



SLOVENSKI STANDARD

SIST EN 300 953 V6.0.1:2003

01-december-2003

8 [[]HJb]`WV] b]`hY`Y_ca i b]_UW`g_]`g]ghYa `fZuU&ZL`E`8cdc`b]`bUgfcf]Hj.` U_U`c]
`]Wf7 K L]b`nUXfjUb`Y`]WJfk C @L`E`Gfcd b`U' `f] GA `\$(`,' žfUh`]]WJ*`\$`%ž]nXUU
%- +L

Digital cellular telecommunications system (Phase 2+) (GSM); Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 3 (GSM 04.83 version 6.0.1 Release 1997)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sist/5498203c-0208-407e-b758-4f2f56d70596/sist-en-300-953-v6-0-1-2003>

Ta slovenski standard je istoveten z: **EN 300 953 Version 6.0.1**

ICS:

33.070.50	Globalni sistem za mobilno telekomunikacijo (GSM)	Global System for Mobile Communication (GSM)
-----------	---	--

SIST EN 300 953 V6.0.1:2003 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 300 953 V6.0.1:2003](https://standards.iteh.ai/catalog/standards/sist/5498203c-0208-407e-b758-4f2f56d70596/sist-en-300-953-v6-0-1-2003)

<https://standards.iteh.ai/catalog/standards/sist/5498203c-0208-407e-b758-4f2f56d70596/sist-en-300-953-v6-0-1-2003>

EN 300 953 V6.0.1 (1999-09)

European Standard (Telecommunications series)

**Digital cellular telecommunications system (Phase 2+);
Call Waiting (CW) and Call Hold (HOLD)
supplementary services;
Stage 3
(GSM 04.83 version 6.0.1 Release 1997)**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

GSM®
GLOBAL SYSTEM FOR
MOBILE COMMUNICATIONS

[SIST EN 300 953 V6.0.1:2003](https://standards.iteh.ai/catalog/standards/sist/5498203c-0208-407e-b758-4f2f56d70596/sist-en-300-953-v6-0-1-2003)

<https://standards.iteh.ai/catalog/standards/sist/5498203c-0208-407e-b758-4f2f56d70596/sist-en-300-953-v6-0-1-2003>



Reference

DEN/SMG-030483Q6 (8to0300o.PDF)

Keywords

Digital cellular telecommunications system,
Global System for Mobile communications (GSM)**ETSI**

Postal address

F-06921 Sophia Antipolis Cedex - FRANCE

Office address

650 Route des Lucioles - Sophia Antipolis
Valbonne - 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

Internet

secretariat@etsi.frIndividual copies of this ETSI deliverable
can be downloaded from<http://www.etsi.org>If you find errors in the present document, send your
comment to: editor@etsi.fr

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1999.
All rights reserved.

Contents

Intellectual Property Rights.....	4
Foreword	4
0 Scope	5
0.1 References.....	5
0.2 Abbreviations.....	7
1 Call Waiting (CW).....	7
1.1 Waiting call indication and confirmation.....	7
1.2 Normal operation with successful outcome	8
1.2.1 Waiting call accepted; existing call released.....	8
1.2.2 Waiting call accepted; existing call on hold.....	8
1.2.3 Existing call released by user A; waiting call accepted.....	9
1.3 Normal operation with unsuccessful outcome.....	9
1.3.1 Waiting call released by subscriber B	9
1.3.2 Waiting call released by calling user C	9
1.3.3 Waiting call times out.....	9
1.3.4 No reply condition timer expires	9
1.4 Activation	9
1.5 Deactivation.....	10
1.6 Interrogation	11
1.7 Invocation	11
1.8 Registration and erasure.....	11
2 Call Hold (HOLD)	12
2.1 Normal operation.....	12
2.1.1 Hold and retrieve functions	12
2.1.2 Hold invocation.....	12
2.1.3 Retrieve procedure.....	13
2.1.4 Alternate from one call to the other.....	14
2.1.5 Auxiliary states for hold and retrieve	15
2.1.6 An example of dimensioned state space.....	16
2.2 Activation and deactivation	16
2.3 Registration, erasure and interrogation	16
Annex A (informative): Change Request History	17
History	18

ITeH STANDARD PREVIEW
 (standards.iteh.ai)

SIST EN 300 953 V6.0.1:2003

<https://standards.iteh.ai/catalog/standards/sist/5498203e-0208-407e-b758-42150d70596/sist-en-300-953-v6-0-1-2003>

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 SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available **free of charge** from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://www.etsi.org/ipr>).

