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Technical Specification

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Universal Mobile Telecommunications System (UMTS);
IP Multimedia Core Network Subsystem (IMS)
Multimedia Telephony Service and supplementary services;
Stage 1
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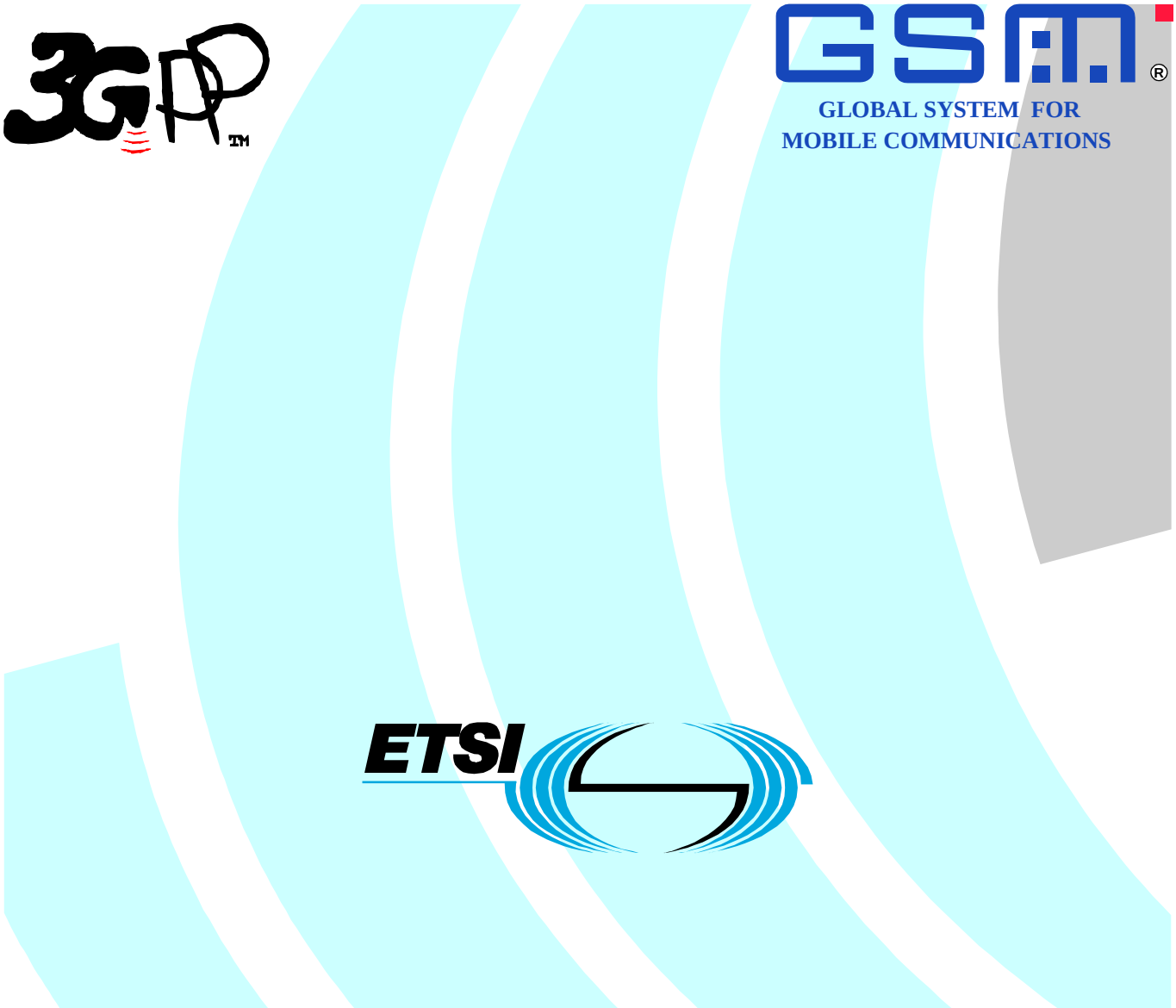

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Foreword

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Foreword

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

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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 define the IMS Multimedia Telephony service and the minimum set of capabilities required to secure multi-vendor and multi-operator inter-operability for Multimedia Telephony and related 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] ETSI TS 181 002 v1.1.1 (2006-03), Multimedia Telephony with PSTN/ISDN simulation services

[3] ETSI TS 181 001 v1.1.1 (2006-03), Videotelephony over NGN; Stage 1 service description

[4] 3GPP TS 22.228: "IP multimedia (IM) CN subsystem, stage 1"

3 Definitions, symbols and abbreviations

Delete from the above heading those words which are not applicable.

