ETSI/TC SMG
Date : November 1992
Released by : ETSI/PT12

UPDATE NOTE

Recommendation GSM 02.11-DCS

Service Accessibility

Previous released version : 3.0.1 (Release 92, Phase 1)
New Updated version November 1992: 3.1.0

1. Reason for Change

SMG#4bis approved CR 02.11-24r1 for GSM Phase 1 which resulted in version 3.7.0 of GSM 02.11. As a consequence, GSM 02.11-DCS should be changed accordingly.

2. Details of changes

The version numbers of GSM 02.11 and GSM 02.11-DCS on page 1 have been changed, and the Automatic PLMN selection has been corrected on page 5.

3. Instructions to update GSM Recommendation

to remove		to insert	
old pages	no. of sheets	new pages	no.of sheets
		Document Change Control Record	1 [1)]
1	1	1	1
5	1	5	1

1) To be inserted after Release Note

The version 3.0.1 together with these corrections constitutes version 3.1.0.

ETSI/TC GSM
Date : November 1992
Released by : ETSI/PT 12

DOCUMENT CHANGE CONTROL RECORD

Recommendation GSM 02.11-DCS

Service Accessibility

Previous released version : 3.0.1 (Release 92, Phase 1)
New Updated version November 1992: 3.1.0

Subject	Decided at	Pages Marked	Doc GSM	Pages affected
Automatic PLMN selection	SMG#4bis		510/92r1	1, 5

END OF DOCUMENT CHANGE CONTROL RECORD

ETSI/GSM

Released by: ETSI PT12

Release Date: February, 1992

Recommendation: GSM 02.11

Title: SERVICE ACCESSIBILITY

Version: 3.0.1 (based on GSM 02.11 version 3.6.0)

List of Contents: (underlined sections indicate changes to GSM 02.11)

Original language: English

Number of pages: 6

0. Scope

The technical realization of service accessibility in terms of registration, handover, roaming and system selection is defined in the 03 series of GSM Recommendations.

The purpose of this Recommendation is to describe the service access procedures as presented to the user.

~~The procedures described in this recommendation are mandatory for international roaming but not necessarily applicable to national roaming.~~

Mandatory procedures are provided in this recommendation for international and national roaming.

GSM 02.11-DCS consists of GSM 02.11 with the pages of this document replacing those in GSM 02.11

1. DEFINITIONS

1.1. GSM PLMN

A Public Land Mobile Network (PLMN) is a network established and operated by an Administration or RPOA for the specific purpose of providing land mobile communication services to the public. It provides communication possibilities for mobile users. For communications between mobile and fixed users interworking with a fixed network is necessary.

A GSM PLMN is a PLMN which is in accordance with the GSM Recommendations.

As a rule a GSM PLMN is limited by the borders of a country. Depending on national regulations there may be more than one GSM PLMN per country.

A subscriber relationship exists in the home GSM PLMN. If communications are handled over another GSM PLMN, this PLMN is referred to as the visited GSM PLMN.

1.2. GSM PLMN Area (GPA)

The GSM PLMN Area (GPA) is the geographical area in which a GSM PLMN provides communication services according to the GSM recommendations to mobile users. In the GPA the mobile user can set up calls to a user of a terminating network. The terminating network may be a fixed network, the same GSM PLMN, another GSM PLMN and other types of PLMN.

Terminating network users can also set up calls to the GSM PLMN.

The GPA is allocated to a GSM PLMN. It is determined by the service and network provider in accordance with any provisions laid down under national law. In general the GPA is restricted to one country. It can also be determined differently,

ETSI/TC GSM
Released by : ETSI/PT 12 V
Release date: FEBRUARY 1992

RELEASE NOTE

Recommendation GSM 02.11-DCS

SERVICE ACCESSIBILITY

Previously distributed version : 3.0.1
New released version February 1992: 3.0.1 (Release 92, Phase 1)