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 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 European Standard (Telecommunications series) has been produced by the Special Mobile Group (SMG).

The present document specifies the procedures used at the radio interface for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of call completion supplementary services within the digital cellular telecommunications system.

The specification from which the present document has been derived was originally based on CEPT documentation, hence the presentation of the present document may not be entirely in accordance with the ETSI/PNE rules.

The contents of the present document is subject to continuing work within SMG and may change following formal SMG approval. Should SMG modify the contents of the present document it will be re-released with an identifying change of release date and an increase in version number as follows:

Version 6.x.y

where:

- standards.iteh.ai
- [SIST EN 300 953 V6.0.1:2003](https://standards.iteh.ai/catalog/standards/sist/5498203c-0208-407e-b758-42156d70376/sist-en-300-953-v6-0-1-2003)
- 6 indicates Release 1997 of GSM Phase 2+
- x the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- y the third digit is incremented when editorial only changes have been incorporated in the specification.

Proposed national transposition dates

Date of adoption of this EN:	3 September 1999
Date of latest announcement of this EN (doa):	31 December 1999
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2000
Date of withdrawal of any conflicting National Standard (dow):	30 June 2000

0 Scope

The present document specifies the procedures used at the radio interface (Reference point Um as defined in GSM 04.02) for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of call completion supplementary services. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

In GSM 04.10 the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

GSM 04.80 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in GSM 02.04 and GSM 02.8x and GSM 02.9x-series. GSM 02.83 is related specially to call completion supplementary services.

Technical realization of supplementary services is described in GSM 03.11 and GSM 03.8x and GSM 03.9x-series.

GSM 03.83 is related specially to call completion supplementary services.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in GSM 04.07 and GSM 04.08.

The following supplementary services belong to the call completion supplementary services and are described in the present document:

- Call waiting (CW) (clause 1);
- Call hold (HOLD) (clause 2).

iTeh STANDARD PREVIEW

0.1 References (standards.iteh.ai)

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.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.
- For this Release 1997 document, references to GSM documents are for Release 1997 versions (version 6.x.y).

- [1] GSM 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".
- [2] GSM 02.04: "Digital cellular telecommunications system (Phase 2+); General on supplementary services".
- [3] GSM 02.81: "Digital cellular telecommunications system (Phase 2+); Line identification supplementary services - Stage 1".
- [4] GSM 02.82: "Digital cellular telecommunications system (Phase 2+); Call Forwarding (CF) supplementary services - Stage 1".
- [5] GSM 02.83: "Digital cellular telecommunications system (Phase 2+); Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 1".
- [6] GSM 02.84: "Digital cellular telecommunications system (Phase 2+); MultiParty (MPTY) supplementary services - Stage 1".

