वर्गीय आवश्यकताओं के लिए मानक

टीईसी 59050:2019

(पूर्व सं: टीईसी/जीआर/एसडबल्यू/एसजीडबल्यू-001/04/दिसंबर-19)

STANDARD FOR GENERIC REQUIREMENTS

TEC 59050:2019

(Earlier No: TEC/GR/SW/SGW-001/04/DEC-19)

सिगनलिंग गेटवे

SIGNALLING GATEWAY

ISO 9001:2015

दूरसंचार अभियांत्रिकी केंद्र

खुर्शीदलाल भवन, जनपथ, नई दिल्ली-110001, भारत

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FOREWORD

Telecommunication Engineering Centre (TEC) is the technical arm of Department of Telecommunications (DOT), Government of India. Its activities include:

- Framing of TEC Standards for Generic Requirements for a Product/Equipment, Standards for Interface Requirements for a Product/Equipment, Standards for Service Requirements & Standard document of TEC for Telecom Products and Services
- Formulation of Essential Requirements (ERs) under Mandatory Testing and Certification of Telecom Equipment (MTCTE)
- Field evaluation of Telecom Products and Systems
- Designation of Conformity Assessment Bodies (CABs)/Testing facilities
- Testing & Certification of Telecom products
- Adoption of Standards
- Support to DoT on technical/technology issues

For the purpose of testing, four Regional Telecom Engineering Centers (RTECs) have been established which are located at New Delhi, Bangalore, Mumbai, and Kolkata.

ABSTRACT

This document specifies the Generic Requirements (GR) of a Signalling Gateway (SG), to be used in Indian telecom networks. The SG is intended to facilitate seamless interworking between Signalling System Number 7 (SS7) network and IP based network.

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HISTORY SHEET

S.No.	*Standard GR No.*	*Title*	*Remarks*
1.	GR/SGW-01/01.JUL 2003	Signalling Gateway	Issue 1
2.	TEC/GR/SG/SGW-001/02.MAR 09	Signalling Gateway	Issue 2
3.	TEC/GR/SG/SGW-001/03.JAN-12	Signalling Gateway	Issue 3
4.	TEC 59050:2019 (Earlier No: TEC/GR/SW/ SGW-001/04/DEC-19)	Signalling Gateway	Issue 4 [Prepared as per new format of GR, updated Safety and EMC requirements included, latest ITU-T standards/IETF RFCs/ TEC specifications included in relevant clauses]
Document number changed as per Revised Numbering scheme of TEC for conversion of existing TEC document to Standard vide document no.4-47/2019-RC/TEC dated 07-09-2019			

Note:

1. Since the documents have been renumbered as per revised numbering scheme, kindly refer the Mapping- Listing Table pertaining to old and revised document number available on TEC website www.tec.gov.in/. In case of further clarification, please contact at e mail id adgdoc.tec@gov.in
2. Inside the document, General Requirements may be read as Standard for General Requirements, Interface Requirements as Standard for Interface Requirements, Service Requirements as Standard for Service Requirements and Test Schedule & Test Procedure(TSTP) as TEC Test Guide.

REFERENCES

S.No.	Document No.	Title/Document Name
(I)	: TEC GR/IR/SDs	
1.	TEC/SD/DD/EMC-221/05/OCT-16	Electromagnetic Compatibility Standard for Telecommunication Equipment
2.	SD/CCS-02/03.JAN-2000	National CCS7 Standards for MTP and ISUP
3.	SD/CCS-03/03. MAR-2006	National SCCP Standards
4.	TEC/SD/SW/VAN-SIG/03. MAR-2010	National Standards for V 5.2 Interface
5.	TEC/GR/SW/STP-001/04.OCT-2015	Signalling Transfer Point
6.	TEC/GR/SW/NGN-LTS/02.FEB-13	Softswitch for Local and Transit Wireline Applications
7.	GR/NMC-01/01.APR 2004	Network Management System (NMS)
8.	SD/INP-01/02 MAY 2007	Intelligent Network Application Protocol INAP National Standards
9.	TEC/GR/IT/SYN-003/04/MAR-19	Primary Reference Clock
10.	SD/NSP-01/01.SEP92	National CCS7 Plan
(II)	: ITU-T Standard	
1.	Q.921	ISDN user-network interface - Data link layer specification
2.	Q.931	ISDN user-network interface layer 3 specification for basic call control

