Source: **TSG S1**

Title: **Class B mode of operation**

Document for: **Approval**

Agenda Item: **5.1.3**

3GPP1 TSG SA WG1 / ETSI STC SMG1
Munich, Germany
27 Sep -01 Oct 1999

Tdoc S1-99 790
Revision of Tdoc S1-99 654
Revision of Tdoc SMG1 (99)309

CHANGE REQUEST No : **A021** *Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.*

Technical Specification GSM / UMTS: 02.60 Version 6.2.0

Submitted to SMG #30 *list plenary meeting or STC here ↑*
for approval **X**
for information
without presentation ("non-strategic") **X**
with presentation ("strategic")

PT SMG CR cover form. Filename: crf26_3.doc

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

Work item: GPRS

Source: Siemens AG **Date:** 2 Sep., 1999

Subject: Class B mode of operation

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

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	X
Release 98	
Release 99	
UMTS	

Reason for change: Some clarification has been sought by SMG2 WPA on the desired MS behaviour when in Class B mode of operation.

Clauses affected: 5.4.5.

Other specs affected:

Other releases of same spec	[ ]	→ List of CRs:
Other core specifications	[ ]	→ List of CRs:
MS test specifications / TBRs	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

5.4.5 ~~Capabilities of~~ GPRS MS Modes of Operation~~Classes~~

The purpose of the definition of the GPRS MS modes of operation~~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 operation~~classes~~ are 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: ~~Supports simultaneous attach, simultaneous activation and simultaneous monitor. Supports only limited simultaneous invocation: GPRS virtual circuits (GPRS activation) shall not be cleared down due to invocation or traffic of circuit switched services, the status of the GPRS virtual connection is then "busy or held". Simultaneous traffic shall not be supported. The mobile user can make and/or receive calls on either of the two services sequentially but not simultaneously. The selection of the appropriate service is performed automatically, i.e. an active GPRS virtual connection is put on hold, if the user accepts an incoming circuit switched call or establishes an outgoing circuit switched call.~~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).

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).

~~NOTE: User should be aware that the acceptance or the establishment of a circuit switched call during an active GPRS virtual connection might cause problems or failures in an application using the GPRS virtual 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~~Supports only non-simultaneous attach~~. 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.

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.

3GPP1 TSG SA WG1 / ETSI STC SMG1
Munich, Germany
27 Sep -01 Oct 1999

Tdoc S1-99 791
Revision of Tdoc S1-99 655

CHANGE REQUEST No : **A022** *Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.*

Technical Specification GSM / UMTS: 02.60 Version 7.2.0

Submitted to SMG #30 *list plenary meeting or STC here ↑*
for approval **X** for information
without presentation ("non-strategic") **X** with presentation ("strategic")

PT SMG CR cover form. Filename: crf26_3.doc

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

Work item: GPRS

Source: Siemens AG **Date:** 28 Sep., 1999

Subject: Class B mode of operation

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

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	X
Release 99	
UMTS	

Reason for change: Some clarification has been sought by SMG2 WPA on the desired MS behaviour when in Class B mode of operation.

Clauses affected: 5.4.5.

Other specs affected:

Other releases of same spec		→ List of CRs:
Other core specifications		→ List of CRs:
MS test specifications / TBRs		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

5.4.5 ~~Capabilities of~~ GPRS MS Modes of Operation~~Classes~~

The purpose of the definition of the GPRS MS modes of operation~~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 operation~~classes~~ are 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: ~~Supports simultaneous attach, simultaneous activation and simultaneous monitor. Supports only limited simultaneous invocation: GPRS virtual circuits (GPRS activation) shall not be cleared down due to invocation or traffic of circuit switched services, the status of the GPRS virtual connection is then "busy or held". Simultaneous traffic shall not be supported. The mobile user can make and/or receive calls on either of the two services sequentially but not simultaneously. The selection of the appropriate service is performed automatically, i.e. an active GPRS virtual connection is put on hold, if the user accepts an incoming circuit switched call or establishes an outgoing circuit switched call..~~ 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.

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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).

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3GPP1 TSG SA WG1 / ETSI STC SMG1
Munich, Germany
27 Sep - 01 Oct 1999

Document **S1-99 792**
Revision of Tdoc S1-99 656

3G CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

22.060 **CR** **001** Current Version: 3.0.0

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

For submision to TSG SA *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: Siemens AG **Date:** 28 Sep., 1999

Subject: Class B mode of operation

3G Work item:

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

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

Reason for change: Some clarification has been sought by SMG2 WPA on the desired MS behaviour when in Class B mode of operation.

Clauses affected: 5.4.5

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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