Technical Specification Group Services and System Aspects
Meeting #19, Birmingham, UK, 17-20 March 2003

TSGS#19(03)0013

Source: **SA1**

Title: **CR to 22.060 on SS SMS transfer over GPRS (Rel-5)**

Document for: **Approval**

Agenda Item: **7.1.3**

SA Doc	Spec	CR	Rev	Phase	Cat	Subject	Old Vers	New Vers	SA1 Doc
SP-030013	22.060	030	-	Rel-5	F	CR to 22.060 on SS SMS transfer over GPRS	5.2.0	5.3.0	S1-030237

TSG-SA WG1 #19 **S1-030237**
San Francisco, USA, 20th–24th January 2003 **Agenda Item:**

CR-Form-v7

CHANGE REQUEST

⌘ **22.060** **CR** **030** ⌘ **rev** **-** ⌘ Current version: **5.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☒

Title:	⌘	UE behaviour when sending SMS over GPRS
Source:	⌘	SA1 (SIEMENS)
Work item code:	⌘	TEI
Date:	⌘	21/01/2003
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Support of SMS over GPRS is mandatory in the standard. However, there are commercial issues related to this from an operator perspective which may prevent the support of SMS over GPRS in some networks. If, on the other hand, the UE relies on the support of SMS over GPRS this may lead to a situation in which the UE is unable to send an SMS at all.
Summary of change:	⌘	The CR proposes a workaround for the behaviour of a mobile attempting to send SMS over GPRS in case this attempt fails, either due to a direct failure indication or rejection from the network, or due to the complete lack of a response.
Consequences if not approved:	⌘	Potential inability of a UE to send an SMS in some networks if there is no support of SMS over GPRS.

Clauses affected:	⌘	6.1

Other specs affected: ⌘	Y	N		⌘
	☐	☐	Other core specifications	
	☐	☐	Test specifications	
	☐	☐	O&M Specifications	

Other comments: ⌘

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.1 GPRS UE Modes of Operation

6.1.1 GPRS UE classes

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

Three GPRS UE modes of operation are identified:

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

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

UTRAN will only support Class A mode of operation

In GERAN Class A mode of operation may be achieved using Dual Transfer Mode (DTM) functionality [10]

Class B: The UE is attached to both GPRS and other services, but the UE can only operate one set of services at a time. When the UE 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 UE 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 UE 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 UE shall respond to paging messages for both services.

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

One mode of network operation shall be defined so that when an UE 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 services is not done via the packet data channel are also defined. In such cases an UE engaged in packet data transfer may attempt to receive paging messages.

When responding to a paging message for other services, the UE 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 UE 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 UE to receive SMS-CB messages if it attached to GPRS but is not engaged in packet data transfer.

Class B is not applicable to UTRAN or GERAN Iu Mode.

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 UE is attached to either GPRS or other services. Alternate use only. If both services (GPRS and Circuit Switched) are supported then a Class C UE 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 UEs 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 UE to receive SMS-CB messages if it attached to GPRS but is not engaged in packet data transfer.

Class C is not applicable to UTRAN.

An UE may be reconfigured. E.g., a class A UE 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 UEs do not have to (but may) support emergency calls.

6.1.2 UE support for SMS over GPRS

The network shall support SMS message reception and transmission for GPRS-attached UEs. However, this feature might not be implemented in all networks.

The following requirements are applicable to class A and class B GPRS UEs:

- If the UE preferred method, at power up or later, is sending SMS over GPRS and this fails, either due to a direct failure indication or rejection, or due to the complete lack of a response, then the UE shall switch to sending subsequent SMS's by circuit switched services for an implementation dependent time. After this time the UE may again revert to trying to send SMS's over GPRS.
  Also, if a different PLMN is selected the UE shall again revert to trying to send SMS's over GPRS.

- If the SMS attempt fails on both GPRS and circuit switched services, then the user/toolkit is informed.