



**Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);
Explicit Call Transfer (ECT) supplementary service;
Stage 2
(3GPP TS 23.091 version 15.0.0 Release 15)**



ReferenceRTS/TSGC-0423091vf00

Keywords

GSM,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.....	4
1 Scope	5
2 References	5
3 Definitions and abbreviations.....	5
3.1 Definitions	5
3.2 Abbreviations	6
4 Explicit Call Transfer (ECT).....	6
4.1 Functions	6
4.2 SDL diagrams and information flows	8
4.2.1 General description	8
4.2.2 ECT (both calls answered).....	8
4.2.3 ECT (one call answered, the other alerting)	11
4.3 Interaction with other supplementary services	14
4.3.1 Line Identification services.....	14
4.3.2 Call Forwarding Unconditional (CFU)	16
4.3.3 Call Forwarding on mobile subscriber Busy (CFB).....	17
4.3.3.1 Call Forwarding on mobile subscriber Busy due to Network Determined User Busy (NDUB)	17
4.3.3.2 Call Forwarding on mobile subscriber Busy due to User Determined User Busy (UDUB)	17
4.3.4 Call Forwarding on No Reply (CFNRy).....	18
4.3.5 Call Forwarding on mobile subscriber Not Reachable (CFNRc).....	18
4.3.6 Call Waiting (CW).....	18
4.3.7 Call Hold (HOLD)	18
4.3.8 Multi Party (MPTY)	18
4.3.9 Closed User Group (CUG)	18
4.3.10 Advice of Charge (AoC) services.....	19
4.3.11 Call Barring services.....	19
4.3.12 Explicit Call Transfer (ECT)	19
4.4 Information stored in the HLR	19
4.5 State transition model.....	19
4.6 Transfer of information from the HLR to the VLR.....	19
4.7 Information stored in the VLR	19
4.8 Handover	20
Annex A: Change history	21
History	22

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.

ITeH STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/7afc498b-ecdb-4ad1-b925-c199414c2a24/etsi-ts-123-091-v15.0.0-2018-07>

1 Scope

The present document gives the stage 2 description of the call transfer supplementary services.

Only one call transfer supplementary service has been defined, this is the Explicit Call Transfer (ECT) supplementary service, and is described in the present document.

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: "3G Vocabulary".
- [2] 3GPP TS 23.083: "Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 2".
- [3] 3GPP TS 24.008: "Mobile Radio Interface Layer 3 specification; Core Network Protocols - Stage 3".
- [4] EN 300 368: "Integrated Services Digital network (ISDN); Explicit Call Transfer (ECT) supplementary service; Functional capabilities and information flows".
- [5] EN 300 356-14: "Integrated Services Digital network (ISDN); Signalling System No. 7; ISDN User Part (ISUP) version 3 for the international interface; Part 14: Explicit Call Transfer (ECT) supplementary service".
- [6] 3GPP TS 23.011: "Technical realization of Supplementary Services".
- [7] 3GPP TS 23.018: "Basic Call Handling".

3 Definitions and abbreviations

3.1 Definitions

First call: One of the subscriber A calls (answered).

Notification Indicator (NI): Indicates to each remote party in which state of the other remote party ECT was performed (active, alerting).

Redirection Number (Rdn): Includes the presentation indicator and the directory number of the other remote party.

Second call: The other subscriber A call (answered or alerting).

Subscriber A (PARTY A): The served mobile subscriber - the one who has subscribed to, and invokes the ECT Supplementary Service.

Subscriber B (PARTY B): The other party in the subscriber A first call.

Subscriber C (PARTY C): The other party in the subscriber A second call.

Subscriber D (PARTY D): The forwarded-to party when the call is forwarded by the subscriber C.

Transferred call: The resulting call after successful explicit call transfer between B and C.

3.2 Abbreviations

In addition to those below, abbreviations used in the present document are listed in 3GPP TR 21.905 [1].

ECT:	Explicit Call Transfer supplementary service
LI:	Line Identity
NI:	Notification Indicator
Rdn:	Redirection number
RdnB:	Redirection number of party B
RdnD:	Redirection number of party D

4 Explicit Call Transfer (ECT)

4.1 Functions

The following function has been identified for the explicit call transfer service:

MAF027

Explicit Call Transfer related authorizations examination

The ability of a PLMN component to determine the authorizations relating to explicit call transfer. See figure 1.

