Technical Specification
for SIP User Equipments (UE)
providing IMS simulation services
via ISDN (DSS1) interfaces
(ISDN/SIP interworking)
using the NGN platform of
Deutsche Telekom

1 TR 127

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Content

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Foreword

This Technical Specification (Technische Richtlinie, TR) has been produced by the department TE3 of Deutsche Telekom Netzproduktion GmbH, Fixed Mobile Engineering Deutschland (in the following named as Deutsche Telekom) and defines the simulation services for IP Multimedia Subsystem (IMS) provided by a SIP User Equipment (UE) via an DSS1 (ISDN) interface (e.g. Integrated Access Device: IAD).

The present document is a delta specification based on the ETSI Technical Specification TS 183 036 [4] (endorsement) as well as partly based on the ETSI Technical Specification TS 183 043 [5] (endorsement).

The essential differences between version 1.0 and version 2.0 of the 1 TR 127 are:

- All modifications concerning ETSI TS 183 036 [4] are deleted in the present document,

- All modifications concerning ETSI TS 183 036 [4] incorporated in the original ETSI TS 183 036 (modified version for Deutsche Telekom only) and provided as Annex A,

- All modifications concerning ETSI TS 183 043 [5] are deleted in the present document,

- All modifications concerning ETSI TS 183 043 [5] incorporated in the original ETSI TS 183 043 (modified version for Deutsche Telekom only) and provided as Annex B.

1   Scope

The present Technical Specification (TR) is applicable to SIP User Equipments (UE) providing an ISDN (Digital Subscriber System No 1: DSS1) interface (e.g. Integrated Access Device: IAD) to be connected to an IP access of Deutsche Telekom. It describes the interworking requirements between the DSS1 interface and the Session Initiation Protocol (SIP) / Session Description Protocol (SDP) for services provided by the Next Generation Network (NGN) of Deutsche Telekom according to the AGB [1] of Deutsche Telekom.

The present document does not describe the physical characteristics and transmission requirements neither of the DSS1 interface nor the IP access.
A possible physical access is e.g. an xDSL interface provided by Deutsche Telekom which is described in the technical specification 1TR112 [2]. The VoIP service interface is described in the technical specification 1TR114 [3].

Figure 1-1 depicts the scope of the relevant technical specifications.

● 1TR127 reference point

Figure 1-1: Scope of the relevant technical specifications

2   References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version including amendments, errata and corrigenda applies.
- Date of publication in square brackets [ ] refer just to the last known version while this document was in revision.

[1]   AGB: Allgemeine Geschäftsbedingungen der Deutschen Telekom
(see: www.telekom.de/agb)

[2]   T-Home 1 TR 112: Technical Specification of the U-Interfaces of xDSL Systems in the network of T-Home

[3]   DT 1 TR 114: Technical Specification of the SIP (Gm) interface between the User Equipment (UE) and the NGN platform of Deutsche Telekom

[4]   ETSI TS 183 036 V3.4.1 (2011-02): Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); ISDN/SIP interworking; Protocol specification

[5]   ETSI TS 183 043 V2.3.1 (2009-03): Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IMS - based PSTN/ISDN Emulation; Stage 3 specification

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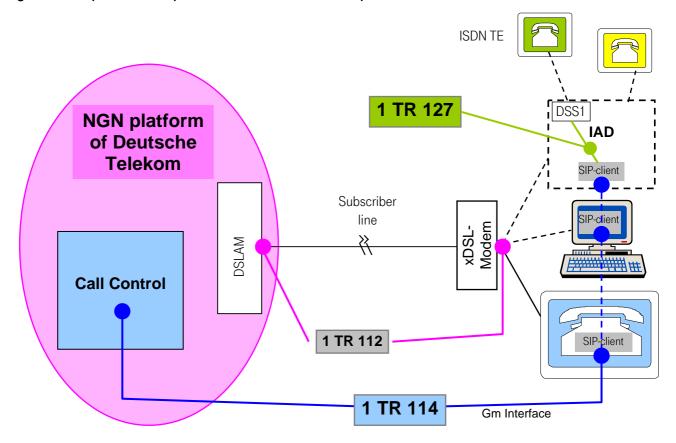interfaces (ISDN/SIP interworking) using the NGN platform of Deutsche Telekom

3   Abbreviations, Definitions and symbols

Abbreviations, definitions and symbols, not listed hereafter, are defined in the reference
documents in clause 2.

3.1   Abbreviations

For the purposes of the present document, the following abbreviations apply:

-1-
3GPP   Third Generation Partnership Project
-A-
AGCF   Access Gateway Control Function
-B-
-C-
cfg   configurable
-D-
DSS1   Digital Subscriber System No 1
DT   Deutsche Telekom
-E-
ES   European Standard
ETSI   European Telecommunication Standardisation Institute
ETSI ES   ETSI Standard (normative)
ETSI TR   ETSI Technical Report (informative)
ETSI TS   ETSI Technical Specification (normative)
-F-
-G-
-H-
-I-
IAD   Integrated Access Device
IP   Internet Protocol
ISDN   Integrated Services Digital Network
ITU-T   International Telecommunication Union, Telecommunication Branch
-J-
-K-
-L-
-M-
-N-
NGN   Next Generation Networks
-O-
-P-
PSTN   Public Switched Telephone Network
-Q-
-R-
-S-
SDP   Session Description Protocol
SIP   Session Initiation Protocol
-T-
TE   Terminal Equipment
TR   Technical Recommendation
TR   Technical Report [ETSI]
TS   Technical Specification

