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Foreword

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

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The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under www.etsi.org/key .

Contents

Foreword

This Technical Specification has been produced by the 3GPP.

This TS 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 3GPP system.

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 this TS, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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where:

x   the first digit:

1   presented to TSG for information;

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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 specification;

0 Scope

The present document specifies the procedures used at the radio interface (Reference point Um as defined in 3GPP TS 24.002) 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 3GPP TS 24.010 the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

3GPP TS 24.080 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in 3GPP TS 22.004 and 3GPP TS 22.08x and 3GPP TS 22.09x-series. 3GPP TS 22.083 is related specially to call completion supplementary services.

Technical realization of supplementary services is described in 3GPP TS 23.011 and GSM 03.8x and GSM 03.9x-series.

3GPP TS 23.083 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 3GPP TS 24.007 and 3GPP TS 24.008.

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).

0.1 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 TS 22.004: "General on supplementary services".

[3]   3GPP TS 22.081: "Line identification supplementary services - Stage 1".

[4]   3GPP TS 22.082: "Call Forwarding (CF) supplementary services - Stage 1".

[5]   3GPP TS 22.083: "Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 1".

[6]   3GPP TS 22.084: "MultiParty (MPTY) supplementary services - Stage 1".

[7]   3GPP TS 22.085: "Closed User Group (CUG) supplementary services - Stage 1".

[8]   3GPP TS 22.086: "Advice of charge (AoC) supplementary services - Stage 1".

[9]   3GPP TS 22.088: "Call Barring (CB) supplementary services - Stage 1".

[10]   3GPP TS 22.090: "Unstructured Supplementary Services Data (USSD) - Stage 1".

[11]   3GPP TS 22.091: "ECT supplementary services operation - Stage 1".

[12]   3GPP TS 23.011: "Technical realization of supplementary services".

[13]   3GPP TS 23.081: "Line identification supplementary services - Stage 2".

[14]   3GPP TS 23.082: "Call Forwarding (CF) supplementary services - Stage 2".

[15]   3GPP TS 23.083: "Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 2".

[16]   3GPP TS 23.084: "MultiParty (MPTY) supplementary services - Stage 2".

[17]   3GPP TS 23.085: "Closed User Group (CUG) supplementary services - Stage 2".

[18]   3GPP TS 23.086: "Advice of Charge (AoC) supplementary services - Stage 2".

[19]   3GPP TS 23.088: "Call Barring (CB) supplementary services - Stage 2".

[20]   3GPP TS 23.090: "Unstructured supplementary services operation - Stage 2".

[21]   3GPP TS 23.091: "Explicit Call Transfer (ECT) supplementary service - Stage 2".

[22]   3GPP TS 24.002: "GSM-UMTS Public Land Mobile Network (PLMN) Access Reference Configuration".

[23]   3GPP TS 24.007: "Mobile radio interface signalling layer 3; General aspects".

[24]   3GPP TS 24.008: "Mobile radio interface layer 3 specification".

[25]   3GPP TS 24.010: "Mobile radio interface layer 3; Supplementary services specification; General aspects".

[26]   3GPP TS 24.080: "Mobile radio interface layer 3 supplementary services specification; Formats and coding".

[27]   3GPP TS 24.082: "Call Forwarding (CF) supplementary services - Stage 3".

0.2   Abbreviations

Abbreviations used in the present document are listed in 3GPP TR 21.905.

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 3GPP TS 24.008, 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 3GPP TS 24.008. 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.

MS   Network

SETUP

<--

.....Transaction identifier(C-B).....

CALL CONFIRMED

-->

.....Transaction identifier(C-B).....

.....Cause #17 (user busy).....

ALERTING

-->

.....Transaction identifier(C-B)..... start T2/T3
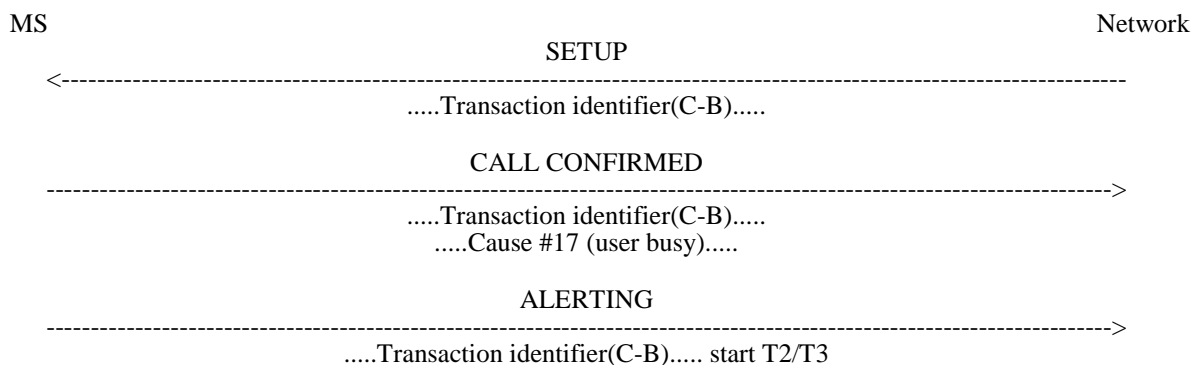
NOTE: The SETUP message shall include a "Signal Information" element with value #7 (call waiting tone on). This shall be used by the MS to generate an appropriate call waiting indication.

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

MS   Network

SETUP

-->

CALL PROCEEDING

<--

ALERTING/FACILITY

<--

Facility (Invoke = NotifySS (CW, CallIsWaiting-Indicator))
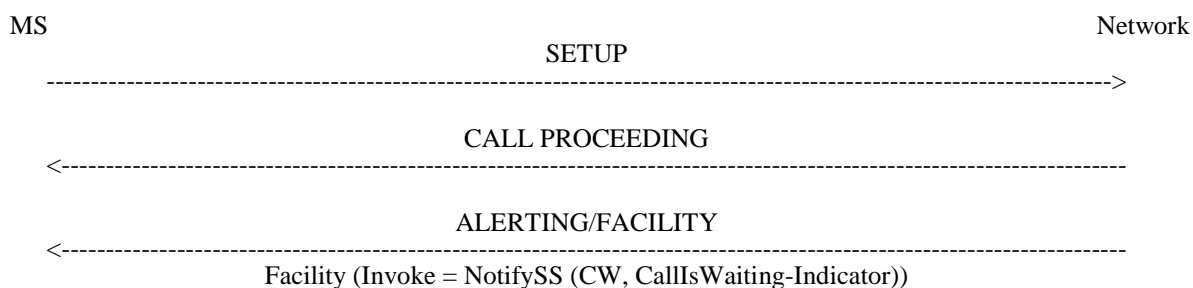
NOTE: If possible, the ALERTING message shall be used as the carrier message for the Call Waiting notification. Otherwise the FACILITY message shall be used.

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 3GPP TS 24.008. 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 3GPP TS 24.008. 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 3GPP TS 24.008.

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 3GPP TS 24.008. 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.

MS   Network
                                                    HOLD
-->
                                      .....Transaction identifier(A-B).....

                                          HOLD ACKNOWLEDGE
<--
                                      .....Transaction identifier(A-B).....

                                              HOLD REJECT
<- -
                                      .....Transaction identifier(A-B).....
                                      .....Cause #29 (facility rejected).....
                                      or #50 (requested facility not subscribed)
                                      or #69 (requested facility not implemented)

                                                CONNECT
-->
                                      .....Transaction identifier(C-B)..... stop T2/T3

                                        CONNECT ACKNOWLEDGE
<--
                                      .....Transaction identifier(C-B).....
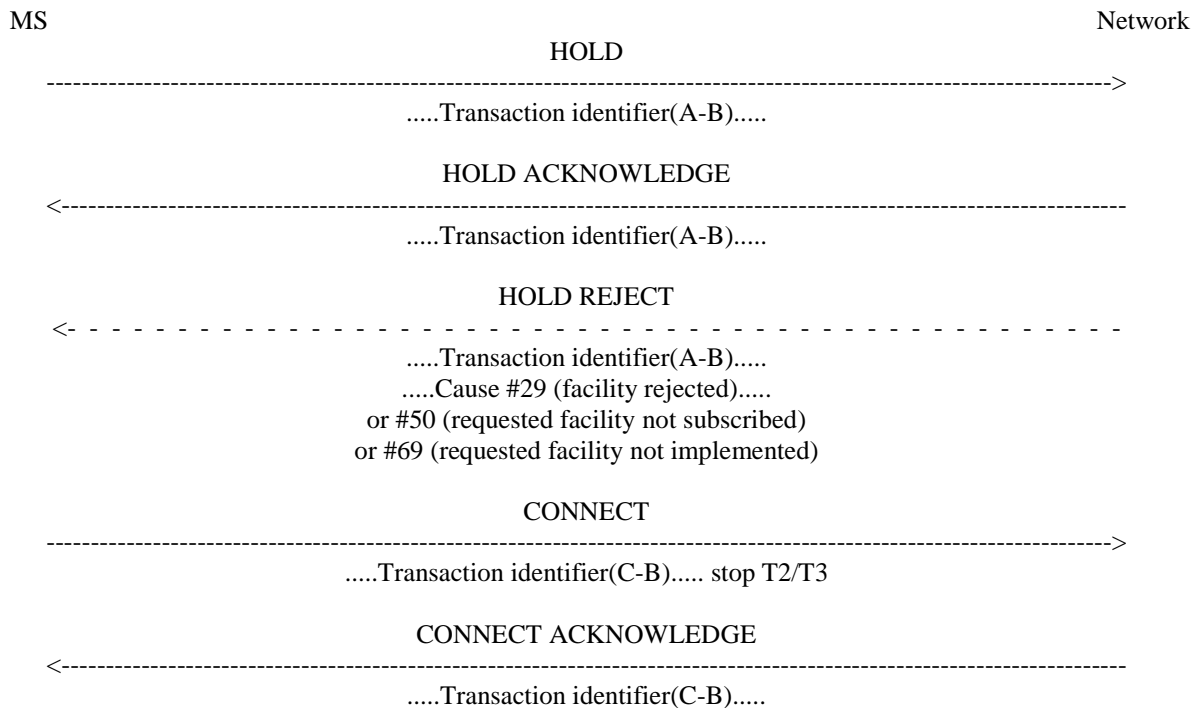
Figure 1.3: Existing call on hold and acceptance of waiting call by the mobile station

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 by 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 3GPP TS 24.008. 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 3GPP TS 24.008. 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 3GPP TS 24.008. 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 3GPP TS 24.008. 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 3GPP TS 24.008. 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 3GPP TS 24.082. 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 3GPP TS 24.080 (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).

Normal outgoing call procedures apply when this service is activated.

```
  MS                                                                                        Network
                                          REGISTER
  --------------------------------------------------------------------------------------------->
                       Facility (Invoke = ActivateSS (CW, BasicServiceCode))

                                      RELEASE COMPLETE
  <--------------------------------------------------------------------------------------------
                      Facility (Return result = ActivateSS (BasicServiceCode))

                                      RELEASE COMPLETE
  <- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                               Facility (Return error (Error))

                                      RELEASE COMPLETE
  <- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                              Facility (Reject (Invoke_problem))
```

NOTE: If the BasicServiceCode is not included the activation is valid for all applicable basic services.
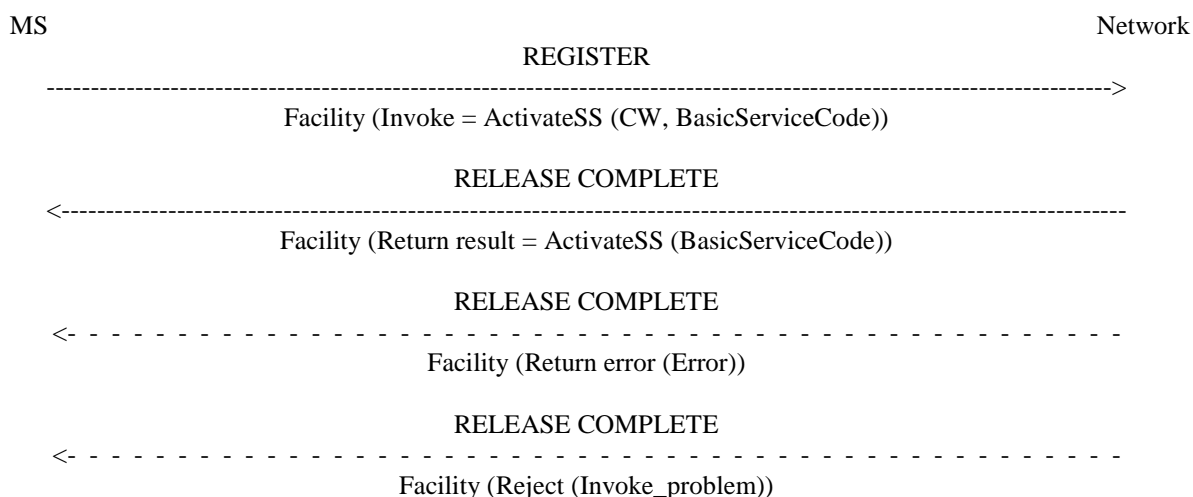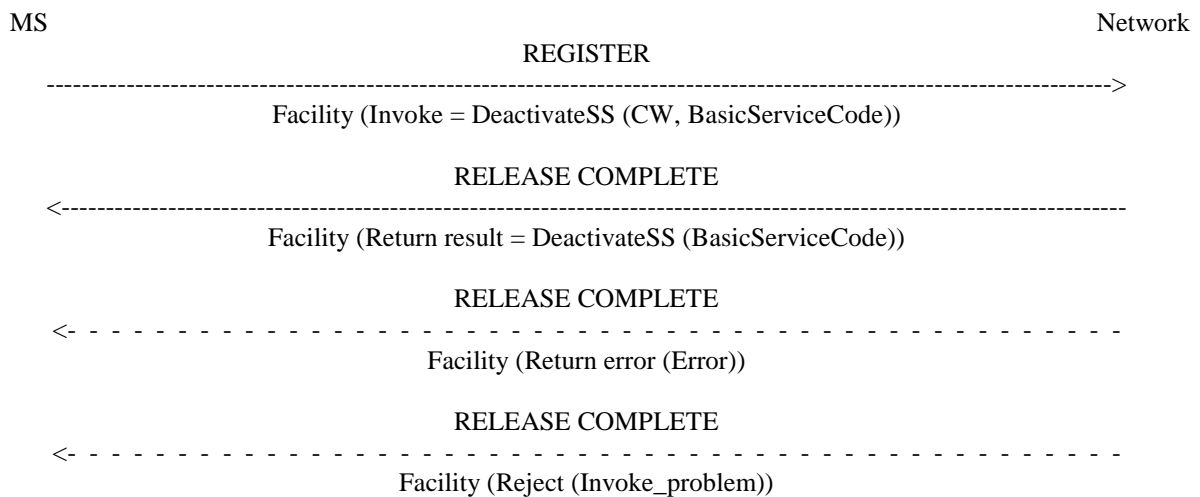
Figure 1.4: Activation of call waiting

