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Technical Specification

**Universal Mobile Telecommunications System (UMTS);
IMS Multimedia telephony service and
supplementary services;
Stage 3
(3GPP TS 24.173 version 7.0.0 Release 7)**



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Foreword

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Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document provides the protocol details for multimedia telephony communication service and associated supplementary services in the IP Multimedia (IM) Core Network (CN) subsystem based on the requirements from 3GPP TS 22.173 [2].

Multimedia telephony and supplementary services allow users to establish communications between them and enrich that by enabling supplementary services.

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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 22.173: "IMS Multimedia Telephony Service and supplementary services; stage".
- [3] ETSI TS 183 004 version 1.1.1: "Communication Diversion (CDIV); Protocol specification".
- [4] ETSI TS 183 005 version 1.1.1: "Conference (CONF); Protocol specification".
- [5] ETSI TS 183 006 version 1.1.1: "Message Waiting Indication (MWI); Protocol specification".
- [6] ETSI TS 183 007 version 1.1.1: "Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR); Protocol specification".
- [7] ETSI TS 183 008 version 1.1.1: "Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR); Protocol specification".
- [8] ETSI TS 183 010 version 1.2.1: "Communication HOLD (HOLD); PSTN/ISDN simulation services".
- [9] ETSI TS 183 011 version 1.1.1: "Anonymous Communication Rejection (ACR) and Communication Barring (CB); Protocol specification".
- [10] ETSI TS 183 029 version 1.1.1: "Explicit Communication Transfer (ECT); Protocol specification".
- [11] ETSI TS 183 023 version 1.2.1: "Extensible Markup Language (XML) Configuration Access Protocol (XCAP) over the Ut interface for Manipulating NGN PSTN/ISDN Simulation Services".
- [12] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia telephony; Media handling and interaction".
- [13] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [14] 3GPP TS 24.247: "Messaging using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3".
- [15] ETSI ES 283 003: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); "IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Stage 3".

Modifications to the references in the TISPAN TSs.

The references as found throughout the clause 2 of the ETSI TSs in reference [3], [4], [5], [6], [7], [8], [9], [10] and [11] and also found in the annexes A, B, C, D, E, F, G, H and I should be replaced as shown below.

Replace references as shown in Table 1 below:

Table 1: 3GPP reference replacement

Reference in ETSI TSs	Modified reference
ETSI ES 283 003: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Stage 3".	3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
ETSI TS 182 006: 'Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Stage 2 description'.	3GPP TS 23.228: 'IP Multimedia Subsystem (IMS); Stage 2'.
ETSI ES 283 027: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Interworking SIP-ISUP for TISPAN-IMS"	3GPP TS 29.163: 'Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks'
ETSI TS 187 003: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Security; Security Architecture"	3GPP TS 33.141 "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Presence service; Security"
ETSI TS 183 038: "TISPAN; PSTN/ISDN Simulation Services; Extensible Markup Language (XML) Document Management; Protocol Specification (Endorsement of OMA OMA-TS-XDM_Core-V1_0-20051103-C and OMA-TS-XDM_Shared-V1_0-20051006-C)".	3GPP TS 33.141 "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Presence service; Security"
IETF RFC 2617: "HTTP Authentication: Basic and Digest Access Authentication"	IETF RFC 3310: "'Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)"

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 21.905 [1] apply.

3.2 Abbreviations

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

CS	Circuit Switched
CN	Core Network
IP	Internet Protocol
IM	IP Multimedia
MMTEL	Multimedia Telephony

4 Overview of multimedia telephony communication service and associated supplementary services in the IP Multimedia (IM) Core Network (CN) subsystem

4.1 General

In accordance with the service definition and requirements in 3GPP TS 22.173 [2], the IMS multimedia telephony communication service specified herein allows multimedia conversational communication between two or more end points. An end point is typically located in a UE, but can also be located in a network entity.

As for traditional circuit-switched telephony, the protocols for the IMS multimedia Telephony communication service allow a user to connect to any other user, regardless of operator and access technology.

The IMS multimedia Telephony communication service consists of two principal parts: a basic communication part, and an optional supplementary services part.

4.2 Overview of basic communication part

The basic communication part of an IMS multimedia telephony communication service session is realised by a single SIP session. It utilises media capabilities and flexibility provided by the SIP protocol and the 3GPP IMS specifications. In accordance with the service definition in 3GPP TS 22.173 [2], the media capabilities includes RTP-based transfer of voice, real-time video and text, as well as TCP/MSRP-based transfer of text, arbitrary files and sharing of media files with predefined formats. To ensure interoperability, media codecs and formats are fully specified for RTP-based and MSRP-based transfer in 3GPP TS 26.114 [12]. The service is highly dynamic in terms of media component usage: the protocols allow a communication session to start with one or more media components, and components can then be added and/or removed during the communication session. The protocols allow both one-way and two ways transfer between end points. Full duplex speech, and speech combined with other media components, are typical media cases but the protocols do not mandate the use of speech in all sessions.