- [7] GSM 02.85: "Digital cellular telecommunications system (Phase 2+); Closed User Group (CUG) supplementary services - Stage 1".
- [8] GSM 02.86: "Digital cellular telecommunications system (Phase 2+); Advice of charge (AoC) supplementary services - Stage 1".
- [9] GSM 02.88: "Digital cellular telecommunications system (Phase 2+); Call Barring (CB) supplementary services - Stage 1".
- [10] GSM 02.90: "Digital cellular telecommunications system (Phase 2+); Unstructured Supplementary Services Data (USSD) - Stage 1".
- [11] GSM 02.91: "Digital cellular telecommunications system (Phase 2+); ECT supplementary services operation - Stage 1".
- [12] GSM 03.11: "Digital cellular telecommunications system (Phase 2+); Technical realization of supplementary services".
- [13] GSM 03.81: "Digital cellular telecommunications system (Phase 2+); Line identification supplementary services - Stage 2".
- [14] GSM 03.82: "Digital cellular telecommunications system (Phase 2+); Call Forwarding (CF) supplementary services - Stage 2".
- [15] GSM 03.83: "Digital cellular telecommunications system (Phase 2+); Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 2".
- [16] GSM 03.84: "Digital cellular telecommunications system (Phase 2+); MultiParty (MPPTY) supplementary services - Stage 2".
- [17] GSM 03.85: "Digital cellular telecommunications system (Phase 2+); Closed User Group (CUG) supplementary services - Stage 2".
- [18] GSM 03.86: "Digital cellular telecommunications system (Phase 2+); Advice of Charge (AoC) supplementary services - Stage 2".
- [19] GSM 03.88: "Digital cellular telecommunications system (Phase 2+); Call Barring (CB) supplementary services - Stage 2".
- [20] GSM 03.90: "Digital cellular telecommunications system (Phase 2+); Unstructured supplementary services operation - Stage 2".
- [21] GSM 03.91: "Digital cellular telecommunications system (Phase 2+); Explicit Call Transfer (ECT) supplementary service - Stage 2".
- [22] GSM 04.02: "Digital cellular telecommunications system (Phase 2+); GSM Public Land Mobile Network (PLMN) access reference configuration".
- [23] GSM 04.07: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface signalling layer 3; General aspects".
- [24] GSM 04.08: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 specification".
- [25] GSM 04.10: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3; Supplementary services specification; General aspects".
- [26] GSM 04.80: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 supplementary services specification; Formats and coding".
- [27] GSM 04.82: "Digital cellular telecommunications system (Phase 2+); Call Forwarding (CF) supplementary services - Stage 3".

0.2 Abbreviations

Abbreviations used in the present document are listed in GSM 01.04.

1 Call Waiting (CW)

1.1 Waiting call indication and confirmation

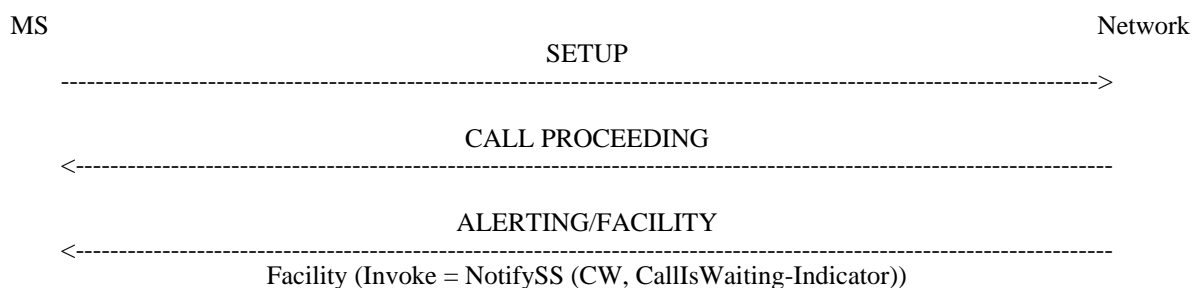
When this service is activated for the controlling subscriber B and the B-subscriber has calls only in states U10 (Active) or U26 (MO Modify) as defined in GSM 04.08, the arrival of an incoming call from subscriber C shall, if no other call is waiting be signalled to the mobile station B by a normal call indication. In that case the network and the mobile station shall act in accordance with GSM 04.08. The transaction identifier shall be the transaction identifier (C-B) allocated to the waiting call and must not be the same as the transaction identifier (A-B) for the already existing call (see figure 1.1). In the CALL CONFIRMED message sent to the network the Cause information element shall be included with cause #17 "user busy" (see figure 1.1). When the ALERTING message is received by the network the call waiting timer T2 shall be started or if call forwarding on no reply is activated for the B-subscriber the no reply condition timer T3 shall be started.