Location: VLR

ETSI STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/7afc498b-ecb0-4ad1-b925-e199414c2a24/etsi-ts-123-091-v15.0.0-2018-07>

Process MAF027

391_1(1)

Process in the VLR to check if ECT is provisioned.

Signals to/from the left are to/from the MSC.

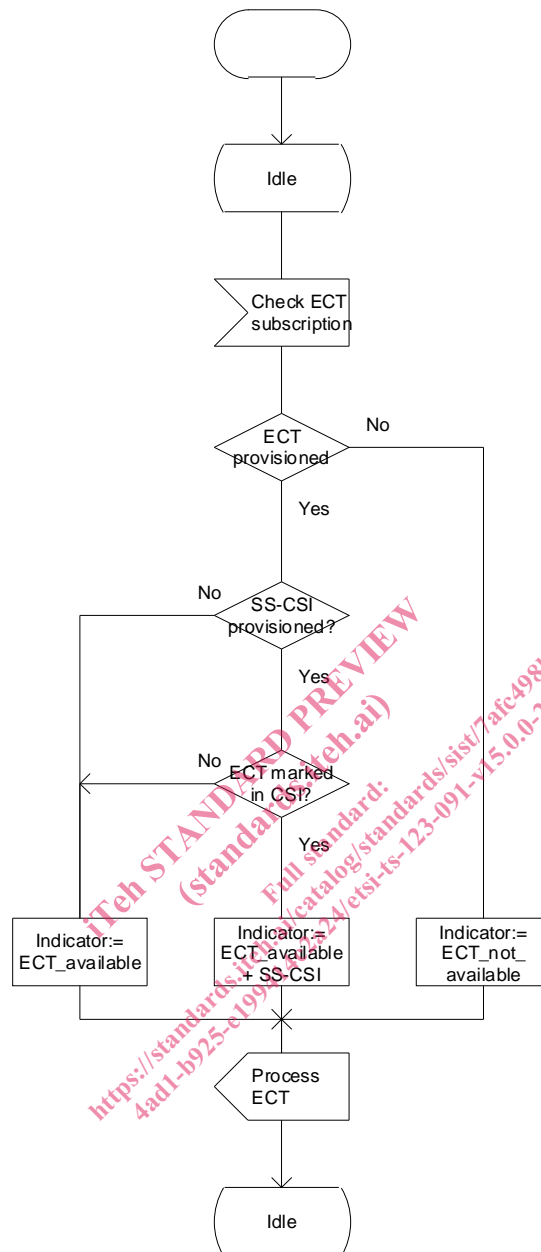


Figure 1: Explicit Call Transfer related authorizations examination (VLR)

4.2 SDL diagrams and information flows

4.2.1 General description

The procedures `Handle_ECT_Active` and `Handle_ECT_Alerting` show the behaviour of the service as perceived by the served mobile subscriber and by any of the other parties involved in the transfer. These procedures and the macro `Check_ECT` show the actions to be taken by the network and the information provided by the network to the users.

The following states for the invocation of the ECT supplementary service are defined:

- a) First Call (Active, Held), Second Call (Active, Idle);
- b) First Call (Active, Held), Second Call (Call Delivered, Idle).

NOTE: The call state "call delivered" means that an ALERTING message has been sent to the MS, but no ANSWER Message (ANM) has been received.

In the information flows it is assumed that the served subscriber is a mobile subscriber and that the other parties are mobile or fixed subscribers.

Party A is the subscriber controlling the Explicit Call Transfer Call (served mobile subscriber). Party B is the first remote party called. Party C is the second remote party called.

The served party is disconnected by the generic disconnect/release procedure after a successful transfer request. The connection of the remote parties in a new call (transferred call) is located in the served subscriber's MSC.

The information flows in figures 4 and 7 show the unsuccessful case (i.e. the check in the VLR or in the MSC fails).

The information flows in figures 5 and 8 show the successful case.

