هيئة الاتصالات وتقنية المعلومات
Communications & Information Technology Commission

CITC Technical Specification

Specification for Equipment connecting to Wired Network

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This Technical Specification will be withdrawn by 1/1/2022

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Scope

This specification applies to Equipment connecting to any wired network which includes the following services:

- SHDSL
- X.21
- 64 Kbit/s
- X.25 packet switched networks
- Co-directional G.703 digital leased line
- 34 Mb/s digital leased line
- 2.048 Mb/s digital leased line
- ADSL, ADSL2 and ADSL2+
- Analogue PSTN

Enforcement

This specification shall enter into force on 01/06/2021.

Any previous version of this technical specification is withdrawn.

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General Requirements

All equipment must comply with the requirement of CITC specification GEN001, be safe and must not adversely affect other electrical equipment.

All telecommunications and radio terminal equipment must comply with the relevant technical specifications established by CITC. In addition, such equipment may be subject to regulations for Declaration of Conformity or registration. See www.citc.gov.sa for details.

If more than one interface type is offered by a piece of equipment, each interface must meet the applicable technical specifications.

Further information on the characteristics and presentation of network interfaces can be found by visiting operator's website.

It is mandatory that test reports are obtained from a laboratory that has been accredited by a body that is a member of the ILAC Mutual Recognition Arrangement.

Limits and conditions

Testing should be carried out to ensure compliance with the following specifications:

Technology	Applicable Standard	Additional Requirements
DSL	ETR 152 TS 101 524-1	Currently there is no additional requirements for this technical specification.
Analogue PSTN	ES 203 021-1 ES 203 021-2 ES 203 021-3	Pulse Dialling is the generation of signalling information by interrupting the local loop circuit in

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		accordance with a defined coding system ,usually a digit . For products that offer Pulse or Loop Disconnect dialling, testing in accordance with ETSI ES 201 187 shall be performed using the following: 8 to 12 pulses per second Make period 40+/-10ms Break period 60+/-10ms. ES 201 187 "2-wire analogue voice band interfaces; Loop Disconnect (LD) dialling specific requirements". Analogue Voice Analogue telephones and other equipment which offer analogue handset telephony such as fax machines or DECT should comply with the requirements of the TBR 38 and TBR 10. Volume control Where a terminal is fitted with a receive volume control, the default position of the volume control should fall within the acceptable range of RLR described above. Caller Line Identification (CLI)

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		Products which offer CLI should recognize DTMF signalling in accordance with ES 201 235-3.Caller Line Identification is the possibility to identify the connection end point for an incoming call, usually the phone number of the caller. Fixed Line Short Message Service (SMS) Terminals offering the SMS feature must comply with the relevant parts of requirements of ETSI ES 201 912 in particular the physical layer characteristics of section 5.3.1. 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. Meter pulses are used by telephone exchanges to inform the connected end devices, e.g. payphones, of

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		the costs of an ongoing telephone call.
64 kbit/s	TBR 014 TBR 014/A1 or EN 300 290	Currently there is no additional requirements for this technical specification.
X.25 packet switched networks	TBR2 or ITU-T recommendation X.25 ITU-T Recommendation X.21 ITU-T Recommendation X.21bis	For connections to X.25 packet switched networks. The physical interface of the CPE shall conform to either ITU-T Recommendation V.35 or V.24. Other types of interfaces may be provided to the customer at the discretion of network operator.
G.703 Digital Leased Line	ITU-T Recommendation G.703	Currently there is no additional requirements for this technical specification.
34 Mb/s Digital Leased Line	EN 300 689 TBR24	Currently there is no additional requirements for this technical specification.
2.048 Mb/s Digital Leased Line	TBR12 TBR012/A1 TBR13 EN 300 248	It must be possible to ground the outer conductor or screen of the coaxial pair or the screen of the symmetrical pair in accordance with ITU-T G.703. Section 9.4. If it is intended that a 75Ω interface connects via a Balun to 120Ω services testing shall be carried out with the Balun in place.

