3GPP TSG-T (Terminals) Meeting #14
Kyoto, Japan, 12 - 14 December 2001

Tdoc TP-010269

Agenda Item: 5.2.3

Source: T2

Title: "Terminal Interfaces and Capabilities" Change Requests

Document for: Approval

Spec	CR	Rev	Rel	Subject	Cat	Vers-Curr	Vers-New	T2 Tdoc	Workitem
07.07	A90	1	R98	Obsolete +CGCLOSP and corrections due to IHOSS and OSP removal	F	7.6.0	7.7.0	T2-010969	TEI
27.007	069	1	R99	Obsolete +CGCLOSP and corrections due to IHOSS and OSP removal	A	3.9.0	3.10.0	T2-010970	TEI
27.007	070	1	Rel-4	Obsolete +CGCLOSP and corrections due to IHOSS and OSP removal	A	4.2.0	4.3.0	T2-010971	TI-ATC
27.007	071	1	R99	Obsolete +CGCLPAD and corrections due to X.25 removal	F	3.9.0	3.10.0	T2-010972	TEI
27.007	072	1	Rel-4	Obsolete +CGCLPAD and corrections due to X.25 removal	A	4.2.0	4.3.0	T2-010973	TI-ATC
27.007	073		R99	Clarifications to AT commands used with circuit swiched data	F	3.9.0	3.10.0	T2-010967	TEI
27.007	074		Rel-4	Clarifications to AT commands used with circuit swiched data	A	4.2.0	4.3.0	T2-010968	TI-ATC
27.007	075		R99	Correction in the +CGACT command explanation	F	3.9.0	3.10.0	T2-010974	TEI
27.007	076		Rel-4	Correction in the +CGACT command explanation	A	4.2.0	4.3.0	T2-010975	TI-ATC
27.007	077		Rel-4	Correction of chapter heading and references	F	4.2.0	4.3.0	T2-011241	TI-ATC
27.007	078		R99	Different compression algorithms in AT command +CGDCONT and +CGDSCONT	F	3.9.0	3.10.0	T2-010979	TEI
27.007	079		Rel-4	Different compression algorithms in AT command +CGDCONT and +CGDSCONT	A	4.2.0	4.3.0	T2-011242	TI-ATC
27.007	080		Rel-5	New AT command +CRMC (Ring Melody Control)	B	4.2.0	5.0.0	T2-011179	TEI5
27.007	081		Rel-5	Added reference to 23.227	B	4.2.0	5.0.0	T2-011180	TEI5
23.227	001		Rel-5	Expansion of introduction and clarifications of scope	F	4.0.0	5.0.0	T2-011240	TLM5
23.227	002		Rel-4	Correction in WAP Forum Reference	F	4.0.0	4.1.0	T2-011175	TLM
23.227	003		Rel-4	Text added to Figure A.1	F	4.0.0	4.1.0	T2-011176	TLM
23.227	004		Rel-5	Add the interaction requirements for USAT bearer indepenedent protocol via local links	F	4.0.0	5.0.0	T2-011177	TLM5

3GPP TSG-T2 #15
Cancún, Mexico
26-30 November 2001

T2-010969

CR-Form-v4

CHANGE REQUEST

⌘ **07.07** **CR** **A90** ⌘ ev **1** ⌘ Current version: **7.6.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Obsolete +CGCLOSP and corrections due to IHOSS and OSP removal
Source:	⌘	T2
Work item code:	⌘	TEI
Date:	⌘	2001-11-05
Category:	⌘	**F**
Release:	⌘	R98

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)*

Reason for change:	⌘	It was decided at TSG-SA#8 to remove the IHOSS service from R98 and onwards (SP-000197). This CR aligns the targeted specification accordingly.
Summary of change:	⌘	This CR marks as obsolete the AT command +CGCLOSP and parameters values in +CGDCONT, +CGDATA and Request GPRS service 'D', which are related to the removed feature. The reference to this commands was already removed from 07.60 (N3-010112)
Consequences if not approved:	⌘	The specification is not aligned with the R98 02.60, 03.60 and 07.60.

Clauses affected:	⌘	3.1, 10.1.1, 10.1.6, 10.1.7, 10.2.1.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:

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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.

3.1 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AT	ATtention; this two-character abbreviation is always used to start a command line to be sent from TE to TA
BCD	Binary Coded Decimal
ETSI	European Telecommunications Standards Institute
HSCSD	High Speed Circuit Switched Data
~~IHOSS~~	~~Internet Hosted Octet Stream Service~~
IMEI	International Mobile station Equipment Identity
IRA	International Reference Alphabet (ITU-T T.50 [13])
IrDA	Infrared Data Association
ISO	International Standards Organisation
ITU-T	International Telecommunication Union - Telecommunications Standardization Sector
ME	Mobile Equipment, e.g. a GSM phone (equal to MS; Mobile Station)
MoU	Memorandum of Understanding (GSM operator joint)
~~OSP~~	~~Octet Stream Protocol~~
~~OSP:IHOSS~~	~~Octet Stream Protocol for Internet Hosted Octet Stream Service~~
PCCA	Portable Computer and Communications Association
RDI	Restricted Digital Information
RLP	Radio Link Protocol
SIM	Subscriber Identity Module
TA	Terminal Adaptor, e.g. a GSM data card (equal to DCE; Data Circuit terminating Equipment)
TE	Terminal Equipment, e.g. a computer (equal to DTE; Data Terminal Equipment)
TIA	Telecommunications Industry Association
UDI	Unrestricted Digital Information

10.1.1 Define PDP Context +CGDCONT

Table 1: +CGDCONT parameter command syntax

Command	**Possible response(s)**
+CGDCONT=[<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,…[,pdN]]]]]]]]]	OK ERROR
+CGDCONT?	+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d~~ata~~_comp>, <h~~ead~~_comp>[,<pd1>[,…[,pdN]]] [<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d~~ata~~_comp>, <h~~ead~~_comp>[,<pd1>[,…[,pdN]]] [...]]
+CGDCONT=?	+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [<CR><LF>+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [...]]

Description

The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

X25 ITU-T/CCITT X.25 layer 3
IP Internet Protocol (IETF STD 5)
OSPIH Internet Hosted Octet Stream Protocol (Obsolete)
PPP Point to Point Protocol (IETF STD 51)

<APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.

If the value is null or omitted, then the subscription value will be requested.

<PDP_address>: a string parameter that identifies the MT in the address space applicable to the PDP.

If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.

The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

<d_comp>: a numeric parameter that controls PDP data compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

NOTE. At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these.

<pd1>, … <pdN>: zero to N string parameters whose meanings are specific to the <PDP_type>

~~For PDP type OSP:IHOSS the following parameters are defined:~~
~~<pd1> = <host> the fully formed domain name extended hostname of the Internet host~~
~~<pd2> = <port > the TCP or UDP port on the Internet host~~
~~<pd3> = <protocol> the protocol to be used over IP on the Internet - "TCP" or "UDP~~

Implementation

Mandatory unless only a single subscribed context is supported.

10.1.6 Enter data state +CGDATA

Table 2: +CGDATA action command syntax

Command	Possible Response(s)
+CGDATA=[<L2P> ,[<cid> [,<cid> [,…]]]]	CONNECT ERROR
+CGDATA=?	+CGDATA: (list of supported <L2P>s)

Description

The execution command causes the MT to perform whatever actions are necessary to establish communication between the TE and the network using one or more GPRS PDP types. This may include performing a GPRS attach and one or more PDP context activations. If the <L2P> parameter value is unacceptable to the MT, the MT shall return an ERROR or +CME ERROR response. Otherwise, the MT issues the intermediate result code CONNECT and enters V.25ter online data state.

Commands following +CGDATA command in the AT command line shall not be processed by the MT.

The detailed behaviour after the online data state has been entered is dependent on the PDP type. It is described briefly in GSM 07.60 and in more detail in GSM 09.61 and the specifications for the relevant PDPs. GPRS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT and +CGACT commands.

If context activation takes place during the PDP startup, one or more <cid>s may be specified in order to provide the information needed for the context activation request(s).

During each PDP startup procedure the MT may have access to some or all of the following information -

The MT may have a priori knowledge, for example, it may implement only one PDP type.

The command may have provided an <L2P> parameter value.

The TE may provide a PDP type and/or PDP address to the MT during in the PDP startup procedure.

If any of this information is in conflict, the command will fail.

Any PDP type and/or PDP address present in the above information shall be compared with the PDP type and/or PDP address in any context definitions specified in the command in the order in which their <cid>s appear. For a context definition to match -

The PDP type must match exactly.

The PDP addresses are considered to match if they are identical or if either or both addresses are unspecified. For example, a PPP NCP request specifying PDP type = IP and no PDP address would cause the MT to search through the specified context definitions for one with PDP type = IP and any PDP address.

The context shall be activated using the matched value for PDP type and a static PDP address if available, together with the other information found in the PDP context definition. If a static PDP address is not available then a dynamic address is requested.

If no <cid> is given or if there is no matching context definition, the MT shall attempt to activate the context with whatever information is available to the MT. The other context parameters shall be set to their default values.

If the activation is successful, data transfer may proceed.

After data transfer is complete, and the layer 2 protocol termination procedure has completed successfully, the V.25ter command state is re-entered and the MT returns the final result code OK.

In the event of an erroneous termination or a failure to start up, the V.25ter command state is re-entered and the MT returns the final result code NO CARRIER or, if enabled, +CME ERROR. Attach, activate and other errors may be reported.

The test command is used for requesting information on the supported layer 2 protocols.

This command may be used in both normal and modem compatibility modes.

Defined Values

<L2P>: a string parameter that indicates the layer 2 protocol to be used between the TE and MT

NULL	none, for PDP type OSP:IHOSS (Obsolete)
PPP	Point-to-point protocol for a PDP such as IP
PAD	character stream for X.25 character (triple X PAD) mode
X25	X.25 L2 (LAPB) for X.25 packet mode
M-xxxx	manufacturer-specific protocol (xxxx is an alphanumeric string)

If the value is omitted, the layer 2 protocol is unspecified. Other values are reserved and will result in an ERROR response.