1.5   Deactivation

Deactivation 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 1.5).

If the network cannot accept a deactivation request, an error indication is returned to the served mobile subscriber. Error values are specified in 3GPP TS 24.080 (see figure 1.5).

If the subscriber does not indicate a specific basic service group the deactivation of call waiting is valid for all applicable basic services (see figure 1.5).

```
    MS                                                                                              Network
                                             REGISTER
    ---------------------------------------------------------------------------------------------------->
                         Facility (Invoke = DeactivateSS (CW, BasicServiceCode))

                                         RELEASE COMPLETE
    <----------------------------------------------------------------------------------------------------
                         Facility (Return result = DeactivateSS (BasicServiceCode))

                                         RELEASE COMPLETE
    <- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                  Facility (Return error (Error))

                                         RELEASE COMPLETE
    <- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                  Facility (Reject (Invoke_problem))
```

NOTE: If the BasicServiceCode is not included the deactivation is valid for all applicable basic services.

Figure 1.5: Deactivation of call waiting

1.6   Interrogation

Status check

The mobile subscriber can request the status of the supplementary service call waiting and be informed whether the service is supported in the network and if so, a list of all basic service groups to which the call waiting supplementary service is active (see figure 1.6).

If a mobile subscriber interrogates the network on the status of call waiting, and the network supports call waiting but the service is not active for any basic service groups then an SS-Status parameter shall be returned indicating "deactivated" (see figure 1.6).