4.2.2 ECT (both calls answered)

The SDL for the procedure `Handle_ECT_Active` (Explicit Call Transfer - both calls have been answered) is shown in figure 2.

The checks of whether Explicit Call Transfer is barred or not are shown in figure 3.

The corresponding information flows are given in figure 4 and figure 5.

Procedure Handle_ECT_Active

ECT_Ac(1)

Procedure in the originating MSC to handle an Explicit Call Transfer when the first call leg (A-B) is connected and on hold and the other call leg (A-C) is connected and active.

Signals to/from the left are to/from the MS;
signals to/from the right are to/from all/any remote parties unless stated otherwise.

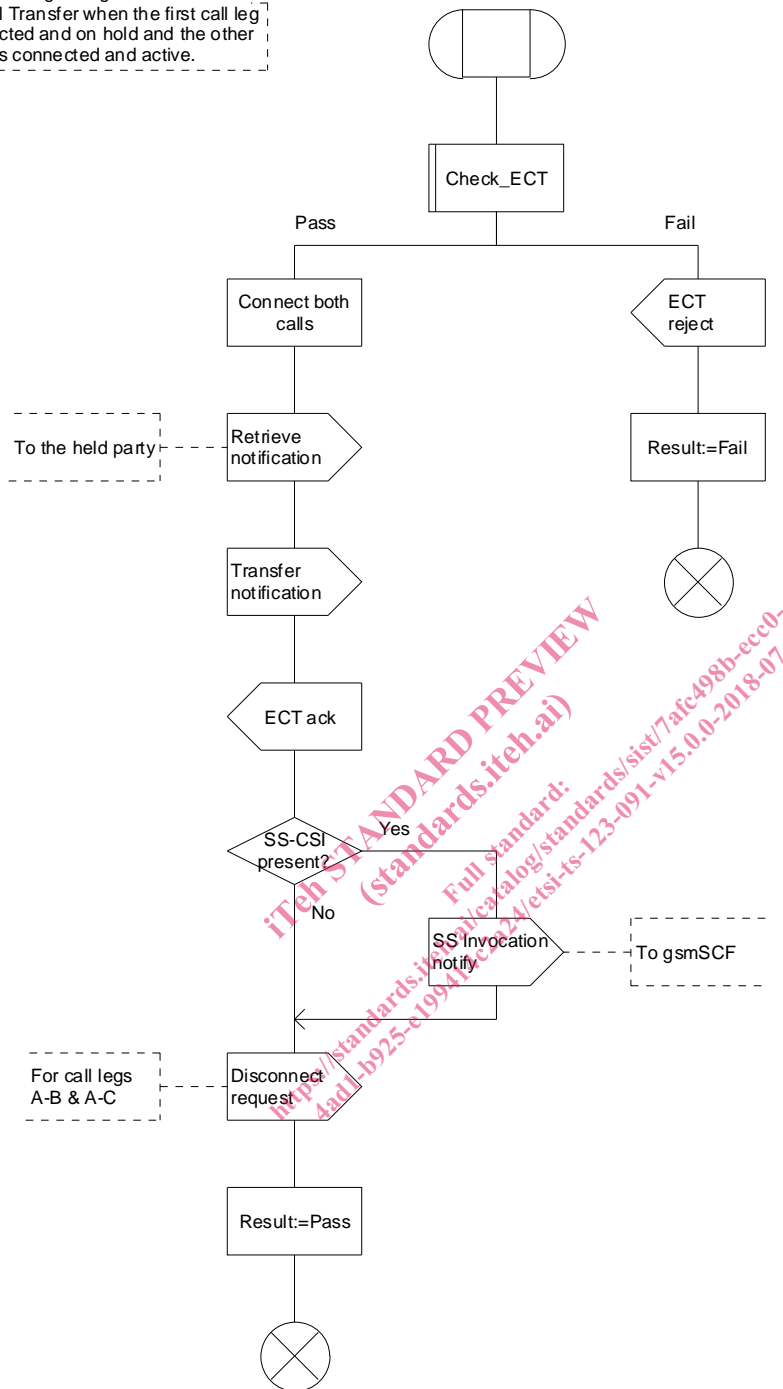


Figure 2: Procedure Handle_ECT_Active