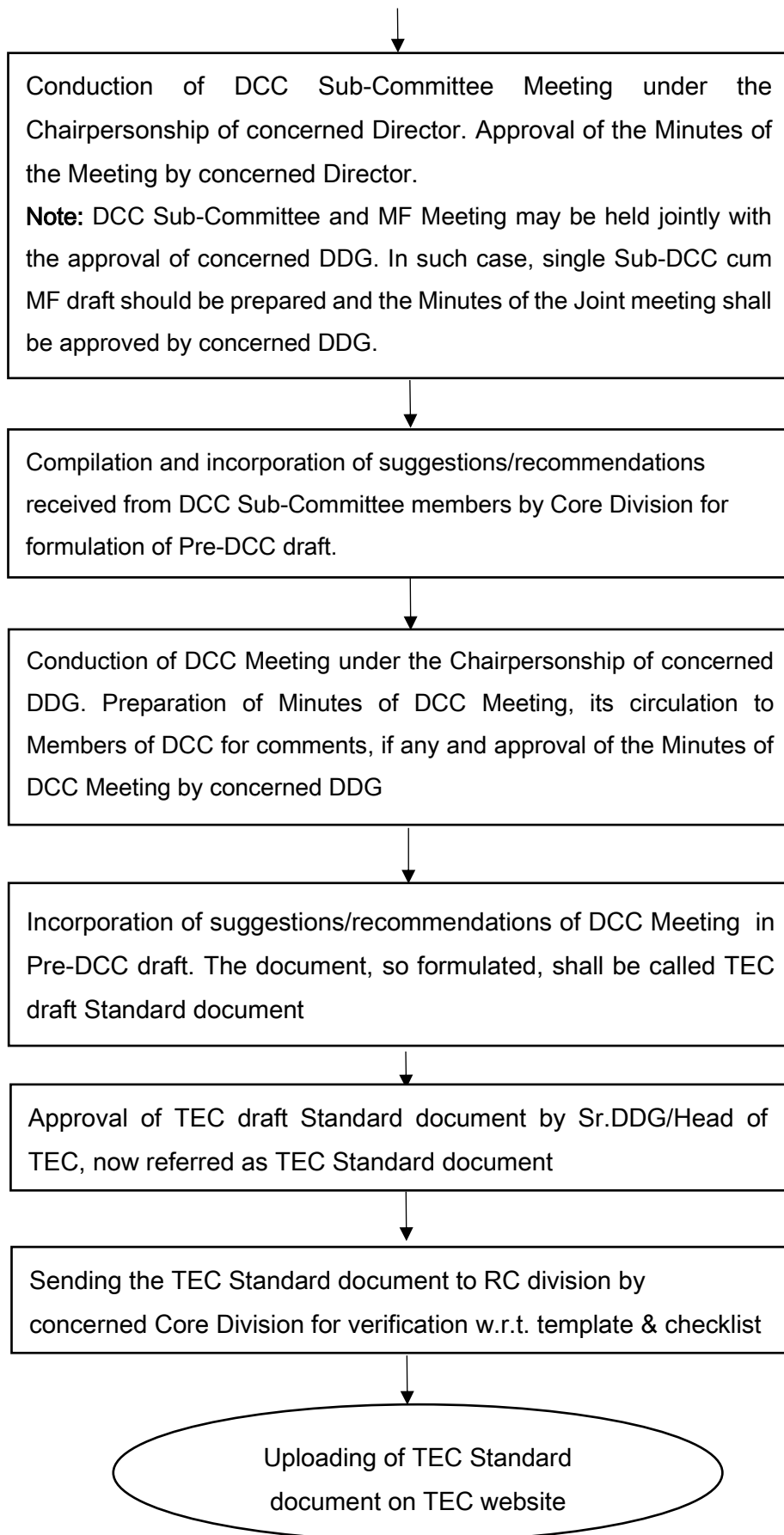


Figure-1

The above flow broadly defines the sequence for formulation of one TEC Standard document (erstwhile GR/IR/SR/SD). If more than one Standard document is under formulation & development by concerned Core Division, the timeline may increase proportionately.

### **8.3 FRAMING OF TEC TEST GUIDE (ERSTWHILE TSTP )**

8.3.1 Process for framing of Test Guide by TEC (erstwhile TSTP) shall be initiated after the approval of TEC Standard document, within a week.

