

Technical standards for ICT equipment Connected to Public Telecommunication Network

V1.1

القواعد والمقاييس الفنية والتشغيلية لربط أجهزة الاتصالات السلكية واللاسلكية مع شبكات الاتصالات العامة

1. Kuwaiti regulatory framework

Regulators typically require that all radio-communications and equipment connected to the public network meet certain technical standards related to:

- Radio-wave propagation;
- Electromagnetic compatibility; and
- Safety.

CITRA's power to regulate technical standards and type approval are found in Articles 3(J) and (K), and 43, 44 and 45 of Law No. 37 of 2014.

The Government of Kuwait has established a type approval process for all ICT equipment used within the country. The standards applied in Kuwait include standards that are also used for European ICT equipment and commonly applied across the GCC. This is entirely appropriate as Kuwait, like Europe, falls into ITU Region 1 spectrum usage. The Federal Communications Commission (FCC) regime maintained in the US is in many ways not compatible as the US is in Region 2.

The CE approval, based on the ETSI standards, is widely used in ITU Region 1 and beyond, since the spectrum usage is mostly compatible. Since 1999 the Radio & Telecommunications Terminal Equipment Directive (R&TTED) complemented by the 2004 Electromagnetic Compatibility Directive and the 2006 Low Voltage Directive have been the basis for many type approval regimes. The technical specifications of the R&TTED framework have been widely adopted, also outside the EU countries, though the actual approval process has seen various variants outside the direct European participants.

Since 2014 the R&TTED framework has been updated to further streamline the process of equipment type approval. This resulted in the 2014 Radio Equipment Directive (RED) becoming applicable in the European Community. Until very recently the implementation of the new Directive was in a transitional phase replacing the Radio and Telecommunication Terminal Equipment Directive (1999/5/EC). The new RED was adopted on 16 April 2014, and EU countries had to transpose it into their national law before 13 June 2016.

Hence, the Current ETSI standards as used under the new RED type approval process in Europe is considered for the technical standards applied in Kuwait.

2.0 Type approval Process

CITRA is following the process previously identified by the Ministry of Communications. However CITRA is in process of establishing type approval lab; once done, new type approval process will be approved and published.

3.0 Standards for safety

Safety requirements are divided in the following categories:

- Electrical;

- RF and SAR;
- Optical and Laser;
- EMC

Electrical Standards:

- EN-IEC 62368-1:2014, Safety of information technology equipment.

RF and SAR Standards:

- EN 50360, Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz -). 6GHz
- EN 50364, Limitation of human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 10 GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications.
- EN-IEC 62479:2010, 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) - General public.
- EN 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) - General public.
- EN 62311:2008, Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz-300 GHz)

Optical and Laser Standards:

- EN 60825-1 or IEC 60825-1, Safety of laser products, Part 1: Equipment classification, requirements and user's guide
- EN 60825-2 or IEC 60825-2, Safety of laser products, Part 2: Safety of optical fibre communication systems.

EMC Standards:

- EN-IEC 50561-1:2013 or CISPR 22, Information technology equipment - Radio disturbance characteristics -Limits and methods of measurement
- EN 55024 or CISPR 24, Information technology equipment - Immunity characteristics - Limits and methods of measurement
- EN 301 489, Electromagnetic Compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services.
- EN 61000-3-2 or IEC 61000-3-2, Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase).
- EN 61000-3-3 or IEC 61000-3-3, Part 3-3: Limits — Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection.
- EN 61000-3-11 or IEC 61000-3-11, Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection.

- EN 61000-6-1 or IEC 61000-6-1, Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments.
- EN 61000-6-2 or IEC 61000-6-2, Part 6-2: Generic standards - Immunity for industrial environments.
- EN 61000-6-3 or IEC 61000-6-3, Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments.
- EN 61000-6-4 or IEC 61000-6-4, Part 6-4: Generic standards - Emission standard for industrial environments

Annex 1: Standards for Mobile Devices

Services /Technology	RF Standard
GSM (2G)	ETSI EN 301 511
UMTS (3G) & (4G) LTE	ETSI EN 301 908-1 ETSI EN 301 908-2 ETSI EN 301 908-6 ETSI EN 301 908-13
5G	ETSI TS 138 101 ETSI TS 138 521