<cid>: a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command).

Implementation

Optional if the D (dial) command can be used to specify GPRS operation.

10.1.7 Configure local Octet Stream PAD parameters +CGCLOSP (Obsolete)

~~**Table 93: CGCLOSP parameter command syntax**~~

~~**Command**~~	~~**Possible Response(s)**~~
~~+CGCLOSP=[<parm>, <value>]~~	~~OK~~ ~~ERROR~~
~~+CGCLOSP?~~	~~+CGCLOSP: <parm>, <value>~~ ~~[<CR><LF>+CGCLOSP: <parm>, <value>~~ ~~[…]]~~
~~+CGCLOSP=?~~	~~+CGCLOSP: <parm>, (list of supported <value>s)~~ ~~[<CR><LF>+CGCLOSP: <parm>, (list of supported <value>s)~~ ~~[…]]~~

~~**Description**~~

~~The set command sets the value of a specified OSP PAD parameter in the local PAD. The set of parameters to be supported is listed in the OSP protocol specification.~~

~~Setting the maximum sizes for the local Packet Assembly and Disassembly buffers will cause corresponding values for the GGSN relay buffers to be negotiated.~~

~~The read command returns, one per line, the value of each of the supported parameters.~~

~~The test command returns, one per line, the permitted range of values for each of the supported parameters.~~

~~**Defined values**~~

~~<parm>: a numeric parameter which specifies the PAD parameter to be configured~~

~~<value>: a numeric parameter which specifies the value to which PAD parameter is to be set~~

~~If <value> is omitted for a particular parameter then <parm> is set to the OSP-defined default, if any.~~

~~**Implementation**~~

~~Optional.~~

10.2.1.1 Request GPRS service 'D'

Table 4: D command syntax

Command	Possible Response(s)
D*<GPRS_SC>[*[<called_address>] [*[<L2P>][*[<cid>]]]]#	CONNECT ERROR

Description

This command causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN.

The V.25ter 'D' (Dial) command causes the MT to enter the V.25ter online data state and, with the TE, to start the specified layer 2 protocol. The MT shall return CONNECT to confirm acceptance of the command prior to entering the V.25ter online data state. No further commands may follow on the AT command line.

The detailed behaviour after the online data state has been entered is dependent on the PDP type. It is described briefly in clauses 8 (for X.25) and 9 (for IP) of GSM 07.60. GPRS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT and +CGACT commands.

When the layer 2 protocol has terminated, either as a result of an orderly shut down of the PDP or an error, the MT shall enter V.25ter command state and return the NO CARRIER final result code.

If <called address> is supported and provided, the MT shall automatically set up a virtual call to the specified address after the PDP context has been activated.

If <L2P> and <cid> are supported, their usage shall be the same as in the +CGDATA command. The +CGDCONT, +CGQREQ, etc. commands may then be used in the modem initialisation AT command string to set values for for PDP type, APN, QoS etc..

If <L2P> is not supported or is supported but omitted, the MT shall use a layer 2 protocol appropriate to the PDP type.

If <cid> is not supported or is supported but omitted, the MT shall attempt to activate the context using:

(a) any information provided by the TE during the PDP startup procedure, e.g. the TE may provide a PDP type and/or PDP address to the MT,

or, (b) a priori knowledge, e.g. the MT may implement only one PDP type,

or, (c) using the 'Empty PDP type' (GSM 04.08). (No PDP address or APN shall be sent in this case and only one PDP context subscription record shall be present in the HLR for this subscriber.)

This command may be used in both normal and modem compatibility modes.

NOTE. The dial string conforms to the syntax specified in GSM 02.30.

Defined Values

<GPRS_SC>: (GPRS Service Code) a digit string (value 99) which identifies a request to use the GPRS

<called_address>: a string that identifies thecalled party in the address space applicable to the PDP. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent may be used. Also, the character comma ',' may be used as a substitute for the character period '.'.
~~For PDP type OSP:IHOSS, the following syntax may be used for <called_address>:~~
~~[<host>][@[<port>][@[<protocol>]]]~~
~~where <host>, <port> and <protocol> are defined in the +CGDCONT description. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent to the hostname may be used. However, this should be avoided if at all possible.~~

<L2P>: a string which indicates the layer 2 protocol to be used (see +CGDATA command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used:

0 NULL (Obsolete)
1 PPP
2 PAD
3 X25
9yyyy M-xxxx
Other values are reserved and will result in an ERROR response to the set command.

NOTE. V.250 (and certain communications software) does not permit arbitrary characters in the dial string. The <L2P> and <called_address> strings are therefore specified as containing digits (0-9) only.

<cid>: a digit string which specifies a particular PDP context definition (see +CGDCONT command).

Implementation

Optional if the +CGDATA command is supported. If the D command is provided, then support for <called_address>, <L2P> and <cid> are optional. If they are not supported but values are provided by the TE, the values shall be ignored and this shall not constitute an error.

3GPP TSG-T2 #15
Cancun, Mexico
26-30 November 2001

T2-011240

CR-Form-v4

CHANGE REQUEST

⌘ **23.227** **CR** **001** ⌘ ev ⌘ Current version: **4.0.0** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Expansion of introduction and clarifications of scope
Source:	⌘	T2
Work item code:	⌘	TLM5 ***Date:*** ⌘ 2001-11-26
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)*

Reason for change:	⌘	Editorial Corrections for improved explanation, more logical construction and ease of reading. Alignment of Scope with intent of TS
Summary of change:	⌘	1. Scope is aligned with the intent of the TS, to UE. 2. Introduction text is expanded for improved explanation. 3. Section 4 sub-section titles are altered for clarity.
Consequences if not approved:	⌘	TS23.227 will be subject to mis-interpretation due to being not as easy to understand.

Clauses affected:	⌘	
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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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.

Introduction

The present rapid development of a diversity of new applications and application environments for mobile usage creates a complexity of previously unseen proportions that the Mobile Equipment has to handle. These applications and application environments co-exist and execute independently in the UE, and thus have the potential to interact with each other in a way that could be detrimental to the positive user experience and sense of user control of the UE. There is a need to control and manage the total applications/interfaces environment and MT resources so as to produce a conceptually consistent and logically whole and integrated user experience.

This specification outlines a generic model for the interaction between these applications. It further specifies a set of basic principles and requirements for these applications to co-exist on the UE. This specification may also result in presenting to the user a coherent user experience.

This specification's ~~introduces a generic model approach for the ME environment; the~~ purpose is *not* to categorise the applications / peripherals, but to try to structure the events that are internal and external to, and has to be handled by, the ME Core Functions. This means that the structure or grouping of the events should be made from a *ME centric* perspective. Some applications run on the ME side have counterparts in the network. This specification ~~does not address the functions in the network.~~ addresses the interactions within the UE.

1 Scope

This 3GPP Technical Specification defines the principles for scheduling UE resources and controlling UE interactions and resolving conflicts between independently running applications in different application execution environment (e.g. MExE, USAT etc.) and internal and external peripherals (e.g. infra-red, Bluetooth, USIM, radio interface, MMI, memory etc.).

This specification is divided in two parts: Subclause 4 defines a framework for event handling. Subclause 5 addresses some specific issues.

Appendix A contains an informative background to the problem area.

4 Principles for the Framework

The model presented in appendix A defines a framework specifying *principles* for event handling, with the focus on issues related to application interaction. Principles for the framework are given below, using the stated definitions. The list is not necessarily complete.

4.1 Basic principles

1. Irrespective of the principles given below, emergency calls shall override all other calls.

~~3.~~2. The ME is the central resource and schedules internal and external entities according to the user's preferences and external environment .

4.2 User requirements

1. The user shall have the capability to make the ultimate decisions as elaborated below. Additionally, in the case where an UE is unmanned, none of the issues below shall render the UE inoperable such that it requires manual intervention locally at the UE to restore its use.
2. The user shall have the capability of selecting preferences interactively and / or via prior set-up in one or more user profiles. These shall be valid on a global or on a per application basis. The user's preferences shall be retained even in the event of loss of power.
   Preferences can be selected for an application when it is installed, or at any other time thereafter.
   Preferences, notably but not exclusively the priorities, can be modified at any time and this shall have effect at the earliest possible opportunity thereafter.
3. The user shall have the capability to modify authorisations assigned to applications. These shall be valid on a global or on a per application basis in one or more user profiles.
4. The user shall have the option to be advised to what extent an application has been authenticated at installation-time, and prevent the application from being installed based on this advice.
   The user shall have the option to be advised about the integrity of an application at installation-time, and prevent the application from being installed based on this advice.
5. The user shall have the capability to abort or suspend any on-going call that has been set up automatically by an application.
6. The user shall have the capability to require that the ME request permission from the user for individual calls, sets of calls (for instance all calls by a certain application) or all calls. The user shall have the capability to request the ME to record information on individual calls, sets of calls or all calls.
7. The user shall have the capability to distinguish which entity / application caused a specific event. The ME uses this information to support the user's preferences. The ME shall be able to inform the network of entity / application at set up time to support trace-ability when a call is set up.

8. The user's privacy shall be protected. Access to user data (including user profiles and any personal information in the UE) and audio functions (this would prevent for instance a mechanism that allows eavesdropping) shall not be possible without the user's prior permission.
9. The user shall have the capability to request from the ME which applications are present in the MExE environment and the (U)SIM, and whether they are running. The user shall also have the capability to request from the ME the status of other interfaces as shown in Figure 1, where implemented.

4.3 Specific ~~Additional~~ requirements on applications

1. An application shall not assume that it is the only one active. For example where several applications use the same interface the application and / or the protocols used over the interface must be able to handle contention.
2. An application shall not interfere (terminate, suspend or degrade) with on-going calls set up by another application without authorisation from the user. For certain combinations of call (e.g., voice/data and USSD messages), interference can happen resulting in a level of degradation.
3. An application shall not assume that it has priority over another application, and shall comply with the user's currently selected preferences.

