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Digitalni celiļ ni telekomunikacijski sistem (faza 2+) ï Dopolnilna storitev: podaja klica (CF) ï Stopnja 3 (GSM 04.82, razliļ ica 7.0.2, izdaja 1998)

Digital cellular telecommunications system (Phase 2+) (GSM); Call Forwarding (CF) supplementary services; Stage 3 (GSM 04.82 version 7.0.2 Release 1998)

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Foreword

This European Standard (Telecommunications series) has been produced by Technical Committee Special Mobile Group (SMG).

The present document specifies the procedures used at the radio interface for: normal operation, registration, erasure, activation, deactivation, interrogation, and network invocation of the call offering 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 7.x.y

where:

7 indicates Release 1998 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.

National transposition dates	
Date of adoption of this EN:	3 December 1999
Date of latest announcement of this EN (doa):	31 March 2000
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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, interrogation and network invocation of call offering 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 02.82 is related specially to call offering supplementary services.

Technical realization of supplementary services is described in GSM 03.11 and GSM 03.8x and GSM 03.9x-series. GSM 03.82 is related specially to call offering 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 offering supplementary services and are described in the present document:

- Call forwarding unconditional (CFU) (clause 1);
- Call forwarding on mobile subscriber busy (CFB) (clause 2);
- Call forwarding on no reply (CFNRy) (clause 3);
- Call forwarding on mobile subscriber not reachable (CFNRc) (clause 4).

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.
- 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 1998 document, references to GSM documents are for Release 1998 versions (version 7.x.y).

[1] GSM 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".

[2] GSM 02.01: "Digital cellular telecommunications system (Phase 2+); Principles of telecommunication services supported by a GSM Public Land Mobile Network (PLMN)".

[3] GSM 02.04: "Digital cellular telecommunications system (Phase 2+); General on supplementary services".

[4] GSM 02.81: "Digital cellular telecommunications system (Phase 2+); Line identification supplementary services - Stage 1".

[5] GSM 02.82: "Digital cellular telecommunications system (Phase 2+); Call Forwarding (CF) supplementary services - Stage 1".

[6] GSM 02.83: "Digital cellular telecommunications system (Phase 2+); Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 1".

[7] GSM 02.84: "Digital cellular telecommunications system (Phase 2+); MultiParty (MPTY) supplementary services - Stage 1".

[8] GSM 02.85: "Digital cellular telecommunications system (Phase 2+); Closed User Group (CUG) supplementary services - Stage 1".

[9] GSM 02.86: "Digital cellular telecommunications system (Phase 2+); Advice of Charge (AoC) supplementary services - Stage 1".

[10] GSM 02.88: "Digital cellular telecommunications system (Phase 2+); Call Barring (CB) supplementary services - Stage 1".

[11] GSM 02.90: "Digital cellular telecommunications system (Phase 2+); Unstructured Supplementary Service Data (USSD) - Stage 1".

[12] GSM 03.02: "Digital cellular telecommunications system (Phase 2+); Network architecture".

[13] GSM 03.11: "Digital cellular telecommunications system (Phase 2+); Technical realization of supplementary services".

[14] GSM 03.81: "Digital cellular telecommunications system (Phase 2+); Line identification supplementary services - Stage 2".

[15] GSM 03.82: "Digital cellular telecommunications system (Phase 2+); Call Forwarding (CF) supplementary services - Stage 2".

[16] GSM 03.83: "Digital cellular telecommunications system (Phase 2+); Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 2".

[17] GSM 03.84: "Digital cellular telecommunications system (Phase 2+); MultiParty (MPTY) supplementary services - Stage 2".

[18] GSM 03.85: "Digital cellular telecommunications system (Phase 2+); Closed User Group (CUG) supplementary services - Stage 2".

[19] GSM 03.86: "Digital cellular telecommunications system (Phase 2+); Advice of Charge (AoC) supplementary services - Stage 2".

[20] GSM 03.88: "Digital cellular telecommunications system (Phase 2+); Call Barring (CB) supplementary services - Stage 2".

[21] GSM 03.90: "Digital cellular telecommunications system (Phase 2+); Unstructured supplementary services operation - 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".

0.2 Abbreviations

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

0.3 Cross phase compatibility

For the following supplementary services, a number of changes exist between the present document and the protocol version 1 specification:

- Call forwarding unconditional;
- Call forwarding on mobile subscriber busy;
- Call forwarding on no reply;
- Call forwarding on mobile subscriber not reachable.

For these supplementary services, the main body of the present document assumes that all network entities comply with this version of the service. In each case, an additional subclause (subclause x.7) defines the additional requirements for when one or more network entities or the MS complies with the protocol version 1 specifications for the supplementary service procedures.

1 Call Forwarding Unconditional (CFU)

1.1 Normal operation

1.1.1 Served mobile subscriber side

When call forwarding unconditional is active, all incoming calls for the specified basic service(s) will be forwarded without being offered to the served mobile subscriber.

When CFU is active, the ability of the served mobile subscriber to originate calls is not affected. However, a NotifySS operation containing the SS-Status indicating that CFU is currently active and operative will be sent to the served mobile subscriber each time an outgoing call is made, see figure 1.1.