Subclause numbering depends on applicability and should be renumbered accordingly.

3.1 Definitions

For the purposes of the present document, the [following] terms and definitions [given in ... and the following] apply.

Definition format

***<defined term>**: <definition>.*

example: text used to clarify abstract rules by applying them literally.

3.2 Symbols

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

Symbol format

<symbol> <Explanation>

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

Abbreviation format

<ACRONYM> <Explanation>

4 Service description

4.1 General Service characteristics

The IMS Multimedia Telephony Service should allow multimedia conversational communications between two or more users. It provides real time bidirectional conversational transfer of speech, video or optionally other types of data.

The IMS Multimedia Telephony communication is point to point between terminals communicating , or a terminal and a network entity. This communication is usually symmetrical, but in special cases the media components present in each direction may be different, or they may be the same but with different bit rates and Quality of Service.

An IMS Multimedia Telephony communication can start with only one type of media and additional types of media may or may not be added by the users as the communication progress. Therefore a particular IMS Multimedia Telephony communication may consist of only one type of media, e.g. speech.

IMS Multimedia Telephony service is different from other IMS based services, such as Push to Talk over Cellular (PoC).
Its characteristics includes the following:

- IMS Multimedia Telephony is a service where speech, and speech combined with other media components, is the typical usage but the service is not limited to always include speech, it also caters for other media or combinations of media (e.g. text and video).

- The IMS multimedia telephony service includes supplementary services. The behaviour of supplementary services is almost identical to supplementary services for CS voice (TS 11)

Note: most supplementary services are active in the set-up phase. Mid session supplementary services such as session transfer and session hold exist.

- The anticipated usage model is that of traditional telephony: one user connecting to any other user, regardless of operator and access technology.

- When a supplementary service is invoked it applies to all media components of an IMS Multimedia Telephony communication. A supplementary service can be activated by the user for one or more types of media components. If one or more of these media components are present in the IMS Multimedia Telephony communication then the supplementary service is invoked.

4.2 Default media handling capabilities of IMS Multimedia Telephony service

IMS Multimedia Telephony can support many different types of media.

IMS Multimedia Telephony service includes the following standardized media capabilities:

- Full duplex speech;

- Real time video (simplex, full duplex), synchronized with speech if present;

- Text communication;

- File transfer;
- Video clip sharing, picture sharing, audio clip sharing. Transferred files may be displayed/replayed on receiving terminal for specified file formats.

The support of each of these media capabilities is optional for a UE.

At least one common standardized format (e.g. JPEG, AMR) shall be supported per media type.

The IMS Multimedia Telephony service should at least support the following handling of media

- Adding and removing individual media to/from a IMS Multimedia Telephony communication

5 Service Requirements

General service requirements as specified for IMS services in [4] apply.

6 Quality of Service

General QoS requirements as specified for IMS services in [4] apply.

7 Interworking requirements

7.1 Interworking with CS domain

Standardisation of interworking between the IMS domain and the CS domain for multimedia telephony communications is provided as specified in [4].

7.2 Interworking with external networks

General interworking requirements with external networks as specified for IMS services in [4] apply.

8 Supplementary Services

8.1 High level requirements

The interactions between supplementary services for the IMS Multimedia Telephony service shall be consistent with the interactions between equivalent CS supplementary services.

Users shall be able to register, activate, deactivate, withdraw and reconfigure IMS supplementary services via the UE, or web portals.

8.2 Supplementary services applicable to IMS Multimedia Telephony service

The following supplementary services shall be supported. The applicable services which have been defined by TISPAN [2] are listed below as well as additional services, which are applicable to the IMS Multimedia Telephony service.

8.2.1 Originating Identification Presentation (OIP)

All elements of clause 8.2.1 of reference [2] apply, except for the following clause, which does not apply:

- 8.2.1.2.3 Communication Waiting (CW).

8.2.2 Originating Identification Restriction (OIR)

All elements of clause 8.2.2 of reference [2] apply.

8.2.3 Terminating Identification Presentation (TIP)

All elements of clause 8.2.3 of reference [2] apply.

8.2.4 Terminating Identification Restriction (TIR)

All elements of clause 8.2.4 of reference [2] apply.

8.2.5 Communication Diversion (CDIV)

All elements of clause 8.3.1 of reference [2] apply, except for the following clauses, which do not apply:

- 8.3.1.2.2 Malicious Communication Identification (MCID)
- 8.3.1.2.3 Anonymous Communication Rejection (ACR)
- 8.3.1.2.5 Communication Waiting (CW)
- 8.3.1.2.7 Completion of Communications to Busy Subscriber (CCBS)
- 8.3.1.2.8 Advice of Charge (AOC).

