GSM

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GLOBAL SYSTEM FOR MOBILE COMMUNICATIONS

Digital cellular telecommunications system (Phase 2+);
Support of Private Numbering Plan (SPNP);
Service description, Stage 1
(GSM 02.95)

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Contents

Foreword

This Global System for Mobile communications Technical Specification (GTS) has been produced by the Special Mobile Group (SMG) Technical Committee (TC) of the European Telecommunications Standards Institute (ETSI).

This GTS specifies the stage 1 description of Support of Private Numbering Plan (SPNP), which enables a subscriber to use a Private Numbering Plan (PNP) for communication across one or more networks with mobile and fixed users within the digital cellular telecommunications system (Phase 2/Phase 2+).

This GTS is a TC-SMG approved GSM technical specification version 5, which contains GSM Phase 2+ enhancements/features.

GTS are produced by TC-SMG to enable the GSM Phase 2 + specifications to become publicly available, prior to submission for the formal ETSI standards approval procedure to become European Telecommunications Standards (ETS). This ensures the earliest possible access to GSM Phase 2 + specifications for all Manufacturers, Network operators and implementors of the Global System for Mobile communications.

The contents of this GTS are subject to continuing work within TC-SMG and may change following formal TC-SMG approval. Should TC-SMG modify the contents of this GTS it will then be republished by ETSI with an identifying change of release date and an increase in version number as follows:

Version 5.x.y

where:

y   the third digit is incremented when editorial only changes have been incorporated in the specification;

x   the second digit is incremented for all other types of changes, i.e. technical enhancements, corrections, updates, etc.

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

Reference is made within this TS to GSM-TSs (note).

NOTE :   TC-SMG has produced documents which give the technical specifications for the implementation of the digital cellular telecommunications system. Historically, these documents have been identified as GSM Technical Specifications (GSM-TSs). These TSs may have subsequently become I-ETSs (Phase 1), or ETSs/ETSI Technical Reports (ETRs) (Phase 2). TC-SMG has also produced ETSI GSM TSs which give the technical specifications for the implementation of Phase 2+ enhancements of the digital cellular telecommunications system. These version 5.x.x GSM Technical Specifications may be referred to as GTSs.

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1 Scope

This European Telecommunication Standard (ETS) specifies the stage 1 description of Support of Private Numbering Plan (SPNP), which enables a subscriber to use a Private Numbering Plan (PNP) for communication across one or more networks with mobile and fixed users. The subscriber may belong to one or more (up to 9 maximum) Private Numbering Plans. The subscriber may also, subject to subscription, have access to the Public Numbering Plan. The structure and content of each PNP are defined by a PNP Manager, although these are out of scope of this ETS.

The service is described from the service subscriber's and user's points of view; in particular:

- the procedures for normal operation with successful outcome;
- the action to be taken in exceptional circumstances;
- the interaction with other GSM supplementary services.

This ETS does not deal with the Man-Machine Interface (MMI) requirements, but makes reference to the appropriate Global System for Mobile communications (GSM) specifications.

The charging principles applied to Support of Private Numbering Plan (SPNP) are outside of the scope of this ETS.

Any interactions with other services and/or networks not dealt with in Clauses 4.1 and 11 to 13 are outside the scope of this ETS.

2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

[1]   GSM 01.04 (ETR 100): "Digital cellular telecommunication system (Phase 2); Abbreviations and acronyms".

[2]   GSM 02.04 (ETS 300 502): "Digital cellular telecommunication system (Phase 2); Teleservices supported by a GSM Public Land Mobile Network (PLMN)".

[3]   GSM 02.30 (ETS 300 511): "Digital cellular telecommunication system (Phase 2); Man-Machine Interface (MMI) of the Mobile Station (MS)".

[4]   ETS 300 189: "Private Telecommunication Networks (PTN); Addressing".

3 Abbreviations and definitions

3.1 Abbreviations

For the purposes of this ETS the following abbreviations apply:

NPId   Numbering Plan Identification

PNP   Private Numbering Plan

SPNP   Support of Private Numbering Plan

Further GSM related abbreviations are given in GSM 01.04 (ETR 100) [1].

