swisscom

		Distribution to	
From		**For**	
Date	12. November 2018	**information**	
Subject	The User Network Interface of simulated ISDN		

The User Network Interface of simulated ISDN

Scope	
Doc. ID	
Version	1.1
Status	
Replaces Version	
Date of issue	
Valid from	
Valid until	
Document name	2018-11-12_GV18_Schnittstellenspec_ISDN_V1.1_en
File	
Archiving	

Content

1 Introduction

1.1 Object and purpose

This document describes the user network interface at the network termination point (NTP). It considers the specifics of an ISDN simulation and describes the subset of the basic and supplementary services as basis for the operation of legacy user equipment (ISDN telephone sets).

1.2 Scope

In order to enable the operation of legacy user equipment in spite of the phase-out of the PSTN/ISDN switching systems in a transition period, special IADs have to be used.

The ISDN terminal adapter (ITA) of this IAD simulates ISDN. The term simulate is in this context used in the sense of ITU-T Y.2262 (12/2006). That means PSTN/ISDN simulation could potentially provide PSTN/ISDN-like service capabilities that fulfil the end user need. However, the PSTN/ISDN simulation provides only a subset of the features that have been available to PSTN/ISDN user.

This document describes this subset that allows to provide the public telephone service. Of course this subset can only be provided if the NGN behind supports the appropriate features.
.
The described simulation solution is intended for subscribers who are not able to migrate completely for any reason. Swisscom does not recommend this solution.

1.3 Target audience and requirements to the reader

This document is directed to users/subscribers that are forced to use legacy ISDN telephone sets.

1.4 Terms and abbreviations

BRI	Basic Rate Interface
CDIV	Diversion Supplementary Service
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
CW	Call Waiting
DSS1	Digital Subscriber Signalling System No. one
IAD	Integrated Access Device
ISDN	Integrated Services Digital Network
ITA	ISDN Terminal Adapter

MSN	Multiple Subscriber Number
NGN	Next Generation Network, another one than PSTN/ISDN
NT	Network Termination
NTP	Network Termination Point
PSTN	Public Switched Telephone Network
Simulation	In the context of this document the meaning is according to [Y.2262]
TE	Terminal equipment

1.5   Reference documents

Many of the referenced recommendations have the following sentence in their chapter Scope: "The present document does not specify the additional protocol requirements where the service is provided to the user via a telecommunications network that is not an ISDN". Nevertheless, they are listed here for informational reasons.

[ETS 300 012]	Integrated Services Digital Network (ISDN); Basic user-network interface (UNI); Part 1: Layer 1 specification; ETS 300 012-1, second edition, October 1998
[EN 300 052]	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; EN 300 052-1, V1.2.4 (1998-06)
[EN 300 058]	Integrated Services Digital Network (ISDN); Call Waiting (CW) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; EN 300 058-1, V1.2.4 (1998-06)
[EN 300 092]	Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; EN 300 092-1, V2.2.1 (2001-02)
[EN 300 093]	Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; EN 300 093, V1.2.4 (1998-06)
[ETS 300 141]	Integrated Services Digital Network (ISDN); Call Hold (HOLD) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; ETS 300 141-1, May 1992
[EN 300 188]	Integrated Services Digital Network (ISDN); Three-Party (3PTY) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; EN 300 188-1, V1.2.4 (1998-06)
[EN 300 207]	Integrated Services Digital Network (ISDN); Diversion supplementary services (CDIV); Digital Subscriber Signalling System No. one (DSS1) protocol; EN 300 207-1, V3.1.1(2001-06)

[ETS 300 402-2]   Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer; Part 2: General protocol specification; ETS 300 402-2, November 1995

[GV18 Hi]   2017-09-30_GV18_Hausinstallation - Technical and physical requirements for home installation for the provision of public telephone service and internet access via a copper or fibre-optic connection.

[Q.921]   Digital Subscriber signalling system No. 1 - ISDN user-network interface - data link layer specification; ITU-T Recommendation Q.921, Edition 03/93