8.2.6 Communication Hold (HOLD)

All elements of clause 8.3.3 of reference [2] apply.

8.2.7 Communication Barring (CB)

All elements of clause 8.3.4 of reference [2] apply with the following addition:

The ICB service is extended with a roaming condition. The roaming condition is set to true when the served user is roaming.

8.2.8 Message Waiting Indication (MWI)

All elements of clause 8.3.6 of reference [2] apply.

8.2.9 Conference (CONF)

All elements of clause 8.4.1 of reference [2] apply, except for the following clause, which does not apply:

- 8.4.1.2.3 Advice of charge services (AOC).

The Conference service shall provide a similar user experience as the circuit switched Multiparty supplementary service but with multimedia capabilities.

8.2.10 Explicit Communication Transfer (ECT)

All elements of clause 8.4.3 of reference [2] apply, except for the following clause, which does not apply:

- 8.4.3.2.4 Advice of charge services (AOC).

8.2.11 Communication Diversion: Communication Forwarding on Mobile Subscriber Not Reachable (CFNRc)

This service permits a served user to allow the network redirect all incoming communications, or just those associated with a specific service, addressed to the called mobile subscriber"s address, but which is not reachable, to another address. The ability of the served mobile subscriber to originate communication is principally unaffected, but practically it is affected if the mobile subscriber is de-registered, if there is radio congestion or if the mobile subscriber for example is being out of radio coverage. If this service is activated, a communication is forwarded only if the mobile subscriber is not reachable.

The maximum number of diversions permitted for each communication is a service provider option. The service provider shall define the upper limit of diversions. When counting the number of diversions, all types of diversion are included.'

8.2.11.1 Service interactions with other supplementary services

Communication Diversion: Communication Forwarding on Mobile Subscriber Not Reachable (CFNRc) shall interact with the following supplementary services in exactly the same way as described in [2] for Communication Forwarding No Reply (CFNR):

Originating Identification Presentation (OIP)
Originating Identification Restriction (OIR)
Terminating Identification Presentation (TIP)
Terminating Identification Restriction (TIR)
Communication Diversion (CDIV); Communication Forward Unconditional
Communication Diversion (CDIV); Communication Deflection
Communication Diversion (CDIV); Communication Forward On not Logged-in
Communication Hold (HOLD)
Communication Barring (CB)
Message Waiting Indication (MWI)
Conference (CONF)

CFNRc shall interact with the following services according to the following:

Communication Diversion (CDIV); Communication Forward Busy

If the terminating party is network determined busy, then CFB shall take precedence over CFNRc. Otherwise, if the terminating party is not network determined then there is no impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

Communication Diversion (CDIV); Communication Forward No Reply

No interaction, i.e. neither supplementary service shall affect the operation of the other supplementary service.

Explicit Communication Transfer (ECT)

No interaction, i.e. neither supplementary service shall affect the operation of the other supplementary service.

Annex A (informative): Change history

Change history											
TSG SA#	SA Doc.	SA1 Doc	Spec	CR	Rev	Rel	Cat	Subject/Comment	Old	New	WI
2006-02			22.173					First skeleton		0.0.1	
2006-02		SA1#31	22.173					Updated with text from TR 22.973 v1.1.0	0.0.1	0.1.0	
SP-31			22.173					Agreed to be sent to SA #31 for information	0.1.0	1.0.0	
2006-04	SA1#32	S1-060549	22.173					Update at SA1#32, Including S1-060386, S1-060509, S1-060547, S1-060543.	1.0.0	1.1.0	
2006-04	SA1#32	S1-060628	22.173					Raised to 2.0.0 for presentation to SA #32	1.1.0	2.0.0	
2006-06	SP-32	SP-060310	22.173	-	-			Approved at SA #32	2.0.0	7.0.0	
2006-10	SP-33	SP-060471	22.173	0001	-			CR to 22.173 to remove the editor"s note in the Conf supplementary service	7.0.0	7.1.0	MITe
2006-10	SP-33	SP-060471	22.173	0002	-			Requirements of setting the priority of IMS supplementary services	7.0.0	7.1.0	MITe
SP-34	SP-060761	S1-061400	22.173	0003	-	Rel-7	F	AI33-01; removal of requirement to align supplementary service requirements	7.1.0	7.2.0	MITE
SP-34	SP-060761	S1-061436	22.173	0005	-	Rel-7	F	Clarification on media components	7.1.0	7.2.0	MTSI-REQ
SP-35	SP-070117	S1-070250	22.173	0006	1	Rel-7	F	Clarification on supplementary services	7.2.0	7.3.0	MTSI-REQ

History

Document history		
V7.3.0	March 2007	Publication