If a mobile subscriber interrogates the network on the status of call waiting, whilst the network does not support call waiting, the network shall return an error indication (see figure 1.6).
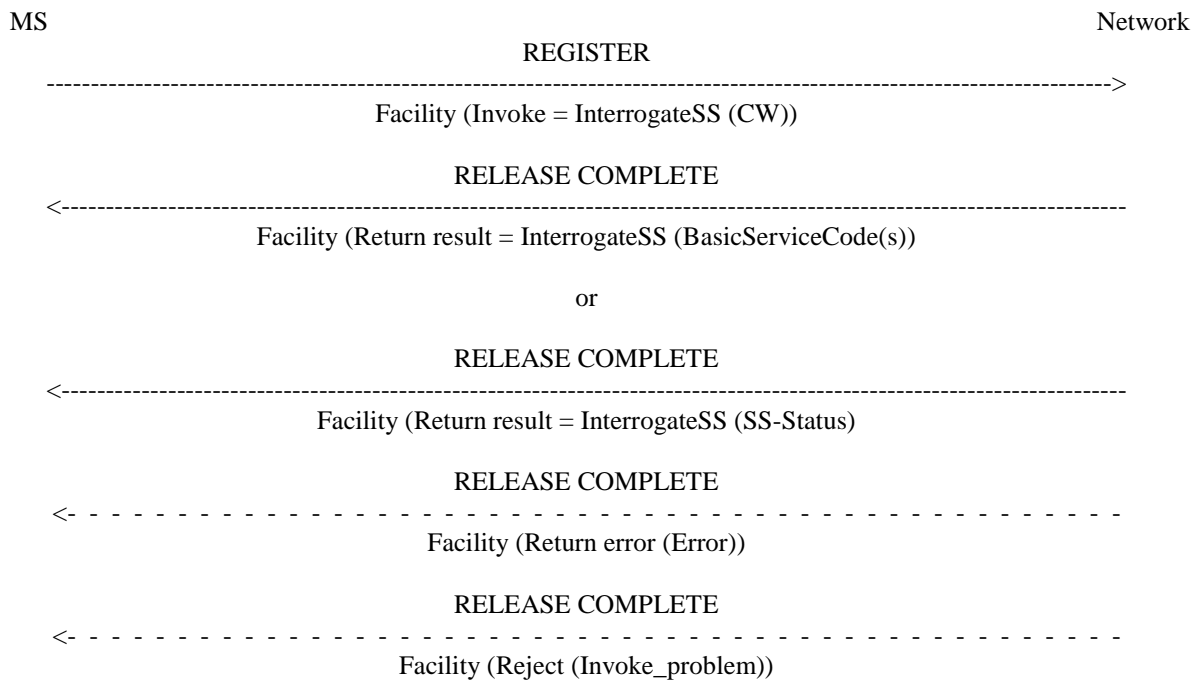
MS   Network

REGISTER

-->

Facility (Invoke = InterrogateSS (CW))

RELEASE COMPLETE

<---

Facility (Return result = InterrogateSS (BasicServiceCode(s))

or

RELEASE COMPLETE

<---

Facility (Return result = InterrogateSS (SS-Status)

RELEASE COMPLETE

<- -

Facility (Return error (Error))

RELEASE COMPLETE

<- -

Facility (Reject (Invoke_problem))

Figure 1.6: Interrogation of call waiting

1.7 Invocation

Invocation of call waiting causes no signalling on the radio path.

1.8 Registration and erasure

Registration and erasure of the supplementary service call waiting are not applicable.

2 Call Hold (HOLD)

2.1 Normal operation

2.1.1 Hold and retrieve functions

The hold and retrieve functions are performed on the same MM-connection.

The hold function is used to put an existing call which is in the active phase in the Call held auxiliary state. By default, it retains the MM-connection in use and the transaction identifier of the held call for possible subsequent call retrieval.

On receipt of a HOLD message the network shall return a HOLD ACKNOWLEDGE message, provided that the requested function can be performed. The network disconnects any user information path allocated to the active call when putting that call in the Call held auxiliary state. The mobile station disconnects any user information path to the active call and retains the transaction identifier and the MM-connection when putting that call in the Call held auxiliary state.

The HOLD ACKNOWLEDGE message puts the call in the Call held auxiliary state and indicates that the hold function has been performed. The HOLD REJECT message indicates that the hold request was denied and returns the call to the condition it was in prior to the hold request. The HOLD REJECT message contains the Cause information element with e.g.:

- cause #29 "Facility rejected";

- cause #50 "Requested facility not subscribed";

- cause #69 "Requested facility not implemented".

The retrieve function reconnects the mobile station to the requested user information path. The RETRIEVE message requests that a call be retrieved. The RETRIEVE ACKNOWLEDGE message indicates that the retrieve function has been performed. The RETRIEVE REJECT message indicates that the retrieve request was denied. The RETRIEVE REJECT message contains the Cause information element with e.g.:

- cause #34 "No channel available".

2.1.2 Hold invocation

The served mobile subscriber indicates to the network that communication on the interface is to be interrupted.

The hold function should be invoked in association with an existing active call.

The invocation of the hold function does not affect the existing 3GPP TS 24.008 call states, but does affect the auxiliary state. The request for placing a call on hold places the auxiliary state in the hold request state. The responding entity will acknowledge this request with a HOLD ACKNOWLEDGE message if this operation was successful (see figure 2.1). This will result in the auxiliary state being put in the Call held state.