If the network received a non-zero SS Screening indicator from the calling users mobile station the ALERTING/FACILITY message sent to a calling mobile user shall include the Facility information element with an invoke of the Notification operation indicating that the call is waiting (see figure 1.2). If the network did not receive a non-zero SS Screening indicator from the calling users mobile station it shall not send a notification, i.e. either the ALERTING message does not include the Notification operation or the FACILITY message is omitted.



NOTE: The SETUP message shall include a "Signal Information" element with value #7 (call waiting tone on). This shall be used by the MS to generate an appropriate call waiting indication.

Figure 1.1: Call indication to the mobile station on arrival of an incoming call and call confirmation from the mobile station



NOTE: If possible, the ALERTING message shall be used as the carrier message for the Call Waiting notification. Otherwise the FACILITY message shall be used.

Figure 1.2: Notification to a calling mobile station that the call is in the waiting state

1.2 Normal operation with successful outcome

1.2.1 Waiting call accepted; existing call released

If the mobile user B before expiry of timer T2 determines to accept the waiting call and release the existing call the mobile station shall release the existing call firstly and accept the waiting call secondly.

For the release of the existing call the mobile station and the network shall act in accordance with GSM 04.08. The transaction identifier shall be the transaction identifier (A-B) of the already existing call. The Cause information element in the first clearing message shall indicate cause #16 "normal clearing".

For the acceptance of the waiting call the mobile station and the network shall act in accordance with GSM 04.08. The transaction identifier shall be the transaction identifier (C-B) of the waiting call.

When the network receives the CONNECT message the timer T2 or if applicable the timer T3 shall be stopped.

1.2.2 Waiting call accepted; existing call on hold

If the mobile user B before expiry of timer T2 or if applicable timer T3 determines to accept the waiting call and put the existing call on hold the mobile station shall put the existing call on hold firstly and accept the waiting call secondly.

In case there is one active call (A-B) and another call (D-B) on hold and call (C-B) waiting, and the mobile user B wants to accept the waiting call (C-B) and put the active call (A-B) on hold, the held call (D-B) has to be released first, either by user B or user D, in accordance with GSM 04.08.

To put the existing call on hold the mobile station and the network shall act in accordance with clause 2. The hold function shall be initiated by the mobile station and the transaction identifier shall be the transaction identifier (A-B) of the existing call (see figure 1.3).

For the acceptance of the waiting call the mobile station and the network shall act in accordance with GSM 04.08. The transaction identifier shall be the transaction identifier (C-B) of the waiting call (see figure 1.3).

When the network receives the CONNECT message the timer T2 or if applicable the timer T3 shall be stopped.

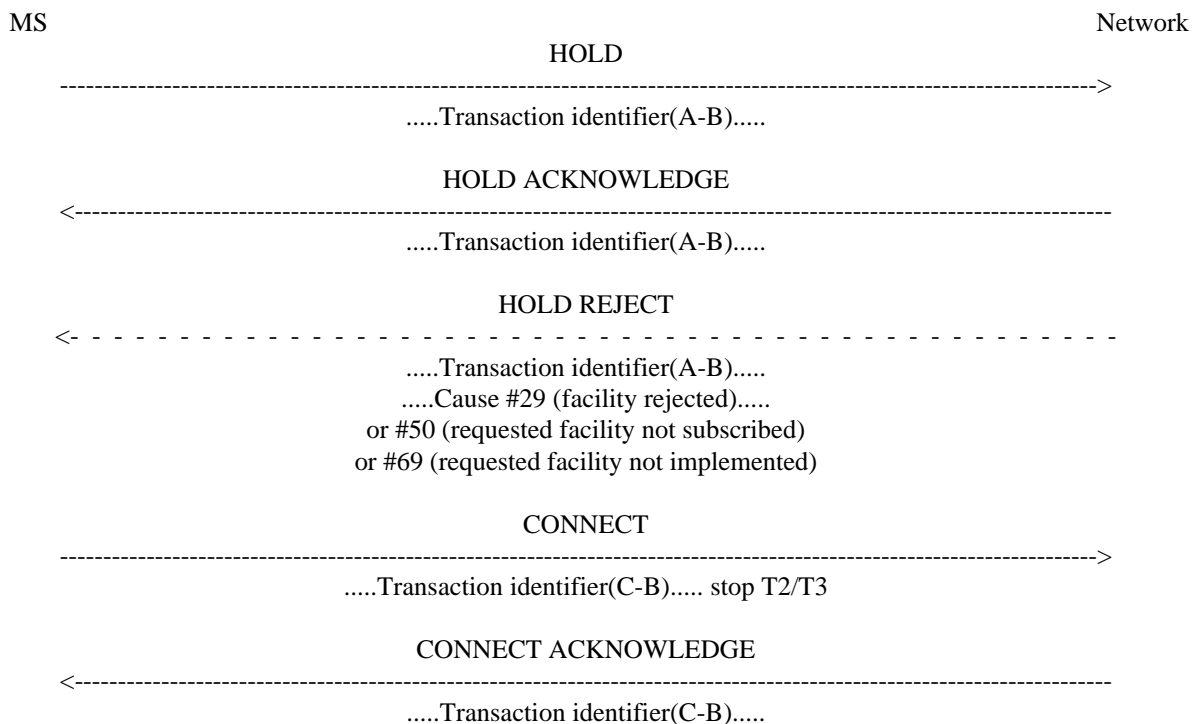


Figure 1.3: Existing call on hold and acceptance of waiting call by the mobile station

1.2.3 Existing call released by user A; waiting call accepted

If user A before the expiry of timer T2 or if applicable timer T3 determines to release the existing call then the existing call shall be released by the network firstly and the waiting call may be accepted by the mobile station secondly.

For the release of the existing call the network and the mobile station shall act in accordance with GSM 04.08. The transaction identifier shall be the transaction identifier (A-B) of the existing call.

For the acceptance of the waiting call the mobile station and the network shall act in accordance with GSM 04.08. The transaction identifier shall be the transaction identifier (C-B) of the waiting call.

When the network receives the CONNECT message the timer T2 or if applicable the timer T3 shall be stopped.

1.3 Normal operation with unsuccessful outcome

1.3.1 Waiting call released by subscriber B

For the release of the waiting call the mobile station and the network shall act in accordance with GSM 04.08. The transaction identifier shall be the transaction identifier (C-B) of the waiting call.

- * If the B subscriber indicates UDUB by the sending of the first clearing message with cause information element #17 (User Busy), and call forwarding on mobile subscriber busy is activated for the B subscriber the call shall be forwarded by the network. If call forwarding is not active the call will be cleared.
- * If any other causes are given in the first clearing message the call will be released.

1.3.2 Waiting call released by calling user C

If the calling user C, before the expiry of timer T2 or timer T3 (if applicable), releases the waiting call then the network shall release the waiting call against the mobile station.

For the release of the waiting call the network and the mobile station shall act in accordance with GSM 04.08. The transaction identifier shall be the transaction identifier (C-B) of the waiting call.

When the network initiates clearing by sending a clearing message to the mobile station the timer T2 or, if applicable, the timer T3 shall be stopped.

1.3.3 Waiting call times out

If the timer T2 expires the network shall release the waiting call. The network and the mobile station shall act in accordance with GSM 04.08. The transaction identifier shall be the transaction identifier (C-B) of the waiting call. The Cause information element in the first clearing message shall indicate cause #102 "recovery on timer expiry".

1.3.4 No reply condition timer expires

If call forwarding on no reply is activated for the B-subscriber and the no reply condition timer expires the waiting call shall be forwarded in accordance with GSM 04.82. The network shall clear the waiting call towards the B-subscriber as in subclause 1.3.3.

1.4 Activation

Activation of the supplementary service call waiting will be performed by the subscriber. The network will send a return result indication of acceptance of the request (see figure 1.4).

If the network cannot accept an activation request, an error indication is returned to the served mobile subscriber. Error values are specified in GSM 04.80 (see figure 1.4).

If the mobile subscriber does not indicate a specific basic service group the activation of call waiting is valid for all applicable basic services (see figure 1.4).