ETSI TS 124 173 V13.1.0 (2016-07)

Universal Mobile Telecommunications System (UMTS);
LTE;
IMS Multimedia telephony communication service and supplementary services;
Stage 3
(3GPP TS 24.173 version 13.1.0 Release 13)

Reference
RTS/TSGC-0124173vd10

Keywords
LTE,UMTS

ETSI

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Contents

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;
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- 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: "IP Multimedia Core Network Subsystem (IMS) Multimedia Telephony Service and supplementary services; Stage 1".

[3] 3GPP TS 24.604: "Communication Diversion (CDIV); Protocol specification using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification ".

[4] 3GPP TS 24.605: "Conference (CONF) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification".

[5] 3GPP TS 24.606: "Message Waiting Indication (MWI) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification".

[6] 3GPP TS 24.607: "Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification".

[7] 3GPP TS 24.608: "Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification".

[8] 3GPP TS 24.610: "Communication HOLD (HOLD) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification".

[9] 3GPP TS 24.611: "Anonymous Communication Rejection (ACR) and Communication Barring (CB) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification".

[10] 3GPP TS 24.629: "Explicit Communication Transfer (ECT) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification".

[11] 3GPP TS 24.623: "Extensible Markup Language (XML) Configuration Access Protocol (XCAP) over the Ut interface for Manipulating 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] Void

[16] IETF RFC 3841 (August 2004): "Caller Preferences for the Session Initiation Protocol (SIP)".

[17] 3GPP TS 24.647: "Advice Of Charge (AOC) using IP Multimedia (IM)Core Network (CN) subsystem; Protocol Specification".

[18] 3GPP TS 24.654: "Closed User Group (CUG) using IP Multimedia (IM) Core Network (CN) subsystem, Protocol Specification".

[19] 3GPP TS 24.239: "IP Multimedia Subsystem (IMS) Flexible alerting supplementary service".

[20] 3GPP TS 24.238: "Session Initiation Protocol (SIP) based user configuration; stage 3".

[21] 3GPP2 C.S0055-A: "Packet Switched Video Telephony Services".

[22] ETSI TS 181 005: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Service and Capability Requirements".

[23] 3GPP TS 24.615: "Communication Waiting (CW) using IP Multimedia (IM) Core Network (CN) subsystem, Protocol Specification".

[24] 3GPP TS 24.642: "Completion of Communications to Busy Subscriber (CCBS) Completion of Communications by No Reply (CCNR) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification".

[25] 3GPP TS 24.182: "IP Multimedia Subsystem (IMS) Customized Alerting Tones (CAT); Protocol specification".

[26] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".

[27] 3GPP TS 24.183: "IP Multimedia Subsystem (IMS) Customized Ringing Signal (CRS); Protocol specification".

[28] IETF RFC 3362 (August 2002): "Real-time Facsimile (T.38) - image/t38 MIME Sub-type Registration".

[29] 3GPP TS 24.259: "Personal Network Management (PNM); Stage 3".

[30] 3GPP TS 24.390: "Unstructured Supplementary Service Data (USSD) using IP Multimedia (IM) Core Network (CN) subsystem IMS; Stage 3".

[31] IETF RFC 6809 (November 2012): "Mechanism to Indicate Support of Features and Capabilities in the Session Initiation Protocol (SIP)".

[32] 3GPP TS 24.167: "3GPP IMS Management Object (MO); Stage 3".

[33] 3GPP TS 23.221: "Architectural requirements".

[34] Void.

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
ICSI	IMS Communication Service Identifier
IP	Internet Protocol
IM	IP Multimedia
MMTEL	Multimedia Telephony
UDP	User Datagram Protocol
UDPTL	UDP Transport Layer

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.

4.1A Roles

4.1A.1 Multimedia telephony participant

A UE shall implement the role of a multimedia telephony participant.

4.1A.2 Multimedia telephony application server

An application server shall implement the role of a multimedia telephony application server. Various application server usages are called out by references to the various supplementary services, see subclause 4.3. It is an implementation decision on how to allocate the functionality to one or more application servers.