4.3 Overview of supplementary services part

The supplementary services part of the IMS multimedia telephony communication service consists of a number of specified supplementary services. These are fully standardized to ensure interoperability between multiple end points, and between end points and network control entities. The behaviour of supplementary services is similar to supplementary services specified for CS speech (TS 11). Supplementary services uses SIP as enabling protocol. Configuration of supplementary services can take place over the Ut interface and can use XCAP as enabling protocol.

5 Basic Communication

5.1 IMS communication service identifier

Media feature-tag name: +g.ims.icsi.mmtel.

ASN.1 Identifier: New assignment by IANA.

Summary of the media feature indicated by this tag: This feature-tag indicates that the device supports the IMS Multimedia Telephony Communication Service.

Values appropriate for use with this feature-tag: Boolean.

The feature-tag is intended primarily for use in the following applications, protocols, services, or negotiation mechanisms:

This feature-tag is most useful in a communications application, for describing the capabilities of a device, such as a phone or PDA.

Examples of typical use: Indicating that a mobile phone can support the IMS Multimedia Telephony Communication Service.

Related standards or documents:

3GPP TS 24.173: "IMS Multimedia Telephony Communication Service and Supplementary Services, stage 3"

Security Considerations: Security considerations for this media feature-tag are discussed in subclause 11.1 of RFC 3840 [6].

Editor's note: The coding of the IMS communication service identifier is based on the current working assumption in 3GPP TS 24.229.

5.2 Session control procedures

The IMS multimedia telephony communication service can support different types of media, including media types listed in 3GPP TS 22.173 [2]. The session control procedures for the different media types shall be in accordance with 3GPP TS 24.229 [13] and 3GPP TS 24.247 [14].

6 Supplementary Services

6.1 High level requirements

6.2 Originating Identification Presentation (OIP)

The OIP service is specified in Annex A.

6.3 Originating Identification Restriction (OIR)

The OIR service is specified in Annex A.

6.4 Terminating Identification Presentation (TIP)

The TIP service is specified in Annex B.

6.5 Terminating Identification Restriction (TIR)

The TIR service is specified in Annex B.

6.6 Communication Diversion (CDIV)

The CDIV service is specified in Annex C.

6.7 Communication Hold (HOLD)

The HOLD service is specified in Annex D.

6.8 Communication Barring (CB)

The CB service is specified in Annex E.

6.9 Message Waiting Indication (MWI)

The MWI service is specified in Annex F.

6.10 Conference (CONF)

The CONF service is specified in Annex G.

6.11 Explicit Communication Transfer (ECT)

The ECT service is specified in Annex H.

Annex A (normative): Originating Identification Presentation (OIP) / Originating Identification Restriction (OIR)

This Annex shows the complete ETSI TS 183 007 [6] with the changes needed by 3GPP outlined in text marked by blue underscore ([example of inserted text](#)) for inserted text, and blue strikethrough for deleted text (~~[example of deleted text](#)~~). This Annex is intended deleted when 3GPP and TISPAN have concluded on how the technical specifications for the Multimedia Telephony Supplementary Services will be documented.

The reasons for the 3GPP specific additions to the ETSI TS in this annex are motivated by Editor's notes.

Note: ETSI TS 183 007 [6] can be updated by TISPAN in parallel to the changes proposed by 3GPP. If a new version of ETSI TS 183 007 [6] is created, this Annex will be updated to reflect this new reference version.

The Annex is contained in file "ETSI-TS-183-007-v1-1-1-modified.doc".

Annex B (normative): Terminating Identification Presentation (TIP) / Terminating Identification Restriction (TIR)

This Annex shows the complete ETSI TS 183 008 [7] with the changes needed by 3GPP outlined in text marked by blue underscore ([example of inserted text](#)) for inserted text, and blue strikethrough for deleted text ([example of deleted text](#)). This Annex is intended deleted when 3GPP and TISPAN have concluded on how the technical specifications for the Multimedia Telephony Supplementary Services will be documented.

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The Annex is contained in file "ETSI-TS-183-008-v1-1-1-modified.doc".

Annex C (normative): Communication Diversion (CDIV)

This Annex shows the complete ETSI TS 183 004 [3] with the changes needed by 3GPP outlined in text marked by blue underline ([example of inserted text](#)) for inserted text, and blue strikethrough for deleted text (example of deleted text). This Annex is intended deleted when 3GPP and TISPAN have concluded on how the technical specifications for the Multimedia Telephony Supplementary Services will be documented.

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The Annex is contained in file "ETSI-TS-183-004-v1-1-1-modified.doc".

Annex D (normative): Communication Hold (HOLD)

This Annex shows the complete ETSI TS 183 010 [8] with the changes needed by 3GPP outlined in text marked by blue underline ([example of inserted text](#)) for inserted text, and blue strikethrough for deleted text (~~[example of deleted text](#)~~). This Annex is intended deleted when 3GPP and TISPAN have concluded on how the technical specifications for the Multimedia Telephony Supplementary Services will be documented.