3.2 Definitions

For the purposes of this ETS the following definitions apply.

Private Numbering Plan: see ETS 300 189 [4]

PNP number: A number conforming to a private numbering plan. The PNP-number shall consist of at least 3 digits excluding "112". The destination reached by dialling a PNP number may or may not be a PNP member.

> NOTE 1:   On a national basis some numbers may have special significance in the public numbering plan, e.g. national emergency numbers. Care should be taken when allocating these numbers in a private numbering plan.

> NOTE 2:   It is also permitted for (part of) the public numbering plan to be contained within the Private Numbering Plan.

PNP call: For outgoing calls a PNP call is a call where the selected numbering plan is not the public numbering plan.

PNP member: A PNP member is provisioned with the PNP i.e. can use it for outgoing calls.

PNP Manager: The entity responsible for a specific PNP, for setting the relationship between PNP numbers and public numbering plan numbers, and also supplementary (and other) service levels on behalf of the subscribers of this PNP. No mechanism is specified for these settings to be changed over the air interface.

Numbering Plan: A private or the public numbering plan.

Numbering Plan Identification (NPId): Information which is used by the subscriber to distinguish between the different numbering plans. The NPId is an integer between 0 and 9, where 0 corresponds to the public numbering plan.

Registered Numbering Plan: The registered numbering plan is that registered by/for the subscriber

Selected Numbering Plan: This is the registered numbering plan unless an alternative numbering plan is selected by the subscriber on a per call basis.

4 Description

The Support of Private Numbering Plan (SPNP) supplementary service enables a subscriber to use a private numbering plan (PNP) for communication across one or more networks with mobile and fixed users. A PNP gives the capability to place calls by using digit sequences which may have different structures and meanings than provided by the public numbering plan.

The SPNP supplementary service provides a subscriber with the capability to setup calls according to the PNP or, subject to subscription, according to the public numbering plan. A subscriber may belong to more than one PNP, up to a maximum of 9, although only one numbering plan may be registered at a time.

Procedures are defined for registration, erasure and selection of a specific numbering plan. When a subscriber has a specific numbering plan registered, all outgoing calls are set up according to this numbering plan unless another numbering plan is selected by the subscriber on a per call basis. All incoming calls, which belong to any of the provisioned PNPs are, treated as PNP calls. Incoming calls which do not belong to any of the provisioned PNPs are treated as normal incoming calls.

A PNP member shall have an MSISDN number. This permits non members of the PNP to call PNP members with normal calling procedures.

Dialling procedures for PNP calls shall be the same in VPLMN which support SPNP as in the HPLMN.

For applicability to telecommunication services, see GSM 02.04

5 Normal procedures

NOTE: The provision of using a PNP Managers database is an agreement/arrangement between the PNP Manager, service provider and the subscriber, and is out of the scope of this ETS. This standard only describes how a subscriber may access this databases from her MS.

5.1 Provision

The supplementary service shall be provisioned collectively for all Basic Services subscribed to and to which is it applicable, and not for any subset of these Basic Services.

There are two different levels of provision:

5.1.1 Provision of the SPNP supplementary service

The SPNP supplementary service shall be provided after prior arrangement with the service provider. At provision the following subscription option should be selected by the served mobile subscriber:

Subscription option:	Value
access (registration and selection) to the public numbering plan	- Yes
	- No

If the SPNP supplementary service is provisioned for the subscriber at the first time, she shall also be provisioned with at least one private numbering plan.

5.1.2 Provision of individual PNP

The addition of PNPs (up to the maximum of 9 total) is provided by prior arrangement with the service provider.

The subscriber may select any provisioned PNP on a per call basis or register to it.

5.2 Withdrawal

Withdrawal of the SPNP supplementary service or individual PNPs is done by the service provider at the subscriber's and/or PNP Manager's request or for administrative reasons.