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], media capabilities include RTP-based transfer of voice, real-time video, real-time text and data, and UDPTL-based transfer of fax (IETF RFC 3362 [28]), as well as TCP/MSRP-based transfer of text, arbitrary files and sharing of media files with predefined formats.

To ensure interoperability, media handling (including codecs and formats) is fully specified for RTP-based and MSRP-based transfer in:

- 3GPP TS 26.114 [12] for 3GPP systems;
- 3GPP2 C.S0055-A [21] for 3GPP2 systems; and

- ETSI TS 181 005 [22] (codecs) and 3GPP TS 26.114 [12] (formats and other media handling) for fixed-broadband accesses.

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 by the user should:

- take place over the Ut interface using XCAP as enabling protocol as described in 3GPP TS 24.623 [11]; or
- use SIP based user configuration as described in 3GPP TS 24.238 [20] ;

NOTE: Other possibilities for user configuration, such as web-based provisioning or pre-provisioning by the operator are outside the scope of the present document, but are not precluded.

The "SS_domain_setting" leaf in 3GPP TS 24.167 [32] provides a mechanism to:

a) instruct the UE to only use the PS domain for SS setting control;

b) instruct the UE to only use the CS domain for SS setting control; or

c) instruct the UE to use the PS domain for SS setting control when the PS domain is being used by the UE for voice services, and to use the CS domain for SS setting control when the CS domain is being used by the UE for voice services.

If one of the restrictions described in the bullets a) or c) applies, then the "PS_domain_IMS_SS_control_preference" leaf in 3GPP TS 24.167 [32] provides a mechanism to:

- restrict the UE to use the Ut interface with XCAP as enabling protocol as described in 3GPP TS 24.623 [11]; or
- restrict the UE to use SIP based user configuration as described in 3GPP TS 24.238 [20].

5 Basic Communication

5.1 IMS communication service identifier

URN used to define the ICSI for the IMS Multimedia Telephony Communication Service: urn:urn-7:3gpp-service.ims.icsi.mmtel. The URN is registered at http://www.3gpp.com/Uniform-Resource-Name-URN-list.html.

Summary of the URN: This URN indicates that the device supports the IMS Multimedia Telephony Communication Service.

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

This URN 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"

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], with the following additions:

a) Multimedia telephony is an IMS communication service and the P-Preferred-Service and P-Asserted-Service headers shall be treated as described in 3GPP TS 24.229 [13]. The coding of the ICSI value in the P-Preferred-Service and P-Asserted-Service headers shall be according to subclause 5.1.

b) The multimedia telephony participant shall include the "+g.3gpp. icsi-ref" header field parameter equal to the ICSI value defined in subclause 5.1 in the Contact header field in initial requests and responses as described in 3GPP TS 24.229 [13].

c) The multimedia telephony participant shall include an Accept-Contact header field containing the "+g.3gpp.icsi-ref" header field parameter containing the ICSI value defined in subclause 5.1 in initial requests. If the user requests capabilities other than multimedia telephony, the Accept-Contact header field may contain other feature parameters and feature parameter values, and other Accept-Contact header fields may be added to express user preferences as per IETF RFC 3841 [16].

NOTE 1: How the user indicates other feature parameters and the feature parameter values is outside of the scope of this document.

d) The multimedia telephony application server shall include the "+g.3gpp.icsi-ref" header field parameter equal to the ICSI value defined in subclause 5.1 in a Feature-Caps header field in requests sent to the terminating user and in 1xx or 2xx responses to requests from the originating user as described in 3GPP TS 24.229 [13] and IETF RFC 6809 [31].

e) The multimedia telephony participant may use the presence of a "+g.3gpp.icsi-ref" header field parameter equal to the ICSI value defined in subclause 5.1 in a Feature-Caps header field in requests and responses as described in IETF RFC 6809 [31] to determine that a multimedia telephony application server is participating in the session and multimedia telephony is the IMS communication service supported for use in the dialog.

NOTE 2: ICSI values with subclass identifiers are considered equal to the value defined in subclause 5.1 when determining that the multimedia telephony application server is participating in the session.

5.3 Interworking

The multimedia telephony participant could receive initial requests that do not contain the ICSI value defined in subclause 5.1 in the Accept-Contact header but still invoke the IMS multimedia telephony communication service application.