4.4 ~~Additional~~ Specific requirements on the ME

1. The ME shall have the capability to authenticate the source of the application.
2. The ME shall have the capability to assure the integrity of an application.

5 Specific Interaction Requirements

3GPP TSG-T2 #14
Cancún, Mexico
26-30 November 2001

T2-011175

CR-Form-v4

CHANGE REQUEST

⌘ **23.227** **CR** **002** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction in WAP Forum Reference
Source:	⌘	T2
Work item code:	⌘	TLM
Date:	⌘	2001-11-09
Category:	⌘	**F**
Release:	⌘	REL-4

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)*

Reason for change:	⌘	In order to refer to the latest version of WAP Forum specifications, the current reference to version 1.1 shall be deleted
Summary of change:	⌘	Deletion of the referred version of the WAP Forum specifications
Consequences if not approved:	⌘	Reference to obsolete WAP Forum specifications

Clauses affected:	⌘	2
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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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.

2 References

The following documents contain provisions, which, through reference in this text, constitute provisions of the present document.

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] 3GPP TR 21.905 "3G Vocabulary"

[2] 3GPP TS 23.057: "Mobile Station Application Execution Environment (MExE); Functional description; Stage 2".

[3] WAP, WAP Forum, "WAP Technical Specifications Suite"~~, version 1.1, June 1999.~~ (http://www.wapforum.com/)

[4] 3GPP TS 31.101: "UICC / Terminal Interface; Physical and Logical Characteristics".

[5] 3GPP TS 31.102: "Characteristics of the USIM application".

[6] 3GPP TS 31.111: "USIM Application Toolkit (USAT)".

[7] 3GPP TS 22.038: "Technical Specification Group Services and System Aspects ; USIM/SIM Application Toolkit (USAT/SAT); Service description; Stage 1".

3GPP TSG-T2 #14
Cancún, Mexico
26-30 November 2001

T2-011176

CR-Form-v4

CHANGE REQUEST

⌘ **23.227** **CR** **003** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Text added to Figure A.1
Source:	⌘	T2
Work item code:	⌘	TLM
Date:	⌘	2001-11-09
Category:	⌘	**F**
Release:	⌘	REL-4

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)*

Reason for change:	⌘	The figure A.1 does not have any explanatory text
Summary of change:	⌘	Added the following text “Example of External events that the ME Core Functions should handle” to the Figure A.1
Consequences if not approved:	⌘	Figure without an explanatory text

Clauses affected:	⌘	A.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:

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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.

A.1 The model approach

The model below proposes a *conceptual* split, meaning that the entities and their interfaces are *logical* and need not correspond to any physical division. Before the figure is presented some clarifications and general comments are needed:

- The *ME Core Functions* should be understood as the (collection of) software functions that contain the central logic for the ME, including for instance the scheduling of events.
- With *external event* is meant interaction that an application / peripheral wants (requests / commands), as well as necessary handling of network signalling, user request via the keys, etc. External does not imply whether an external interface is used or not.
- Some *network signalling* is easy to refer to basic network functions, such as Location Update, while other signalling has been invoked by an application.
- The user can interact / intervene *directly* via keys, etc. This is indicated with the *Manual User Interaction* entity. The user can of course do the same via, e.g., a PC or a MExE application, but the events that such actions create is here viewed like the other events that these entities can create.
- The *USIM* / general *Smart Card Functions* are split into several logical entities: the Transport Layer Security, meaning "basic" 2G/3G security; the USIM Application Toolkit; USIM Application Toolkit Run AT-command; and other functions, such as the WIM, the WAP Identity Module, that is being specified.
- The *TE*, Terminal Equipment, is a PC or another piece of equipment that can run applications independently.
- An *Intelligent Peripheral* could be an advanced charger or a car hands-free installation.
- The *MExE* entities are as defined in **Error! Reference source not found.**.
- *Other* includes ME resident applications and allows for future applications, and, if that is needed for the model, could correspond to other external devices such as a microphone.
- The interfaces as shown in the figure are logical. In practice the applications run in the ME, a TA or on its own separate platform, and the interfaces are then ME internal or external via a physical connector, IrDA, or Bluetooth.

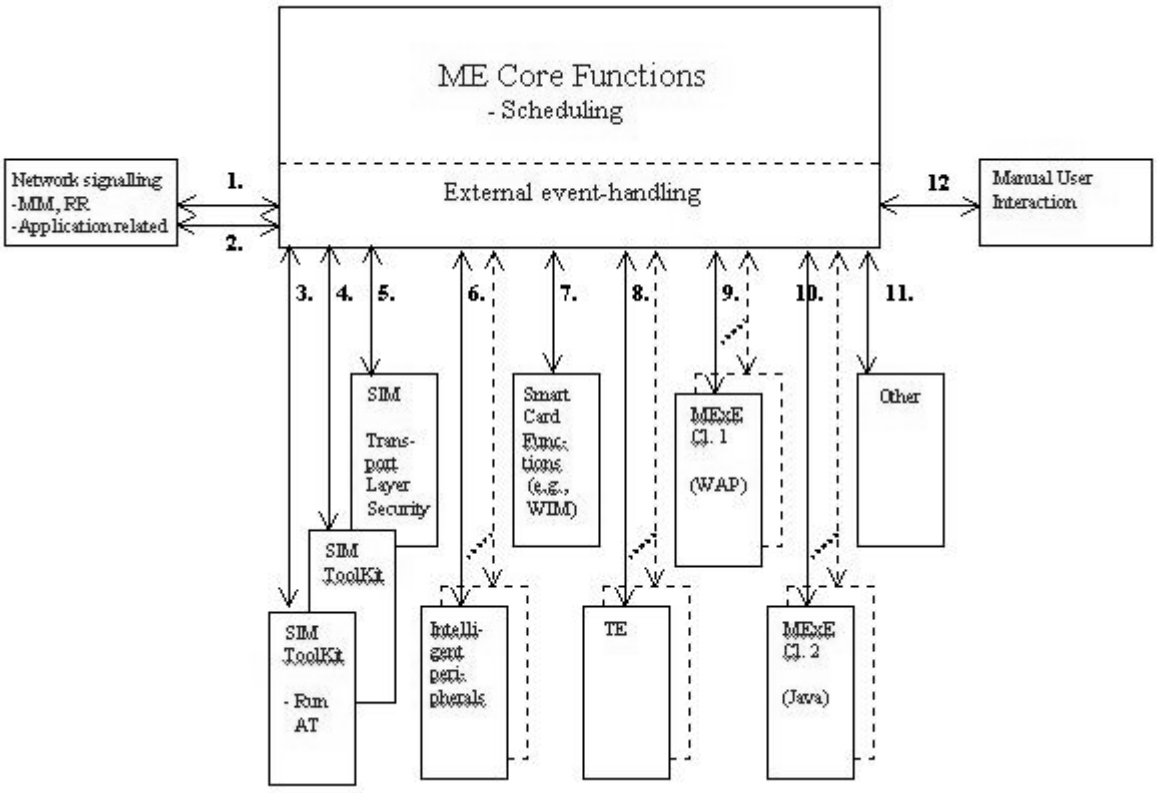

Figure A.1 Example of External events that the ME Core Functions should handle

The figure shows the extent of the complexity that the ME will be expected to handle. It is obvious that a generic framework for conflicts, error handling and interactions is needed. In particular, the following issues can be noted:

1. Priorities of the event handling – the ME does the scheduling and this should be according to the user's preferences.
2. User control – the user's wanted / required interaction; his/her knowledge and control of the events; user integrity for instance for personal data, the ME position, etc.
3. Trace-ability – which entity / application has caused a particular event. This information is required input to solve several of the other issues.
4. Consistency - in the actions of the ME Core Functions relative to the specific application. Several applications and priority levels interact.
5. The validity of commands – for instance call validity when the ME is in the Home PLMN or roaming.
6. Network signalling aspects – how does for instance a dual mode ME treat applications specific to only one of the standards.
7. It might be necessary to look into mechanisms for rejection and termination by the ME Core Function (upon user choice) for applications, calls etc.
8. Testability – the ME manufacturer must be able to as far as possible verify the behaviour of the product, and this should be taken into consideration when the framework is specified. Conformance testing, however, is only relevant to the extent that already is tested.
9. Security aspects – for the protection of the ME and the network mechanisms like authentication of the applications might be required.

Further, the entities have different characteristics; this can possibly be used by the framework definitions. The following can for instance be noted:

1. Several of the entities work together with network nodes, some as slaves (e.g., SIM) and others invoking commands (e.g., WAP). Others, like the intelligent peripherals, only communicate "locally".
2. The entities can be active or passive. In the latter case the ME has more knowledge about the expected behaviour, since they only execute functions upon request and cannot issue commands independently.
3. Some events refer to "basic" network handling, some to manual user interaction, and others relate to application invoked functions. "Basic" network interaction should then have priority if such a distinction can be made. Consideration should be given to incoming calls.

3GPP TSG-T2 #14
Cancún, Mexico
26-30 November 2001

T2-011177

CR-Form-v4

CHANGE REQUEST

⌘ **23.227** **CR** **004** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Add the interaction requirements for USAT bearer indepenedent protocol via local links
Source:	⌘	T2
Work item code:	⌘	TLM5
Date:	⌘	2001-11-20
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)*

Reason for change:	⌘	Update the current specification with the local bearer concept included in 31.111 USAT specification
Summary of change:	⌘	Added the concept of local bearer as part of the Bearer Independent Data Transfer (U)SAT feature. Chapter 5.2 moved to a new chapter 5.3, for better reading of the document.
Consequences if not approved:	⌘	One aspect of the bearer independent data transfer protocol not considered in the interaction requirements. The current specifications not consistant with the USAT specification 31.111

Clauses affected:	⌘	5.1, 5.1.1
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
	⌘	
Other comments:	⌘	

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Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

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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.

