



**Universal Mobile Telecommunications System (UMTS);
LTE;
Combined Circuit Switched (CS)
and IP Multimedia Subsystem (IMS) sessions;
Stage 1
(3GPP TS 22.279 version 15.0.0 Release 15)**



ReferenceRTS/TSGS-0122279vf00

KeywordsLTE,UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2018.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.
3GPP™ and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M logo is protected for the benefit of its Members.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

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

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Contents

Intellectual Property Rights	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	5
1 Scope	6
2 References	6
3 Definitions, symbols and abbreviations	6
3.1 Definitions	6
3.2 Abbreviations	7
4 Introduction to Combinational Service	7
5 General requirements	7
6 User experience of combinational services	7
7 Service Capability Detection.....	8
7.1 General	8
7.2 User privacy	8
8 IMS service behaviour during a Combinational Service.....	8
9 Interaction with supplementary services	9
9.1 Line Identification	9
9.1.1 Calling Line Identity Presentation (CLIP).....	9
9.1.2 Calling Line Identity Restriction (CLIR).....	9
9.1.3 Connected Line Identification Presentation (COLP).....	9
9.1.4 Connected Line Identification Restriction (COLR).....	9
9.2 Name Identification	10
9.2.1 Calling Name Presentation (CNAP)	10
9.3 Call Forwarding.....	10
9.3.1 Call Forwarding Unconditional (CFU).....	10
9.3.2 Call Forwarding on Busy (CFB).....	10
9.3.3 Call Forwarding on No Reply (CFNRY).....	10
9.3.4 Call Forwarding on Not Reachable (CFNRC).....	10
9.3.5 Call Deflection (CD).....	10
9.4 Call Offering	10
9.4.1 Explicit Call Transfer (ECT)	10
9.5 Call Completion	10
9.5.1 Call Waiting (CW).....	10
9.5.2 Call Hold (CH)	10
9.5.3 Call Completion to Busy Subscriber (CCBS).....	11
9.5.4 Multi Call (MC).....	11
9.6 Multi Party.....	11
9.6.1 Multi Party call (MPTY).....	11
9.7 Community of Interest.....	11
9.7.1 Closed User Group (CUG)	11
9.8 Charging	11
9.8.1 Advice of Charge - Information (AOCI)	11
9.8.2 Advice of charge – Charge (AOCC).....	11
9.9 Additional Info Transfer.....	11
9.9.1 User-to-User Signalling service 1 (UUS1)	11
9.9.2 User-to-User Signalling service 2 (UUS2)	11
9.9.3 User-to-User Signalling service 3 (UUS3)	11
9.10 Call Barring	12
9.10.1 Barring of All Outgoing Calls (BAOC).....	12
9.10.2 Barring of Outgoing International Calls (BOIC)	12

9.10.3 Barring of Outgoing International Calls except to HPLMN country (BOIC-exHc) 12

9.10.4 Barring of All Incoming Calls (BAIC) 12

9.10.5 Barring of All Incoming Calls when roaming outside HPLMN country (BICROAM) 12

9.11 Call Priority 12

9.11.1 Enhanced Multi Level Precedence Pre-emption (EMLPP)..... 12

10 Impacts on other services 12

10.1 Support of Teleservices during a combinational service 12

10.2 Support of Location Services during a combinational service 12

11 Charging aspects for Combinational Service 12

12 Provisioning 13

Annex A (informative): Change history 14

History 15

iTeh STANDARD PREVIEW
 (standards.iteh.ai)
 Full standard:
<https://standards.iteh.ai/catalog/standards/sist/60bc1587-9624-4106-a87a-6914a6a9b0b8/etsi-ts-122-279-v15.0.0-2018-07>

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.

PREVIEW
iTech STANDARD
(standards.itih.ai)
Full standard:
<https://standards.itih.ai/catalog/standards/sist/60bc1587-9624-4106-a87a-6914a6a9b0b8/etsi-ts-122-279-v15.0.0-2018-07>

1 Scope

The present document specifies service requirements for Combining CS and IMS services using a CS speech or CS multimedia call in association with an IMS session. The IMS session may consist of one or more IMS services.

Requirements for the following capabilities are included:

- Radio capability exchange.
- Terminal capability exchange.
- E.164 number exchange.
- Adding IMS session to an ongoing CS call.
- Adding a CS call to an ongoing IMS session.
- Supplementary services as they relate to CSICS.

It is intended that the capabilities defined herein for CSICS shall support interoperability between different operator networks, and roaming.

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 TR 22.979: "Feasibility study on Combined CS Calls and IMS Sessions".
- [3] 3GPP TS 22.228: "Service requirements for the Internet Protocol (IP) multimedia core network subsystem".
- [4] 3GPP TS 22.004: "General on Supplementary Services".

3 Definitions, symbols and abbreviations

3.1 Definitions

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

Combinational Service: A combinational service is created by adding one or more IMS session(s) to a CS call (or vice versa). The CS call and IMS session are established between the same participants.