Annex 2: Standards for Mobile Network Radio Base Stations

Services /Technology	RF Standard
2G Base Station (BTS)	ETSI EN 301 502
3G Base Station (Node B)	ETSI EN 301 908-1 ETSI EN 301 908-3 ETSI EN 301 908-7 ETSI EN 301 908-11
LTE Base Station (eNode B)	ETSI EN 301 908-1 ETSI EN 301 908-3 ETSI EN 301 908-7 ETSI EN 301 908-11 ETSI EN 301 908-14 ETSI EN 301 908-15 ETSI EN 301 908-18
5G	3GPP TS 38.101 -3 3GPP TS 38.521 -3

Annex 3: Standards for PMR

Services /Technology	RF Standard
Terrestrial Trunked Radio (TETRA)	ETSI EN 303 035-1 ETSI EN 303 035-2
Land Mobile Services (VHF & UHF Equipment's)/PMR	ETSI EN 300 086-1 ETSI EN 300 086-2 ETSI EN 300 113-2 ETSI ETS 300 296-2 ETSI EN 300 390-2 ETSI EN 300 471-2 ETSI EN 300 793 ETSI EN 301 166-2
PMR 446	TS 102 490
<i>For US originating equipment only</i>	FCC, CFR Title 47, Part 90
<i>For US originating equipment only</i>	ANSI/TIA/EIA 603

Annex 4: Standards for Broadcast Equipment

Services /Technology	RF Standard
FM Sound Broadcasting Services (87.5 MHz-108 MHz)	ETSI EN 302 018-2
AM Sound Broadcasting	ETSI EN 302 017-2
DRM Broadcasting	ETSI EN 302 245-2
DAB Broadcasting	ETSI EN 302 077-1 ETSI EN 302 077-2
TV Broadcasting DVB-T	ETSI EN 302 296

Annex 5: Standards for License-exempt Equipment

Services /Technology	RF Standard
Bluetooth	ETSI EN 300 328
Global Positioning System (GPS)	ETSI EN 300 440-1 ETSI EN 300 440-2
Near Field Communication (NFC)	ETSI EN 302 291-2
WiFi (IEEE802.11a/b/g/n)	ETSI EN 300 328 ETSI EN 301 893
Radio Frequency Identification (RFID)	ETSI EN 300 220-1 ETSI EN 300 220-2 ETSI EN 302 208-2
NON Specific SRD (Short Range Device)	ETSI EN 300 220-1 ETSI EN 300 220-2 ETSI EN 300 330-1 ETSI EN 300 330-2 ETSI EN 300 440-1 ETSI EN 300 440-2 ETSI EN 302 288-1
Short Range Radar Sensor (24 GHz) - (76-77 GHz)	ETSI EN 302 288-2 ETSI EN 301 091-1/-2
Wide Band & Broadband Data Transmission System 2.4 GHz (2400-2483.5 MHz) 5 GHz(5150-5350 MHz) (5470-5725 MHz) (5725-5850 MHz)	ETSI EN 300 328 ETSI EN 301 893 ETSI EN 302 502
DECT / Cordless	ETSI EN 301 406
Wi-Fi Module	ETSI EN 300 328 ETSI EN 301 893 ETSI EN 300 440-1 ETSI EN 300 440-2
Detection of Movement Equipment Tanks Level Probing Radar	ETSI EN 300 440-3 ETSI EN 302 372-3
Wireless Audio Applications	ETSI EN 300 422-2 ETSI EN 301 357-2

	ETSI EN 301 840-2
Radio Microphones/InEar Monitoring and Ancillary Equipment	ETSI EN 301 357-2 ETSI EN 301 840-2
Ground and Airborne Model Control Equipment	ETSI EN 300 220-3(-1)
Inductive Applications and Ancillary Equipment	ETSI EN 300 330-2 ETSI EN 302 291-2
Radio hearing aids	ETSI EN 300 220-3(-1) ETSI EN 300 422-2
Analogue Cordless Phone	ETSI EN 300 220-3 ETSI EN 301 796 ETSI EN 301 797
Active Medical Implants and their associated peripherals	ETSI EN 302 195
Active Medical Implants and their associated peripherals	ETSI EN 302 536
Tracking, tracing and data acquisition	ETSI EN 300 718
Railway applications	ETSI EN 302 608
Railway applications	ETSI EN 302 609
Active Medical Implants and their associated peripherals	ETSI EN 300 330
RFID and EAS	ETSI EN 300 330
Radio microphone applications	ETSI EN 300 422
Active Medical Implants and their associated peripherals	ETSI EN 302 510
Active Medical Implants and their associated peripherals	ETSI EN 301 839