5.1 Bearer Independent Data Transfer: Radio Access bearers

Bearer Independent Data Transfer, using bearers over the Uu reference point, is a (U)S~~IM~~AT feature that allows ~~the~~ a (U)S~~IM~~AT application to request the MT~~E~~ to set up and manage a data channel ~~(using~~over a CSD, GPRS, SMS or USSD bearer~~)~~, using information provided by the (U)S~~IM~~AT application. Once the call is established, data may be transferred through that data call. The details for the (U)SIM- (U)SAT/ME interface are specified in 3GPP TS 31.101 [4], 31.102 [5], and 31.111 [6]. The Service Requirements for this are specified in 3GPP TS 22.038 [7].

5.1.1 Interaction between Core ME functions and Bearer Independent Data Transfer Service using Radio Access bearers

When a Bearer Independent Data Transfer Service is requested by ~~the~~ a (U)S~~IM~~AT application, the MT~~E~~ shall:

- If the MT~~E~~ is idle, set up the data channel as requested, indicating to the user by appropriate means, e.g., with an icon, that one or more calls are in progress and confirming to the (U)S~~IM~~AT application.
- If the MT~~E~~ is not idle and can not service the request without negative impact on ongoing services, then the MT~~E~~ shall indicate to the (U)S~~IM~~AT application that the data channel can not be set up. However, if the user has indicated a preference for servicing such requests despite the negative impact then the MT~~E~~ may proceed as in the bullet point above.
- If the user requests that the call be terminated via MMI or other interface, then the call shall be terminated and the (U)S~~IM~~AT application shall be informed.
- If an external device (TE, Bluetooth device etc.) requests the same resource then that request shall be denied.

The above behaviour may be modified by a change of user preferences, for example the user may request the MT~~E~~ to deny access by the (U)~~SIM~~ SAT application to a data channel, or the user may request the MT~~E~~ to prioritise a particular external device such that a call set up by a (U)S~~IM~~AT application is cleared in order for the external device to be able to make a call.

~~5.2 Services and applications external to the MT~~

~~In the tele- and datacom community there exist today use cases for moving internal interfaces out of the MT; they are required to fulfil user expectations of what services and features 3G MTs should offer.~~

~~However, discussions on security clearly show that services should be terminated in the MT, while applications can, as today, terminate in the TE. A possible UE functionality split should not allow internal interfaces (including USIM) to be moved to external interfaces, neither using USAT local link nor other interfaces.~~

~~This is a precaution that shall be taken until suitable procedures against misuse have been found and standardised.~~

5.2 Bearer Independent Data Transfer: local bearers

Bearer Independent Data Transfer, using local bearers, is a (U)SAT feature that allows a (U)SAT application to request the MT to set up and manage a data channel over local links such as Bluetooth, IrDA, RS232 or USB, using information provided by the (U)SAT application. Once the channel is open (local link), data may be transferred through the open channel. The details for the (U)SIM- (U)SAT/ME interface are specified in 3GPP TS 31.101 [4], 31.102 [5], and 31.111 [6]. The Service Requirements for this are specified in 3GPP TS 22.038 [7].

5.2.1 Interaction between Core ME functions and Bearer Independent Data Transfer Service using local bearers

When a Bearer Independent Data Transfer Service over a local link is requested by a (U)SAT application, the MT shall:

- If the MT can set up the local channel as requested, the user shall be notified by appropriate means, e.g., with an icon, that one or more channels are in progress and confirming to the (U)SAT application.

- If the MT can not service the request without negative impact on ongoing services, then the MT shall indicate to the (U)SAT application that the data channel can not be opened. However, if the user has indicated a preference for servicing such requests despite the negative impact then the MT may proceed as in the bullet point above.

- If the user requests that the channel be closed via MMI or other interface, then the channel shall be closed and the (U)SAT application shall be informed.

The above behaviour may be modified by a change of user preferences, for example the user may request the MT to deny access by the (U)SAT application to a data channel over a local link, or the user may request the MT to prioritise a particular external device such that a channel open by a (U)SAT application is cleared in order for the external device to be able to make open a channel.

5.2.2.1 Security requirements on (U)SAT Bearer Independent Data Transfer using local bearers

The local link connection, via Bluetooth, IrDA, USB or RS232, set up from a (U)SAT application shall follow the same security requirements as if the link were established by an application in the MT.

It is important that the requirements stated in 5.3 “Services and applications external to the MT” are fulfilled when a Bearer Independent Data Transfer via local link bearer is control by a (U)SAT application

The secret key and the authentication algorithm cannot be transferred out from the UICC, where the (U)SAT application resides, over the established local link,

5.3 Services and applications external to the MT

In the tele- and datacom community there exist today use cases for moving internal interfaces out of the MT; they are required to fulfil user expectations of what services and features 3G MTs should offer.

However, discussions on security clearly show that services should be terminated in the MT, while applications can, as today, terminate in the TE. A possible UE functionality split should not allow internal interfaces (including USIM) to be moved to external interfaces, neither using USAT local link nor other interfaces.

This is a precaution that shall be taken until suitable procedures against misuse have been found and standardised.

3GPP TSG-T2 #15
Cancún, Mexico
26-30 November 2001

T2-010970

CR-Form-v4

CHANGE REQUEST

⌘ **27.007** **CR** **069** ⌘ ev **1** ⌘ Current version: **3.9.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Obsolete +CGCLOSP and corrections due to IHOSS and OSP removal
Source:	⌘	T2
Work item code:	⌘	TEI
Date:	⌘	2001-11-05
Category:	⌘	**A**
Release:	⌘	R99

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)*

Reason for change:	⌘	It was decided at TSG-SA#8 to remove the IHOSS service from R98 and onwards (SP-000197). This CR aligns the targeted specification accordingly.
Summary of change:	⌘	This CR marks as obsolete the AT command +CGCLOSP and parameters values in +CGDCONT, +CGDSCONT, +CGDATA and Request GPRS service 'D', which are related to the removed feature. The reference to this commands was already removed from 27.060 (N3-010114)
Consequences if not approved:	⌘	The specification is not aligned with the R99 22.060, 23.060 and 27.060.

Clauses affected:	⌘	3.2, 10.1.1, 10.1.2, 10.1.12, 10.1.13, 10.2.1.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:

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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.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AT	ATtention; this two-character abbreviation is always used to start a command line to be sent from TE to TA
ASCI	Advanced Speech Call Items, including VGCS, VBS and eMLPP
BCD	Binary Coded Decimal
eMLPP	Enhanced Multi-Level Precedence and Pre-emption Service
ETSI	European Telecommunications Standards Institute
FTM	Frame Tunnelling Mode (refer 3GPP TS 27.001 [41] and 3GPP TS 29.007[42])
HSCSD	High Speed Circuit Switched Data
~~IHOSS~~	~~Internet Hosted Octet Stream Service~~
IMEI	International Mobile station Equipment Identity
IRA	International Reference Alphabet (ITU-T T.50 [13])
IrDA	Infrared Data Association
ISO	International Standards Organization
ITU-T	International Telecommunication Union - Telecommunications Standardization Sector
ME	Mobile Equipment, e.g. a GSM phone (equal to MS; Mobile Station)
MoU	Memorandum of Understanding (GSM operator joint)
MT	Mobile Termination
~~OSP~~	~~Octet Stream Protocol~~
~~OSP:IHOSS~~	~~Octet Stream Protocol for Internet Hosted Octet Stream Service~~
PCCA	Portable Computer and Communications Association
PTT	Push to Talk
RDI	Restricted Digital Information
RLP	Radio Link Protocol
SIM	Subscriber Identity Module
TA	Terminal Adaptor, e.g. a GSM data card (equal to DCE; Data Circuit terminating Equipment)
TE	Terminal Equipment, e.g. a computer (equal to DTE; Data Terminal Equipment)
TIA	Telecommunications Industry Association
UDI	Unrestricted Digital Information
UICC	Universal Integrated Circuit Card
USIM	Universal Subscriber Identity Module
VBS	Voice Broadcast Service
VGCS	Voice Group Call Service

10.1.1 Define PDP Context +CGDCONT

Table 1: +CGDCONT parameter command syntax

Command	Possible response(s)
+CGDCONT=[<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,…[,pdN]]]]]]]]]	OK ERROR
+CGDCONT?	+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d~~ata~~_comp>, <h~~ead~~_comp>[,<pd1>[,…[,pdN]]] [<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d~~ata~~_comp>, <h~~ead~~_comp>[,<pd1>[,…[,pdN]]] [...]]

+CGDCONT=?	+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [<CR><LF>+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [...]]

Description

The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
OSPIH Internet Hosted Octet Stream Protocol (Obsolete)
PPP Point to Point Protocol (IETF STD 51)

<APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.

If the value is null or omitted, then the subscription value will be requested.

<PDP_address>: a string parameter that identifies the MT in the address space applicable to the PDP.

If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.

The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

<d_comp>: a numeric parameter that controls PDP data compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

NOTE: At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these.

<pd1>, … <pdN>: zero to N string parameters whose meanings are specific to the <PDP_type>

~~For PDP type OSP:IHOSS the following parameters are defined:~~
~~<pd1> = <host> the fully formed domain name extended hostname of the Internet host~~
~~<pd2> = <port > the TCP or UDP port on the Internet host~~
~~<pd3> = <protocol> the protocol to be used over IP on the Internet - "TCP" or "UDP~~

Implementation

Mandatory unless only a single subscribed context is supported.

10.1.2 Define Secondary PDP Context +CGDSCONT

Table 2: +CGDSCONT parameter command syntax

Command	Possible response(s)
+CGDSCONT=[<cid> ,<p_cid> [,<d_comp> [,<h_comp>]]]	OK ERROR
+CGDSCONT?	+CGDSCONT: <cid>, <p_cid>, <d~~ata~~_comp>, <h~~ead~~_comp> [<CR><LF>+CGDSCONT: <cid>, <p_cid>, <d~~ata~~_comp>, <h~~ead~~_comp> [...]]
+CGDSCONT=?	+CGDSCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [<CR><LF>+CGDCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts) ,<PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [...]]