Combinational call: this is the name given to the service in which a circuit switched speech teleservice is enriched by adding an IMS session where both services (IMS session and CS call) are originated in one single UE and are terminated in another single UE.

Combinational Session: this is the name given to the service in which an ongoing IMS session between two users is enriched by adding a circuit switched based call. The individual service instances that form the combinational session are originated in a single UE and terminated in another single UE.

CSICS capable UE: UE that supports Combinational Service.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply. Additional applicable abbreviations can be found in TR 21.905 [1].

CSICS Circuit Switched IMS Combinational Service

4 Introduction to Combinational Service

Combinational services are applicable to both UTRAN and GERAN and enables the unidirectional or bi-directional exchange of PS data within the context of an IMS session

A specific subscription for combinational services is not necessary. However, both users A and B shall as a minimum be provisioned with CS telephony (TS11) as well as for accessing the IMS.

The existing address context is reused when the combined service is established, which makes the combined service simple to invoke for the user.

5 General requirements

In addition to the existing IMS requirements [3], the following general requirements apply for CSICS:

It shall be possible to establish a combinational service between two users within the same PLMN or within different PLMNs.

It shall be possible to establish a combinational service between two users camped on identical or different RATs.

It shall be possible to establish a combinational service when roaming, assuming the visited operator supports GPRS roaming.

The user (A or B party) shall only need to know one address in order to establish the combinational service.

It shall be possible to add an IMS session to a CS speech call, thereby creating a combinational call.

It shall be possible to add a CS speech call to an IMS session, thereby creating a combinational session.

It shall be possible to add an IMS session to a CS Multimedia call, thereby creating a combinational call.

It shall be possible to add a CS Multimedia call to an IMS session, thereby creating a combinational session.

The following two service modes will exist in regards to IMS registration depending on different UE implementations:

- 1) IMS pre established state: the CSICS capable UE performs the IMS registration at switch on.
- 2) IMS on demand state: the CSICS capable UE performs the IMS registration:
 - to start the communication, or
 - to add a IMS session to an existing CS call.

Interoperability between UEs that implement such different approaches shall be enabled.

During a CS call it shall be possible to request establishment of the IMS session whether the invited UE is IMS registered or not. The invited user shall be able to accept or reject the IMS registration request.

A combinational service shall enable both unidirectional and bi-directional exchange of PS data within the context of the IMS session.

6 User experience of combinational services

When one of the participating users terminates the CS call of a combinational service, the IMS session may continue.

When one of the participating users terminates the IMS session of a combinational service, the CS call may continue.

When the user A sends media to a user B, the user B can accept or reject the media (confirmation from the receiving party is needed) and vice versa.

If media, or parts thereof, accepted by a user cannot be rendered by the UE simultaneously with the CS call, conflicts shall be resolved such that the user is presented with:

- CS speech with preference over IMS speech/audio;
- IMS video and images with preference over CS video.

It shall be possible to initiate a combinational service with user perceived simultaneous setup of IMS session and CS call. The CS call and IMS session can be established sequentially and on the failure of any of the setups the user may be prompted to decide whether to continue. The terminating user shall be able to accept or reject CS call or IMS session independently.

7 Service Capability Detection

7.1 General

The Service Capability Detection may indicate to the user that the UEs have interoperable CSICS capability and that the access network(s) have the necessary network functionality to carry the combinational service.

The detection of the capabilities of the recipient terminal and the operators' networks shall ensure that information is updated in case of change of terminal.

An operator should have the mechanism to inhibit the capability check, or at least indicate to UE that it should not be performed.

Note: An operator may want to inhibit the capability check for CSICS in order to optimise the usage of radio resources.

It shall be possible for the (CSICS capable) UEs to have the information, prior to initiating a combinational service, regarding the type of capabilities, which are jointly supported by both UEs, without user intervention.

Due to the handover of the participating users to an access network which does not support combinational services, service capability detection may be needed during a CS call to notify the user of the service availability.

7.2 User privacy

Participants in a CS call or IMS session may choose not to reveal their identity, even though this may prevent the establishment of a combinational session.

During the service capability detection and exchange of information process, the user's privacy settings shall be respected. The applicable privacy settings are as described in clauses 8 and 9. Additionally, the user shall be able to restrict the information exchanged by the service capability detection application and the user's consent should be requested prior to the exchange of information.

NOTE: The terminal is not normally aware of existing Calling Line Identity Restriction / Connected Line Restriction settings in the network, hence the need for the user to be able to configure the service capability detection application not to reveal such information.

8 IMS service behaviour during a Combinational Service

There is no standardised supplementary service defined for IMS session, however mechanisms exist (service capabilities) to emulate the behaviour of some of the most common supplementary services that exist in the circuit switched domain. The intention in this clause is **NOT** to define "supplementary services" for IMS, just to explain the service behaviour during a combinational session for some specific cases as indicated below: