

In exercise of powers conferred under section 28 of the Pakistan Telecommunication (Re-organization) Act 1996, the Authority hereby makes the following regulations, namely:

## **PART – I**

### **Preliminary**

**1. Short title and Commencement.** \_\_\_\_ (a.) These Regulations may be called the “**Regulations for Telecom Equipment Standards, 2023**”.

(a) These regulations shall come into force from the date of gazette notification.

**2. Scope and Applicability:** These regulations shall provide different standards for different classes of telecommunication equipment prescribing therein procedure for testing of telecommunication equipment. These regulations will be applicable on all licenses issued under the Pakistan Telecommunication (Re-organization) Act, 1996 including those who are in the business of manufacturing and importing of telecommunication equipment.

**3. Definitions.** In these regulations, unless there is anything repugnant in the subject or context:

- (a) “**Act**” means the Pakistan Telecommunication (Re-organization) Act, 1996;
- (b) “**Authority**” means the Pakistan Telecommunication Authority established under section 3 of the Act;
- (c) **Electromagnetic Compatibility, or EMC** means that a device is compatible with (i.e., no interference is caused by) its electromagnetic (EM) environment and it does not emit levels of EM energy that cause electromagnetic interference (EMI) in other devices in the vicinity;
- (d) “**Fixed Wireless Access**” is a variant of wireless broadband, where a radio link is used instead of cable or fiber for the transmission of voice and data;
- (e) “**Person**” means a natural or juristic person;
- (f) “**Radio frequency (RF)**” means a rate of oscillation in the range of around 3Hz to 300 GHz, which corresponds to the frequency of radio waves and the alternating currents which carry radio signals;
- (g) “**Satellite Communication Devices**” means any radio communication used in space radio communication or radio astronomy;
- (h) “**Specific Absorption Rate (SAR)** ” means a measure of the rate at which energy is absorbed by the human body when exposed to a radio frequency (RF) electromagnetic field;
- (i) “**Standards**” means the minimum specifications of telecommunication equipment prescribed or adopted by the Authority;
- (j) “**Terminal Equipment**” means any apparatus directly or indirectly connected to any network termination point and used for sending, processing or receiving intelligence;

- (k) “**Telecommunication Equipment**” means switches, equipment, wires, cables, apparatus, poles, structure, ducts, man-holes and other than terminal equipment, comprising any telecommunication system or used in connection with any Telecommunication service;
- (l) “**Terrestrial Equipment**” means any radio communication other than space radio communication or radio astronomy.

## **PART – II**

### **STANDARDS OF TELECOMMUNICATION EQUIPMENT**

**4. Telecommunication Equipment Standard(s).** (1) Standards for Telecommunication Equipment issued by following bodies shall be applicable and adopted by the Authority to be used for establishment, maintenance and operation of telecommunication system or the provision of telecommunication services in Pakistan:

- i. The ITU Telecommunication Standardization Sector (**ITU-T**)
- ii. Directive 2014/53/EU for Radio Equipment Directive (**RED**)
- iii. European Standards (**EN**)
- iv. Federal Communications Commission (**FCC**)
- v. International Organization for Standardization (**ISO**)
- vi. Occupational Health and Safety Assessment Specification (**OHSAS**).
- vii. The European Committee for Electro Technical Standardization (**CENELEC**).
- viii. The European Telecommunications Standards Institute (**ETSI**).
- ix. The International Electro- Technical Commission (**IEC**) and its International Special Committee on Radio Interference (**CISPR**).

Provided that Authority may revise by standard of Telecommunication Equipment as and when required and reflect the same within the regulations from time to time.

(2) The minimum technical standards for Telecommunication Equipment, *inter alia*, are categorized as under:

- a) **Electromagnetic Compatibility Standards (EMC)** – applicable for all Satellite, Terminal, Terrestrial, Telecom and Wireless Equipment.
- b) **Health & Safety** - applicable for all Satellite, Terminal, Terrestrial, Telecom and Wireless Equipment
- c) **Optical and laser** - applicable for all Devices offering Laser and Optical functionality
- d) **Radio Frequency (RF) Communication Standards** – applicable to all Telecommunication Equipment using the required radio Frequency.
- e) **Specific Absorption Rate (SAR) Standards/ Human Exposure Standards** - applicable for all Mobile Devices using the required radio Frequency.
- f) **Satellite communication standards** - applicable to all Telecommunication Equipment using satellite communication.
- g) **Terminal Mobile Devices and Communication Standards-** applicable to all Terminal Equipment which required radio Frequency.
- h) **Terrestrial Devices Standards** - applicable to all Terrestrial Equipment which required Radio Frequency.

(3) Technical specifications for each Telecommunication Equipment standard(s) are tabulated below:

**a) Electromagnetic Compatibility Standards (EMC)**

Standards for EMC	Applicable Standards			Description
	EN	CISPR	IEC	
Information Technology Equipment	55022 55032 50561-1	22 32	50561-1	• Radio disturbance characteristics • Limits and methods of measurement • EN 55032 applies to multimedia equipment (MME) having a rated R.M.S. AC or DC supply voltage not exceeding 600 V
	55024 55035	24 35	-	• Immunity characteristics • Limits and methods of measurement
Voltage Acceptable Limits/Threshold	61000-3-2	-	61000-3-2	• Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)
	61000-3-3	-	61000-3-3	• Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems • Equipment with rated current $\leq 16$ A and subject to conditional connection
	61000-3-5 61000-3-11	-	61000-3-5 61000-3-11	• Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems • Equipment with rated current $\leq 75$ A and subject to conditional connection
Other Standards	301 489-1 301 489-3 301 489-17 301 489-19 301 489-33 301 489-51	-	301 489-1	• Electromagnetic compatibility and Radio-spectrum Matters (ERM) • Electro Magnetic Compatibility (EMC) standard for radio equipment and services • Various parts as applicable to terminal type
	301 489-52	-	301 489-52	• Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Specific conditions for Cellular Communication User Equipment (UE) radio and ancillary equipment
	301 489-54	-	301 489-54	• Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 54: Specific conditions for fixed ground based aeronautical and meteorological radars; Harmonized Standard for electromagnetic compatibility
	301 489-7	-	-	• EMC conditions for mobile and portable radio and ancillary equipment for digital cellular radio telecommunication systems (GSM and DCS) 900/1800 Bands
	301 489-8	-	-	• Electromagnetic compatibility and Radio spectrum Matters (ERM); Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Specific conditions for base stations
	61000-6-1	-	61000-6-1	• Immunity for residential, commercial and light-industrial environments
	61000-6-2	-	61000-6-2	• Immunity for industrial environments
	61000-6-3	-	61000-6-3	• Emission standard for residential, commercial and light-industrial environments
	61000-6-4	-	61000-6-4	• Emission standard for industrial environments

Table.1. EMC Standards

**b) Standards for Health & Safety**

**Note:** Health and Safety standards are common to all the devices and Equipments listed in the document.

Health and Safety standard	Applicable Standards				Description
	EN	IEC	OHSAS	ISO	
Electrical	60950 60950-1 60950-22 60950-23 60215 41003 62368-1 50332-1 50332-2 50332-3	60950 60950-1 62368-1 61508 61010-031	-	-	<ul style="list-style-type: none"> <li>Safety of information technology equipment</li> <li>IEC 62368-1 is applicable to the safety of electrical and electronic equipment within the field of audio, video, information and communication technology, and business and office machines with a rated voltage not exceeding 600V</li> </ul>
Health	60950-22 50360 50566 62479 50663 62209-1 62209-2	62209-1 62209-2	18000 18001 18002	45001 14001	<ul style="list-style-type: none"> <li>Occupational health and safety quality management</li> </ul>

Table.2. Health &amp; Safety Standards

**c) Safety Standards For Optical and Laser**

**Note:** Health and Safety standards are common to all the devices and Equipments processes laser & Optical properties

Health and Safety standard	Applicable Standards				Description
	EN	IEC	OHSAS	ISO	
Optical and laser	60825-1 60825-4	60825-1	-	-	<ul style="list-style-type: none"> <li>Safety of laser products - Part 4: Laser guards</li> </ul>
	60825-2 60825-12	60825-2	-	-	<ul style="list-style-type: none"> <li>Safety of laser products - Part 12: Safety of free space optical Communication systems used for transmission of information.</li> </ul>

Table.3. Optical and laser Standards

**d) Radio Frequency (RF) Communication Standards**

This Category is divided into two Sub Classes which are as follows for, Wireless and General Equipment Standards

- i. Wireless Connectivity Standards
- ii. Miscellaneous Equipment Standards

**i. Wireless Connectivity Standards**

Wireless Connectivity	Frequency Band	Applicable Sub-section of Framework	Applicable Standards	Description
			EN/ETSI	
Industrial, scientific and medical (ISM Band)	2.4 – 2.5 GHz 5.150-5.725 GHZ 5.725 - 5.875 GHz	-	301 489-3 301 489-17 301 893 301 440 300 328	• The assessment of the 2.4 GHz wideband transmission systems and 5 GHz high performance RLAN (including HIPERLAN 1 and 2 and other) including Broadband Data Transmitting System equipment
Worldwide Interoperability for Microwave Access (WiMAX)	3.40 - 3.60 GHz	WiMAX equipment	301 753 301 908-1 102 545-1 102 385-3	
Fixed Wireless Access Wireless Local Loop (FWA WLL)	1900,3500Mhz 450-495Mhz 2.3-2.4 GHz 4.8-5.0 GHz	Fixed Wireless Access and ancillary equipment	301 489-4 302 217-2-2 302 217-1 302 217-3 301 489 -1 302 326-2 302 326-3 302 217-4-2 101 030 105 200-2-2	• Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 3: Equipment operating in frequency bands where both frequency coordinated or uncoordinated deployment might be applied; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive
Digital Microwave Radio	3GHz- 30GHz	Point-to-point radio fixed link equipment and antenna		
Internet of things (IOT)	<b>Long Range</b> 433.05-434.79 MHz, 920 -925 MHZ	• Short-range IoT wireless devices mostly use Bluetooth and ZigBee. Applications.  • LPWAN	300 328 301 893 V2.1.1 300 440 V2.2.1 103 526 103 435 103 582 103 536 300 220 303 645	• Strategic/technical approach on how to achieve interoperability/interworking of existing standardized IoT Platforms. Technical characteristics for Low Power Wide Area Networks operating in the UHF spectrum below 1 GHz

Table.4. *Wireless Connectivity Standards*

**Note:** - WiMAX must meet the WiMAX forum certification Standards under the following labs for the connectivity

- SIRIM QAS International's WiMAX Testing Laboratory.
- Wi-GRID Certification.
- MAXWELL Lab.
- Silicon Laboratories

## ii. Standards For Miscellaneous Equipments

Miscellaneous Equipments Standards	Applicable Standards		Description
	IEC	ETSI/EN	
PBX and Key Systems and Analogue Telecommunications Line Equipment	60950 62368	201 168 202 738 301 437 55022 55032 302 065-1 302 065-3	<ul style="list-style-type: none"> <li>Speech Processing, Transmission and Quality Aspects (STQ); Transmission characteristics of digital Private Branch exchanges (PBXs) for interconnection to private networks, to the public switched network or to IP gateways</li> </ul>
Voice over IP Terminals	60950 62389	ITU-T Rec. G.711 202 738	<ul style="list-style-type: none"> <li>The Vo/IP terminal equipment shall have an audio codec capable of encoding and decoding speech according to ITU-T Rec. G.711 and capable of transmitting and receiving A-law and <math>\mu</math>-law. It may support other codecs (ITU-T Rec. G.726 ADPCM, G.728 LD-CELP, G.729 CS-ACELP G.729a CS-ACELP, and G.723.1 MPMLQ G.723 ACELP)</li> </ul>
		IETF Session Initiation Protocol (RFC3261, RFC3262, RFC3263, RFC3264, and RFC3265).	<ul style="list-style-type: none"> <li>If VoIP Terminal Equipment uses SIP</li> </ul>
		IETF RFC1933	<ul style="list-style-type: none"> <li>For VoIP Terminal Equipment with IPv6 support the equipment shall implement the mechanisms specified in RFC1933 (Transition Mechanisms for IPv6 Hosts and Routers) in order to Maintain compatibility with IPv4</li> </ul>
		ETSI EN 201 168 ITU-T Rec. H.323	<ul style="list-style-type: none"> <li>Speech Processing, Transmission and Quality Aspects (STQ); Transmission characteristics of digital Private Branch exchanges (PBXs) for interconnection to private networks, to the public switched network or to IP gateways <ul style="list-style-type: none"> <li>If the video codec is provided, it shall comply with requirements given in ITU-T Rec. H.323</li> </ul> </li> </ul>
		IETF MEGACO IP Phone Media Gateway Standard	<ul style="list-style-type: none"> <li>If the VoIP terminal equipment is an MEGACO/H.248 based terminal it shall also support IETF MEGACO IP Phone Media Gateway standard</li> </ul>