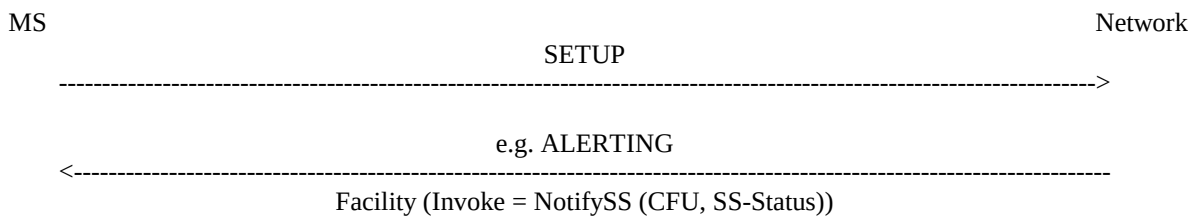

Figure 1.1: Notification to the served mobile subscriber that call forwarding is active

1.1.2 Forwarded-to mobile subscriber side

The forwarded-to mobile subscriber will receive a NotifySS operation containing the SS-Notification indicating that the incoming call is a forwarded call. When available, the SS-Code of the invoked forwarding service is also included, see figure 1.2.

When multiple forwarding occurs the value of the SS-Code shall relate to the last invoked forwarding service.

In addition the forwarded-to mobile subscriber will receive the redirecting party BCD number and optionally, a redirecting party subaddress.

The redirecting party BCD number information element is made up of a number of information units as indicated in GSM 04.08.

In addition to or instead of the redirecting party's digits, the subscriber may be given the following information:

- screening indicator;
- presentation indicator.

Indicator values are given in GSM 04.08.

The redirecting party subaddress information element is made up of a number of information units as indicated in GSM 04.08.

MS Network

SETUP

<----------

Facility (Invoke = NotifySS (CFU, SS-Notification))
Redirecting party BCD number (screening indicator, presentation indicator, redirecting party digits),

Redirecting party subaddress

NOTE: If the specific call forwarding service is not known the common SS-Code for all forwarding SS will be used.

Figure 1.2: Notification to the forwarded-to mobile subscriber that the incoming call is a forwarded call

1.1.3 Calling mobile subscriber side

As a subscription option, the served mobile subscriber can request that the calling mobile subscriber receives a NotifySS operation containing the SS-Notification indicating that the call has been forwarded. When available, the SS-Code of the invoked forwarding service is also included, see figure 1.3.

MS Network

SETUP

---------->

FACILITY

<----------

Facility (Invoke = NotifySS (CFU, SS-Notification))

NOTE: If the specific call forwarding service is not known the common SS-Code for all forwarding SS will be used.

Figure 1.3: Notification to the calling mobile subscriber that the call is forwarded

1.2 Registration

The following information has to be registered in the network:

- the ForwardedToNumber which may be accompanied by a ForwardedToSubAddress;
- information as to whether all calls or all calls of a specific basic service should be forwarded.

1.2.1 Registration by the served mobile subscriber

A CFU registration request from a mobile user shall include the SS-Code of the forwarding service to be registered and possibly the BasicServiceCode the request applies to. If the BasicServiceCode is not included, the request applies to all basic services.

If the registration is successful, the CFU service will be registered and activated. The network will then send a return result indicating acceptance of the request including the ForwardedToNumber and possibly the BasicService (group)

Code to which CFU is registered. If the request applied to a single elementary basic service group, the ForwardedToNumber may be accompanied by a ForwardedToSubAddress. In other cases, the result shall not contain a ForwardedToSubAddress. The result may also contain an SS-Status parameter. If the MS does not send an SS Version Indicator in the invocation request then the network shall send an SS-Status in the result. If the MS does send an SS Version Indicator in the invocation request then the inclusion of SS-Status in the result is optional. If the SS-Status is included the network shall set it to reflect the state of the service. The MS shall ignore the contents of the SS-Status parameter if one is received. See figure 1.4.

Note that the use of SS-Status is to provide backwards compatibility with phase 1.

If the system cannot accept a registration request, a corresponding error indication is returned to the served mobile subscriber that CFU registration was not successful. Error values are specified in GSM 04.80.

MS Network

REGISTER
-->
Facility (Invoke = RegisterSS (CFU, BasicServiceCode, ForwardedToNumber, ForwardedToSubAddress))

RELEASE COMPLETE
<--
Facility (Return result = RegisterSS (BasicServiceCode, SS-Status, ForwardedToNumber, ForwardedToSubAddress))

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

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

NOTE: If BasicServiceCode is not included it applies to all basic services. The ForwardedToNumber may be accompanied by a ForwardedToSubAddress. The SS-Status may not be included in all cases, see text.

Figure 1.4: Registration of call forwarding unconditional

When registering call forwarding, the SS-Code may indicate the code for "all forwarding SS". In this case, if the subscriber has CFU provisioned, the return result shall contain the information for CFU. If the subscriber does not have CFU provisioned, the return result shall contain the information for any conditional call forwarding services which the subscriber has provisioned.

1.3 Erasure

A previous registration can be erased in one of three ways:

- the subscriber can specifically erase a previous registration with an appropriate control procedure;
- the subscriber can register information for CFU for a specific basic service group to another directory number, thus causing the previous registration of CFU to be overridden;
- all information is erased as a result of withdrawal of the supplementary service (administrative handling).

1.3.1 Erasure by the served mobile subscriber

If the erasure is successful, the CFU service will be erased (and automatically deactivated). The network will then send a return result indicating acceptance of the request. The result is formatted according to the options shown below:

- The result includes the BasicService (group) Code for which CFU was erased. The result may also contain an SS-Status parameter. If the MS does not send an SS Version Indicator in the invocation request then the network shall send an SS-Status in the result. If the MS does send an SS Version Indicator in the invocation request then the inclusion of SS-Status in the result is optional. If the SS-Status is included the network shall set it to reflect the state of the service. The MS shall ignore the contents of the SS-Status parameter if one is received. See figure 1.5.