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TS	Technical Specification [ETSI]
-U-	
UE	User Equipment
URI	Universal Resource Identifier
-V-	
VGW	VoIP Gateway
VoIP	Voice over IP
-W-	
-X-	
xDSL	x Digital Subscriber Line (x stands for various kinds of bit rates)
-Y-	
-Z-	

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3.2   Definitions

For the purposes of the present document, the following terms and definitions apply:

Term	Definition / Remark
User Equipment	Any device (terminal) at the subscriber premises used by an end user to communicate. It can be e.g. an IAD or telephone set, or any other telecommunication device.
Terminal Equipment	Any device (terminal) at the subscriber premises used by an end user to communicate. It can be e.g. a telephone set, fax machine or any other telecommunication device.
IAD	A user equipment at the subscriber premises which provides different kinds of interfaces (e.g. analogue ports (POTS) and/or ISDN ports (DSS1, So), etc.) for VoIP services; it handles the interworking between those interfaces and the SIP interface. An IAD can be seen as a VGW.
User Agent	A client application used with a particular network protocol, such as Session Initiation Protocol (SIP); it refers to both end points of a phone call, server and client.
Call Control	In telephony, call control refers to the software within a telephone switch that supplies its central function. Call control decodes addressing information and routes telephone calls from one end point to another. It also creates the features that can be used to adapt standard switch operation to the needs of users. Call control software, because of its central place in the operation of the telephone network, is marked by both complexity and reliability.
NGN platform (of Deutsche Telekom)	The entirety of central servers and gateways, as well as software within a telephone network which provides telephony services.

3.3   Symbols

For the purposes of the present document, the following symbols apply:

Symbol	Definition
Hz	Hertz
kHz	Kilohertz
ms	Milliseconds
s	Seconds
t	Time

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4   Interworking requirements (ISDN-SIP)

4.1   General requirements

When ISDN stimulus procedures are used by the end user terminal the same service code
commands (SCC) as used for analogue subscribers shall apply as described in Annex B of the
present document.

Relevant functional protocol features need to be mapped to Service Code Commands (SCC) in
the VGW according to SIP (Gm) interface specification 1TR114 [3], Annex D.
However, the mapping procedures are outside the scope of the present document.
The Procedures for HOLD, Call WAIT, TOGGEL and 3PTY are currently not based on an
Application Server Solution. Therefore the procedures for applying Announcements are not
longer provided by the network (e.G "Ihr Anruf wird gehalten"). The Conference Focus for 3PTY
must be implemented internally within the VGW/IAD that a 3PTY can apply.

4.2   Modifications to ETSI TS 183 036

The relevant modifications in ETSI TS 183 036 [4] for SIP UE (e.g. IAD) intended to be
connected to the NGN (VoIP platform) of Deutsche Telekom are provided in Annex A of the
present document.

NOTE: All references in Annex A to ETSI TS 183 043 [5] do refer to Annex B of the present
        document.

4.3   Modifications to ETSI TS 183 043

The relevant modifications in ETSI TS 183 043 [5] for SIP UE (e.g. IAD) intended to be
connected to the NGN (VoIP platform) of Deutsche Telekom are provided in Annex B of the
present document.

NOTE: All references in Annex B to ETSI TS 183 036 [4] do refer to Annex A of the present
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Annex A ETSI TS 183 036 V3.4.1 (2011-02); Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); ISDN/SIP interworking; Protocol specification. Modified version for VGW (IAD) connected to accesses of Deutsche Telekom only !

The protocol specification for ISDN/SIP interworking for VGW (IAD) intended to be connected to xDSL accesses of Deutsche Telekom are described in the specifically modified ETSI Standard TS 183 036 V3.4.1 (2011-02). The modifications in this ETSI standard assure the compatibility with the NGN platform of Deutsche Telekom.

The modified specification is available as a file with the following file name:

- 1TR127_ANNEX_A _V110_TS183036v341

    NOTE: The modified text that is added or deleted is shown as cursive and underlined (*example for added text*) or cursive and stricken (*example for stricken text*).

Annex B ETSI TS 183 043 V2.3.1 (2009 03); Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IMS - based PSTN/ISDN Emulation; Stage 3 specification. Modified version for VGW (IAD) connected to accesses of Deutsche Telekom only !

The protocol specification for IMS-based PSTN/ISDN emulation for VGW (IAD) intended to be connected to xDSL accesses of Deutsche Telekom are described in the specifically modified ETSI Standard TS 183 043 V2.3.1 (2009 03). The modifications in this ETSI standard assure the compatibility with the NGN platform of Deutsche Telekom.

The modified specification is available as a file with the following file name:

- 1TR127_ANNEX_B_V110_TS183043v231

    NOTE: The modified text that is added or deleted is shown as cursive and underlined (*example for added text*) or cursive and stricken (*example for stricken text*).

History

Version	Published	Remarks
1.0	15.05.2009	First edition of 1 TR 127
2.0	30.06.2010	Second edition of 1 TR 127: - Modifications to ETSI TS 183 036 transferred into a new Annex A; - Modifications to ETSI TS 183 043 transferred into a new Annex B; - General modifications (GmbH, Abteilung, definitions, symbols); - Clause 4 to 6 deleted and a new clause 4 added; - Last paragraph in clause 4.1 General requirements deleted; - Zentrum Technik Einführung replaced by Fixed Moble Engineering Deutschland; - T-Home replaced by Deutsche Telekom - Document properties modified; - History updated.
2.1.0	27.12.2011	Clarification for HOLD, CALL WAIT, TOGGEL and 3PTY for end device implementation. Upgrade of ANNEX A and B