Miscellaneous Equipment Standards	ETSI/EN	Description
Bluetooth	300 328	• Standard for operating Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz
Global Positioning System (GPS)	300 440-1 300 440-2 303 413	• Standard for operating Positioning system; Data transmission equipment & reception and identification of position
Near Field Communication (NFC)	302 291-2 300 330	• Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Close Range Inductive Data Communication equipment operating at 13.56 MHz
Wi-Fi (IEEE 802.11 a/b/g/n/ac/ax)	300 328 103 631 303 687 301 893 V2.1.1 300 440 V2.2.1	• Standard for operating Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz and 5GHz band
Radio Frequency Identification (RFID)	102 649-2 302 208	• Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics of Short Range Devices (SRD) and RFID in the UHF Band; System Reference Document for Radio Frequency Identification (RFID) and SRD equipment; Part 2: Additional spectrum requirements for UHF RFID, non-specific SRDs and specific SRDs
NON Specific SRD (Short Range Device)	300 220-1 300 220-2 300 330-1 300 330-2	• Short Range Devices (SRD) operating in the frequency range 25 MHz to 1000 MHz; Technical characteristics and methods of measurement
Wide Band & Broadband Data Transmission System 2.4 GHz (2400-2483.5 MHz) 5 GHz(5150-5350 MHz) (5470-5725 MHz) (5725-5850 MHz)	300 328 301 893 302 502	• Standard for operating Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz and 5GHz band
Radio detection and ranging (RADAR)	301 091	• Short Range Devices; Transport and Traffic Telematics (TTT); Radar equipment operating in the 76 GHz to 77 GHz range; Harmonized Standard covering the essential requirements Ground based vehicular radar
	302 858	• Short Range Devices; Transport and Traffic Telematics (TTT); Radar equipment operating in the 24.05 GHz to 24,25 GHz or 24.05 GHz to 24.50 GHz range;

Miscellaneous Equipment Standards	ETSI/EN	Description
Detection of Movement Equipment Tanks Level Probing Radar	300 440-3 302 372-3	• Short Range Devices (SRD); Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Harmonized Standard for access to radio spectrum
Wireless Audio Applications	300 422-2 301 357-2 301 840-2 300 328 303 345-1 303 345-3	• Wireless Microphones; Audio PMSE up to 3 GHz; Part 2: Class B Receivers; Harmonized Standard covering the essential requirements
Ground and Airborne Model Control Equipment	300 220-3(-1)	• Short Range Devices (SRD) operating in the frequency range 25 MHz to 1000 MHz; Harmonized Standard covering the essential requirements of Directive
Inductive Applications and Ancillary Equipment	300 330-2 302 291-2	• Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 2: Harmonized EN covering the essential requirements
Active Medical Implants and their associated peripherals	302 195 302 536 300 330 302 510 301 839 302 537	• Short Range Devices (SRD); Ultra Low Power Active Medical Implants (ULP-AMI) and accessories (ULP-AMI-P) operating in the frequency range 9 kHz to 315 kHz Harmonized Standard covering the essential requirements
Tracking, tracing and data acquisition	300 718 303 345-1 303 345-3	• Avalanche Beacons operating at 457 kHz; Transmitter-receiver systems
Broadband Radio Access Networks (e.g. RLAN)	301 893 302 567	• 5 GHz RLAN; Harmonized Standard covering the essential requirements

Table.5. *Miscellaneous Equipment Standards*



e) Standards For Specific Absorption Rate (SAR)