Description

The set command specifies PDP context parameter values for a Secondary PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDSCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<p_cid>: (Primary PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition which has been specified by use of the +CGDCONT command. The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol (IETF STD 5)

IPV6 Internet Protocol, version 6 (IETF RFC 2460)
OSPIH Internet Hosted Octet Stream Protocol (Obsolete)
PPP Point to Point Protocol (IETF STD 51)

<d_comp>: a numeric parameter that controls PDP data compression (applicable to GPRS only)
0 - off (default if value is omitted)
1 - on
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

NOTE. At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these. (GPRS only)

Implementation

Optional.

10.1.12 Enter data state +CGDATA

Table 3: +CGDATA action command syntax

Command	Possible Response(s)
+CGDATA=[<L2P> ,[<cid> [,<cid> [,…]]]]	CONNECT ERROR
+CGDATA=?	+CGDATA: (list of supported <L2P>s)

Description

The execution command causes the MT to perform whatever actions are necessary to establish communication between the TE and the network using one or more Packet Domain PDP types. This may include performing a PS attach and one or more PDP context activations. If the <L2P> parameter value is unacceptable to the MT, the MT shall return an ERROR or +CME ERROR response. Otherwise, the MT issues the intermediate result code CONNECT and enters V.25ter online data state.

Commands following +CGDATA command in the AT command line shall not be processed by the MT.

The detailed behaviour after the online data state has been entered is dependent on the PDP type. It is described briefly in 3GPP TS 27.060[34] and in more detail in 3GPP TS 29.061[39] and the specifications for the relevant PDPs. PS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT and +CGACT commands.

If context activation takes place during the PDP startup, one or more <cid>s may be specified in order to provide the information needed for the context activation request(s).

During each PDP startup procedure the MT may have access to some or all of the following information -

The MT may have a priori knowledge, for example, it may implement only one PDP type.

The command may have provided an <L2P> parameter value.

The TE may provide a PDP type and/or PDP address to the MT during in the PDP startup procedure.

If any of this information is in conflict, the command will fail.

Any PDP type and/or PDP address present in the above information shall be compared with the PDP type and/or PDP address in any context definitions specified in the command in the order in which their <cid>s appear. For a context definition to match -

The PDP type must match exactly.

The PDP addresses are considered to match if they are identical or if either or both addresses are unspecified. For example, a PPP NCP request specifying PDP type = IP and no PDP address would cause the MT to search through the specified context definitions for one with PDP type = IP and any PDP address.

The context shall be activated using the matched value for PDP type and a static PDP address if available, together with the other information found in the PDP context definition. If a static PDP address is not available then a dynamic address is requested.

If no <cid> is given or if there is no matching context definition, the MT shall attempt to activate the context with whatever information is available to the MT. The other context parameters shall be set to their default values.

If the activation is successful, data transfer may proceed.

After data transfer is complete, and the layer 2 protocol termination procedure has completed successfully, the V.25ter command state is re-entered and the MT returns the final result code OK.

In the event of an erroneous termination or a failure to start up, the V.25ter command state is re-entered and the MT returns the final result code NO CARRIER or, if enabled, +CME ERROR. Attach, activate and other errors may be reported.

The test command is used for requesting information on the supported layer 2 protocols.

This command may be used in both normal and modem compatibility modes.

Defined Values

<L2P>: a string parameter that indicates the layer 2 protocol to be used between the TE and MT

NULL	none, for PDP type OSP:IHOSS (Obsolete)
PPP	Point-to-point protocol for a PDP such as IP
PAD	character stream for X.25 character (triple X PAD) mode
X25	X.25 L2 (LAPB) for X.25 packet mode
M-xxxx	manufacturer-specific protocol (xxxx is an alphanumeric string)

If the value is omitted, the layer 2 protocol is unspecified. Other values are reserved and will result in an ERROR response.

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Implementation

Optional if the D (dial) command can be used to specify Packet Domain operation.

10.1.13 Configure local Octet Stream PAD parameters +CGCLOSP (Obsolete)

~~Table 110: CGCLOSP parameter command syntax~~

~~Command~~	~~Possible Response(s)~~
~~+CGCLOSP=[<parm>, <value>]~~	~~OK~~ ~~ERROR~~
~~+CGCLOSP?~~	~~+CGCLOSP: <parm>, <value>~~ ~~[<CR><LF>+CGCLOSP: <parm>, <value>>~~ ~~[…]]~~
~~+CGCLOSP=?~~	~~+CGCLOSP: <parm>, (list of supported <value>s)~~ ~~[<CR><LF>+CGCLOSP: <parm>, (list of supported <value>s)~~ ~~[…]]~~

~~**Description**~~

~~The set command sets the value of a specified OSP PAD parameter in the local PAD. The set of parameters to be supported is listed in the OSP protocol specification.~~

~~Setting the maximum sizes for the local Packet Assembly and Disassembly buffers will cause corresponding values for the GGSN relay buffers to be negotiated.~~

~~The read command returns, one per line, the value of each of the supported parameters.~~

~~The test command returns, one per line, the permitted range of values for each of the supported parameters.~~

~~**Defined values**~~

~~<parm>: a numeric parameter which specifies the PAD parameter to be configured~~

~~<value>: a numeric parameter which specifies the value to which PAD parameter is to be set~~

~~If <value> is omitted for a particular parameter then <parm> is set to the OSP-defined default, if any.~~

~~**Implementation**~~

~~Optional.~~

10.2.1.1 Request Packet Domain service 'D'

Table 5: D command syntax

Command	Possible Response(s)
D*<GPRS_SC>[*[<called_address>] [*[<L2P>][*[<cid>[,<cid>[,…]]]]]]#	CONNECT ERROR

Description

This command causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN.

The V.25ter 'D' (Dial) command causes the MT to enter the V.25ter online data state and, with the TE, to start the specified layer 2 protocol. The MT shall return CONNECT to confirm acceptance of the command prior to entering the V.25ter online data state. No further commands may follow on the AT command line.

The detailed behaviour after the online data state has been entered is dependent on the PDP type. It is described briefly in clauses 8 (for X.25) and 9 (for IP) of 3GPP TS 27.060[34]. PS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT and +CGACT commands.

When the layer 2 protocol has terminated, either as a result of an orderly shut down of the PDP or an error, the MT shall enter V.25ter command state and return the NO CARRIER final result code.

If <called address> is supported and provided, the MT shall automatically set up a virtual call to the specified address after the PDP context has been activated.

If <L2P> and <cid> are supported, their usage shall be the same as in the +CGDATA command. The +CGDCONT, +CGQREQ, etc. commands may be used in the modem initialization AT command string to set values for for PDP type, APN, QoS etc..

If <L2P> is not supported or is supported but omitted, the MT shall use a layer 2 protocol appropriate to the PDP type.

If <cid> is not supported or is supported but omitted, the MT shall attempt to activate the context using:

(a) any information provided by the TE during the PDP startup procedure, e.g. the TE may provide a PDP type and/or PDP address to the MT,

or, (b) a priori knowledge, e.g. the MT may implement only one PDP type,

or, (c) using the 'Empty PDP type' (GSM 04.08). (No PDP address or APN shall be sent in this case and only one PDP context subscription record shall be present in the HLR for this subscriber.)

This command may be used in both normal and modem compatibility modes.

NOTE: The dial string conforms to the syntax specified in 3GPP TS 22.030 [19].

Defined Values

<GPRS_SC>: (GPRS Service Code) a digit string (value 99) which identifies a request to use the Packet Domain service

<called_address>: a string that identifies the called party in the address space applicable to the PDP. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent may be used. Also, the character comma ',' may be used as a substitute for the character period '.'.
~~For PDP type OSP:IHOSS, the following syntax may be used for <called_address>:~~
~~[<host>][@[<port>][@[<protocol>]]]~~
~~where <host>, <port> and <protocol> are defined in the +CGDCONT description. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent to the hostname may be used. However, this should be avoided if at all possible.~~

<L2P>: a string which indicates the layer 2 protocol to be used (see +CGDATA command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used:
0 NULL (Obsolete)
1 PPP
2 PAD
3 X25
9yyyy M-xxxx
Other values are reserved and will result in an ERROR response

<cid>: a digit string which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Implementation

Optional if the +CGDATA command is supported. If the D command is provided, then support for <called_address>, <L2P> and <cid> are optional. If they are not supported but values are provided by the TE, the values shall be ignored and this shall not constitute an error.

3GPP TSG-T2 #15
Cancún, Mexico
26-30 November 2001

T2-010971

CR-Form-v4

CHANGE REQUEST

⌘ **27.007** **CR** **070** ⌘ ev **1** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Obsolete +CGCLOSP and corrections due to IHOSS and OSP removal
Source:	⌘	T2
Work item code:	⌘	TI-ATC
Date:	⌘	2001-11-05
Category:	⌘	**A**
Release:	⌘	REL-4

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)

Reason for change:	⌘	It was decided at TSG-SA#8 to remove the IHOSS service from R98 and onwards (SP-000197). This CR aligns the targeted specification accordingly.
Summary of change:	⌘	This CR marks as obsolete the AT command +CGCLOSP and parameters values in +CGDCONT, +CGDSCONT, +CGDATA and Request GPRS service 'D', which are related to the removed feature.
Consequences if not approved:	⌘	The specification is not aligned with the R99 22.060, 23.060 and 27.060.