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X.21	ITU-T Recommendation X.21 ITU-T Recommendation X.21bis.	Currently there is no additional requirements for this technical specification.

For ADSL, ADSL2 and ADSL2+ equipment testing should be carried out to ensure compliance with the listed specifications.

Technical requirements to limit disturbance to services operating at frequencies above the voiceband service.

Service	Specification	Upstream PSD	Aggregate upstream transmit power	Comments
ADSL (G.dmt)	G.992.1 (07/1999)	Annex A (A2.4)	Annex A (A2.4.3.3)	ITU-T Recommendation
Splitterless ADSL (G.Lite) (Non overlapped spectrum)	G.992.2 (07/1999)	Annex A (A1)	Annex A (A1.2.3)	ITU-T Recommendation
Splitterless ADSL (Overlapped spectrum)	G.992.2 (07/1999)	Annex B (B1)	Annex B (B1.2.3)	ITU-T Recommendation
ADSL2	G.992.3 (01/2005)	Annex A	Annex A	ITU-T Recommendation
RE-ADSL2	G.992.3 (01/2005)	Annex L	Annex L	ITU-T Recommendation

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ADSL2 increased upstream rate	G.992.3 (01/2005)	Annex M	Annex M	ITU-T Recommendation
Splitterless ADSL2	G.992.4 (07/2002)	Annex A	Annex A	ITU-T Recommendation
ADSL2+	G.992.5 (01/2005)	Annex A (A2.2)	Annex A (A2.2.2)	ITU-T Recommendation
ADSL2+ increased Upstream rate	G.992.5 (01/2005)	Annex M	Annex M	ITU-T Recommendation

Technical Requirements to limit disturbance to Voiceband Services:

The equipment must be tested against ES 202 913, TS 101 952-1-1 and TS 101 952-1-2.

Power Spectral Density in the 0 to 4 KHz band.

The total power in the voiceband (0 Hz to 4 kHz) shall not exceed +15 dBm. The power spectral density in the range 0 to 4 kHz shall not exceed -97.5 dbm/ Hz.

Power Spectral Density (PSD).

ADSL equipment shall operate within the specified upstream PSD mask (see Table above) to prevent interference to other services.

Aggregate transmit power

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The Upstream aggregate transmit power for an ADSL equipment shall not exceed the limits specified in the table above.

Licensing Requirements

No licensing requirements apply.

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References

The following referenced documents are indispensable for the application of this document. If no issue or revision number is quoted along with the title of a technical specification or standard, the latest published version should be used.

ETR 152
Transmission and Multiplexing TM; High bit-rate Digital Subscriber Line (HDSL) transmission system on metallic local lines; HDSL core specification and applications for 2048 kbit/s based access digital sections.

TS 101 524-1
Transmission and Multiplexing. Access transmission system on metallic access cables. Symmetrical single pair high bit rate Digital Subscriber Line (SDSL)

ES 203 021–1
Access and Terminals (AT);Harmonized basic attachment requirements for Terminals for connection to analogue interfaces of the Telephone Networks; Update of the technical contents of TBR 021, EN 301 437, TBR 015, TBR 017;Part 1: General aspects.

ES 203 021-2
Access and Terminals (AT);Harmonized basic attachment requirements for Terminals for connection to analogue interfaces of the Telephone Networks; Update of the technical contents of TBR 021, EN 301 437, TBR 015, TBR 017;Part 2: Basic transmission and protection of the network from harm.

ES 203 021-3

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Access and Terminals (AT);Harmonized basic attachment requirements for Terminals for connection to analogue interfaces of the Telephone Networks; Update of the technical contents of TBR 021, EN 301 437, TBR 015, TBR 017;Part 3: Basic interworking with the Public Telephone Networks.

TBR 38
Public Switched Telephone Network (PSTN); Attachment requirements for a terminal equipment incorporating an analogue handset function capable of supporting the justified case service when connected to the analogue interface of the PSTN in Europe

TBR 10
Digital Enhanced Cordless Telecommunications (DECT); General Terminal Attachment Requirements; Telephony Applications

ES 201 235-3
Access and terminals (AT) specification of Dual–Tone Multi Frequency (DTMF) transmitters and receivers; Part 3 Receivers.