8.3.2 Concerned Division shall prepare an initial draft of TEC Test Guide as per the format (attached at Annexure E).

8.3.3 For formulation of Test Guide, concerned Core Division shall seek inputs from the members of Manufacturers' Forum/concerned stakeholders via electronic mode. If required, a consultation meeting for the same may be conducted.

8.3.4 The suggestions / inputs received during consultation meeting / circulation to concerned stakeholders via electronic mode should be suitably incorporated in the draft of Test Guide.

8.3.5 If required, 2<sup>nd</sup> consultation meeting with MFs/concerned stakeholders may be conducted.

8.3.6 The said draft of Test guide shall be submitted to concerned DDG for approval.

8.3.7 After approval, it shall be sent to RC Division for verification & repository purpose and uploaded on TEC website.

8.3.8 If required, existing TSTPs may be revised for conversion into TEC Test

Guide after following the above-mentioned consultation process.

8.3.9 Final draft after approval of concerned DDG may be called as TEC Test Guide for associated TEC Standard document.

8.3.10 The Test Guide should be formulated within 8 weeks after the approval of related Standard document. In case, 2<sup>nd</sup> MF consultation is required for Test Guide formulation, the time duration may be considered as nine weeks.

8.3.11 After framing the TEC Test Guide, Man - Hour calculation by concerned Core Division should broadly include following items/activities:

**Man-Hour Calculation Table**

(A) S.No	(B) Description	(C) No. of Man- days required	(D) No. of Man- hours i.e. (C) x 8 hours
1	Initial document study prior to testing		
2	Testing at Manufacturer's Premises / in-house / accredited lab @ 8 working hours/day and 22 working days in a month (ADG or AD level)		
3	Field Trial, if applicable		
4	Test results evaluation/ report generation		
5	Others		
6	Issue of certificate by RC Division	1	8
Total Man-Hours			

Table-3

8.3.12 Based on the Total Man - Hours calculated, as per assessment of above mentioned activities by concerned Core Division, the category of product and tariff/fees presently are as follows:

Category of Product	Man- Hours (Scrutiny of application, Testing, evaluation, Certification etc.)	In-station Tariff ₹	Out-station Tariff ₹
I	0-57	21,400	41,400
II	58-114	46,650	82,800
III	115-228	86,250	1,47,800
IV	229-457	1,51,450	2,46,500
V	458-914	2,10,000	3,54,800
VI	915-1600	3,41,250	5,94,600
VII	1601-2286	5,25,000	7,78,300
VIII	2287-5714	7,87,500	10,40,800
IX	5715-11426	15,75,000	18,28,300
X	>11426	26,25,000	28,78,300

Table-4

Ref: TEC letter.no.TEC/NR.RC/Tariff/33/2014(Vol II) dated 31.12.2015

TEC may revise the above tariffs/other testing fees, if any, from time to time.

8.3.13 After Identifying the Man-Hour & Category of product, Information sheet shall be prepared. The broad format of Information sheet is attached at Annexure F.

8.3.14 After the approval of Information sheet by concerned DDG, the same shall be forwarded to RTECs and RC division of TEC for record purpose.

#### 8.4 TIME SCHEDULE

A TEC Standard document should normally be finalized within 20 weeks as per schedule of Annual Action Plan. However, if a request is received during a financial year for formulation of Standard document which is not mentioned

in Annual Action Plan, it can also be considered after approval of Sr. DDG / Head of TEC and finalized accordingly.

Broad timeline for formulation of TEC Standard Document is as follows:

S.No.	Activity Description	Duration
1	Receipt of Annual Action Plan.	1 week
2	Splitting of Annual Action Plan into 4 Quarterly Plans.	
3	Preparation of TEC Initial draft document by concerned Division and its circulation to members of DFC Group and MF to seek comments.	3 weeks
4	Compilation and incorporation of comments received from members of DFC Group and MF in initial draft for formulation of Pre-MF draft.	2 weeks
5	Conduction of MF meeting under the Chairpersonship of concerned DDG. Approval of minutes of MF meeting by concerned DDG.	2 weeks
6	Compilation and incorporation of MF comments in Pre-MF draft for formulation of Sub-DCC draft.	2 weeks
7	Conduction of DCC Sub-Committee meeting under the Chairpersonship of concerned Director. Approval of the Minutes of the Meeting by concerned Director. <b>Note:</b> DCC Sub-Committee and MF Meeting may be held jointly with the approval of concerned DDG. In such case, the Minutes of the Joint meeting shall be approved by concerned DDG.	2 weeks
8	Compilation and incorporation of suggestions /recommendations received from Sub-DCC members for formulation of Pre-DCC draft.	2 weeks
9	Conduction of DCC meeting under the Chairpersonship of concerned DDG. Preparation of Minutes of DCC meeting, its circulation to DCC members for comments, if any and approval of the Minutes by concerned DDG.	2 weeks