Specific Absorption Rate standards	Applicable Standards				Description
	EN	IEC	OHSAS	ISO	
Specific Absorption Rate(SAR) / Human Exposure	50360	62209-1528	-	-	• Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz - 6 GHz)
	50371 62479	-	-	-	• Generic standard to demonstrate the compliance of low power electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (10 MHz -300 GHz)
	50385	-	-	9001/14001	• Product standard to demonstrate the compliance of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110 MHz-40 GHz)
	50663	-	-	9001/14001	• This European standard provides simple conformity assessment methods for low-power electronic and electrical equipment operating at frequencies between 10 MHz and 300 GHz to an electromagnetic field (EMF) exposure limit
	50364	-	-	-	• Limitation of human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 10GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications
	50383 50384 50385	-	-	-	• Product standard to demonstrate the compliance of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110 MHz - 40 GHz)
	50401	-	-	-	• Product standard to demonstrate the compliance of fixed equipment for radio transmission (110 MHz - 40 GHz) intended for use in wireless telecommunication networks with the basic restrictions or the reference levels related to general public exposure to radio frequency electromagnetic fields, when put into service
	50392 60950 62209-1 62209-2	62311 62209-1528	-	-	• Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz – 300 GHz) • Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)
	60215	-	-	-	• Safety requirements for radio transmitting equipment

Table.6. Specific Absorption Rate/ Human exposure Standards

f) **Satellite Communication Devices Standards**

Satellite communication Devices Standards	Applicable Sub-section of Framework	Applicable Standards		Description
		IEC	ETSI/EN	
Marine Time Radio	HF Marine Transceiver	60950 1097-7	300086-1, 300373-3 300296-1,301843-2 301843-6,301843-5 300373-1,301178 300698,301025	• The assessment of Earth Stations on board Vessels (ESVs) transmitting above 3 GHz in the Fixed Satellite Service (FSS)
	VHF Marine Transceiver/VHF Marine Mobile Band	60940	301025-1,301025-2 301025-3,301178-1 301178-2,300698-1 300698-2,300698-3 300162-1,300162-2 300162-3 103 784	• The assessment of Earth Stations on board Vessels (ESVs) transmitting above 3 GHz in the Fixed Satellite Service (FSS)
Mobile Satellite Service	Mobile Earth Stations	-	301 426 301 427 301 441 301 442 301 444 301 681 301 489-20 303 980	• Characteristics of Mobile Earth Stations (MESs) radio equipment including Land Mobile Earth Stations (LMESs) radio equipment , Maritime Mobile Earth Stations MMESs) radio equipment
VSAT (4 GHz and 6 GHz)/VSAT (11 / 12 / 14 GHz))	-	-	301 443 61108-1 301 428 301 426 301 459 301 360 301 489-12 302 186	• Satellite Earth Stations and Systems (SES); Harmonized Standard for Very Small Aperture Terminal (VSAT); Transmit-only, transmit-and-receive, receive-only satellite earth stations operating in the 4 GHz and 6 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU • Satellite Earth Stations and Systems (SES); Harmonized Standard for Very Small Aperture Terminal (VSAT); Transmit-only, transmit/receive or receive-only satellite earth stations operating in the 11/12/14 GHz frequency bands covering the essential requirements
		-	301 926 301 721	•Satellite Earth Stations and Systems (SES); Radio Frequency and Modulation Standard for Telemetry, Command and Ranging (TCR) of Geostationary Communications Satellites.
Radar for Radio-navigation	Radar for radio-navigation	-	302 248 302 194 303 413 303 676	•Satellite Earth Stations and Systems (SES); Global Navigation Satellite System (GNSS) receivers; Radio equipment operating in the 1164 MHz to 1300 MHz and 1559 MHz to 1610 MHz frequency bands

Table.7. *Satellite Communication Devices Standards*

**g) Radio And Communication Standards**

Following standards shall be followed for Radio and Communication Equipment:

Radio and Communication Standards	Applicable Standards		Description
	ETSI/EN	IEC	
2G	TS 51.010-1 TS 51.010-4 301 511 301 489-7 301 489-50 301 489-52 101 855	-	<ul style="list-style-type: none"> <li>Digital cellular telecommunication system (Phase 2+) Mobile Station conformance specification; conformance specification (3GPP TS 51.010-1).</li> <li>Conformance test specification for testing GSM RF &amp; Protocol Stack of MS and Subscriber Identity Module (SIM) application toolkit.</li> <li>Global System for Mobile communications (GSM); Mobile Stations (MS) equipment</li> </ul>
3G	301 908-1 301 908-6 301 908-13 301 908-18 301 489-24 TS 34.121-1 TS 34.123-1 TS 31.121 TS 31.124 102 230 134 926	-	<ul style="list-style-type: none"> <li>Specification for RF compliance in UMTS (3G), Protocol Stack, Universal Subscriber Identity Module (USIM) application test and for Subscriber Identity Module Application Toolkit (USAT).</li> <li>Smart Cards; UICC-Terminal interface; Physical, electrical and logical test specification; Part 1: Terminal features (Release 14)</li> </ul>
4G	36.521-1 36.521-3 134 926 TS 31.121 TS 31.124 TS 136 124 301 908-1 301 908-6 301 908-13 301 908-18 301 489-24	-	<ul style="list-style-type: none"> <li>Test specification for RF compliance in LTE (4G), RF Radio Resource Management (RRM) compliance in LTE (4G), Protocol Stack compliance in LTE (4G)</li> <li>IMT cellular networks; Harmonized Standard for access to radio spectrum; Part 13: Evolved Universal Terrestrial Radio Access (E-UTRA) User Equipment (UE)</li> </ul>
5G	TS 138 101 TS 138 521 TS 138 521-1 TS 138 521-3	-	<ul style="list-style-type: none"> <li>NR User Equipment (UE) conformance specification; Radio transmission and reception; Protocol Stack compliance in NR (5G)</li> </ul>
GSM /GPRS Base Stations	301 502 301 489-1 301 489-8 301 489-52 TS 51.010-21 TS 51.010-26	301 489-1	<ul style="list-style-type: none"> <li>Digital cellular telecommunication system (Phase 2+) Mobile Station conformance specification; Part 1: conformance specification (3GPP TS 51.010-1). Global System for Mobile communications (GSM)</li> </ul>

UMTS Mobile Stations	301 908-1 301 908-2 301 908-3 301 908-7 301 908-11 301 489-52 TS 25.141 134 121-1	-	<ul style="list-style-type: none"> <li>• Digital cellular telecommunication system (Phase 2+) Mobile Station conformance specification; Part 1: conformance specification (3GPP TS 51.010-1)</li> <li>• Covers the UTRA Base Station Radio Conformance Testing</li> </ul>
LTE Base Stations	301 908-1 301 908-3 301 908-7 301 908-11 301 908-14 301 908-15 301 908-18 TS 36.141 TS 136 124 136 521-1	-	<ul style="list-style-type: none"> <li>• Covers the EUTRA Base Station Radio Conformance Testing</li> </ul>
CDMA 2000 base Station	TIA / EIA 97C 301 908-1 301 908-5	-	<ul style="list-style-type: none"> <li>• IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&amp;TTE Directive; Part 5: CDMA Multi-Carrier (cdma2000) Base Stations (BS)</li> </ul>
NR Base Stations	TS 38.101-3 TS 38.521-3	-	<ul style="list-style-type: none"> <li>• Covers the NR/5G Base Station Radio Conformance Testing</li> </ul>
Microwave Communication Devices	302 217-1 302 217-4 301 126-1 302 217-2 302 217-3	-	<ul style="list-style-type: none"> <li>• Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 1: Overview, common characteristics and system-independent requirements</li> </ul>
Antenna	302 217-1 302 217-2 302 217-3 302 217-4	-	<ul style="list-style-type: none"> <li>• Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 1: Overview, common characteristics and system-independent requirements</li> </ul>
Optical Fiber	103 247 105 175-1-1 110 174-2-1 300 386	-	<ul style="list-style-type: none"> <li>• Access, Terminals, Transmission and Multiplexing (ATTM); Single mode Optical Fibre System Specifications for Home Cabling</li> <li>Electromagnetic compatibility and Radio spectrum Matters (ERM); Telecommunication network equipment; Electromagnetic Compatibility (EMC) requirements</li> </ul>
	60794-1-1	-	<ul style="list-style-type: none"> <li>• Optical fibre cables - Generic specification</li> </ul>
	62148-15	-	<ul style="list-style-type: none"> <li>• Physical dimension and interface specifications for discrete vertical cavity surface emitting laser (VCSEL) devices in optical telecommunication and optical data transmission applications</li> </ul>