If the requested hold function cannot be obtained, then a HOLD REJECT message will be returned with the appropriate cause (see figure 2.1). This will result in the auxiliary state returning to the Idle state.

The traffic channel is now available to originate another call or to accept a waiting call (see call waiting). If at any time a call is in the held state, either party may clear the call according to the normal release procedure. Before to originate another call the MS will request the establishment of an MM-connection first, see 3GPP TS 24.008.
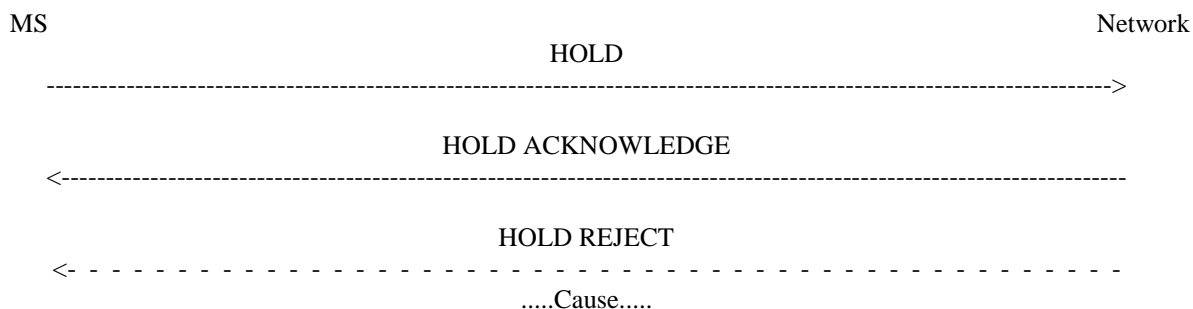
```
MS                                                                              Network
                                    HOLD
  ------------------------------------------------------------------------------------>

                             HOLD ACKNOWLEDGE
  <------------------------------------------------------------------------------------

                               HOLD REJECT
  <- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                               .....Cause.....
```

Figure 2.1: Invocation of call hold

If the network received a non-zero SS Screening indicator from the remote party's mobile station the network shall send a notification to the remote party indicating that the call has been placed on hold (see figure 2.2). If the network did not receive a non-zero SS Screening indicator from the remote party's mobile station it shall not send a notification.

```
MS                                                                              Network
                                   FACILITY
  <------------------------------------------------------------------------------------
               Facility (Invoke = NotifySS (HOLD, CallOnHold-Indicator))
```

Figure 2.2: Notification to the held mobile party that the existing call being put on hold

If the served mobile subscriber clears the current call and another call is still on hold, the normal call clearing procedure is used.

2.1.3 Retrieve procedure

When the mobile subscriber that invoked the call hold service indicates that the call is to be retrieved, the network shall re-establish communication and send an acknowledgement to the served mobile subscriber (see figure 2.3).

If the network received a non-zero SS Screening indicator from the remote party's mobile station the network shall send a notification to the remote party indicating that the call has been retrieved (see figure 2.4). If the network did not receive a non-zero SS Screening indicator from the remote party's mobile station it shall not send a notification.
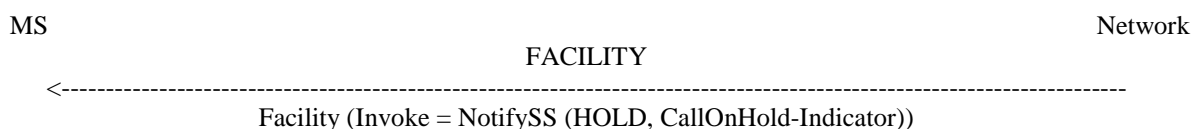
The retrieve function is requested by sending a RETRIEVE message. This message may be sent while the auxiliary state is in the Call held state.

Upon the sending of the RETRIEVE message the auxiliary state of the initiator's terminal would be the retrieve request state.

If the retrieve request is successful, the RETRIEVE ACKNOWLEDGE message will be returned. The initiator should not assume that call retrieval has occurred until it receives this message. The auxiliary state would then return to the Idle state.