10	Incorporation of suggestions/recommendations of DCC in Pre-DCC draft. The document, so formulated, shall be called TEC draft Standard document.	2 weeks
11	Approval of TEC draft Standard document by Sr.DDG /Head of TEC, now referred as TEC Standard document.	1 week
12	Sending the approved Standard document to RC Division for verification as per checklist, communication of discrepancies by RC Division to concerned division, if any.	1 week
13	Back-up of softcopies and uploading of document on TEC website.	
	<b>Total</b>	<b>20 weeks</b>
	<b>FOR TEC TEST GUIDE ( ERSTWHILE TSTP)</b>	
1	Formulation of draft Test Guide( erstwhile TSTP) by core Division after formulation of TEC Standard	1 week
2	Consultation meeting with MFs/concerned stakeholders or Circulation of draft Test Guide via electronic mode to seek inputs/suggestions, issuance of reminders etc.	4 weeks
3	Incorporation of suggestions/inputs/feedback from stakeholders into draft Test Guide	1 week
4	Finalization of Test Guide and its approval by concerned DDG	1 week
5	Submission of Test Guide to RC Division for verification & record purpose and uploading of Test Guide on TEC website	1 week
	<b>Total</b>	<b>8 weeks</b>

Table-5

In case, 2<sup>nd</sup> MF consultation is required for Test Guide formulation, the time duration may be considered as nine weeks.

## **8.5 PROCEEDINGS OF THE MEETINGS**

- 8.5.1 Maximum use of electronic mode of transfer of documents, comments, etc., shall be relied on. All notices for meetings, relevant documents, and communications shall be sent electronically to all the members. All members are also expected to send their comments electronically. Seeking of Nominations for DCC, DCC Sub-Committee, Manufacturers' Forum and DFC Groups through TEC website and e-meetings should be encouraged for wider participation.
- 8.5.2 Members may exchange/discuss documents before sending their comments to Committees, Forum and Groups.
- 8.5.3 All the recommendations of the Committees, Forum and Groups shall be finalized through consensus, as far as possible, rather than through taking votes, to ensure safeguarding interests of all the stakeholders.
- 8.5.4 In all matters arising out of the Committee work, the convener shall be the official spokesperson for the respective Committee.
- 8.5.5 The Minutes of the Sub-DCC, MF, DCC Meetings shall be circulated to participating members.
- 8.5.6 Framework for formulation of documents shall be sufficiently flexible to cover all stakeholders, viz., service providers, manufacturers, developers, vendors, etc.
- 8.5.7 All expenses incurred by nominees for participating in various meetings and interactions, shall be borne by participating organizations.

## **8.6 MODIFICATIONS TO TEC STANDARD DOCUMENT**

Any modification to TEC Standard document can be taken up based on first equipment testing, field trial, or feedback received from service providers/user organizations etc. Comments from DCC members shall be obtained either in

a meeting or through circulation. Modifications to TEC Standard shall be approved by Sr. DDG/Head of TEC, as Amendment/Errata to Standard.

#### **8.7 WITHDRAWAL OF TEC STANDARD DOCUMENT**

There may be need to withdraw TEC Standard document due to supersession by a new Standard, technology obsolescence, equipment not in use, or any other reason. On the advice of service provider(s), any member of DCC, DoT, or suo-moto by TEC, Standard document shall be discussed in DCC either in a meeting or through circulation. It shall be withdrawn after recommendation of DCC and approval of Sr. DDG/Head of TEC.

#### **8.8 REVIEW OF TEC STANDARD DOCUMENT**

Review of TEC Standard document will be taken up normally every three years. A document can be reviewed earlier also due to advancement in technology, service providers'/user organizations' inputs, or on advice of DoT. TEC can suo-moto take-up review of documents based on worldwide developments and trends in Telecommunications. Review of a Standard document shall follow same steps as outlined for framing of a Standard document.