[Y.2262]   PSTN/ISDN emulation and simulation; ITU-T Recommendation Y.2262 (12/2006)
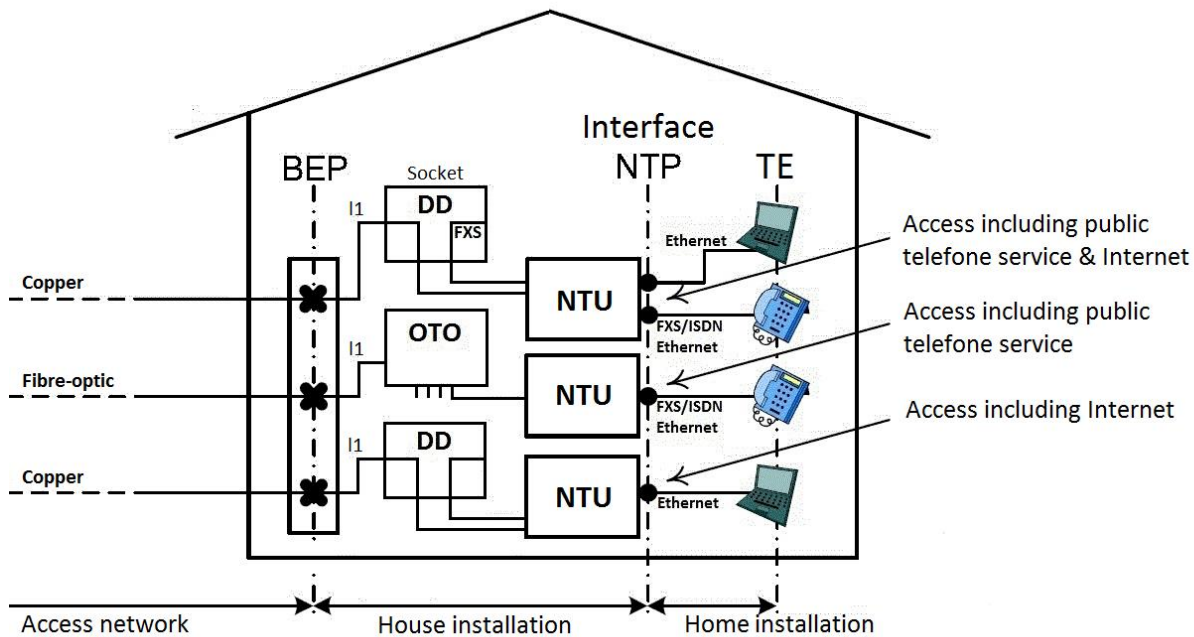
2   Location of interface

Figure 1: Location of interface

The requirements for house installation are specified in [GV18 Hi].

3   Physical layer (layer 1), basic access

The IAD provides similar to a legacy NT two ISDN BRI ports.

Layer 1 of this basic rate interface is implemented according to [ETS 300 0012].

The network supports the "short passive bus" wiring configuration according to [ETS 300 012], subclause A.2.1.1.

The interface connects to the network port of ISDN terminals and simulates an ISDN network termination, supporting dynamic terminal association (TE identifier assigned on terminal activation) on point- to-multipoint (NT1, ISDN S0 bus). Power source type 1 for ISDN phones: 4.5 W maximum overall (2 ports) supplied power.

4   Layer 2: Application of ETS 300 402-2 (Q.921) by the simulation

The data link layer is supported as a simulation by the IAD according to [ETS 300 402-2].

5 Supplementary services based on the IAD simulation

The supplementary services described below can only be provided if the NGN behind supports the appropriate features.

5.1 Application of EN 300 052-1 (Multiple Subscriber Number MSN)

The Multiple Subscriber Number supplementary service is supported as a simulation by the IAD by the DSS1-protocol according to [EN 300 052]. With the following additional information:

The MSN supplementary service is applicable for the point-to-multipoint configuration.

The Multiple Subscriber Number is the whole number without area code and prefix.

It is possible to allocate up to 3 numbers. These numbers need not necessarily be consecutive.

5.2 Application of EN 300 058-1 (Call Waiting CW)

The Call Waiting supplementary service is supported as a simulation by the IAD by the DSS1-protocol according to [EN 300 058].

5.3 Application of EN 300 092-1 (Calling Line Identification Presentation CLIP)

The Calling Line Identification Presentation supplementary service is supported as a simulation by the IAD by the DSS1-protocol according to [EN 300 092].

5.4 Application of EN 300 093-1 (Calling Line Identification Restriction CLIR)

The Calling Line Identification Restriction supplementary service is supported as a simulation by the IAD by the DSS1-protocol according to [EN 300 093].

5.5 Application of EN 300 141-1 (Call Hold, HOLD)

The Call Hold supplementary service is supported as a simulation by the IAD by the DSS1-protocol according to [EN 300 141]. With the following additional information:

The HOLD supplementary service is applicable for the point-to-multipoint configuration

5.6 Application of EN 300 188-1 (Three-party 3PTY)

The Three-party supplementary service is supported as a simulation by the IAD by the DSS1-protocol according to [EN 300 188]. With the following additional information:

The 3PTY supplementary service is applicable to the point-to-multipoint configuration.

5.7 Application of EN 300 207-1 (Diversion Supplementary Services CDIV)

The Diversion supplementary services are supported as a simulation by the IAD by the DSS1-protocol according to [EN 300 207]. That means Call Forwarding (Diversion) unconditional (CFU), busy (CFB), no reply (CFNR).

6 Supplementary Services supported by keypad/stimulus protocol

In addition to the supplementary services describes in chapter 5, the NGN behind may offer further supplementary services. These services can only be controlled by generic keypad protocol (star codes) and not by generic functional protocol (D channel procedure).