

ETSI TS 123 097 V13.0.0 (2016-01)



**Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
Multiple Subscriber Profile (MSP) (Phase X);
Stage 2
(3GPP TS 23.097 version 13.0.0 Release 13)**



Reference

RTS/TSGC-0423097vd00

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

<http://portal.etsi.org/tb/status/status.asp>

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.

© European Telecommunications Standards Institute 2016.

All rights reserved.

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

GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Intellectual Property Rights

IPRs essential or potentially essential to the present document 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.

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 and abbreviations.....	7
3.1 Definitions	7
3.2 Abbreviations	7
4 Features needed to support MSP Phase 2.....	7
5 Additional Information stored in network entities	8
5.1 Data stored in the HLR.....	8
5.2 Data stored in the VLR.....	8
6 Additional procedures in network entities.....	8
6.1 OCB_flag	8
6.2 ODB flags.....	9
6.3 HOLD_flag.....	9
6.4 CW_flag.....	9
6.5 MPTY_flag.....	9
6.6 ECT_flag.....	9
6.7 CCBS_flag	10
6.8 CLIR_flag.....	10
7 Description of Multiple Subscriber Profile	10
7.1 Overview	10
7.2 Registration of a Profile	10
7.3 Interrogation.....	12
7.4 Call Handling for an MSP subscriber.....	15
7.4.1 Mobile Originating (MO) call handling.....	15
7.4.2 Mobile Terminating (MT) call handling.....	15
7.5 Functions and Information Flows.....	15
7.5.1 MO call handling in the gsmSCF.....	15
7.5.1.1 Process MO_MSP_Call_gsmSCF.....	15
7.5.1.2 Procedure Set_Calling_Profile_gsmSCF	15
7.5.1.3 Procedure Send_FCI_gsmSCF.....	15
7.5.2 MT call handling in the gsmSCF	22
7.5.2.1 Process MT_MSP_Call_gsmSCF	22
7.5.3 SS handling in the gsmSCF	27
7.5.3.1 Procedure Check_CLIR_gsmSCF.....	27
7.5.3.2 Procedure Forwarded_MSP_Call_gsmSCF.....	27
7.5.3.3 Procedure Check_CFU_gsmSCF	27
7.5.3.4 Procedure Check_Early_CF_gsmSCF	27
7.5.3.5 Procedure Check_Late_CF_gsmSCF.....	27
7.5.3.6 Procedure Check_CFNRY_gsmSCF	27
7.5.3.7 Procedure Check_CFB_gsmSCF	27
7.5.3.8 Procedure Check_CFNRC_gsmSCF	27
7.5.3.9 Procedure Check_CW_gsmSCF	27
7.5.3.10 Procedure Check_HOLD_gsmSCF.....	27
7.5.3.11 Procedure Check_MPTY_gsmSCF.....	27
7.5.3.12 Procedure Check_ACM_gsmSCF.....	27
7.5.3.13 Process AoC_MSP_gsmSCF	27
7.5.3.14 Procedure AoCI_gsmSCF.....	27

7.5.3.15	Procedure AoCC_gsmSCF.....	28
7.5.3.16	Procedure Outgoing_Barring_Check_gsmSCF.....	28
7.5.3.17	Procedure Incoming_Barring_Check_gsmSCF	28
7.5.3.18	Procedure Check_ECT_gsmSCF	28
7.5.3.19	Procedure Check_CCBS_gsmSCF	28
7.5.4	Information flows	47
7.6	SMS handling.....	50
7.7	Call Independent SS handling	52
7.8	Interaction with Supplementary Services	52
7.8.1	Line Identification services.....	52
7.8.1.1	CLIP	52
7.8.1.2	CLIR	52
7.8.1.3	COLP	52
7.8.1.4	COLR.....	52
7.8.2	Call Hold (HOLD).....	52
7.8.3	Call Waiting (CW).....	53
7.8.4	Call Forwarding	53
7.8.5	Multi Party Service (MPTY)	53
7.8.6	Closed User Group (CUG)	53
7.8.7	Advice of Charge (AoC).....	53
7.8.8	Call Barring	54
7.8.9	Explicit Call Transfer (ECT)	54
7.8.10	Completion of Calls to Busy Subscriber (CCBS).....	54
7.8.11	enhanced Multi-Level Precedence and Pre-emption (eMLPP).....	54
7.8.12	User-to-User Signalling (UUS).....	55
7.8.13	Call Deflection (CD).....	55
7.9	Interaction with other services.....	55
7.9.1	The Multi-Numbering Scheme	55
7.9.2	The Short Message Service.....	55
7.9.3	Interactions with CAMEL	55
7.9.4	Interactions with OR.....	55
7.9.5	Operator Determined Barring	55
7.9.6	Roaming Restrictions.....	56
7.10	Data stored in the gsmSCF	57
7.11	Equivalent services implemented by the gsmSCF.....	58
7.11.1	Call Forwarding	58
7.11.1.1	Call Forward Unconditional.....	60
7.11.1.2	Call Forward on Busy	61
7.11.1.3	Call Forward on No Reply	61
7.11.1.4	Call Forward on Not Reachable.....	62
7.11.1.5	Early CFNRc.....	62
7.11.1.6	Late CFNRc	63
7.11.2	Call Barring	63
7.11.3	Operator Determined Barring (ODB)	64
7.11.4	Advice of Charge (AoC).....	64
7.12	Exceptional Procedures	64
7.12.1	Roaming into a network not supporting CAMEL Phase 3.....	64
7.12.2	Roaming into a network not supporting CAMEL Phase 2.....	65
7.12.2.1	Actions required on Location Update	65
7.12.2.2	MO call handling	65
7.12.2.3	MT call handling	65
7.12.2.4	MO short message handling.....	65
7.12.3	Lack of availability of the Network Indication of Alerting feature	65
Annex A (informative):	Provision and Withdrawal of MSP	66
A.1	Provision of MSP	66
A.2	Withdrawal of MSP.....	66
Annex B (informative):	Change history	67
History		68

Foreword

The present document 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 specifies the stage 2 description of the Multiple Subscriber Profile (MSP) Supplementary Service Phase 2. MSP Phase 2 is implemented using CAMEL Phase 3.

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 22.030: "Man Machine Interface (MMI) of the Mobile Station (MS)".
- [3] 3GPP TS 22.097: "Multiple Subscriber Profile (MSP) Service Description – Stage 1".
- [4] 3GPP TS 23.008: 'Organisation of subscriber data'.
- [5] 3GPP TS 23.015: 'Technical realization of Operator Determined Barring (ODB)'.
- [6] 3GPP TS 23.018: 'Basic Call Handling – Technical Realization'.
- [7] 3GPP TS 23.067: 'enhanced Multi-Level Precedence and Pre-emption service (eMLPP) – Stage 2'.
- [8] 3GPP TS 23.072: 'Call Deflection (CD); Stage 2'.
- [9] 3GPP TS 23.078: 'Customised Applications for Mobile network Enhanced Logic (CAMEL) – Phase 3; Stage 2'.
- [10] 3GPP TS 23.079: 'Support of Optimal Routeing (SOR); Technical Realisation'.
- [11] 3GPP TS 23.081: 'Line identification supplementary services – Stage 2'.
- [12] 3GPP TS 23.082: 'Call Forwarding (CF) supplementary services – Stage 2'.
- [13] 3GPP TS 23.083: 'Call Waiting (CW) and Call Hold (HOLD) supplementary services – Stage 2'.
- [14] 3GPP TS 23.084: 'Multi Party (MPTY) supplementary services – Stage 2'.
- [15] 3GPP TS 23.085: 'Closed User Group (CUG) supplementary services – Stage 2'.
- [16] 3GPP TS 23.086: 'Advice of Charge (AoC) supplementary services – Stage 2'.
- [17] 3GPP TS 23.087: 'User-to-User (UUS) Supplementary Service; Stage 2'.
- [18] 3GPP TS 23.088: 'Call Barring (CB) supplementary services – Stage 2'.
- [19] 3GPP TS 23.090: 'Unstructured Supplementary Service Data (USSD) – Stage 2'.
- [20] 3GPP TS 23.091: 'Explicit Call Transfer (ECT) supplementary service – Stage 2'.
- [21] 3GPP TS 23.093: 'Technical Realization of Completion of Calls to Busy Subscriber (CCBS); Stage 2'.