(III)	IETF RFCs	
1.	RFC 2119	Key words for use in RFCs to Indicate Requirement Levels
2.	RFC 2719	Framework Architecture for Signaling Transport
3.	RFC 2960/4960	Stream Control Transmission Protocol (SCTP)
4.	RFC 3257	Stream Control Transmission Protocol (SCTP) : Applicability Statement
5.	RFC 3286	An Introduction to the Stream Control Transmission Protocol (SCTP)
6.	RFC 3309	Stream Control Transmission Protocol (SCTP) Checksum Change
7.	RFC 3332/4666	Signaling System 7 (SS7) Message Transfer Part 3 (MTP3) - User Adaptation Layer (M3UA)
8.	RFC 3331	Signaling System 7 (SS7) Message Transfer Part 2 (MTP 2) - User Adaptation Layer (M2UA)
9.	RFC 3807	V 5.2-User Adaptation Layer (V5UA)
10.	RFC 3868	Signalling Connection Control Part User Adaptation Layer (SUA)
11.	RFC 3873	Stream Control Transmission Protocol (SCTP): Management Information Base (MIB)
12.	RFC 4165	Signaling System 7 (SS7) Message Transfer Part 2 (MTP2) - User Peer-to-Peer Adaptation Layer (M2PA)
13.	RFC 4233	Integrated Services Digital Network (ISDN) Q.921-User Adaptation Layer
(IV)	: Other Standards	
1.	CISPR 11/ EN 55011	Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of

		measurement
2.	CISPR 22(2008)/ EN 55022	Limits and methods of measurement of radio disturbance characteristics of ITE (Information Technology Equipment)
3.	CISPR 32(2015)/ EN 55032	Electromagnetic compatibility of multimedia equipment - Emission requirements
4.	IEC/EN 61000-4-2	Testing and measurement techniques – Electrostatic discharge immunity test
5.	IEC/EN 61000-4-3	Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test
6.	IEC/EN 61000-4-4	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test
7.	IEC/EN 61000-4-5	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test
8.	IEC/EN 61000-4-6	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
9.	IEC/EN 61000-4-11	Electromagnetic compatibility (EMC) Part 4-11: Testing and measurement techniques Voltage dips, short interruptions and voltage variations immunity tests
10.	IEC/EN 61000-4-29	Electromagnetic compatibility (EMC) - Part 4-29: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests.
11.	IS 13252 / IEC 60950	Information Technology Equipment -- Safety, Part 1: General Requirements

12.	IEC 62368-1	Audio/video, information and communication technology equipment - Part 1: Safety requirements

CHAPTER-1

1.0 Introduction

1.1 This document specifies the Generic Requirements (GR) of a Signalling Gateway (SG), to be used in Indian telecom networks.

1.2 The SG is intended to facilitate seamless interworking between Signalling System Number 7 (SS7) network and IP based network.

1.3 Operational, Qualitative and other requirements of the system shall be as per of TEC GR on STP No. TEC/GR/SW/STP-001/04.OCT-2015.

1.4 Traffic measurement and recording shall be as per TEC GR on STP No. TEC/GR/SW/STP-001/04.OCT-2015.

1.5 Wherever, the standardized documents like ITU-T, IEEE, QA and TEC documents are referred; the latest issue and number with amendments shall be applicable.

1.6 The RFC documents of the IETF are subject to periodic revision. Hence where ever RFC's are mentioned in this document, the offered product shall meet either the referred RFC or its version. Wherever a feature of the RFC is mentioned, product shall comply with the part of the RFC specifying the feature.

1.7 The interpretation of the clauses of the RFC's shall be as per RFC 2119.

2.0 Description

2.1 The Signalling Gateway (SG) shall provide transparent interworking of CCS-7 signalling between Switched Circuit Network (SCN) and IP networks as shown in schematic diagram below;