Clauses affected:	⌘	3.2, 10.1.1, 10.1.2, 10.1.12, 10.1.13, 10.2.1.1
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AT	ATtention; this two-character abbreviation is always used to start a command line to be sent from TE to TA
ASCI	Advanced Speech Call Items, including VGCS, VBS and eMLPP
BCD	Binary Coded Decimal
eMLPP	Enhanced Multi-Level Precedence and Pre-emption Service
ETSI	European Telecommunications Standards Institute
FTM	Frame Tunnelling Mode (refer 3GPP TS 27.001 [41] and 3GPP TS 29.007[42])
HSCSD	High Speed Circuit Switched Data
~~IHOSS~~	~~Internet Hosted Octet Stream Service~~
IMEI	International Mobile station Equipment Identity
IRA	International Reference Alphabet (ITU-T T.50 [13])
IrDA	Infrared Data Association
ISO	International Standards Organization
ITU-T	International Telecommunication Union - Telecommunications Standardization Sector
ME	Mobile Equipment, e.g. a GSM phone (equal to MS; Mobile Station)
MoU	Memorandum of Understanding (GSM operator joint)
MT	Mobile Termination
~~OSP~~	~~Octet Stream Protocol~~
~~OSP:IHOSS~~	~~Octet Stream Protocol for Internet Hosted Octet Stream Service~~
PCCA	Portable Computer and Communications Association
PTT	Push to Talk
RDI	Restricted Digital Information
RLP	Radio Link Protocol
SIM	Subscriber Identity Module
TA	Terminal Adaptor, e.g. a GSM data card (equal to DCE; Data Circuit terminating Equipment)
TE	Terminal Equipment, e.g. a computer (equal to DTE; Data Terminal Equipment)
TIA	Telecommunications Industry Association
UDI	Unrestricted Digital Information
UICC	Universal Integrated Circuit Card
USIM	Universal Subscriber Identity Module
VBS	Voice Broadcast Service
VGCS	Voice Group Call Service

10.1.1 Define PDP Context +CGDCONT

Table 1: +CGDCONT parameter command syntax

Command	Possible response(s)
+CGDCONT=[<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,…[,pdN]]]]]]]]]	OK ERROR
+CGDCONT?	+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d~~ata~~_comp>, <h~~ead~~_comp>[,<pd1>[,…[,pdN]]] [<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d~~ata~~_comp>, <h~~ead~~_comp>[,<pd1>[,…[,pdN]]] [...]]

+CGDCONT=?	+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [<CR><LF>+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [...]]

Description

The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
OSPIH Internet Hoasted Octect Stream Protocol (Obsolete)
PPP Point to Point Protocol (IETF STD 51)

<APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.

If the value is null or omitted, then the subscription value will be requested.

<PDP_address>: a string parameter that identifies the MT in the address space applicable to the PDP.

If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.

The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

<d_comp>: a numeric parameter that controls PDP data compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

NOTE: At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these.

<pd1>, … <pdN>: zero to N string parameters whose meanings are specific to the <PDP_type>

~~For PDP type OSP:IHOSS the following parameters are defined:~~
~~<pd1> = <host> the fully formed domain name extended hostname of the Internet host~~
~~<pd2> = <port > the TCP or UDP port on the Internet host~~
~~<pd3> = <protocol> the protocol to be used over IP on the Internet - "TCP" or "UDP~~

Implementation

Mandatory unless only a single subscribed context is supported.

10.1.2 Define Secondary PDP Context +CGDSCONT

Table 2: +CGDSCONT parameter command syntax

Command	Possible response(s)
+CGDSCONT=[<cid> ,<p_cid> [,<d_comp> [,<h_comp>]]]	OK ERROR
+CGDSCONT?	+CGDSCONT: <cid>, <p_cid>, <d~~ata~~_comp>, <h~~ead~~_comp> [<CR><LF>+CGDSCONT: <cid>, <p_cid>, <d~~ata~~_comp>, <h~~ead~~_comp> [...]]
+CGDSCONT=?	+CGDSCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [<CR><LF>+CGDCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts) ,<PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [...]]

Description

The set command specifies PDP context parameter values for a Secondary PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDSCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<p_cid>: (Primary PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition which has been specified by use of the +CGDCONT command. The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol (IETF STD 5)

IPV6 Internet Protocol, version 6 (IETF RFC 2460)
OSPIH Internet Hoasted Octect Stream Protocol (Obsolete)
PPP Point to Point Protocol (IETF STD 51)

<d_comp>: a numeric parameter that controls PDP data compression (applicable to GPRS only)
0 - off (default if value is omitted)
1 - on
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

NOTE. At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these. (GPRS only)

Implementation

Optional.

10.1.12 Enter data state +CGDATA

Table 3: +CGDATA action command syntax

Command	Possible Response(s)
+CGDATA=[<L2P> ,[<cid> [,<cid> [,…]]]]	CONNECT ERROR
+CGDATA=?	+CGDATA: (list of supported <L2P>s)

Description

The execution command causes the MT to perform whatever actions are necessary to establish communication between the TE and the network using one or more Packet Domain PDP types. This may include performing a PS attach and one or more PDP context activations. If the <L2P> parameter value is unacceptable to the MT, the MT shall return an ERROR or +CME ERROR response. Otherwise, the MT issues the intermediate result code CONNECT and enters V.25ter online data state.

Commands following +CGDATA command in the AT command line shall not be processed by the MT.

The detailed behaviour after the online data state has been entered is dependent on the PDP type. It is described briefly in 3GPP TS 27.060[34] and in more detail in 3GPP TS 29.061[39] and the specifications for the relevant PDPs. PS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT and +CGACT commands.

If context activation takes place during the PDP startup, one or more <cid>s may be specified in order to provide the information needed for the context activation request(s).

During each PDP startup procedure the MT may have access to some or all of the following information -

The MT may have a priori knowledge, for example, it may implement only one PDP type.

The command may have provided an <L2P> parameter value.

The TE may provide a PDP type and/or PDP address to the MT during in the PDP startup procedure.

If any of this information is in conflict, the command will fail.

Any PDP type and/or PDP address present in the above information shall be compared with the PDP type and/or PDP address in any context definitions specified in the command in the order in which their <cid>s appear. For a context definition to match -

The PDP type must match exactly.

The PDP addresses are considered to match if they are identical or if either or both addresses are unspecified. For example, a PPP NCP request specifying PDP type = IP and no PDP address would cause the MT to search through the specified context definitions for one with PDP type = IP and any PDP address.

The context shall be activated using the matched value for PDP type and a static PDP address if available, together with the other information found in the PDP context definition. If a static PDP address is not available then a dynamic address is requested.

If no <cid> is given or if there is no matching context definition, the MT shall attempt to activate the context with whatever information is available to the MT. The other context parameters shall be set to their default values.

If the activation is successful, data transfer may proceed.

After data transfer is complete, and the layer 2 protocol termination procedure has completed successfully, the V.25ter command state is re-entered and the MT returns the final result code OK.

In the event of an erroneous termination or a failure to start up, the V.25ter command state is re-entered and the MT returns the final result code NO CARRIER or, if enabled, +CME ERROR. Attach, activate and other errors may be reported.

The test command is used for requesting information on the supported layer 2 protocols.

This command may be used in both normal and modem compatibility modes.

Defined Values

<L2P>: a string parameter that indicates the layer 2 protocol to be used between the TE and MT

NULL	none, for PDP type OSP:IHOSS (Obsolete)
PPP	Point-to-point protocol for a PDP such as IP
PAD	character stream for X.25 character (triple X PAD) mode
X25	X.25 L2 (LAPB) for X.25 packet mode
M-xxxx	manufacturer-specific protocol (xxxx is an alphanumeric string)

If the value is omitted, the layer 2 protocol is unspecified. Other values are reserved and will result in an ERROR response.

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Implementation

Optional if the D (dial) command can be used to specify Packet Domain operation.

10.1.13 Configure local Octet Stream PAD parameters +CGCLOSP (Obsolete)

~~Table 115: CGCLOSP parameter command syntax~~

~~Command~~	~~Possible Response(s)~~
~~+CGCLOSP=[<parm>, <value>]~~	~~OK~~ ~~ERROR~~
~~+CGCLOSP?~~	~~+CGCLOSP: <parm>, <value>~~ ~~[<CR><LF>+CGCLOSP: <parm>, <value>~~ ~~[…]]~~
~~+CGCLOSP=?~~	~~+CGCLOSP: <parm>, (list of supported <value>s)~~ ~~[<CR><LF>+CGCLOSP: <parm>, (list of supported <value>s)~~ ~~[…]]~~

~~Description~~

~~The set command sets the value of a specified OSP PAD parameter in the local PAD. The set of parameters to be supported is listed in the OSP protocol specification.~~

~~Setting the maximum sizes for the local Packet Assembly and Disassembly buffers will cause corresponding values for the GGSN relay buffers to be negotiated.~~

~~The read command returns, one per line, the value of each of the supported parameters.~~

~~The test command returns, one per line, the permitted range of values for each of the supported parameters.~~

~~**Defined values**~~

~~<parm>: a numeric parameter which specifies the PAD parameter to be configured~~

~~<value>: a numeric parameter which specifies the value to which PAD parameter is to be set~~

~~If <value> is omitted for a particular parameter then <parm> is set to the OSP-defined default, if any.~~

~~**Implementation**~~

~~Optional.~~

10.2.1.1 Request Packet Domain service 'D'

Table 5: D command syntax

Command	Possible Response(s)
D*<GPRS_SC>[*[<called_address>] [*[<L2P>][*[<cid>[,<cid>[,…]]]]]]#	CONNECT ERROR

Description

This command causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN.

The V.25ter 'D' (Dial) command causes the MT to enter the V.25ter online data state and, with the TE, to start the specified layer 2 protocol. The MT shall return CONNECT to confirm acceptance of the command prior to entering the V.25ter online data state. No further commands may follow on the AT command line.

The detailed behaviour after the online data state has been entered is dependent on the PDP type. It is described briefly in clauses 8 (for X.25) and 9 (for IP) of 3GPP TS 27.060[34]. PS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT and +CGACT commands.