Active Medical Implants and their associated peripherals	ETSI EN 302 537
SRD860	
Tracking, tracing and data acquisition	ETSI EN 00 175
Transport and traffic telematics	ETSI EN 300 200
DECT applications including Cordless Telephony	ETSI EN 300 175
Wideband data transmission (e.g. WLAN, PMR over WLAN)	ETSI EN 300 328
RFID	ETSI EN 300 761 ETSI EN 300 440
Active Medical Implants	ETSI EN 301 559
RLAN). Indoor only	EN 301 893
Broadband Radio Access Networks (e.g. RLAN)	EN 301 893 TPC/DFS: ETSI EN 301 893
Tracking, tracing and data acquisition	ETSI EN 303 258
Tank level probing radar	ETSI EN 302 858
Non-specific	ETSI EN 305 550
Broadband Radio Access Networks (e.g. RLAN)	ETSI EN 302 567

Radiodetermination applications	ETSI EN 302 729
Railway applications and Transport and traffic telematics	ETSI EN 301 091

Annex 6: Standards for Analogue Telecommunications Line Equipment

The analogue telecommunication line equipment being imported into Kuwait must meet a specific set of technical standards. Kuwait applies ETSI ES 203 021-1/2/3 as the basic technical standard and some additional requirements such as:

- If pulse dialling is supported: ETSI ES 201 187
- Attachment requirements: TBR 38
- DECT: TBR 10
- CLI: ETSI ES 201 235-3
- Fixed line SMS: ETSI ES 201 912
- Display and related services: ETSI EN 300 659-2 and ETSI ES 200 778-2
- Meter pulse detection: When in the off-hook state, equipment which offers meter pulse detection should recognize the presence of a transverse 12 KHz meter pulse of duration and levels described by the network operator. The equipment should present an impedance of greater than 200Ω at 12 KHz under all line conditions.

There are no major issues other than the gradual phase-out of analogue PSTN lines so the services are becoming obsolete. References made to TBR 38 and TBR 10 are considered not necessary for type approval since ETSI SR 001 478-1 (1999). ETSI has classified TBR 38 as historical. The main alternative to maintaining these standards is a gradual phase-out of the standards in line with the phase-out of the legacy PSTN. Reference to “historical” technical standards could be removed from the requirements list. For as long as the analogue PSTN exists these technical standards potentially remain applicable. We recommend maintaining these standards as is, with the exception of removing the reference to documents that have a “historical” status such as TBR 38.

Annex 7: Standards for Satellite Communications Equipment

Services /Technology	RF Standard
Very Small Aperture Terminal (VSAT)	ETSI EN 301 443 ETSI EN 301 428 ETSI EN 301 426 ETSI EN 301 459 ETSI EN 301 360
Mobile Satellite Service (MSS)	ETSI EN 301 426 ETSI EN 301 427 ETSI EN 301 441 ETSI EN 301 442 ETSI EN 301 444 ETSI EN 301 681

Annex 8: Standards for Miscellaneous Equipment

Services /Technology	RF Standard
Fixed Wireless Access	ETSI EN 302 326-2 ETSI EN 302 326-3 ETSI EN 302 217-2-2 ETSI EN 302 217-3 ETSI EN 301 753
Navigational Equipment (EPIRBS:121.5 & 243 MHz) For 406 MHz	ETSI EN 300 066 ETSI EN 300 152-1 ETSI EN 300 152-2 ETSI EN 301 843-1
Microwave Equipment	ETSI EN 301 126-1 ETSI EN 302 217-2 ETSI EN 302 217-3 ETSI EN 302 217-4
VHF (Very High Frequency) Aeronautical	ETSI EN 300 676-1
Mobile Service	ETSI EN 300 676-2
WiMAX equipment	ETSI EN 302 544-1 ETSI EN 302 544-2 ETSI EN 302 623 ETSI EN 302 326-1 ETSI EN 302 326-2 ETSI EN 302 326-3
Road Transport Telematics and Ancillary Equipment	ETSI EN 301 091-2 ETSI EN 302 288-2
Amateur Radio and Ancillary Equipment	ETSI EN 301 783-2