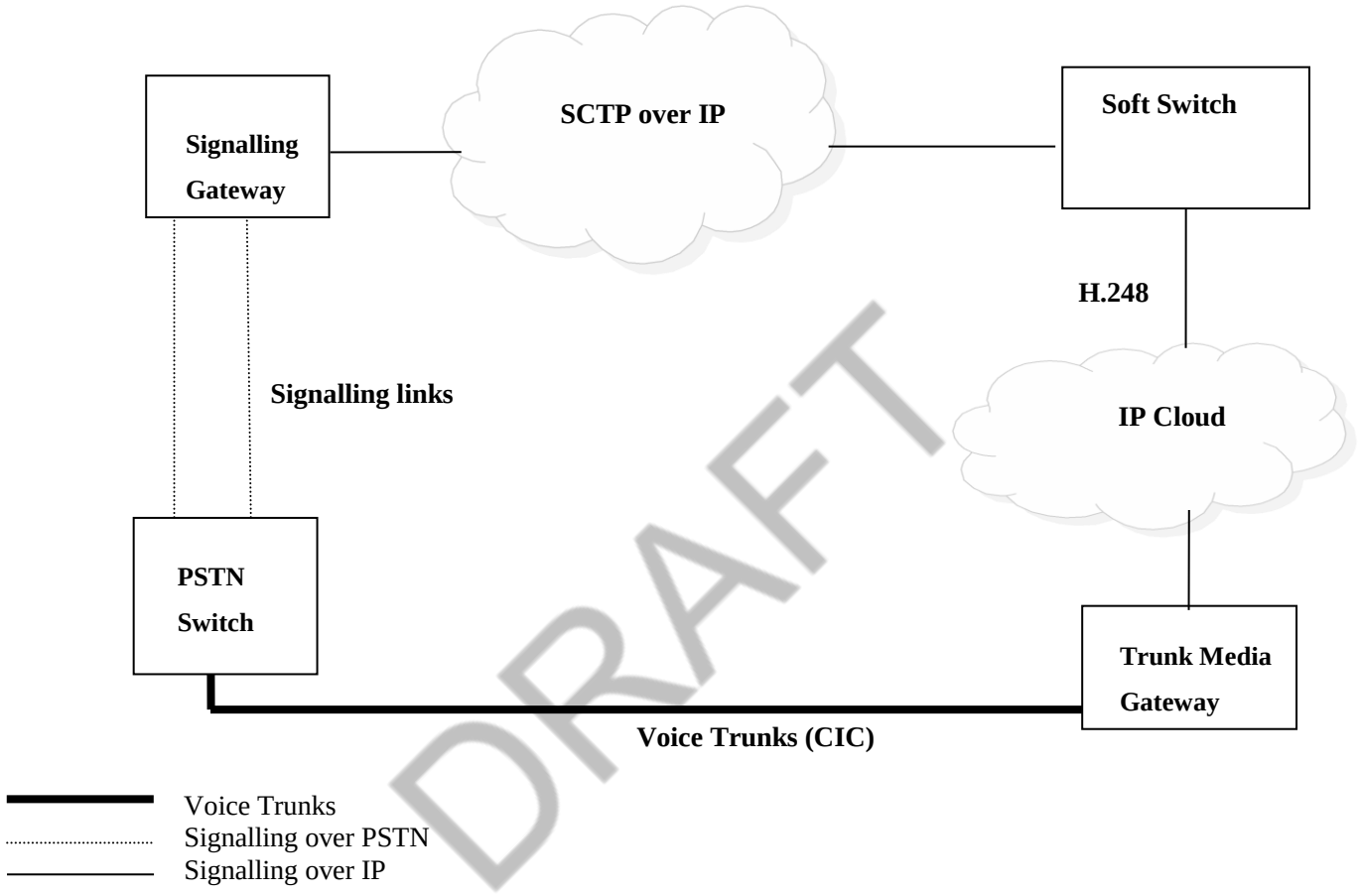

Fig.1

2.1.1 The signalling gateway shall provide standalone Signal Transfer Point (STP) equipment functionality as per TEC GR. No. TEC/GR/SW/STP-001/04.OCT-2015.

2.1.2 The Signalling Gateway shall be capable of terminating SS7 signalling as well as translate and relay messages over an IP network to a Soft switch complying to TEC GR No. TEC/GR/SW/NGN-LTS/02.FEB-13 for soft switch or another signalling gateway.

2.1.3 The signalling gateway shall provide the transformation of Message Transfer Part (MTP) and application part of CCS7 signalling for transport over SCTP over IP over MPLS network.

3.0 Functional/Operational Requirements

3.1 General

3.1.1 Signalling gateway shall support Stream Control Transport Protocol (SCTP) for reliable transportation of CCS7 messages in the IP network. It shall be used to transfer ISUP, SCCP, TCAP, INAP, MAP and CAP.