6 Supplementary services and enhancements

6.1 High level requirements

6.2 Originating Identification Presentation (OIP)

The OIP service is specified in 3GPP TS 24.607 [6].

6.3 Originating Identification Restriction (OIR)

The OIR service is specified in 3GPP TS 24.607 [6].

6.4 Terminating Identification Presentation (TIP)

The TIP service is specified in 3GPP TS 24.608 [7].

6.5 Terminating Identification Restriction (TIR)

The TIR service is specified in 3GPP TS 24.608 [7].

6.6 Communication Diversion (CDIV)

The CDIV service is specified in 3GPP TS 24.604 [3].

6.7 Communication Hold (HOLD)

The HOLD service is specified in 3GPP TS 24.610 [8].

6.8 Communication Barring (CB)

The CB service is specified in 3GPP TS 24.611 [9].

6.9 Message Waiting Indication (MWI)

The MWI service is specified in 3GPP TS 24.606 [5].

6.10 Conference (CONF)

The CONF service is specified in 3GPP TS 24.605 [4].

6.11 Explicit Communication Transfer (ECT)

The ECT service is specified in 3GPP TS 24.629 [10].

6.12 XCAP over Ut interface for Manipulating NGN Services

The XCAP is specified in 3GPP TS 24.623 [11].

6.13 Advice Of Charge (AOC)

The AOC service is specified in 3GPP TS 24.647 [17].

6.14 Closed User Groups (CUG)

The CUG service is specified in 3GPP TS 24.654 [18].

6.15 Three-Party (3PTY)

The 3PTY service is specified in 3GPP TS 24.605 [4].

NOTE: 3PTY can be seen as a special case of CONF and most of service interactions for CONF apply also to 3PTY.

6.16 Flexible Alerting (FA)

The FA service is specified in 3GPP TS 24.239 [19].

NOTE: 3GPP TS 22.173 also contains a Reverse charging service, but no stage 3 work has been done for that in this release.

6.17 Communication Waiting (CW)

The CW service is specified in 3GPP TS 24.615 [23].

6.18 Completion of Communications to Busy Subscriber (CCBS) Completion of Communications by No Reply (CCNR)

The Completion of Communications to Busy Subscriber (CCBS) Completion of Communications by No Reply (CCNR) service is specified in 3GPP TS 24.642 [24].

6.19 Customized Alerting Tones (CAT)

The CAT service is specified in 3GPP TS 24.182 [25].

6.20 Customized Ringing Signal (CRS)

The CRS service is specified in 3GPP TS 24.183 [27].

6.21 Personal Network Management (PNM)

The PNM service is specified in 3GPP TS 24.259 [29].

6.22 Unstructured Supplementary Service Data (USSD)

USSD using IMS is specified in 3GPP TS 24.390 [30].

NOTE: Usage of USSD using IMS is subject to policy specified in 3GPP TS 23.221 [33].

Annex A (informative):
Void

Annex B (informative):
Void.

Annex C (informative): Void

Annex D (informative): Void

Annex E (informative): Void

Annex F (informative): Void

Annex G (informative):
Void

Annex H (informative): Void

Annex I (informative):
Void

Annex J (normative): IP-Connectivity Access Network specific concepts when using EPS to access IM CN subsystem

J.1 Scope

The present annex defines IP-CAN specific requirements for a multimedia telephony communication service and associated supplementary services in the IP Multimedia (IM) Core Network (CN) subsystem, where the IP-CAN is Evolved Packet System (EPS).

J.2 EPS aspects when connected to the IM CN subsystem

J.2.1 Procedures at the UE

J.2.1.1 Service Specific Access Control

The following information is provided by lower layer:

- BarringFactorForMMTEL-Voice: barring rate for MMTEL voice;
- BarringTimeForMMTEL-Voice: barring timer for MMTEL voice;
- BarringFactorForMMTEL-Video: barring rate for MMTEL video; and
- BarringTimeForMMTEL-Video: barring timer for MMTEL video.

