Technical Specification Group Services and System Aspects
Meeting #6, Nice, France, 15-17 December 1999

TSGS#6(99)525

Source: **TSG SA1**

Title: **Various CRs to 22.060 on GPRS**

Document for: **Approval**

Agenda Item: **5.1.4**

Status	Spec	CR	Rev	Phase	Subject	CAT	Vers	New Vers	TSG Meeting	TSG Doc.No.	Pres
	22.060	008		R99	GPRS & SMS-CB Interworking	B	3.1.0	3.2.0	S1#06	S1-991049	No
	22.060	006		R99	Support of Mobile IP in release 99	B	3.1.0	3.2.0	S1#06	S1-991010	No
	22.060	007		R99	Deletion of Anonymous Service	C	3.1.0	3.2.0	S1#06	S1-991044	No

TSG-SA Working Group 1 meeting #6
San Diego, USA, 29 Nov - 03 Dec 1999

TSG S1 ***(99) 972***
Agenda: 6.2

3G CHANGE REQUEST

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22.060 **CR** **008** Current Version: 3.1.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submision to TSG SA#6 *list TSG meeting no. here ↑*
for approval [X]
for information [ ]
(only one box should be marked with an X)

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf*

Proposed change affects: *(at least one should be marked with an X)* USIM [ ] ME [X] UTRAN [ ] Core Network [ ]

Source: TSG SA1 **Date:** 02.12.1999

Subject: GPRS & SMS-CB Interworking.

3G Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	[ ]
A	Corresponds to a correction in a 2G specification	[ ]
B	Addition of feature	[X]
C	Functional modification of feature	[ ]
D	Editorial modification	[ ]

Reason for change: The SMS Cell broadcast service has become an important service for many operators. It shall be also supported when a MS is GPRS attached

Clauses affected:

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other 2G core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:


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5.4.5 GPRS MS Modes of Operation

The purpose of the definition of the GPRS MS Classes is to enable the different needs of the various market segments to be satisfied by a number of MS types with distinct capabilities (e.g., simultaneous use and number of time-slots) .A means shall be provided to indicate the multi-slot capability and current configuration to the network when necessary. Three GPRS MS modes of operationare identified:

NOTE 1: The term simultaneous (attach, traffic, etc.) is the requirement to simultaneously support GSM GPRS services and GSM circuit switched services including SMS.

Class A: The MS is attached to both GPRS and other GSM services. The MS supports simultaneous attach, simultaneous activation, simultaneous monitor, simultaneous invocation and simultaneous traffic. The mobile user can make and/or receive calls on the two services simultaneously subject to the QoS requirements.

A minimum of one time slot shall be available for each type of service (circuit switched and GPRS) when required.

Class B: The MS is attached to both GPRS and other GSM services, but the MS can only operate one set of services at a time. When the MS is in both idle mode and packet idle mode it should be able to monitor paging channels for both circuit-switched and packet-switched services depending on the mode of network operation.

At least one mode of network operation shall be defined so that when an MS is in both idle mode and packet idle mode it shall be able to respond to paging for both circuit-switched and packet-switched services. A mode of network operation where the network performs the paging for circuit-switched and packet-switched services on different paging channels is also defined. In such case an MS in both idle mode and packet idle mode should either attempt to listen to both paging channels with priority for the circuit-switched service or revert to class-C mode of operation.

If in a mode of network operation the network performs both the paging for circuit-switched and packet-switched services on the same paging channel, then the mobile station shall respond to paging messages for both services.

There is no requirement for the MS to monitor the packet paging channel when in dedicated mode.

One mode of network operation shall be defined so that when an MS is engaged in packet data transfer, it shall receive paging messages via the packet data channel without degradation of the packet data transfer. Modes of network operation where paging for other GSM services is not done via the packet data channel are also defined. In such cases an MS engaged in packet data transfer may attempt to receive paging messages.

When responding to a paging message for other GSM services, the MS shall establish the connection for that incoming service (i.e., enter dedicated mode) and suspend GPRS activity. GPRS activity is resumed upon return to idle mode.