If the retrieve request is not successful, the RETRIEVE REJECT message will be returned with an appropriate cause. The auxiliary state machine would then remain to the Call held state.
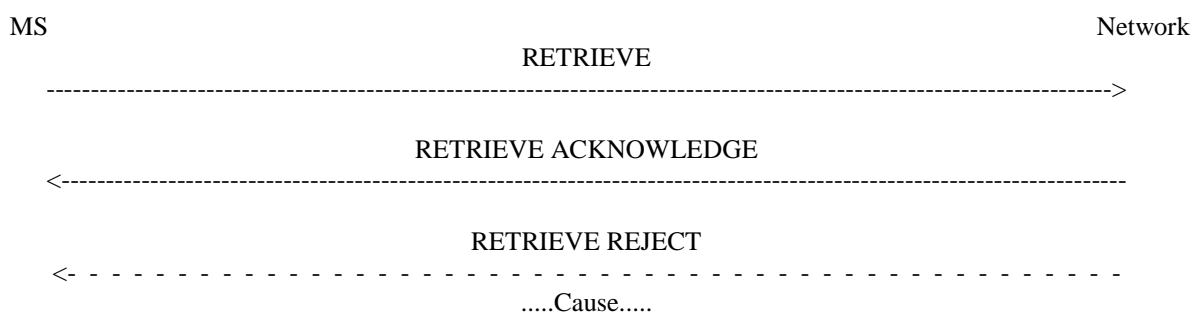
```
MS                                                                                    Network
                                    RETRIEVE
    ------------------------------------------------------------------------------------------>

                              RETRIEVE ACKNOWLEDGE
    <------------------------------------------------------------------------------------------

                                RETRIEVE REJECT
    <- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                  .....Cause.....
```

Figure 2.3: Notification that the held call is to be retrieved (using the transaction identifier of the held call), by the served mobile subscriber
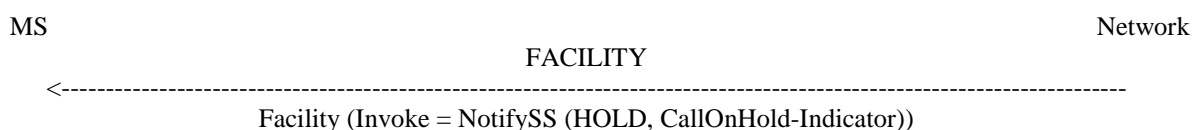
```
MS                                                                                    Network
                                    FACILITY
    <------------------------------------------------------------------------------------------
              Facility (Invoke = NotifySS (HOLD, CallOnHold-Indicator))
```

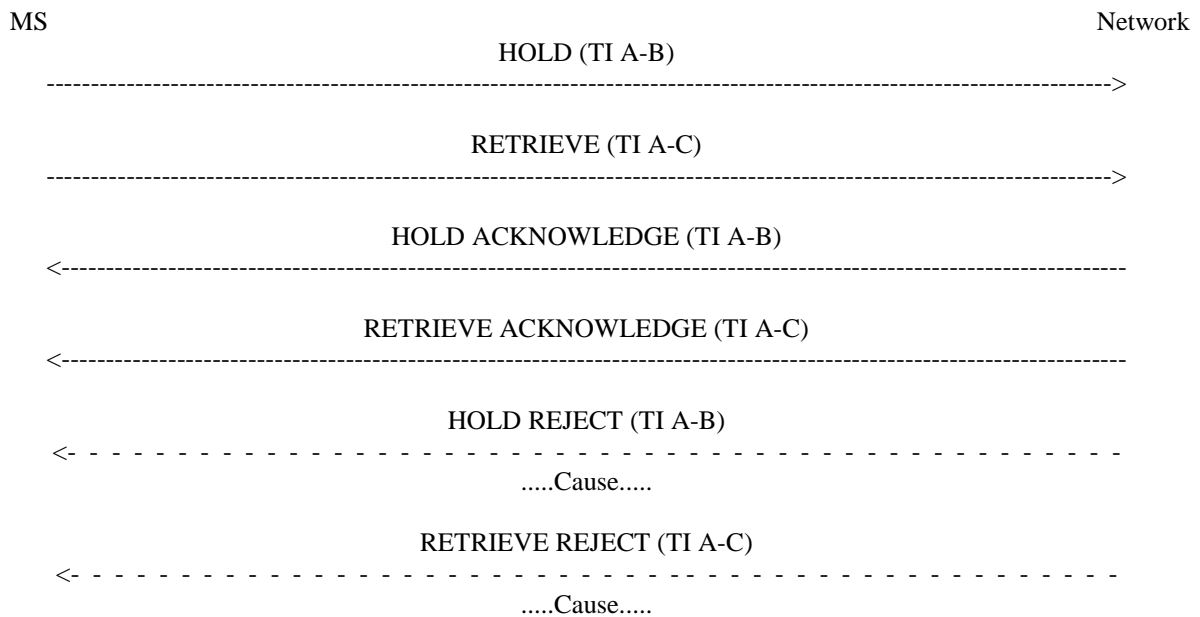**Figure 2.4: Notification to the held mobile party that the held call has been retrieved**

2.1.4   Alternate from one call to the other

If the served mobile subscriber is connected to an active call and a call on hold, he can alternate from one call to the other. This results in the previously active call being held and the previously held call becoming retrieved. This is achieved by sending a HOLD message for the active call, followed by a RETRIEVE message for the held call (see figure 2.5). These requests place the auxiliary state for the held and active calls in the retrieve request and hold request states respectively.