Upon request from a user to establish a multimedia telephony communication session as described in subclause 5.2, the UE shall:

1) if the multimedia telephony communication session to be established is an emergency session, then skip the rest of steps below and continue with session establishment as described in subclause 5.2;

2) retrieve SSAC related information mentioned above from lower layers;

NOTE 1: The values of SSAC related information retrieved from lower layers can depend on whether the UE has an Access Class with a value in the range 11..15 or not. Determination of the values of the SSAC related information is described in subclause 5.3.3.10 of 3GPP TS 36.331 [26].

3) if video is offered in the multimedia telephony communication session:

   A) if back-off timer Tx is running, reject the multimedia telephony communication session establishment and skip the rest of steps below; or

   B) else, then:

      I) draw a new random number "rand1" that is uniformly distributed in the range $0 \leq rand1 < 1$; and

      II) if the random number "rand1" is lower than BarringFactorForMMTEL-Video, then skip the rest of steps below and continue with session establishment as described in subclause 5.2;

NOTE 2: If the BarringFactorForMMTEL-Video is set to 1, the session is exempted from barring.

      III) else, then;

         i) draw a new random number "rand2" that is uniformly distributed in the range $0 \leq rand2 < 1$; and

ii) start back-off timer Tx with the timer value calculated using the formula:

Tx = (0,7 + 0,6*rand2) * BarringTimeForMMTEL-Video; and

iii) reject the multimedia telephony communication session establishment and skip the rest of steps below;

4) if audio is offered in the multimedia telephony communication session:

A) if back-off timer Ty is running, reject the multimedia telephony communication session establishment and skip the rest of steps below; or

B) else, then;

I) draw a new random number "rand3" that is uniformly distributed in the range $0 \leq rand3 < 1$; and

II) if the random number "rand3" is lower than BarringFactorForMMTEL-Voice, then skip the rest of steps below and continue with session establishment as described in subclause 5.2;

NOTE 3: If the BarringFactorForMMTEL-Voice is set to 1, the session is exempted from barring.

III) else, then;

i) draw a new random number "rand4" that is uniformly distributed in the range $0 \leq rand4 < 1$; and

ii) start timer Ty with the timer value calculated using the fomula:

Ty = (0,7 + 0,6*rand4) * BarringTimeForMMTEL-Voice; and

iii) reject the multimedia telephony communication session establishment;

NOTE 4: If the multimedia telephony communication implemenation and the access stratum protocol implementation are located in separate physical entities, it is expected that the interconnecting protocol supports the transfer of information elements needed for the service specific access control enforcement.

Service Specific Access Control is not activated when the UE is in other radio accesses (e.g. UTRAN/GERAN). And when UE camping on E-UTRAN moves to other radio accesses (e.g. UTRAN/GERAN), back-off timer (Tx or Ty or both) shall be stopped if running.

J.2.1.2 Smart Congestion Mitigation

The following information is provided to the non-access stratum:

- MO-MMTEL-voice-started;
- MO-MMTEL-voice-ended.
- MO-MMTEL-video-started; and
- MO-MMTEL-video-ended;

Upon request from a user to establish an originating multimedia telephony communication session as described in subclause 5.2, and if the session establishment is continued after performing the Service Specific Access Control as specified in subclause J.2.1.1:

1) if only audio or only real-time text or only both audio and real-time text (see subclause 4.2 for 3GPP systems) are offered in the multimedia telephony communication session, and no other originating multimedia telephony communication session initiated with offering only audio or only real-time text or only both audio and real-time textexists, the UE sends the MO-MMTEL-voice-started indication to the non-access stratum and continue with session establishment as described in subclause 5.2;

2) if video is offered in the multimedia telephony communication session, and no other originating multimedia telephony communication session initiated with offering video exists, the UE sends the MO-MMTEL-video-started indication to the non-access stratum and continue with session establishment as described in subclause 5.2.

When an originating multimedia telephony communication session ends (i.e. a response to a BYE or a failure response to the initial INVITE request is transferred), the originating multimedia telephony communication session was initiated with offering only audio or only real-time text or only both audio and real-time text (i.e. in the SDP offer in the initial INVITE request), and no other originating multimedia telephony communication session initiated with offering only audio or only real-time text or only both audio and real-time text exists, the UE sends the MO-MMTEL-voice-ended to the non-access stratum.