ES 201 912
Access and Terminals (AT); Short Message Service (SMS) for PSTN/ISDN; Short Message Communication between a fixed network Short Message Terminal Equipment and a Short Message Service Centre

EN 300 659-2
Access and Terminals (AT); Analogue access to the Public Switched Telephone Network (PSTN); Subscriber line protocol over the local loop for display (and related) services; Part 2: Off-hook data transmission.

ES 200 778-2

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Access and Terminals (AT); Analogue access to the Public Switched Telephone Network (PSTN); Protocol over the local loop for display and related services; Terminal equipment requirements.

TBR 014
Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Attachment requirements for terminal equipment interface

TBR 014/A1
Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Attachment requirements for terminal equipment interface

EN 300 290
Access and Terminals (AT); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Terminal equipment interface

TBR2
Attachment requirements for Data Terminal Equipment (DTE)
to connect to Packet Switched Public Data Networks (PSPDNs)
for CCITT Recommendation X.25 interfaces at data signaling rates up to 1920 kbit/s. Utilizing interfaces derived from CCITT recommendations X.21 and X.21bis

ITU-T recommendation X.25:
Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for Terminals operating in the Packet Mode and connected to Public Data Networks by dedicated circuit.

ITU-T Recommendation X.21:

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Interface between Data Terminal Equipment and Data Circuit-terminating equipment for synchronous operation on Public Data Network

ITU-T Recommendation X.21bis :
Use on Public Data Networks of Data Terminal Equipment (DTE) which is designed for interfacing to Synchronous V-Series Modems

ITU-T Recommendation G.703
General aspects of digital transmission systems terminal equipment
Physical/Electrical characteristics of Hierarchical Digital Interfaces

EN 300 689
Access and Terminals (AT); 34Mbit/s digital leased line (D34U and D34S) Terminal equipment interface

TBR24
Business TeleCommunications (BTC); 34 Mbit/s digital structured and unstructured leased lines (D34U and D34S); Attachment requirements for terminal equipment interface

TBR12
Business TeleCommunications (BTC);
2048 kbit/s digital unstructured leased lines (D2048U); Attachment requirements for terminal equipment interface

TBR012/A1
Business TeleCommunications (BTC);Open Network Provision (ONP) technical requirements; 2048 kbit/s digital unstructured leased line (D2048U); Attachment requirements for terminal equipment interface

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TBR13

Business TeleCommunications (BTC);

2048 kbit/s digital structured leased lines (D2048S); Attachment requirements for terminal equipment interface

EN 300 248

Access and Terminals (AT); 2048 kbit/s digital unstructured leased line (D2048U); Terminal equipment interface

ITU-T G.703

ITU-T Recommendation

SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

ES 202 913

Access and Terminals (AT); POTS requirements applicable to ADSL modems when connected to an analogue presented PSTN line

TS 101 952-1-1

Access network xDSL transmission filters; Part 1: ADSL splitters for European deployment; Sub-part 1: Specification of the low pass part of ADSL/POTS splitters

TS 101 952-1-2

Access network xDSL transmission filters; Part 1: ADSL splitters for European deployment; Sub-part 2: Specification of the high pass part of ADSL/POTS splitters

G.992

ITU-T Recommendation

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SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

ITU-T Recommendation X.21 :
Interface between Data Terminal Equipment and Data Circuit-Terminating Equipment for synchronous operation on Public Data Network.

ITU-T Recommendation X.21bis :
Use on Public Data Networks of Data Terminal Equipment (DTE) which is designed for interfacing to Synchronous V-Series Modems.

History

For reference, the latest versions of the technical specifications are published on the CITC website www.citc.gov.sa.

Description	Status	Date
Merge of DI001, DI002, DI003, DI004, DI006, DI007, DSL001, AI001, and AI003	Issue 1	02/03/2021

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