TEC Standard document remains valid unless it is withdrawn or revised or superseded.

#### **9.0 ESSENTIAL REQUIREMENTS (ERs)**

Essential Requirements of an equipment are a set of requirements against which Mandatory Testing and Certification of Telecom Equipment (MTCTE) is done under MTCTE Procedure. Essential Requirements (ER) comprises of following requirements:

- EMI/EMC
- Safety
- Technical requirements
- Other requirements
- Security Requirements: As per notification issued by DoT from time to time.

Essential Requirements shall be assigned specific numbers in accordance to numbering scheme enumerated in para 9.1 below. Consultation process of MATCOF (Mandatory testing Consultative Forum) shall be followed for formulation of new Essential Requirements.

## **9.1 ESSENTIAL REQUIREMENTS (ER) NUMBERING SCHEME**

The numbering scheme, for Essential Requirements prepared for Mandatory Testing and Certification of Telecom Equipment under MTCTE, is as follows:

ER Number- TECGPPPYMM

where

TEC denotes TEC organization

G refers to the Core Division in TEC responsible for preparation of Essential Requirement of the product.

G- Codes given to Core Divisions

1. Future Networks, Fixed Access Divisions
2. Internet of Things (IoT), Smart Networks Division
3. Information Technology Division
4. Mobile Technology Division
5. Radio Division
6. Next Generation Switching Division
7. Transmission Division

PPP refers to the code given to the particular product whose Essential Requirements has been prepared. PPP will be assigned by TC division or as per specific directions issued by them.

YY refers to the year in which Essential Requirements of the particular product was approved by Sr. DDG / Head of TEC.

MM (01-12) refers to the month in which Essential requirements of the particular product was approved by Sr. DDG/ Head of TEC.

As an example: The ER Number for 2 Wire Telephone Equipment is TEC18351906 where 1 refers to Future Networks Division which has prepared the ER of this product, 835 is the code given to 2 Wire Telephone Equipment, 19 refers to year 2019 when ER was finalized and 06 refers to the month June which is the 6<sup>th</sup> Calendar month in which ER was approved.

## **9.2 Mechanism for formulation of Essential Requirements (ERs)**

Consultation through Mandatory Testing Consultative Forum (MATCOF) shall be adopted for discussion and obtaining feedback of stakeholders on draft Essential Requirement.

### **Mandatory Testing Consultative Forum (MATCOF)**

- i. A separate Forum shall be constituted for each Division by Sr. DDG/ Head of TEC. The proposal for constitution of MATCOF for each Division shall be initiated by concerned Division. DDG of the concerned Division shall be the Chairperson and Director as Convener of the forum.
- ii. The forum shall comprise representatives of Service Providers, Manufacturers, Labs and their Associations, if any.

- iii. The forum may include DDG (s) from other TEC Divisions/RTECs and experts from R&D and Academia, depending upon the nature of the subjects dealt. DDG (Telecom Certification) and DDG (Standardization) shall be members of each Forum and presence of at least one of them in the meeting along-with one other member from RTEC i.e. DDG(NR) /DDG(ER)/(SR)/(DDG(WR) shall be mandatory.
- iv. The formation of Forum shall be approved by Sr. DDG/Head of TEC.

### **9.3 FORMULATION of ESSENTIAL REQUIREMENTS (ERs)**

- i. A Standing Empowered Committee has been constituted in TEC in Dec 2017 consisting of DDG (TC), DDG (R) and DDG (TS) to address/decide the issues related to the implementation of MTCTE. The recommendation(s) of the Standing Committee shall be approved by Sr. DDG / Head of TEC.
- ii. ERs are framed once TC (Telecom Certification) Division compiles information received from various sources viz. stakeholders, market surveillance etc. and deliberate in Standing Empowered Committee to decide whether to formulate a new ER or not. Requirement of new ER formulation is communicated by TC Division to concerned Division.
- iii. Division may start the process of formulation of ER for Telecom equipment, not covered by any notified ER, after receipt of request from TC division for non-availability of ER for a Telecom Equipment.
- iv. Initial Draft of ER shall be prepared by concerned Division using the online interface provided by TC division to concerned Divisions.
- v. The initial Draft is circulated electronically to members of MATCOF (Mandatory Testing Consultative Forum) for comments.
- vi. The comments received shall be compiled and circulated via electronic mode to members of MATCOF along with notice for Meeting of MATCOF.