When an originating multimedia telephony communication session ends (i.e. a response to a BYE or a failure response to the initial INVITE request is transferred), the originating multimedia telephony communication session was initiated with offering video (i.e. in the SDP offer in the initial INVITE request), and no other originating multimedia telephony communication session initiated with offering video exists, the UE sends the MO-MMTEL-video-ended indication to the non-access stratum.

NOTE 1: If the UE supports other 3GPP specific mechanisms for communicating with the non-access stratum protocol implementation, e.g. DHCP discovery via PCO, then the UE is expected to support the transfer of information elements needed for the smart congestion mitigation enforcement.

NOTE 2: Adding or removing media during the multimedia telephony communication session has no impact on the information relating to smart congestion mitigation.

Annex K (normative): IP-Connectivity Access Network specific concepts when using GPRS (Iu mode only) to access IM CN subsystem

K.1 Scope

The UE may support the present annex.

The present annex defines IP-CAN specific requirements for a multimedia telephony communication service and associated supplementary services in the IP Multimedia (IM) Core Network (CN) subsystem, where the IP-CAN is General Packet Radio Service (GPRS) Iu mode only.

K.2 GPRS (Iu mode only) aspects when connected to the IM CN subsystem

K.2.1 Procedures at the UE

K.2.1.1 General

The UE may support any of the procedures of subclause K.2.1.

K.2.1.2 Application specific Congestion control for Data Communication (ACDC) procedure

The following information is provided to the non-access stratum:

- MO-MMTEL-voice-started;
- MO-MMTEL-voice-ended.
- MO-MMTEL-video-started; and
- MO-MMTEL-video-ended;

Upon request from a user to establish an originating multimedia telephony communication session as described in subclause 5.2:

1) if only audio or only real-time text or only both audio and real-time text (see subclause 4.2 for 3GPP systems) are offered in the multimedia telephony communication session, and no other originating multimedia telephony communication session initiated with offering only audio or only real-time text or only both audio and real-time textexists, the UE sends the MO-MMTEL-voice-started indication to the non-access stratum and continue with session establishment as described in subclause 5.2;

2) if video is offered in the multimedia telephony communication session, and no other originating multimedia telephony communication session initiated with offering video exists, the UE sends the MO-MMTEL-video-started indication to the non-access stratum and continue with session establishment as described in subclause 5.2.

When an originating multimedia telephony communication session ends (i.e. a response to a BYE or a failure response to the initial INVITE request is transferred), the originating multimedia telephony communication session was initiated with offering only audio or only real-time text or only both audio and real-time text (i.e. in the SDP offer in the initial INVITE request), and no other originating multimedia telephony communication session initiated with offering only

audio or only real-time text or only both audio and real-time text exists, the UE sends the MO-MMTEL-voice-ended to the non-access stratum.

When an originating multimedia telephony communication session ends (i.e. a response to a BYE or a failure response to the initial INVITE request is transferred), the originating multimedia telephony communication session was initiated with offering video (i.e. in the SDP offer in the initial INVITE request), and no other originating multimedia telephony communication session initiated with offering video exists, the UE sends the MO-MMTEL-video-ended indication to the non-access stratum.

NOTE 1: If the UE supports other 3GPP specific mechanisms for communicating with the non-access stratum protocol implementation, e.g. DHCP discovery via PCO, then the UE is expected to support the transfer of information elements needed for the application specific congestion control for data communication enforcement.

NOTE 2: Adding or removing media during the multimedia telephony communication session has no impact on the information relating to application specific congestion control for data communication.