Table.8. Standards for Radio and Communication

**h) Terrestrial Standards****Note:** *Applicable to all Terrestrial Equipment which required radio frequency to operate*

Terrestrial Equipment Standards		Applicable Sub-section of Framework	Applicable Standards		Description
			IEC	EN	
Very High Frequency Radio(VHF)		Amateur radio and ancillary equipment	-	301 489-18 303 035-1 303 035-2 301 489-15 301 783-2 300 086-1 300 086-2 300 113-1	• Radio equipment intended for the transmission of data (and/or speech) using constant or non-constant envelope modulation and having an antenna Connector
Ultra High Frequency (UHF) Radio	Citizen band Radio (CB)	Citizen band Amateur radio and ancillary equipment of both Double side band (DSB/SSB)	-	300 433-1 300 135-1 300 135-2 301 489-13 300 680-1 300 680-2	• Angle-modulated Citizens Band radio equipment (CEPT 27 Radio Equipment); Part 1: Technical characteristics and methods of measurement. • Land Mobile Service; Radio equipment using integral antennas intended primarily for analogue speech
	Family Radio Service (FRS)	-	-	300 296-1 300 296-2 300 113-1 300 113-2	• Transmitter and associated encoder and modulator and/or a receiver and associated demodulator and decoder. Base Stations antennas
GMPCS		-		301 489-1 301 489-20 301 441	• Satellite Earth Station and System (SES); Harmonized EN for Mobile Earth Station (MESs); including handheld earth stations for Satellite Personal
GPON		-		103 247 102 973	Access, Terminals, Transmission and Multiplexing (ATTM); Single mode Optical Fiber System Specifications for Home Cabling

Table.9. *Terrestrial Equipment Standards*

(4) All technical standards for Telecommunication Equipment as provided hereinabove or as specified by the Authority from time to time, where applicable, may be considered for Terminal Equipment or Terrestrial Equipment as defined in these regulations. Provided that where the Authority has not prescribed any technical standards for a type of terminal equipment, the technical standards laid down by standardization bodies mentioned in clause 4 of these regulation shall be adopted.

## PART –III

**Procedure for testing of Telecommunication Equipment**

5. **Testing of Telecommunication Equipment.** \_\_ (1) For the purpose of testing of Telecommunication Equipment all person(s) will adhere and comply with standards as specified in regulation 4 of these regulations.

(2) Applicant may submit certificate of compliance (CoC) to technical standard application along with all applicable standards test reports issued by accredited labs around the world that conform to standards published by any of bodies mentioned in clause 4 of these regulations.

(3) COC may be applied by submitting following documents at [commercialcoc@pta.gov.pk](mailto:commercialcoc@pta.gov.pk) or any other mechanism defined by authority from time to time along with following documents:-

- Declaration of Conformity showing all standards conformed by device
- Test reports for all standards reflected in Declaration of Conformity as and when required
- Airway Bill (AWB) copy
- Details for concerned custom port where consignment is detained
- Technical literature for the device
- End to End network connectivity diagram
- Any other documents that may be required by the Authority

(4) In case of any non-adherence of any standard for Telecommunication Equipment shall lead to initiate legal proceeding as per law.

(5) All person(s) who intend to carry out commercial activities shall require to obtain no objection certificate from the Authority.

## PART –IV

**Miscellaneous**

6. **Inspection.** \_\_ (1) An authorized officer of the Authority may carry out inspection of any premises to verify or confirm the standard of Telecommunication Equipment.

(2) The inspection or survey may be carried with or without prior notice.

7. **Provision of Information to the Authority.** — The Authority may seeks / obtains any document or record pertaining to Telecommunication Equipment as and when required for the purpose of any inspection or investigation.

8. **Directions of the Authority.** \_\_ All directives, notification, standard operating procedures and order issued by the Authority from time to time shall be binding and applicable on all persons.

9. **Publication Education and Awareness.** \_\_ All licensees and the Authority shall carry out special campaign through print and electronic media for the education to public at large (*in Urdu and English.*)

10. **Maintenance of record.** \_\_ All licensees, importers and manufactures shall maintain updated record of all Telecommunication Equipment and share with the Authority as and when required.