- vii. Initial draft of ER and comments received shall be discussed in MATCOF.
- viii. After recording deliberations and decisions arrived in the meeting, along with the attendance of participants, the minutes are approved by DDG and circulated to the members.
- ix. The responses, comments, suggestions, etc., sent by the participants are compiled.
- x. Holding of 2<sup>nd</sup> MATCOF: On the basis of complexity and variance of responses/comments, concerned Division may hold a 2<sup>nd</sup> MATCOF, if required for further discussion and deliberation on such issues.
- xi. A draft ER is prepared after suitable consideration and incorporation of comments of stakeholders.
- xii. After preparation of draft ER, incorporating suitably the comments of all the stakeholders, a portal version of the ER is generated, for maintaining uniformity of ERs across other Core Divisions of TEC on MTCTE portal and also keeping in view conformity to MTCTE scheme.
- xiii. Any difficulty in generation of portal version of the ER or any conflicting issue with regard to parameters / Interfaces proposed in the ER should be resolved by TC Division or through the meeting of Standing Committee for finalization of ERs.
- xiv. The finalized portal version of the ER is approved by the Sr. DDG/ Head of TEC.
- xv. Approved copy of the ER is uploaded on MTCTE portal.
- xvi. Formulation of ER should normally be completed within 20 weeks after receipt of request / communication from TC division.

#### **9.4 MODIFICATION OF ER**

The concerned Division shall initiate modification(s) of ER, if required. In case of major/critical changes, MATCOF shall be conducted. The modification(s)

shall be approved by Sr.DDG / Head of TEC. TC division shall upload the modified ER on MTCTE portal.

## **9.5 WITHDRAWAL OF ER**

There may be need to withdraw an ER due to supersession by a new ER, technology obsolescence, equipment not in use, or any other reason. On the advice of service provider(s)/other stakeholders, DoT, or TEC, ER shall be discussed in MATCOF either in a meeting or through circulation. It shall be withdrawn after recommendation of MATCOF and approval of Sr. DDG/Head of TEC.

## **9.6 REVIEW OF ER**

An ER document can be reviewed due to advancement in technology, service providers'/user organizations' inputs, or on advice of DoT. TEC can suo-moto take-up review of ER document based on worldwide developments and trends in Telecommunications. Review of an ER document shall follow same steps as outlined for framing of an ER document. ER document remains valid unless it is withdrawn or revised.

## **10.0 REVIEW OF PROCEDURES AND GUIDELINES FOR FORMULATION OF TEC STANDARDS / DOCUMENTS**

The Procedures and Guidelines for Formulation of TEC Standards/Documents should be reviewed normally every three years in consultation with the concerned Divisions of TEC. The revised document, if formulated, shall be approved by Sr.DDG / Head of TEC.

This document remains valid unless revised or superseded or withdrawn.



## Abbreviations

For the purpose of this document the following abbreviations apply:

1	BBNL	Bharat Broadband Network Limited
2	CAB	Conformity Assessment Body
3	CB	Certification Body
4	CSSP	Network conformity Standards System & Procedures
5	DCC	Development Coordination Committee
6	DDG	Deputy Director General
7	DoT	Department of Telecommunications
8	EMI/EMC	Electromagnetic interference/Electromagnetic compatibility
9	ER	Essential Requirement
10	GR	Generic Requirement
11	IR	Interface Requirement
12	ITI	Indian Telephone Industries
13	LSA	Licensed Service Area
14	MATCOF	Mandatory Testing Consultative Forum
15	MF	Manufacturers' Forum

16	MRA	Mutual Recognition Arrangement
17	MTCTE	Mandatory Testing and Certification of Telecommunications Equipment
18	NCCS	National Centre for Communication Security
19	NTIPRIT	National Telecommunications Institute for Policy Research Innovation and Training
20	OEM	Original Equipment Manufacturer
21	PPP-PMI	Public Procurement Policy-Preference to Make in India
22	RC	Regional Co-ordination
23	SR	Service Requirement
24	TC	Telecom Certification
25	TCIL	Telecommunications Consultants India Limited
26	TEC	Telecommunication Engineering Center
27	TSTP	Test Schedule and Test Procedure

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