1. Reason for changes

No changes since the previously distributed version

2. Details of changes

CR	Title	Sections modified	Ref GSM Doc

3.Further Study Items

ETSI-GSM
Technical
Specification

GSM 02.11-DCS

Version 3.0.1

UDC: 621.396.21

Key words: European Digital Cellular Telecommunications System, Global System for Mobile Communications (GSM)

European digital cellular telecommunication system (phase 1);

Service Accessibility

ETSI

European Telecommunications Standards Institute

ETSI Secretariat: B.P.152 . F - 06561 Valbonne Cedex . France

TP. + 33 92 94 42 00 TF. + 33 93 65 47 16 Tx. 47 00 40 F

PREFATORY NOTE

ETSI has constituted stable and consistent documents which give specifications for the implementation of the European Cellular Telecommunications System. Historically, these documents have been identified as "GSM recommendations".

Some of these recommendations may subsequently become Interim European Telecommunications Standards (I-ETSs) or European Telecommunications Standards (ETSs), whilst some continue with the status of ETSI-GSM Technical Specifications. These ETSI-GSM Technical Specifications are for editorial reasons still referred to as GSM recommendations in some current GSM documents.

The numbering and version control system is the same for ETSI-GSM Technical Specifications as for "GSM recommendations".

ETSI/GSM

Released by: ETSI PT12

Date: November 1992

Recommendation: GSM 02.11-DCS

Title: SERVICE ACCESSIBILITY

Version: 3.1.0 (based on GSM 02.11 version 3.7.0)

List of Contents: (underlined sections indicate changes to GSM 02.11)

Original language: English

Number of pages: 9

3.2.2.1. Selection and access to VPLMNs

The MS automatically identifies (based on the PLMN list derived during cell selection) other GSM PLMNs providing service, and the various options will be displayed to the user.

If in automatic mode, the MS shall attempt to select a suitable cell and access the PLMNs in turn, in the order of priority as stored in the SIM. This is repeated until successful registration or to the end of the list, whichever occurs first. Before attempting to select a suitable cell on the selected PLMN the MS will ensure that the subscriber has access right to this (except for emergency calls). This is achieved by means of the MS reading the forbidden PLMN data field in the SIM. (Note that this procedure allows PLMNs not on the preferred PLMN list to be selected for registration).

This datafield indicates PLMNs which the MS shall not automatically attempt to access. A PLMN is written to the datafield if a network (other than the HPLMN) rejects a location update with the cause "PLMN not allowed". If four PLMNs are stored in the datafield and the MS requests another to be stored, the oldest shall be overwritten.

If in manual mode, the user can select one of the PLMNs. The MS shall then attempt to select a suitable cell and access the selected PLMN, even if it is a 'forbidden PLMN'. If the resulting location update attempt is successful, the MS shall delete this VPLMN from the data field, i.e. replace it with a NULL value.

In case of unsuccessful Initial Access procedure (automatic or manual) the MS shall camp on a cell in accordance with the "Abnormal Cases and Emergency calls" procedure in GSM 05.08.

3.2.3. ~~Location Area Not Allowed~~Location Update Reject

If a location update is rejected with the cause "Location Area not allowed" the MS shall stay camped on a cell in accordance with GSM 05.08.

If a location update is rejected with the cause "National Roaming not allowed in this location area", the MS shall initiate the initial access procedure.

3.2.4. New registration after loss of radio coverage

If the MS loses radio coverage, i.e. is unable to find a suitable cell (according to GSM 05.08) of the network registered on and is in automatic mode, then the Initial Access process as described in 3.2.2 is 're-started'. However, in manual mode, the Access process as described in 3.2.2.1 is 're-started'. If the user takes no action, the MS continues to look for the previous registered PLMN. If this is not available the MS shall camp on a cell in accordance with the "Abnormal Cases and Emergency calls" procedure in GSM 05.08.

depending on the different telecommunication services. It can be determined differently for hand-held stations than for other types of mobile stations.

If there are several GSM PLMNs in one country, their GPAs may overlap. In border areas the GPAs of GSM PLMNs of different countries may overlap. Administrations will have to take

precautions to ensure that coverage is minimised in adjacent countries unless otherwise agreed.