Annex L (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
2007-03	CT#35				Version 7.0.0 was created by MCC	2.1.0	7.0.0
2007-06	CT-36	CP-070430	0006	1	24.173: Alignment with TISPAN#13 approved CDIV CRs	7.0.0	7.1.0
2007-06	CT-36	CP-070430	0013	-	24.173: Alignment with TISPAN#13 approved XCAP CRs	7.0.0	7.1.0
2007-06	CT-36	CP-070430	0011	-	24.173: Alignment with TISPAN#13 approved OIP/OIR CRs	7.0.0	7.1.0
2007-06	CT-36	CP-070430	0010	-	24.173: Alignment with TISPAN#13 approved MWI CRs	7.0.0	7.1.0
2007-06	CT-36	CP-070430	0009	-	24.173: Alignment with TISPAN#13 approved HOLD CRs	7.0.0	7.1.0
2007-06	CT-36	CP-070430	0008	-	24.173: Alignment with TISPAN#13 approved ECT CRs	7.0.0	7.1.0
2007-06	CT-36	CP-070430	0007	-	24.173: Alignment with TISPAN#13 approved CONF CRs	7.0.0	7.1.0
2007-06	CT-36	CP-070430	0005	-	24.173: Alignment with TISPAN#13 approved CB CRs	7.0.0	7.1.0
2007-06	CT-36	CP-070430	0003	-	Correction of file names for the SS-TSs	7.0.0	7.1.0
2007-06	CT-36	CP-070490	0012	1	Alignment with TISPAN#13 approved TIP/TIR CRs	7.0.0	7.1.0
2007-09	CT-37	CP-070668	0024	3	Service identification alignment	7.1.0	7.2.0
2007-09	CT-37	CP-070669	0025	2	24.173: Alignment with TISPAN#14 approved CDIV CRs	7.1.0	7.2.0
2007-09	CT-37	CP-070669	0026	2	24.173: Alignment with TISPAN#14 approved ECT CRs	7.1.0	7.2.0
2007-09	CT-37	CP-070669	0027	2	24.173: Replacing CB text with text from the published ETSI specification	7.1.0	7.2.0
2007-09	CT-37	CP-070669	0028	2	24.173: Replacing CONF text with text from the published ETSI specification	7.1.0	7.2.0
2007-09	CT-37	CP-070669	0029	2	24.173: Replacing HOLD text with text from the published ETSI specification	7.1.0	7.2.0
2007-09	CT-37	CP-070669	0030	2	24.173: Replacing MWI text with text from the published	7.1.0	7.2.0