3.1.2 For telephony over IP/MPLS solution, the Signalling Gateway shall convert the narrowband signalling information into IP packets and send them through the MPLS network.

3.1.3 The Signalling Gateway shall support high speed signalling links as per ITU-T Q.703.

3.1.4 The Signalling Gateway shall support at least 128 point codes.

3.1.5 It shall be able to connect at least 500 signalling links of 64 kbps / 32 signalling links of 2 Mbps or any combination as per service provider requirements, as a standalone signalling gateway (SSGW).

3.2 Addressing

3.2.1 The Signalling Gateway shall support SS7 point codes as per the National CCS7 Signalling Plan.

3.2.2 The Signalling Gateway shall support any one of the following addressing:

1. IPv4 as per IETF RFC 791
2. Dual stack as per IETF RFC 4213
3. IPv6 as per IETF RFC 8200

3.3 Operation and Maintenance

3.3.1 The Signalling Gateway shall provide capability for operation, maintenance and administration from a remotely located Network Management System (NMS) as per TEC GR No. GR/NMC-01/01APR 2004.

3.3.2 In addition, operation, maintenance and administration shall be provided locally also, using local terminals.

3.3.3 The signalling gateway shall support signalling tracers with parameter decoding for MTP2, MTP3, SCCP, ISUP, M2UA, M2PA, M3UA and SCTP internally or through external protocol analyzer.

3.4 Interface to Billing System

3.4.1 The Signalling Gateway shall provide on-line transfer of billing information (Signalling Data Records) over TCP/IP to the billing centre using FTP for file transfer. In addition, it shall be possible to take back-up of the billing information on Optical/Magnetic media locally.

3.5 **Interworking with SCP**

3.5.1 The Signalling Gateway shall be capable of interworking with the Service Control Points (SCP) in the network as per TEC SD No. SD/INP-01/02. MAY2007 and shall not necessitate any changes to interfaces or protocols in SCPs.

3.6 **Synchronization**

3.6.1 The system shall preferably provide integrated synchronization equipment conforming to TEC Generic Requirement No. TEC/GR/IT/SYN-003/04/MAR-19. Holdover stability for layer -2 i.e. $1*10^{-10}$ per day or better shall be applicable.

3.6.2 The synchronization method shall be master/slave.

3.6.3 The acceptable slip rate shall be in accordance with ITU-T Recommendation G.822.

3.6.4 The Signalling Gateway shall be capable of synchronization with NTP server.

3.7 **Requirements Specific Millennium Problem**

The equipment hardware and software shall not pose any problem, due to changes in data time caused by events such as changeover of century, leap year etc., in the normal functioning.

3.8 Alarm messages shall contain but not limited to, the following:

(i) Date

(ii) Time

(iii) Severity

(iv) Unique Identifying Number

(v) User Defined Component Identifier

(vi) User Defined Category

(vii) Alarm Text

(viii) Component/ Node/ Interface

(ix) Detailed Alarm Description Including Probable Cause And Impact.

(x) Possible Ways To Rectify The Alarm.

3.8.1 The system shall provide tools to enable tracing, fault isolation and fault diagnosis in the signalling plane as well as on system, application and service level in order to perform “Root Cause Analysis”.

3.8.2 The Fault Management System shall comprise an interface to the Performance Management System in order to allow for alarming and clearing of performance degradation.

3.8.3 The Fault Management System shall comprise a 'Maintenance Function' that allows for suppressing alarms for IMS components that are temporarily out of order e. g. due to upgrade installations, maintenance task etc.

3.9 **Routine/ Diagnostic Tests**

3.9.1 Provision shall exist for routine tests of the supplied system either automatically or manually through man-machine command.

3.9.2 There shall be provision for diagnostic testing to know the health of each module in the system like running normal or not, communication link available or not etc.

3.10 **Command Log**

3.10.1 Commands which are used for modification of system program or data shall be logged in a file and it shall be possible to retrieve the same on demand whenever required, using MML command. It should not be possible to modify or delete log file by any MML command.

3.10.2 It shall be possible to store at least the last 20 commands on the screen and by scrolling and editing any command can be re-executable (optional).