If this alternate procedure is successful the HOLD ACKNOWLEDGE message will be returned, followed by the RETRIEVE ACKNOWLEDGE message. The initiator should not assume that the held call is retrieved and the active call is held until it receives both these messages.

If the alternate procedure is not successful the HOLD REJECT message will be returned followed by the RETRIEVE REJECT message. This will result in the auxiliary state for the held and active calls returning to the previous states.

If the network received a non-zero SS Screening indicator from the remote party's mobile station the network shall send a notification towards the previously held party that the call has been retrieved (see figure 2.4) and towards the previously active party that the call has been on hold (see figure 2.2). If the network did not receive a non-zero SS Screening indicator from the remote party's mobile station it shall not send a notification.

MS   Network

HOLD (TI A-B)
```
-------------------------------------------------------------------------------------------------------------------->
```

RETRIEVE (TI A-C)
```
-------------------------------------------------------------------------------------------------------------------->
```

HOLD ACKNOWLEDGE (TI A-B)
```
<------------------------------------------------------------------------------------------------------------------
```

RETRIEVE ACKNOWLEDGE (TI A-C)
```
<------------------------------------------------------------------------------------------------------------------
```

HOLD REJECT (TI A-B)
```
<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```
.....Cause.....

RETRIEVE REJECT (TI A-C)
```
<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```
.....Cause.....

NOTE: TI A-B indicates the transaction identifier allocated to the original active call and TI A-C indicates the transaction identifier allocated to the original held call.

Figure 2.5: Alternate procedure

2.1.5   Auxiliary states for hold and retrieve

It is possible to place a call on hold in the Active state. The concept of dimensioned state space is being introduced to ensure state synchronization between the mobile station and the network. This concept suggests dimensioning the call state machine into two dimensions. In other words, there would be two states associated with each call. The first would be a 3GPP TS 24.008 call state and the second would be an auxiliary state associated with hold. Suppose the dimensioned state space is represented by two co-ordinates: one is a 3GPP TS 24.008 call state co-ordinate and the other is a hold co-ordinate. If a 3GPP TS 24.008 call state transition occurs, the former co-ordinate is updated. If a call is put on hold, the hold co-ordinate is updated. When the held call is reconnected, the hold co-ordinate is again updated.

There are four auxiliary states associated with the hold and retrieve functions:

- Idle;

- Hold request;

    A request has been made for the hold function.

- Call held;

    The call is held and the user information path has been reserved.

- Retrieve request;

    A request has been made for the retrieve function.

2.1.6   An example of dimensioned state space

Suppose a call is in the Active state.

The dimensioned state space would be:

(Active, Idle).

Now the mobile station requests the hold function.

The dimensioned state space would become:

(Active, Hold request).

The call is then put on hold.

The mobile station becomes aware of this upon receiving the HOLD ACKNOWLEDGE message from the network.

The dimensioned state space would now be:

(Active, Call held).

Now the mobile station requests the retrieve function.

The dimensioned state space would become:

(Active, Retrieve request).

When a call is reconnected, the dimensioned state space would be:

(Active, Idle).

2.2   Activation and deactivation

Activation and deactivation of the supplementary service call hold cause no signalling on the radio path.

2.3   Registration, erasure and interrogation

Registration, erasure and interrogation of the supplementary service call hold are not applicable.

Annex A (informative): Change history

Change history						
TSG CN#	Spec	Version	CR	<Phase>	New Version	Subject/Comment
Apr 1999	GSM 04.83	6.0.0				Transferred to 3GPP CN1
CN#03	24.083			R99	3.0.0	Approved at CN#03
CN#11	24.083	3.0.0		Rel-4	4.0.0	Release 4 after CN#11
CN#16	24.083	4.0.0		Rel-4	4.0.1	References updated
CN#16	24.083	4.0.1		Rel-5	5.0.0	Rel-5 created after CN#16

History

Document history		
V5.0.0	June 2002	Publication