Note : CCITT Recommendation Q.1001 does not contain a definition of the PLMN area.

1.3. GSM System Area (GSA)

The GSM System Area is defined as the group of GSM PLMN areas accessible by GSM mobile stations.

Interworking of several GSM PLMNs and interworking between GSM PLMNs and fixed network(s) permit GSM public land mobile communication services at international level.

Note : The System Area according to CCITT Recommendation Q.1001 corresponds to the GSM System Area.

1.4. GSM Service Area

The GSM Service Area is defined in the same way as the Service Area according to CCITT Recommendation Q.1001. In contrast to the GPA it is not based on the coverage of a PLMN. Instead it is based on the area in which a fixed network user can call a mobile user without knowing his location. The Service Area can therefore change when the signalling system is being extended, for example.

2. ROAMING

2.1 International Roaming

A MS with a valid IMSI may roam and access service in the area authorized by theentitlement of the subscription (see Rec. GSM 02.13).

If a communication has been established, the MS will in principle not suffer an interruption within the GSM PLMN area (provided the entitlement of the subscription allows it). Exceptions are possible if no network resources or radio coverage are available locally.

However, if the MS leaves the GSM PLMN area, an established communIcation may terminate. If the user then wants to continue, another network providing service has to be selected (see section 3).

2.2 National Roaming

National Roaming is a service whereby an MS of a given PLMN is able to obtain service from another PLMN in the same country on a location area basis, with automatic return to the home PLMN when this becomes possible.

The availability of National Roaming depends on the home PLMN of the requesting MS and the visited PLMN: it does not depend on subscription arrangements.

3. PROVISIONS FOR PROVIDING CONTINUITY OF SERVICE

3.1. Location Registration

GSM PLMNs shall provide a location registration function with the main purpose of providing continuity of service to mobile stations over the whole GSM system area. The location registration function shall be such as to allow :

3.2.2.1. Selection and access to VPLMNs

The MS automatically identifies (based on the PLMN list derived during cell selection) other GSM PLMNs providing service, and the various options will be displayed to the user.

If in automatic mode, the MS shall attempt to select a suitable cell and access the PLMNs in turn, in the order of priority as stored in the SIM. This is repeated until successful registration or to the end of the list, whichever occurs first. Before attempting to select a suitable cell on the selected PLMN the MS will ensure that the subscriber has access right to this (except for emergency calls). This is achieved by means of the MS reading the forbidden PLMN data field in the SIM.

This datafield indicates PLMNs which the MS shall not automatically attempt to access. A PLMN is written to the datafield if a network (other than the HPLMN) rejects a location update with the cause "PLMN not allowed". If four PLMNs are stored in the datafield and the MS requests another to be stored, the oldest shall be overwritten.

If in manual mode, the user can select one of the PLMNs. The MS shall then attempt to select a suitable cell and access the selected PLMN, even if it is a 'forbidden PLMN'. If the resulting location update attempt is successful, the MS shall delete this VPLMN from the data field, i.e. replace it with a NULL value.

In case of unsuccessful Initial Access procedure (automatic or manual) the MS shall camp on a cell in accordance with the "Abnormal Cases and Emergency calls" procedure in GSM 05.08.

3.2.3. ~~Location Area Not Allowed~~Location Update Reject

If a location update is rejected with the cause "Location Area not allowed" the MS shall stay camped on a cell in accordance with GSM 05.08.

If a location update is rejected with the cause "National Roaming not allowed in this location area", the MS shall initiate the initial access procedure.

3.2.4. New registration after loss of radio coverage

If the MS loses radio coverage, i.e. is unable to find a suitable cell (according to GSM 05.08) of the network registered on and is in automatic mode, then the Initial Access process as described in 3.2.2 is 're-started'. However, in manual mode, the Access process as described in 3.2.2.1 is 're-started'. If the user takes no action, the MS continues to look for the previous registered PLMN. If this is not available the MS shall camp on a cell in accordance with the "Abnormal Cases and Emergency calls" procedure in GSM 05.08.