If the SPNP supplementary service is withdrawn the subscriber shall be revert to normal operation with access to the public numbering plan only.

If the last PNP is withdrawn, the SPNP service is also withdrawn and the subscriber shall be revert to normal operation with access to the public numbering plan only. The registered PNP shall not be withdrawn.

> NOTE: In order to withdraw the registered numbering plan, the service provider shall first register the subscriber onto another numbering plan.

5.3 Registration

Registration is the procedure by which a particular numbering plan is selected to be the registered numbering plan. Registration to a numbering plan can take place either by the service provider or with an appropriate control procedure by the subscriber (e.g. defined in 02.30 [3. At all times, one and only one numbering plan shall be registered. Registration to a numbering plan applies to all basic services.

5.4 Erasure

A previous registration can be erased in the following different ways:

- the subscriber can register to another numbering plan which causes the previous registration to be overridden;

- a registration is erased as a result of withdrawal of the service.

5.5 Activation

The SPNP supplementary service is activated by the service provider as a result of provision. A specific numbering plan is activated as result of registration. The subscriber can select a different numbering plan from the registered numbering plan on a per call basis.

5.6 Deactivation

The SPNP supplementary service is deactivated by the service provider as a result of withdrawal. A specific numbering plan is deactivated as a result of erasure.

5.7 Invocation

For mobile originating calls, the service is automatically invoked at call set up if the selected numbering plan is not the public numbering plan.

5.8 Interrogation

The subscriber shall be able to interrogate which numbering plan is the registered numbering plan and all other available numbering plan identification (e.g. as defined in 02.30 [2]).

5.9 Charging requirements

Subscription to and use of the SPNP supplementary service may be chargeable. The network shall be capable of indicating, for charging purposes, a call as being a PNP call, and within which PNP the call is being made.

6 Normal operation with successful outcome

6.1 Outgoing calls

For PNP calls, the serving network shall obtain a public number corresponding to the used PNP number of the registered or selected private numbering plan. If the VPLMN has no knowledge of how to obtain the public number, the VPLMN shall interrogate the HPLMN for translation into the desired public number, and the call shall be established according to the result of the interrogation.

> NOTE 1: The conversion between the (PNP) dialled digits and the resulting public number is the responsibility of the PNP Manager and is outside the scope of this ETS. In effect, the HPLMN requests the dialled digits from the PNP Manager's data base. The interface between the HPLMN and the PNP Manager is also outside of the scope this ETS.

> NOTE 2: The dialled PNP number may include a PNP internal escape code defined by the PNP Manager. This kind of escape code is transparent for the GSM-network and therefore outside the scope of this ETS.

6.1.1 Calls within the registered numbering plan

The subscriber shall enter only the called party number according to the registered numbering plan to set-up a call according to the registered numbering plan.

6.1.2 Calls within a numbering plan which is not the registered numbering plan

The subscriber has to enter a selection code which contains the NPId of the selected numbering plan and the called party number according to the selected numbering plan

6.2 Incoming calls

If a PNP member receives an incoming call, the calling party number shall be presented as in subclause 10.1.

7 Exceptional procedures

7.1 Registration and selection

If the subscriber tries to register or select the public numbering plan, but is not provisioned with this subscription option, the request shall be denied and the subscriber shall be informed (the old registered PNP is still registered).

If the subscriber tries to register or select a private numbering plan she is not provisioned with, the request shall be denied and the subscriber shall be informed (the old registered numbering plan is still registered).

7.2 Operation

In the case of outgoing calls, the PNP manager may request the call to be released (e.g. in the case where the PNP number is invalid) and inform the subscriber with the appropriate indication.

8 Roaming in non-supporting networks

If a subscriber roams to a non-supporting network, and she has a PNP registered, the HPLMN shall be aware of this situation and may take appropriate action.

9 Alternate procedures

None identified.

10 Interaction with other supplementary services

The supplementary services subscribed to by the served subscriber shall apply whether the served subscriber places a PNP call or if the served subscriber places a call by using the public numbering plan. Exceptions to this principles are mentioned within this clause.