If paged for an incoming circuit-switched call, the MS shall indicate the presence of the call to the user or user's application, and where possible provide to the user the CLI. It shall be possible for the user (or the user's application) to decide how to proceed with an incoming call (e.g., accept the call, indicate UDUB, or invoke Call Deflection).

It shall be possible for the MS to receive SMS-CB messages if it attached to GPRS but is not engaged in packet data transfer.

NOTE 2: Users should be aware that monitoring paging (in some modes of network operation), responding to paging, alerting of circuit-switched service, or acceptance or establishment of a circuit-switched call during an active GPRS connection may degrade the performance of the established GPRS connection and, in some cases, may cause failures in an application using the GPRS connection (e.g., a file transfer might be aborted due to a timeout of the application protocol).

Class C: The MS is attached to either GPRS or other GSM services. Alternate use only. If both services (GPRS and Circuit Switched) are supported then a Class C MS can make and/or receive calls only from the manually or default selected service, i.e., either GPRS or Circuit Switched service. The status of the service which has not been selected is detached i.e., not reachable. The capability for GPRS-attached class-C MSs to receive and transmit SMS messages is optional.

The network shall support SMS message reception and transmission for GPRS-attached class-C MSs.

It shall be possible for the MS to receive SMS-CB messages if it attached to GPRS but is not engaged in packet data transfer.

An MS may be reconfigured. E.g., a class A MS configured as 1 slot for circuit switched plus 1 slot for GPRS may be reconfigured as a class C configured as 0 slots for circuit switched plus 2 slots for GPRS.

Non-voice only MSs do not have to (but may) support emergency calls.

TSG-SA Working Group 1 (Services) meeting#6
San Diego, USA, 29th November – 3rd December 1999

TSG S1 (99)1010

Agenda:

3G CHANGE REQUEST

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22.060 **CR** **006** Current Version: 3.1.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submision to TSG SA#6 *list TSG meeting no. here ↑*

for approval [X]
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Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf*

Proposed change affects: *(at least one should be marked with an X)* USIM [ ] ME [ ] UTRAN [ ] Core Network [X]

Source: TSG SA1 **Date:** 1999-11-23

Subject: Support of Mobile IP in release 99

3G Work item: 3TS/SA-0122060

Category: *(only one category shall be marked with an X)*

F	Correction	[ ]
A	Corresponds to a correction in a 2G specification	[ ]
B	Addition of feature	[X]
C	Functional modification of feature	[ ]
D	Editorial modification	[ ]

Reason for change: 3GPP SA2 have for GSM/UMTS release 99 included support of Mobile IP in the architecture for the core network.
The corresponding requirements for this should be included in 3GPP SA1 specifications.

Clauses affected: Clause 10.4

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other 2G core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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10.4 Interworking for subscriber roaming

Interworking between different GPRS PLMNs is required in order to support subscriber roaming.
It shall be possible for the VPLMN to provide access to the external data network when the external non-GSM data network address is dynamically assigned by the VPLMN.
It shall be possible, as an option, to allow users to roam from one environment to another, between fixed and mobile, between public and private as well as between different public systems.

TSG-SA Working Group 1 (Services) meeting#6
San Diego, USA, 29th November – 3rd December 1999

TSG S1 (99)1044

Agenda:

3G CHANGE REQUEST

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22.060 **CR** **007** Current Version: 3.1.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submision to TSG SA#6 *list TSG meeting no. here ↑*

for approval [X]
for information [ ]

(only one box should be marked with an X)

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf*

Proposed change affects: USIM [ ] ME [ ] UTRAN [ ] Core Network [X]
(at least one should be marked with an X)

Source: TSG SA WG1 **Date:** 1999-12-02

Subject: Deletion of Anonymous Service

3G Work item: 3TS/SA-0122060

Category: *(only one category shall be marked with an X)*

F	Correction	
A	Corresponds to a correction in a 2G specification	
B	Addition of feature	
C	Functional modification of feature	X
D	Editorial modification	

Reason for change: The anonymous service is not supported by GPRS. There is a lack of support for this feature in both S1 and S2.

Clauses affected: 5.4.3, 8.3

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other 2G core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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<--------- double-click here for help and instructions on how to create a CR.

