

Päiväys: 1.1.2010

## TECHNICAL SPECIFICATIONS

This document describes standards used in public telecommunication networks. These standards and guidelines may be based on other standards or describe national additions or exceptions to international standards.

List of abbreviations of standards and authorities:

|        |  |
|--------|--|
| ANSI   | The American National Standards Institute              |
| ETSI   | The European Telecommunications Standards Institute    |
| FICORA | The Finnish Communications Regulatory Authority        |
| GFI    | Guidelines for implementation                          |
| IEC    | International Electrotechnical Commission              |
| IEEE   | Institute of Electrical and Electronics Engineers, Inc |
| ISO    | International Organization for Standardization         |
| ITU    | The International Telecommunication Union              |
| RFC    | Request for comments                                   |
| SFS    | The Finnish Standards Association                      |

## VOICE

This section specifies legacy voice services over switched circuit networks.

## ANALOGUE TERMINATIONS

The following national standards and guidelines apply to analogue terminations for voice services. These services are referred as Plain Old Telephone Service (POTS).

|          |   |
|----------|---|
| GFI 9702 | Public Switched Telephone Network (PSTN);<br>Subscriber line protocol over the local loop for display (and related) services<br>February 1998. <a href="http://www.ficora.fi/suomi/tele/gfi/gfi9702.htm">http://www.ficora.fi/suomi/tele/gfi/gfi9702.htm</a>                                  |
| GFI 9802 | Kansalliset tilaajatoiminteet (National subscriber services and facilities);<br>September 1998 (5. ed.). <a href="http://www.ficora.fi/suomi/document/GFI_9802.ZIP">http://www.ficora.fi/suomi/document/GFI_9802.ZIP</a> (FIN)  |
| GFI 9803 | Kansalliset tilaajatoiminteet (National subscriber services and facilities);<br>Yhteistoiminta toiminteiden kesken (co-operation of services)<br>May 2001 (2. ed.). <a href="http://www.ficora.fi/suomi/document/gfi9803ed2.pdf">http://www.ficora.fi/suomi/document/gfi9803ed2.pdf</a> (FIN) |
| SFS 5664 | Telecommunication network exchanges;<br>Transmission characteristics<br>May 1998. <a href="http://www.sfs.fi/luettelo/ryhma33.080.html">http://www.sfs.fi/luettelo/ryhma33.080.html</a>   |
| I        | Interfaces<br>May 1998. <a href="http://www.sfs.fi/luettelo/ryhma33.080.html">http://www.sfs.fi/luettelo/ryhma33.080.html</a>   |
| SFS 5876 | Telecommunications network exchanges;<br>Tones and ringing signals<br>May 2000. <a href="http://www.sfs.fi/luettelo/ryhma33.050.html">http://www.sfs.fi/luettelo/ryhma33.050.html</a>   |

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Linnunrata 6

07900 LOVIISA

Päiväys: 1.1.2010

## DIGITAL TERMINATIONS

The following international and national standards and guidelines apply to digital terminations for voice services.

These services are referred as Integrated Services Digital Network (ISDN).

ETSI EN 300 011-1 Integrated Services Digital Network (ISDN);

Primary rate User Network Interface (UNI), Part 1: Layer 1 specification

May 2000. [http://webapp.etsi.org/workprogram/Report\\_WorkItem.asp?WKI\\_ID=9891](http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=9891)

GFI 9301

ISDN Access Signalling;  
Basic Call Control Procedures

November 1999 (3. ed.). <http://www.ficora.fi/suomi/document/gfi9301ed3.doc>

GFI 9302

ISDN Supplementary Services;  
Functional Protocol

May 2001 (4. ed.). <http://www.ficora.fi/suomi/document/gfi9302ed4.pdf>

GFI 9303

ISDN supplementary services;  
Keypad protocol

November 1998 (2. ed.). <http://www.ficora.fi/suomi/document/gfi9303.doc>

GFI 9403

SDN Basic rate user access;  
Physical layer characteristics

September 1994. <http://www.ficora.fi/suomi/document/GFI9403.doc>

GFI 9801

Characteristics of analogue interface (R-interface) of ISDN terminal adapter;  
November 2000 (2. ed.). <http://www.ficora.fi/suomi/document/gfi9801ed2.pdf>

## DATA

This section specifies public data services over packet networks. These services can also be based on *vendor* specific (proprietary) modifications of the following standards and those are not mentioned in this document.

## BROADBAND DIGITAL SUBSCRIBER LINES (xDSL)

These standards define digital terminations for data services over public telephone network.

<http://portal.etsi.org/tm/kta/xDSL/xdsl.asp>

## Service provider interface

The following standards apply to network terminations to service provider over local loop in customer premises.

ANSI T1.413 Issue 2 Telecommunications - Interface between Networks and Customer Installation;  
Asymmetric Digital Subscriber Line (ADSL) Metallic Interface.