10.1 Line Identification Services

CLIP:

- If a translation of the calling party's MSISDN is included in the registered PNP of the called party, the PNP number of the calling party shall be presented to the called party.

- In any other cases the presented calling line identity is the public number of the calling party.

COLP:

- If a translation of the connected party's MSISDN is included in the registered PNP of the calling party, the PNP number of the connected party shall be presented to the calling party.

- In any other cases the presented connected line identity is the public number of the connected party.

CLIR:

No impact

> NOTE: The CLIR service is also applicable for PNP calls, i.e. the PNP Manager has no impact on the restriction of the calling line identity of a PNP call..

COLR:

No impact

> NOTE: The COLR service is applicable also for PNP calls, i.e. the PNP Manager has no impact on the restriction of the connected line identity of a PNP call.

10.2 Call Forwarding Services

A SPNP subscriber shall be able to register a forwarded-.to number according to the selected numbering plan.

If the subscriber interrogates the call forwarding supplementary service the forwarded to number shall be presented in the following format to the subscriber:

> NPId and the PNP number corresponding to this numbering plan.

10.3 Call Waiting, Call Hold

No impact.

10.4 Multi-party

No impact.

> NOTE: Multiparties including both public calls and PNP calls are not prevented.

10.5 Closed User Group

No impact.

> NOTE: CUG Restrictions apply for both public and PNP calls.

10.6 Advice of Charge

No impact

> NOTE: The Advice of Charge supplementary service may not provide any information about the possible different charge for the use of the SPNP supplementary service.

10.7 Call Barring

The PNP manager is responsible to decide if a PNP call is permitted or not. If a call is made in the public numbering plan the normal call barring supplementary service programs will apply.

10.8 Explicit Call Transfer

No impact.

> NOTE: The line identities used in the explicit call transfer notifications shall follow the same rules as defined for the line identification services.

10.9 Call Completion Services

No impact

10.10 Multiple Subscriber profile

The provision of the SPNP service and of individual PNPs (up to the maximum of 10 for each profile) will apply on a per profile basis.

11 Interaction with Operator Determined Barring (ODB)

ODB shall be applied to the MSISDN of the calling or called party as applicable.

12 Interworking Considerations

The SPNP supplementary service may be used to reach destinations on any non-GSM networks with which the GSM interworks. When interworking with another network , PNP numbers shall be translated to public numbers.

Annex A (informative): Deviations between the GSM SPNP services and the ISDN SPNP service

1) In this ETS, procedures are defined for registration, erasure and selection of a specific numbering plan (i.e. public or private numbering plans). When a subscriber has a specific numbering plan registered, all outgoing calls are set up according to this numbering plan unless another numbering plan is selected by the subscriber on a per call basis. In the NA1 text the same concept is applicable by defining a «default numbering plan» (it is unclear whether this also can be the public numbering plan). «...if the calling user belongs to more than one PNP group, the PNG (PNP Group identification) must be indicated to the called user».

2) The subscription option of access to the public numbering plan (registration and selection) described in this text, not applicable to ISDN.

3) «Virtual PNP group members» are not mentioned in this ETS but this concept is applicable by defining the PNP number as «....The destination reached by dialling a PNP number may or may not be a PNP member...».

4) NA1 text do have different subscription options for the CLIR service. In this ETS the «normal» CLIR service is applicable also for PNP calls.

5) Due to roaming on GSM, all PNP members shall have an MSISDN number.

6) In this ETS, PNP numbers are not allocated to the subscriber by provision of the SPNP service. The provision of using a PNP Managers database is an agreement/arrangement between the PNP Manager and the subscriber.

7) The following option in the NA1 text is not applicable in GSM: «...the user can retrieve a PNP number from an ISDN number belonging to a PNP group and vice versa».

Annex B (normative): Cross phase compablilty

It shall be possible to use the SPNP supplementary service also on mobiles not specifically supporting the SPNP supplementary service.

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