When the layer 2 protocol has terminated, either as a result of an orderly shut down of the PDP or an error, the MT shall enter V.25ter command state and return the NO CARRIER final result code.

If <called address> is supported and provided, the MT shall automatically set up a virtual call to the specified address after the PDP context has been activated.

If <L2P> and <cid> are supported, their usage shall be the same as in the +CGDATA command. The +CGDCONT, +CGQREQ, etc. commands may be used in the modem initialization AT command string to set values for for PDP type, APN, QoS etc..

If <L2P> is not supported or is supported but omitted, the MT shall use a layer 2 protocol appropriate to the PDP type.

If <cid> is not supported or is supported but omitted, the MT shall attempt to activate the context using:

(a) any information provided by the TE during the PDP startup procedure, e.g. the TE may provide a PDP type and/or PDP address to the MT,

or, (b) a priori knowledge, e.g. the MT may implement only one PDP type,

or, (c) using the 'Empty PDP type' (TS 24.008). (No PDP address or APN shall be sent in this case and only one PDP context subscription record shall be present in the HLR for this subscriber.)

This command may be used in both normal and modem compatibility modes.

NOTE: The dial string conforms to the syntax specified in 3GPP TS 22.030 [19].

Defined Values

<GPRS_SC>: (GPRS Service Code) a digit string (value 99) which identifies a request to use the Packet Domain service

<called_address>: a string that identifies the called party in the address space applicable to the PDP. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent may be used. Also, the character comma ',' may be used as a substitute for the character period '.'.
~~For PDP type OSP:IHOSS, the following syntax may be used for <called_address>:~~
~~[<host>][@[<port>][@[<protocol>]]]~~
~~where <host>, <port> and <protocol> are defined in the +CGDCONT description. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent to the hostname may be used. However, this should be avoided if at all possible.~~

<L2P>: a string which indicates the layer 2 protocol to be used (see +CGDATA command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used:
0 NULL (Obsolete)
1 PPP
2 PAD
3 X25
9yyyy M-xxxx
Other values are reserved and will result in an ERROR response

<cid>: a digit string which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Implementation

Optional if the +CGDATA command is supported. If the D command is provided, then support for <called_address>, <L2P> and <cid> are optional. If they are not supported but values are provided by the TE, the values shall be ignored and this shall not constitute an error.

3GPP TSG-T2 #14
Cancún, Mexico
26-30 November 2001

T2-010972

CR-Form-v4

CHANGE REQUEST

⌘ **27.007** **CR** **071** ⌘ ev **1** ⌘ Current version: **3.9.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Obsolete +CGCLPAD and corrections due to X.25 removal
Source:	⌘	T2
Work item code:	⌘	TI-ATC
Date:	⌘	2001-11-05
Category:	⌘	**F**
Release:	⌘	R99

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)*

Reason for change:	⌘	Support of X.25 is no longer required for R'99 packet Domain. This CR aligns the targeted specification accordingly.
Summary of change:	⌘	This CR marks as obsolete the AT command + CGCLPAD and parameters values in +CGDATA and Request GPRS service 'D', which are related to the removed feature. The reference to this commands was already removed from 27.060 (N3-000099)
Consequences if not approved:	⌘	The specification is not aligned with the R99 GPRS specifications

Clauses affected:	⌘	10.1.1, 10.1.2, 10.1.12, 10.1.12 (same number but different chapter!), 10.2.1.1
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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.

10.1.1 Define PDP Context +CGDCONT

Table 1: +CGDCONT parameter command syntax

Command	Possible response(s)
+CGDCONT=[<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,…[,pdN]]]]]]]]]	OK ERROR
+CGDCONT?	+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d~~ata~~_comp>, <h~~ead~~_comp>[,<pd1>[,…[,pdN]]] [<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d~~ata~~_comp>, <h~~ead~~_comp>[,<pd1>[,…[,pdN]]] [...]]
+CGDCONT=?	+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [<CR><LF>+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [...]]

Description

The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

X.25 ITU-T/CCITT X.25 layer 3 (Obsolete)
IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
PPP Point to Point Protocol (IETF STD 51)

<APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.

If the value is null or omitted, then the subscription value will be requested.

<PDP_address>: a string parameter that identifies the MT in the address space applicable to the PDP.

If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.

The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

<d_comp>: a numeric parameter that controls PDP data compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

NOTE: At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these.

<pd1>, … <pdN>: zero to N string parameters whose meanings are specific to the <PDP_type>

For PDP type OSP:IHOSS the following parameters are defined:
<pd1> = <host> the fully formed domain name extended hostname of the Internet host
<pd2> = <port > the TCP or UDP port on the Internet host
<pd3> = <protocol> the protocol to be used over IP on the Internet - "TCP" or "UDP

Implementation

Mandatory unless only a single subscribed context is supported.

10.1.2 Define Secondary PDP Context +CGDSCONT

Table 2: +CGDSCONT parameter command syntax

Command	Possible response(s)
+CGDSCONT=[<cid> ,<p_cid> [,<d_comp> [,<h_comp>]]]	OK ERROR
+CGDSCONT?	+CGDSCONT: <cid>, <p_cid>, <d~~ata~~_comp>, <h~~ead~~_comp> [<CR><LF>+CGDSCONT: <cid>, <p_cid>, <d~~ata~~_comp>, <h~~ead~~_comp> [...]]
+CGDSCONT=?	+CGDSCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [<CR><LF>+CGDCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts) ,<PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [...]]

Description

The set command specifies PDP context parameter values for a Secondary PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDSCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<p_cid>: (Primary PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition which has been specified by use of the +CGDCONT command. The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

X.25 ITU-T/CCITT X.25 layer 3 (Obsolete)
IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
PPP Point to Point Protocol (IETF STD 51)

<d_comp>: a numeric parameter that controls PDP data compression (applicable to GPRS only)
0 - off (default if value is omitted)
1 - on
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

NOTE. At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these. (GPRS only)

Implementation

Optional.

10.1.12 Enter data state +CGDATA

Table 3: +CGDATA action command syntax

Command	Possible Response(s)
+CGDATA=[<L2P> ,[<cid> [,<cid> [,…]]]]	CONNECT ERROR
+CGDATA=?	+CGDATA: (list of supported <L2P>s)

Description

The execution command causes the MT to perform whatever actions are necessary to establish communication between the TE and the network using one or more Packet Domain PDP types. This may include performing a PS attach and one or more PDP context activations. If the <L2P> parameter value is unacceptable to the MT, the MT shall return an ERROR or +CME ERROR response. Otherwise, the MT issues the intermediate result code CONNECT and enters V.25ter online data state.

Commands following +CGDATA command in the AT command line shall not be processed by the MT.

The detailed behaviour after the online data state has been entered is dependent on the PDP type. It is described briefly in 3GPP TS 27.060[34] and in more detail in 3GPP TS 29.061[39] and the specifications for the relevant PDPs. PS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT and +CGACT commands.

If context activation takes place during the PDP startup, one or more <cid>s may be specified in order to provide the information needed for the context activation request(s).

During each PDP startup procedure the MT may have access to some or all of the following information -

The MT may have a priori knowledge, for example, it may implement only one PDP type.

The command may have provided an <L2P> parameter value.

The TE may provide a PDP type and/or PDP address to the MT during in the PDP startup procedure.

If any of this information is in conflict, the command will fail.

Any PDP type and/or PDP address present in the above information shall be compared with the PDP type and/or PDP address in any context definitions specified in the command in the order in which their <cid>s appear. For a context definition to match -

The PDP type must match exactly.

The PDP addresses are considered to match if they are identical or if either or both addresses are unspecified. For example, a PPP NCP request specifying PDP type = IP and no PDP address would cause the MT to search through the specified context definitions for one with PDP type = IP and any PDP address.

The context shall be activated using the matched value for PDP type and a static PDP address if available, together with the other information found in the PDP context definition. If a static PDP address is not available then a dynamic address is requested.

If no <cid> is given or if there is no matching context definition, the MT shall attempt to activate the context with whatever information is available to the MT. The other context parameters shall be set to their default values.

If the activation is successful, data transfer may proceed.

After data transfer is complete, and the layer 2 protocol termination procedure has completed successfully, the V.25ter command state is re-entered and the MT returns the final result code OK.

In the event of an erroneous termination or a failure to start up, the V.25ter command state is re-entered and the MT returns the final result code NO CARRIER or, if enabled, +CME ERROR. Attach, activate and other errors may be reported.

The test command is used for requesting information on the supported layer 2 protocols.

This command may be used in both normal and modem compatibility modes.

Defined Values

<L2P>: a string parameter that indicates the layer 2 protocol to be used between the TE and MT

NULL	none, for PDP type OSP:IHOSS
PPP	Point-to-point protocol for a PDP such as IP
PAD	character stream for X.25 character (triple X PAD) mode (Obsolete)
X25	X.25 L2 (LAPB) for X.25 packet mode (Obsolete)
M-xxxx	manufacturer-specific protocol (xxxx is an alphanumeric string)

If the value is omitted, the layer 2 protocol is unspecified. Other values are reserved and will result in an ERROR response.

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Implementation

Optional if the D (dial) command can be used to specify Packet Domain operation.