3.11 **System back-up**

3.11.1 It should be possible to save system back-up automatically at a specified time in the system hard disk. In addition, it should also be possible to save system backup automatically in CD-ROM/DVD/ Optical disk /Cartridge etc. It shall be possible to define the above time by MMC.

3.11.2 It shall be possible to take complete system backup on the same device. It shall also be possible to load the system from the backup. It shall be possible to store multiple files of charging information, detailed billing information, traffic statistics, command log, system software, office data etc. on the same device.

3.12 System Redundancy

3.12.1 The system shall have adequate redundancy so as to comply with the requirements of system reliability and stability.

3.12.2 Sufficient redundancy shall be built into the design of the system so that the failure of any component/sub-system STP shall not result in the total system failure.

3.12.3 System shall be equipped with redundancy for power supply.

4.0 Interface Requirements

4.1 Interfaces

4.1.1 The signalling gateway shall support IP over MPLS interfaces towards MPLS network and shall consist of Gigabit Ethernet interface and 10/100 Base T, with 1 + 1 redundancy. The signalling gateway shall interface with router as per TEC GR No. TEC/IR/IT/TCP-001/05 Mar-2014.

4.1.2 It shall be possible to extract and process the signalling information from 64 kbit/s signalling links multiplexed on a 2048 kbit (ITU-T G.703) links. The signalling gateway shall be able to extract signalling information which can be on any time slots (except time slot 0).

4.2 Signalling Protocols

4.2.1 Depending upon the requirement Signalling Gateway shall support the following Signalling Protocols as defined by SIGTRAN working group of IETF.

4.2.2.1 Frame work Architecture for signalling transport as per RFC 2719.

4.2.2.2 Stream Control Transport Protocol (SCTP) as per IETF RFC 3286, 3257, (3309 & 2960) / (4960 & 3873).

4.2.2.3 M3UA (MTP3 User Adaptation Layer protocol) as per IETF RFC No 3332/4666.

4.2.2.4 M2UA (MTP2 User Adaptation Layer protocol) as per IETF RFC No 3331.

4.2.2.5 M2PA (MTP2 Peer to Peer Adaptation protocol) as per IETF RFC No.4165.

4.2.2.6 SUA (SCCP user Adaptation protocol) as per IETF RFC 3868.

4.2.2 The system shall provide CCS7 as per the following National Standard;

a) Message Transfer Part (MTP) and ISDN User Part (ISUP) as per ‘National CCS7 standards for MTP and ISUP (No.SD/CCS-02/03. JAN2000).

b) Signalling Connection and Control Part (SCCP) as per National SCCP standards (No.SD/CCS-03/03. MAR06).

4.3 Other Mandatory Requirements

4.3.1 SS7 MTP Level 3 Requirements

The signaling gateway shall support the following MTP Level3 requirements.

4.3.1.1 Message Loss: Not more than 1 in 10^7 messages shall be lost due to transport failure

4.3.1.2 Sequence Error: Not more than 1 in 10^{10} messages shall be delivered out-of-sequence (including duplicated messages) due to transport failure

4.3.1.3 Message Errors: Not more than 1 in 10^{10} messages shall contain an error that is undetected by the transport protocol.

4.3.1.4 Availability: Availability of any signaling route set shall be 99.9998% or better, i.e., downtime 10 min/year or less.

4.3.1.5 Message length (payload accepted from SS7 user parts): 272 bytes for narrowband SS7.

4.3.2 It shall be possible to set all timers related to SS7 and SIGTRAN protocols using MML. The end to end performance requirement for CCS7 signalling for all signalling path including the IP network path shall conform to National CCS7 Plan (SD/NSP-01/01.SEP92) and National CCS7 standards SD/CCS-02/03.JAN2000.

4.3.3 The equipment shall support both the network indicators i.e. NI = 01, 11 simultaneously.

5.0 Quality Requirements

a. The signalling handling capacity of Signalling gateway shall be as follows for the rated call load:

b. 15 MSU per call.

c. 0.2 Erlang traffic per signalling link

d. The Signalling gateway shall be able to handle 50% overload of the rated BHCA capacity.

e. The signalling gateway shall be able to handle signalling traffic load of upto 0.4 Erlang per signalling link, including signalling traffic due to failure of other stand by signalling links.