Table 6: Protection of user identity and user data

Service	User Identity Protection	User Data Protection
PTP	Yes	Yes
PTM-Multicast (receiver)	Yes [a)]	No[b)]
PTM-Group Call	Yes	Yes

a) The individual identities of the group members that actually receive the PTM-M traffic, are not transferred on the radio path and furthermore are also not known to the network. This is an important aspect for those applications where it is imperative that the location of the user cannot under any circumstances be traced. However, the group identity and the identity of the service requester are sent unciphered on the radio path.

b) This does not preclude end-to-end ciphering of user data by the PTM-M application, this however, is outside the scope of this specification.

Security mechanisms available for existing teleservices and bearer services should be used if possible.
~~An optional requirement is that an MS can anonymously initiate a mobile originated, PTP communication to a specific subscriber or server that is registered within the PLMN. This necessitates that all charges shall be made to the called party. For the access to the network the MS shall not send its IMSI or IMEI thus guaranteeing a high level of anonymity. However, in the case of fraud or misuse of the service, the MS shall transfer its IMEI and/or IMSI upon request by the operator. Authentication and ciphering procedures are not required. Such procedures may reside inside or outside the network.~~

~~NOTE: An example for such an anonymous service is a toll road system whereby a user can pay the road toll anonymously using a pre paid card instead of a normal SIM card. The road toll application server receives and is charged for all messages of the anonymous service. However, the server has its own means to charge the user (e.g. using electronic money on the anonymous pre paid card).~~

5.4.4 Packet size

Both PTP and PTM services shall allow the transfer of variable length Network Service Data Units (NSDU).

5.4.5 GPRS MS Modes of Operation

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NOTE: The latter category enables a common IMGI to be used for international applications e.g. road congestion information or weather information.

The structure of the IMGI should correspond to the group ID specified for the Voice Group Call Services (VGCS) (reference TS22.068 [17], TS23.068 [22] and TS24.068 [23]), if possible.
For mobile originated PTM communications the IMSI shall be the basis for the access to the network. Additionally, a group identity IMGI shall be sent to be able to address the receivers.

8.3 Overview

How the identities are used within the different services is described in table 8.

Table 8: Services and Identities

Services	mobile originated		mobile terminated
	calling party	called party	
GPRS PTP	IMSI	Address (note 1)	IMSI
~~GPRS PTP-anonymous originator. (note 2)~~	~~-~~	~~IMGI-Server ID~~	~~not applicable~~
GPRS PTM-M	IMSI	IMGI	IMGI
GPRS PTM-G	IMSI	Address (note 1)	IMSI or IMGI
IP-M	IMSI	Address (note 1)	IMSI
NOTE 1: The IMSI or in the case of network interworking refer to subclause 10.3.1. ~~NOTE 2: The subscriber and user identities of a PTP-anonymous-originator message are hidden from the operator.~~			

9 Service interworking

It shall be possible for the GPRS PTP services to be utilized as a bearer service for the SMS-MO and SMS-MT services.

10 Network interworking

Network interworking is required whenever a PLMN and a non-PLMN are involved in the execution of a GPRS Service request.

In general the mobile user of a GPRS network will receive and experience all the services provided by an external data network. In this case the external data network refers to the network that the GPRS PLMN interworks with as determined by the network operator. With this in mind it can be said that a user :-

1) will require a universal identity(ies) of the form compatible with the interworked with network(s);

2) and experience access to and provision of all services as offered by the interworked with networks (some reduction of capability may result from unavoidable restrictions due to the complexity of implementation).

10.1 Interworking with other data networks and other PLMNs

GPRS shall provide means to interwork with external data networks. The GPRS operator may provide an appropriate address to the external data network for the subscriber as part of the GPRS subscription. That address can be either dynamic (e.g. the user's IP address is allocated from a pool of unused IP addresses every time the subscriber activates the access to an IP network) or static (e.g. a certain IP address is permanently allocated to a particular subscriber). In addition, the GPRS network shall be able to notify the server IP address (e.g. the gateway IP address) to the subscriber, when the subscriber activates. When connected with some external data networks, the routeing protocols of these networks may limit the data network addresses that can be allocated. For example, when interworking with IP