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The Annex is contained in file "ETSI-TS-183-010-v1-2-1-modified.doc".

Annex E (normative): Communication Barring (CB)

This Annex shows the complete ETSI TS 183 011 1[9] with the changes needed by 3GPP outlined in text marked by blue underscore ([example of inserted text](#)) for inserted text, and blue strikethrough for deleted text ([example of deleted text](#)). This Annex is intended deleted when 3GPP and TISPAN have concluded on how the technical specifications for the Multimedia Telephony Supplementary Services will be documented.

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Note: ETSI TS 183 011 [9] can be updated by TISPAN in parallel to the changes proposed by 3GPP. If a new version of ETSI TS 183 011 [9] is created, this Annex will be updated to reflect this new reference version.

The Annex is contained in file "ETSI-TS-183-011-v1-1-1-modified.doc".

Annex F (normative): Message Waiting Indication (MWI)

This Annex shows the complete ETSI TS 183 006 [5] with the changes needed by 3GPP outlined in text marked by blue underscore ([example of inserted text](#)) for inserted text, and blue strikethrough for deleted text (~~[example of deleted text](#)~~). This Annex is intended deleted when 3GPP and TISPAN have concluded on how the technical specifications for the Multimedia Telephony Supplementary Services will be documented.

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The Annex is contained in file "ETSI-TS-183-006-v1-1-1-modified.doc".

Annex G (normative): Conference (CONF)

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The Annex is contained in file "ETSI-TS-183-005-v1-1-1-modified.doc".

Annex H (normative): Explicit Communication Transfer (ECT)

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Note: ETSI TS 183 029 [10] can be updated by TISPAN in parallel to the changes proposed by 3GPP. If a new version of ETSI TS 183 029 [10] is created, this Annex will be updated to reflect this new reference version.

The Annex is contained in file "ETSI-TS-183-029-v1-1-1-modified.doc".

Annex I (normative): XCAP over Ut interface for Manipulating NGN PSTN/ISDN Simulation Services

This Annex shows the complete ETSI TS 183 023 [11] with the changes needed by 3GPP outlined in text marked by blue underscore (example of inserted text) for inserted text, and blue strikethrough for deleted text (~~example of deleted text~~). This Annex is intended to be deleted when 3GPP and TISPAN have concluded on how the technical specifications for the Multimedia Telephony Supplementary Services will be documented.

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The Annex is contained in file "ETSI-TS-183-023-v1-2-1-modified.doc".

Annex J (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2006-05	CT1#42				First draft	0.0.0	0.1.0
2006-07	CT1#42-bis				The following Tdocs included are in this version of the TS: C1-061293, C1-061301, C1-061342, C1-061343, C1-061344, C1-061345, C1-061346, C1-061347, C1-061348, C1-061361 Some corrections to the formatting as well as editorial alignments also done by the rapporteur.	0.1.0	0.2.0
2006-09	CT1#43				The following Tdocs have been included in this version of the TS: C1-061464, C1-061721, C1-061722, C1-0611723 Some formatting cleanups performed in chapters: Annex E (4.5.2.6.2 and 4.7.1.1) and Annex H (4.5.2.4.1.2.3, 4.5.2.4.2.1, 4.5.2.7.2 and 4.5.2.7.3).	0.2.0	0.3.0
2006-11	CT1#44				The following Tdoc has been included in this version of the TS: C1-062452	0.3.0	0.4.0
2006-11	3GPP/TISPAN Supplementary Serv				The following Tdoc has been included in this version of the TS: SS-060052	0.4.0	0.5.0
2006-11					V 1.0.0 created by MCC	0.5.0	1.0.0
2007-02	CT1#45				The text in the annexes A, B, C, D, E, F, G, H and I split out as separate word-files with ETSI-logo and headers. The following contributions, including TISPAN#12 plenary approved CRs, have been incorporated: C1-070032 C1-070163 (12TD062 TISPAN#12 plenary CR pack) C1-070164 (12TD066r1 TISPAN#12 plenary CR pack) C1-070165 (12TD060 TISPAN#12 plenary CR pack) C1-070166 (12TD068 TISPAN#12 plenary CR pack) C1-070167 (12TD061 TISPAN#12 plenary CR pack) C1-070436 C1-070437 C1-070555 C1-070557 C1-070631 C1-061464 (CT1#43) change to Annex E/4.6.4 incorporated	1.0.0	1.1.0
2007-02					V 2.0.0 created by MCC	1.1.0	2.0.0
2007-02	CT#35				The following Tdoc approved in CT#35: CP-070230	2.0.0	2.1.0
2007	CT#35				Version 7.0.0 was created by MCC	2.1.0	7.0.0

History

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