5.1 Environmental conditions

(i) Extreme environmental conditions under which the equipment is capable of short-term emergency operation without permanent damage may be indicated.

(ii) Other parameter should be as per TEC standard SD: QM 333.

6.0 EMI/EMC Requirements

6.1 The equipment shall conform to the following EMC requirements for Class A:

General Electromagnetic Compatibility (EMC) Requirements: - The equipment shall conform to the EMC requirements as per the following standards and limits indicated therein. A test certificate and test report shall be furnished from an accredited test agency.

a) Conducted and radiated emission (applicable to telecom equipment):

Name of EMC Standard: "CISPR 22 (2008) - Limits and methods of measurement of radio disturbance characteristics of Information Technology Equipment".

Limits: -

i. To comply with Class B **OR** Class A of CISPR 22 (2008) or CISPR 32(2015)

ii. The values of limits shall be as per TEC Standard No. **TEC/SD/DD/EMC-221/05/OCT-16.**

iii. For Radiated Emission tests, limits below 1 GHz shall be as per Table 4 (a) or 5 (a) for measuring distance of 10m **OR** Table 4 (a1) or 5 (a1) for measuring distance of 3m.

OR

Conducted and radiated emission (applicable to instruments such as power meter, frequency counter etc.):

Name of EMC Standard: "CISPR 11 {2015}- Industrial, scientific and medical (ISM) radio- frequency Equipment-Electromagnetic disturbance characteristics-Limits and methods of measurement"

Limits: -

i. To comply with the category of Group 1 of Class A of CISPR 11 {2015}

ii. The values of limits shall be as per clause No. 8.5.2 of TEC Standard No. **TEC/SD/DD/EMC-221/05/OCT-16**.

b) **Immunity to Electrostatic discharge:**

Name of EMC Standard: IEC 61000-4-2 {2008) "Testing and measurement techniques of Electrostatic discharge immunity test".

Limits: -

i. Contact discharge level 2 {± 4 kV} or higher voltage;
ii. Air discharge level 3 {± 8 kV} or higher voltage;

c) **Immunity to radiated RF**:

Name of EMC Standard: IEC 61000-4-3 (2010) "Testing and measurement techniques-Radiated RF Electromagnetic Field Immunity test"

Limits:-

For Telecom Equipment and Telecom Terminal Equipment with Voice interface (s)

i. Under Test level 2 {Test field strength of 3 V/m} for general purposes in frequency range 80 MHz to 1000 MHz and
ii. Under test level 3 (10 V/m) for protection against digital radio telephones and other RF devices in frequency ranges 800 MHz to 960 MHz and 1.4 GHz to 6.0 GHz.

For Telecom Terminal Equipment without Voice interface (s)

Under Test level 2 {Test field strength of 3 V/m} for general purposes in frequency range 80 MHz to 1000 MHz and for protection against digital radio telephones and other RF devices in frequency ranges 800 MHz to 960 MHz and 1.4 GHz to 6.0 GHz.

d) **Immunity to fast transients (burst):**

Name of EMC Standard: IEC 61000- 4- 4 {2012) "Testing and measurement techniques of electrical fast transients/burst immunity test"

Limits:-

Test Level 2 i.e. a) 1 kV for AC/DC power lines; b) 0. 5 kV for signal / control / data / telecom lines;

e) Immunity to surges:

Name of EMC Standard: IEC 61000-4-5 (2014) “Testing & Measurement techniques for Surge immunity test"

Limits:-

i. For mains power input ports:

(a) 2 kV peak open circuit voltage for line to ground coupling

(b) 1 kV peak open circuit voltage for line to line coupling

ii. For telecom ports:

(a) 2 kV for common mode.

Performance Criteria shall be as per Table 1 under Clause 6 of TEC Standard No. TEC/SD/DD/EMC-221/05/OCT-16.