ETSI TS 101 135 High bit-rate Digital Subscriber Line (HDSL) transmission systems on metallic local lines;  
HDSL core specification and applications for combined ISDN-BA and 2 048 kbits/s  
transmission September 2000.

[http://webapp.etsi.org/WorkProgram/Report\\_WorkItem.asp?WKI\\_ID=11603](http://webapp.etsi.org/WorkProgram/Report_WorkItem.asp?WKI_ID=11603)

ETSI TS 101

270-1 Access transmission systems on metallic access cables;  
Very high speed Digital Subscriber Line (VDSL), Part 1: Functional requirements

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Päiväys: 1.1.2010

- October 1999. [http://webapp.etsi.org/WorkProgram/Report\\_WorkItem.asp?WKI\\_ID=6915](http://webapp.etsi.org/WorkProgram/Report_WorkItem.asp?WKI_ID=6915)
- ETSI TS 101 270-2 Access transmission systems on metallic access cables;  
Very high speed Digital Subscriber Line (VDSL), Part 2: Transceiver specification  
October 1999. [http://webapp.etsi.org/WorkProgram/Report\\_WorkItem.asp?WKI\\_ID=6391](http://webapp.etsi.org/WorkProgram/Report_WorkItem.asp?WKI_ID=6391)
- ETSI TS 101 524 Access transmission system on metallic access cables;  
Symmetrical single pair high bitrate Digital Subscriber Line (SDSL)  
November 2001.  
[http://webapp.etsi.org/WorkProgram/Report\\_WorkItem.asp?WKI\\_ID=14939](http://webapp.etsi.org/WorkProgram/Report_WorkItem.asp?WKI_ID=14939)
- ETSI TS 102 080 Integrated Services Digital Network basic rate access (ISDN-BA);  
Digital transmission system on metallic local lines  
November 1998. [http://webapp.etsi.org/workprogram/Report\\_WorkItem.asp?WKI\\_ID=4862](http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=4862)  
ISO/IEC 11801 Information technology - Generic cabling for customer premises;  
Registered Jack 11 (RJ-11) six-position jack pin/pair assignments.  
2002. <http://www.iso.org>  
*Also defined in standards ANSI/TIA/EIA-568 (USA) and EN 50173 (Europe).*
- ITU G.992.1 Asymmetrical digital subscriber line (ADSL) transceivers;  
G.dmt Annex A  
RFC 1483 Multiprotocol Encapsulation over ATM Adaptation Layer 5 (MPoA);  
LLC (IEEE 802.2 Logical Link Control) header Encapsulation.  
J. Heinänen. July 1993. <http://www.ietf.org/rfc/rfc1483.txt>

## Customer interface

The following standards specify the customer interface to data services. This interface can be implemented in

network terminating equipment or other customer premises equipment (CPE).

IEEE 802.3 Ethernet CSMA/CD LAN over unshielded twisted pair cable;  
10BASE-T.

2002. <http://standards.ieee.org/getieee802/802.3.html>

IEEE 802.3u Ethernet specification for 100 Mb/s transmissions over two-pair Category 5, or better,  
unshielded twisted pair cable; 100BASE-T(X).

ISO/IEC 11801 Information technology -- Generic cabling for customer premises;  
Registered Jack 45 (RJ-45) eight-position jack pin/pair assignments.

2002. <http://www.iso.org>

*Also defined in standards ANSI/TIA/EIA-568 (USA) and EN 50173 (Europe).*

## WIRELESS ACCESS

The following standards and regulations specify transceiver units for broadband wireless data service interface.

IEEE 802.11b Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications in the  
2.4 GHz band;

February 2000. <http://standards.ieee.org/wireless/overview.html>

FICORA 15T Regulation on collective frequencies for licence-exempt radio transmitters and on their use;  
May 2003. <http://www.ficora.fi/englanti/document/FICORA15T2003M.pdf>

ETSI EN 300 328-1 Electromagnetic compatibility and Radio Spectrum Matters (ERM) -  
Wideband Transmission systems;

Data transmission equipment operating in the 2,4 GHz ISM band and using spread  
spectrum modulation techniques.

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Päiväys: 1.1.2010

December 2001. [http://webapp.etsi.org/workprogram/Report\\_WorkItem.asp?WKI\\_ID=9863](http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=9863)

## RESIDENTIAL GATEWAYS

The following standards specify the connection method from customer premises to demarcation point when data services are provided via shared interconnection.

ITU G.989.1 Phoneline Networking Transceivers – Foundation.

HomePNA 1.0 Home Phoneline Networking Alliance (HPNA); December 1998.

ISO/IEC 11801 Information technology - Generic cabling for customer premises;

Registered Jack 11 (RJ-11) six-position jack pin/pair assignments.

2002. <http://www.iso.org>

*Also defined in standards ANSI/TIA/EIA-568 (USA) and EN 50173 (Europe).*