					ETSI specification		
2007-09	CT-37	CP-070669	0031	2	24.173: Replacing OIP-OIR text with text from the published ETSI specification	7.1.0	7.2.0
2007-09	CT-37	CP-070669	0032	2	24.173: Replacing TIP-TIR text with text from the published ETSI specification	7.1.0	7.2.0
2007-09	CT-37	CP-070669	0033	2	24.173: Replacing XCAP text with text from the published ETSI specification	7.1.0	7.2.0
2007-09	CT-37	CP-070699	0023	7	IMS Multimedia Telephony Communication Service ICSI in Accept-Contact	7.1.0	7.2.0
2007-12	CT-38	CP-070797	0036	2	Specification of ICSI for Multimedia Telephony in Accept-Contact	7.2.0	7.3.0
2007-12	CT-38	CP-070796	0037		Use of the ICSI in the Contact Header for mmtel	7.2.0	7.3.0
2008-03	CT-39	CP-080127	0045	3	Interworking with terminals not supporting Multimedia Telephony Service Identifier	7.3.0	7.4.0
2008-03	CT-39	CP-080205	0046	1	Addition of 3GPP supplementary service specification	7.3.0	7.4.0
2008-03	CT-39	CP-080139	0047	1	Addition of 3GPP supplementary service specification	7.4.0	8.0.0
2008-06	CT-40	CP-080345	0049	1	Correction of feature tag format	8.0.0	8.1.0
2008-06	CT-40	CP-080346	0052	-	Reference replacement table removal	8.0.0	8.1.0
2008-06	CT-40	CP-080360	0050	1	Reference naming correction	8.0.0	8.1.0
2008-09	CT-41	CP-080518	0054	1	Introduction of terms "multimedia telephony participant" and "multimedia telephony application server"	8.1.0	8.2.0
2008-09	CT-41	CP-080518	0055	2	Allow SIP based user configuration mechanism for configuring supplementary services	8.1.0	8.2.0
2008-09	CT-41	CP-080536	0056	2	Addition of new supplementary services	8.1.0	8.2.0
2008-12	CT-42	CP-080864	0058	3	Make common IMS specification codec-neutral	8.2.0	8.3.0
2008-12	CT-42	CP-080869	0060		Correction of ICSI and IARI feature tag name	8.2.0	8.3.0
2008-12	CT-42	CP-080864	0063	2	Interaction between SIP and Ut based service configuration	8.2.0	8.3.0
2008-12	CT-42	CP-080852	0064	1	Codec formats for fixed-broadband accesses	8.2.0	8.3.0
2008-12	CT-42	CP-080873	0065		Adding CC and CW	8.2.0	8.3.0
2008-12	CT-42				Editorial cleanup by MCC	8.2.0	8.3.0
2009-03	CT-43	CP-090121	0067		Correction of URN-value for Service Identifiers	8.3.0	8.4.0
2009-06	CT-44	CP-090416	0068		Correction of subclause heading	8.4.0	8.5.0
2009-06	CT-44	CP-090403	0070		Correction of 3GPP URN link	8.4.0	8.5.0
2009-12	CT-46	CP-090904	0073	1	Addition of Customized alterting tones (CAT) service	8.5.0	8.6.0
2009-12	CT-46	CP-090920	0075		Removal of editor"s note on Reverse Charging	8.5.0	8.6.0
2009-12	CT-46	CP-090931	0072	5	Service Specific Access Control enforcement	8.6.0	9.0.0
2009-12	CT-46	CP-090932	0074		Addition of Customized ringing signal (CRS) service	8.6.0	9.0.0
2010-03	CT-47	CP-100145	0076	1	Alignment with RAN2 specification regarding SSAC	9.0.0	9.1.0
2010-09	CT-49	CP-100519	0080	2	CS data and fax	9.1.0	10.0.0
2011-09	CT-53	CP-110695	0083	2	Adding missing PNM feature to TS 24.173	10.0.0	11.0.0
2011-09	CT-53	CP-110696	0084	2	Addition of USSD into TS 24.173	10.0.0	11.0.0
2011-12	CT-54	CP-110881	0086	2	Multimedia Telephony Application Server indicating it is on the route	11.0.0	11.1.0
2012-03	CT-55	CP-120124	0087	2	Multimedia Telephony Application Server indicating it is on the route	11.1.0	11.2.0
2012-09	CT-57	CP-120583	0089	1	Reference update and technical changes: draft-ietf-sipcore-	11.2.0	11.3.0

					proxy-feature		
2012-12	CT-58	CP-120793	0090	2	Reference update: draft-ietf-sipcore-proxy-feature	11.3.0	11.4.0
2012-12	CT-58	CP-120793	0091	1	Feature-Caps header field clarification	11.3.0	11.4.0
2013-03	CT-59	CP-130116	0092		Reference update: RFC 6809	11.4.0	11.5.0
2013-12	CT-62	CP-130763	0097	4	Provide linkage to Supplementary Services Configuration in TS 24.167	11.5.0	12.0.0
2014-06	CT-64	CP-140330	0098	1	Extended scope of TS 26.114	12.0.0	12.1.0
2014-06	CT-64	CP-140334	0103	2	USSD method selection	12.0.0	12.1.0
2014-09	CT-65	CP-140662	0104	3	MMTEL voice/video call indications for SCM	12.1.0	12.2.0
2014-12	CT-66	CP-140855	0106	1	Correcting incorrect reference	12.2.0	12.3.0
2014-12	CT-66	CP-140855	0107		Correcting details of originating multimedia telephony communication session end	12.2.0	12.3.0
2014-12	CT-66	CP-140855	0108		Solving Editor's Note on handling addition and removal of media from a session for SCM – alt 1	12.2.0	12.3.0
2014-12	CT-66	CP-140855	0109		Correcting conditions for sending START and STOP for MMTEL	12.2.0	12.3.0
2014-12	CT-66	CP-140837	0110	5	clarification of the text on service configuration	12.2.0	12.3.0
2015-06	CT-68	CP-150328	0112	1	Service Specific Access Control Exemption for MPS	12.3.0	13.0.0
2016-06	CT-72	CP-160307	0113	3	Correction of MMTEL voice/video call indications for ACDC	13.0.0	13.1.0

History

Document history		
V13.0.0	March 2016	Publication
V13.1.0	July 2016	Publication