Applicable Performance Criteria shall be as per Table 3 under Clause 7.2 of TEC Standard No. TEC/SD/DD/EMC-221/05/OCT-16

It may be seen that for telecom ports, surge requirement of 2 KV for L-G coupling (common mode) only has been prescribed.

f) Immunity to conducted disturbance induced by Radio frequency fields:

Name of EMC Standard: IEC 61000-4-6 (2013) "Testing & measurement Techniques-Immunity to conducted disturbances induced by radio- frequency fields”

Limits:-

Under the test level 2 {3 V r.m.s.} in the frequency range 150 kHz-80 MHz for AC / DC lines and Signal /Control/telecom lines.

g) Immunity to voltage dips & short interruptions (applicable to only ac mains power input ports, if any):

Name of EMC Standard: IEC 61000-4-11 (2004) “Testing & measurement techniques- voltage dips, short interruptions and voltage variations immunity tests”

Limits:-

i. a voltage dip corresponding to a reduction of the supply voltage of 30% for 500ms (i.e. 70 % supply voltage for 500ms)

ii. a voltage dip corresponding to a reduction of the supply voltage of 60% for 200ms; (i.e. 40% supply voltage for 200ms)

iii. a voltage interruption corresponding to a reduction of supply voltage of > 95% for 5s.

iv. a voltage interruption corresponding to a reduction of supply voltage of >95% for 10ms.

h) Immunity to voltage dips & short interruptions (applicable to only DC power input ports, if any):

Name of EMC Standard: IEC 61000-4-29:2000: Electromagnetic compatibility (EMC)-PART 4-29: Testing & measurement techniques- voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests.

Limits: -

i. voltage Interruption with 0% of supply for 10ms. Applicable Performance Criterion shall be B.

ii. voltage Interruption with 0% of supply for 30ms, 100ms, 300ms and 1000ms. Applicable Performance Criterion shall be C.

iii. voltage dip corresponding to 40% & 70% of supply for 10ms, 30ms. Applicable Performance Criterion shall be B.

Note 1: Classification of the equipment:

Class B: Class B is a category of apparatus which satisfies the class B disturbance limits. Class B is intended primarily for use in the domestic environment and may include:

- Equipment with no fixed place of use; for example, portable equipment powered by built in batteries;
- Telecommunication terminal equipment powered by the telecommunication networks
- Personal computers and auxiliary connected equipment.

Please note that the domestic environment is an environment where the use of broadcast radio and television receivers may be expected within a distance of 10 m of the apparatus connected.

Class A: Class A is a category of all other equipment, which satisfies the class A limits but not the class B limits.

Note 2: The test agency for EMC tests shall be an accredited agency and details of accreditation shall be submitted.

Note 3: For checking compliance with the above EMC requirements, the method of measurements shall be in accordance with TEC Standard No. **TEC/SD/DD/EMC-221/05/OCT-16** and the references mentioned therein unless otherwise specified specifically. Alternatively, corresponding relevant Euro Norms of the above IEC/CISPR standards are also acceptable subject to the condition that frequency range and test level are met as per above mentioned sub clauses (a) to (g) and TEC Standard No. **TEC/SD/DD/EMC-221/05/OCT-16**. The details of IEC/CISPR and their corresponding Euro Norms are as follows:

IEC/CISPR	Euro Norm
CISPR 11	EN 55011
CISPR 22	EN 55022
IEC 61000-4-2	EN 61000-4-2
IEC 61000-4-3	EN 61000-4-3
IEC 61000-4-4	EN 61000-4-4
IEC 61000-4-5	EN 61000-4-5
IEC 61000-4-6	EN 61000-4-6
IEC 61000-4-11	EN 61000-4-11
IEC 61000-4-29	EN 61000-4-29

The manufacturer / supplier shall submit a test certificate and test report for EMI/EMC compliance from test agency. The test agency for EMI/EMC tests shall be an accredited agency and details of accreditation shall be submitted.

7.0 Safety Requirements

7.1 The equipment shall conform to IS 13252 part 1:2010- “Information Technology Equipment – Safety- Part 1: General Requirements” [equivalent to IEC 60950-1 {2005} “Information Technology Equipment –Safety- Part 1: General Requirements” or IEC 62368-1 and.

7.2 A test certificate and test report shall be furnished from an accredited test agency.

7.3 The test agency for safety requirements tests shall be an ISO 17025 accredited agency and details of accreditation shall be submitted.

8.0 Security Requirements

8.1 Security Requirements for SS7 over IP

The signalling gateway shall support following security requirement

8.1.1 Security for the signalling transport shall be ensured using secured transport mechanisms.

8.1.2 Appropriate security mechanisms for authentication, integrity and confidentiality, shall be used for secured transportation through IP network as per the IETF RFC 2401.

8.1.3 Signalling gateway shall not impose any restriction for Lawful interception in complying to TEC GR No. TEC/GR/SW/LIS-001/04/JUN-17 regarding lawful interception.

8.2 Unauthorized Access

8.2.1 Suitable safeguards shall be provided in the man-machine communication programs to debar unauthorized persons from making any changes in the memory contents or office data. Access to system operations shall be controlled through multi-level password and authentication checks.

8.2.2 The man-machine communication programs shall have the facility of restricting the use of certain commands or procedures to certain passwords and terminals.

8.2.3 Access to system operations should be controlled through multi-level password and authentication checks.

8.3 Monitoring

8.3.1 The system shall pose no limitation in interception and monitoring any signalling link from monitoring positions.

8.3.2 Adequate security mechanisms at different levels shall be provided in the system so as to prevent unauthorized access or interference to services, protocols and data.

8.3.3 The system shall have facility to prevent Denial of Service (DOS) attacks. It shall be able to interact with various elements based on known IP address (source and destination), port number (source and destination) and Interface Identity.

8.4 The system shall comply with relevant contemporary Indian or International

Security Standards e.g. IT and IT related elements against ISO/IEC 15408 standards, for Information Security Management System against ISO 27000 series Standards, Telecom and Telecom related elements against 3GPP security standards, 3GPP2 security standards etc. The equipment shall conform to prevailing law/requirement/conditions of DoT/Govt. of India.

8.4.1 The applicant/manufacturer shall submit a certificate from any international agency/ labs of the standards e.g. Common Criteria Labs in case of ISO/IEC 15408 standards or as per requirements stated by DoT/ licensor/Regulatory body from time to time. Certificate from authorized and certified agencies/labs in India shall be submitted.

CHAPTER-2

9.0 Information for the procurer of product (Desirable Requirements)

9.1 The signalling gateway shall be able to be managed by Element Management System (EMS) to support operation, maintenance and administration as well as Fault Management Configuration, Accounting Performance & Security (FCAPS) requirements as per TEC GR No. TEC/GR/SW/EMS/001/02/NOV-09.

9.2 The signalling gateway shall support Transaction Capabilities Application Part as per ITU-T Rec.Q.771, Q.772, Q.773, and Q.774 & Q.775.

9.3 The signalling gateway shall support Intelligent Network Application Part (INAP) as per TEC document No SD/INP-01/02. MAY2007.

9.4 Depending upon the requirement the signalling gateway shall support STM-1 interface as per ITU-T Rec G.703.

10.0 Specific items to be mentioned in the certificate

a) Name of the equipment
b) Make and model number
c) All optional item mentioned in this GR if available in the equipment should be mentioned in the certificate

ABBREVIATIONS

BHCA	Busy Hour Call Attempts
BSNL	Bharat Sanchar Nigam Ltd
CCS7	Common Channel Signalling No.7
H.248	ITU - T recommendation for media gateway control
IETF	Internet Engineering Task Force
IN	Intelligent Network
INAP	Intelligent Networks Application Part
IP	Internet Protocol
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
ITU	International Telecommunication Union
ITU-T	ITU Telecommunication Sector
M2PA	MTP2- User Peer-to-Peer Adaptation Layer
M2UA	Message Transfer Part User Adaptation Layer 2
M3UA	Message Transfer Part User Adaptation Layer 3
MGW	Media Gateway
MML	Man Machine Language
MPLS	Multi-Protocol Label Switching
MTP	Message Transfer Part
MTP 1	Message Transfer Part 1
MTP 2	Message Transfer Part 2
MTP 3	Message Transfer Part 3
NGN	Next Generation Network
NMS	Network Management System
PLMN	Public Land Mobile Network
PSTN	Public Switched Telephone Network
QM	Quality Manual
QoS	Quality of Service
QR	Quality Requirement

RFC	Request For Comments
SCCP	Signalling Connection Control Part
SCN	Switched Circuit Network
SCTP	Stream Control Transport Protocol
SUA	Service User Adaptation
TCAP	Transaction Capabilities Application Protocol
TCP	Transmission Control Protocol
TEC	Telecommunication Engineering Centre

======== End of the document ========

Annexure I

Comments on draft standards for Generic Requirements(GR) "Signalling Gateway 59050: 2019"

Name:

Organisation:

Contact Details:

S.No	Clause No	Clause	Comments	Other Remarks(if any)