10.1.12 Configure local triple-X PAD parameters +CGCLPAD (GPRS only) (Obsolete)

~~Table 115: CGCLPAD parameter command syntax~~

~~Command~~	~~Possible Response(s)~~
~~+CGCLPAD=[<parm>, <value>]~~	~~OK~~ ~~ERROR~~
~~+CGCLPAD?~~	~~+CGCLPAD: <parm>, <value>~~ ~~[<CR><LF>+CGCLPAD: <parm>, <value>>~~ ~~[…]]~~
~~+CGCLPAD=?~~	~~+CGCLPAD: <parm>, (list of supported <value>s)~~ ~~[<CR><LF>+CGCLPAD: <parm>, (list of supported <value>s)~~ ~~[…]]~~

~~Description~~

~~The set command sets the value of a specified X.3 PAD parameter in the local PAD. A minimum set of parameters to be supported is listed in 3GPP TS 27.060[34].~~

~~The read command returns, one per line, the value of each of the supported parameters.~~

~~The test command returns, one per line, the permitted range of values for each of the supported parameters.~~

~~Defined values~~

~~<parm>: a numeric parameter which specifies the X.3 parameter to be configured~~

~~<value>: a numeric parameter which specifies the value to which the X.3 parameter is to be set~~

~~If <value> is omitted for a particular class then <parm> is set to the X.3 defined default, if any.~~

~~Implementation~~

~~Optional.~~

10.2.1.1 Request Packet Domain service 'D'

Table 5: D command syntax

Command	Possible Response(s)
D*<GPRS_SC>[*[<called_address>] [*[<L2P>][*[<cid>[,<cid>[,…]]]]]]#	CONNECT ERROR

Description

This command causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN.

The V.25ter 'D' (Dial) command causes the MT to enter the V.25ter online data state and, with the TE, to start the specified layer 2 protocol. The MT shall return CONNECT to confirm acceptance of the command prior to entering the V.25ter online data state. No further commands may follow on the AT command line.

The detailed behaviour after the online data state has been entered is dependent on the PDP type. It is described briefly in clause~~s 8 (for X.25) and~~ 9 (for IP) of 3GPP TS 27.060[34]. PS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT and +CGACT commands.

When the layer 2 protocol has terminated, either as a result of an orderly shut down of the PDP or an error, the MT shall enter V.25ter command state and return the NO CARRIER final result code.

If <called address> is supported and provided, the MT shall automatically set up a virtual call to the specified address after the PDP context has been activated.

If <L2P> and <cid> are supported, their usage shall be the same as in the +CGDATA command. The +CGDCONT, +CGQREQ, etc. commands may be used in the modem initialization AT command string to set values for for PDP type, APN, QoS etc..

If <L2P> is not supported or is supported but omitted, the MT shall use a layer 2 protocol appropriate to the PDP type.

If <cid> is not supported or is supported but omitted, the MT shall attempt to activate the context using:

(a) any information provided by the TE during the PDP startup procedure, e.g. the TE may provide a PDP type and/or PDP address to the MT,

or, (b) a priori knowledge, e.g. the MT may implement only one PDP type,

or, (c) using the 'Empty PDP type' (GSM 04.08). (No PDP address or APN shall be sent in this case and only one PDP context subscription record shall be present in the HLR for this subscriber.)

This command may be used in both normal and modem compatibility modes.

NOTE: The dial string conforms to the syntax specified in 3GPP TS 22.030 [19].

Defined Values

<GPRS_SC>: (GPRS Service Code) a digit string (value 99) which identifies a request to use the Packet Domain service

<called_address>: a string that identifies the called party in the address space applicable to the PDP. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent may be used. Also, the character comma ',' may be used as a substitute for the character period '.'.
For PDP type OSP:IHOSS, the following syntax may be used for <called_address>:
[<host>][@[<port>][@[<protocol>]]]
where <host>, <port> and <protocol> are defined in the +CGDCONT description. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent to the hostname may be used. However, this should be avoided if at all possible.

<L2P>: a string which indicates the layer 2 protocol to be used (see +CGDATA command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used:
0 NULL
1 PPP
2 PAD (Obsolete)
3 X25 (Obsolete)
9yyyy M-xxxx
Other values are reserved and will result in an ERROR response

<cid>: a digit string which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Implementation

Optional if the +CGDATA command is supported. If the D command is provided, then support for <called_address>, <L2P> and <cid> are optional. If they are not supported but values are provided by the TE, the values shall be ignored and this shall not constitute an error.

3GPP TSG-T2 #14
Cancún, Mexico
26-30 November 2001

T2-010973

CR-Form-v4

CHANGE REQUEST

⌘ **27.007** **CR** **072** ⌘ ev **1** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Obsolete +CGCLPAD and corrections due to X.25 removal
Source:	⌘	T2
Work item code:	⌘	TI-ATC
Date:	⌘	2001-11-05
Category:	⌘	**A**
Release:	⌘	REL-4

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)*

Reason for change:	⌘	Support of X.25 was removed from R'99 packet Domain. This CR aligns the targeted specification accordingly.
Summary of change:	⌘	This CR marks as obsolete the AT command + CGCLPAD and parameters values in +CGDATA and Request GPRS service 'D', which are related to the removed feature.
Consequences if not approved:	⌘	The specification is not aligned with the R4 GPRS specifications

Clauses affected:	⌘	10.1.1, 10.1.2, 10.1.12, 10.1.12 (same number but different chapter!), 10.2.1.1
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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.

10.1.1 Define PDP Context +CGDCONT

Table 1: +CGDCONT parameter command syntax

Command	Possible response(s)
+CGDCONT=[<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,…[,pdN]]]]]]]]]	OK ERROR
+CGDCONT?	+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d~~ata~~_comp>, <h~~ead~~_comp>[,<pd1>[,…[,pdN]]] [<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d~~ata~~_comp>, <h~~ead~~_comp>[,<pd1>[,…[,pdN]]] [...]]
+CGDCONT=?	+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [<CR><LF>+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [...]]

Description

The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

X.25 ITU-T/CCITT X.25 layer 3 (Obsolete)
IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
PPP Point to Point Protocol (IETF STD 51)

<APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.

If the value is null or omitted, then the subscription value will be requested.

<PDP_address>: a string parameter that identifies the MT in the address space applicable to the PDP.

If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.

The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

<d_comp>: a numeric parameter that controls PDP data compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

NOTE: At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these.

<pd1>, … <pdN>: zero to N string parameters whose meanings are specific to the <PDP_type>

For PDP type OSP:IHOSS the following parameters are defined:
<pd1> = <host> the fully formed domain name extended hostname of the Internet host
<pd2> = <port > the TCP or UDP port on the Internet host
<pd3> = <protocol> the protocol to be used over IP on the Internet - "TCP" or "UDP

Implementation

Mandatory unless only a single subscribed context is supported.

10.1.2 Define Secondary PDP Context +CGDSCONT

Table 2: +CGDSCONT parameter command syntax

Command	Possible response(s)
+CGDSCONT=[<cid> ,<p_cid> [,<d_comp> [,<h_comp>]]]	OK ERROR
+CGDSCONT?	+CGDSCONT: <cid>, <p_cid>, <d~~ata~~_comp>, <h~~ead~~_comp> [<CR><LF>+CGDSCONT: <cid>, <p_cid>, <d~~ata~~_comp>, <h~~ead~~_comp> [...]]
+CGDSCONT=?	+CGDSCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [<CR><LF>+CGDCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts) ,<PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [...]]

Description

The set command specifies PDP context parameter values for a Secondary PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDSCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<p_cid>: (Primary PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition which has been specified by use of the +CGDCONT command. The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

X.25 ITU-T/CCITT X.25 layer 3 (Obsolete)
IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
PPP Point to Point Protocol (IETF STD 51)

<d_comp>: a numeric parameter that controls PDP data compression (applicable to GPRS only)
0 - off (default if value is omitted)
1 - on
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression
0 - off (default if value is omitted)
1 - on
Other values are reserved.

NOTE. At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these. (GPRS only)

Implementation

Optional.

10.1.12 Enter data state +CGDATA

Table 3: +CGDATA action command syntax

Command	Possible Response(s)
+CGDATA=[<L2P> ,[<cid> [,<cid> [,…]]]]	CONNECT ERROR
+CGDATA=?	+CGDATA: (list of supported <L2P>s)

Description

The execution command causes the MT to perform whatever actions are necessary to establish communication between the TE and the network using one or more Packet Domain PDP types. This may include performing a PS attach and one or more PDP context activations. If the <L2P> parameter value is unacceptable to the MT, the MT shall return an ERROR or +CME ERROR response. Otherwise, the MT issues the intermediate result code CONNECT and enters V.25ter online data state.

Commands following +CGDATA command in the AT command line shall not be processed by the MT.

The detailed behaviour after the online data state has been entered is dependent on the PDP type. It is described briefly in 3GPP TS 27.060[34] and in more detail in 3GPP TS 29.061[39] and the specifications for the relevant PDPs. PS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT and +CGACT commands.

If context activation takes place during the PDP startup, one or more <cid>s may be specified in order to provide the information needed for the context activation request(s).

During each PDP startup procedure the MT may have access to some or all of the following information -

The MT may have a priori knowledge, for example, it may implement only one PDP type.

The command may have provided an <L2P> parameter value.

The TE may provide a PDP type and/or PDP address to the MT during in the PDP startup procedure.

If any of this information is in conflict, the command will fail.

Any PDP type and/or PDP address present in the above information shall be compared with the PDP type and/or PDP address in any context definitions specified in the command in the order in which their <cid>s appear. For a context definition to match -

The PDP type must match exactly.

The PDP addresses are considered to match if they are identical or if either or both addresses are unspecified. For example, a PPP NCP request specifying PDP type = IP and no PDP address would cause the MT to search through the specified context definitions for one with PDP type = IP and any PDP address.

The context shall be activated using the matched value for PDP type and a static PDP address if available, together with the other information found in the PDP context definition. If a static PDP address is not available then a dynamic address is requested.

If no <cid> is given or if there is no matching context definition, the MT shall attempt to activate the context with whatever information is available to the MT. The other context parameters shall be set to their default values.

If the activation is successful, data transfer may proceed.

After data transfer is complete, and the layer 2 protocol termination procedure has completed successfully, the V.25ter command state is re-entered and the MT returns the final result code OK.

In the event of an erroneous termination or a failure to start up, the V.25ter command state is re-entered and the MT returns the final result code NO CARRIER or, if enabled, +CME ERROR. Attach, activate and other errors may be reported.

The test command is used for requesting information on the supported layer 2 protocols.

This command may be used in both normal and modem compatibility modes.

Defined Values

<L2P>: a string parameter that indicates the layer 2 protocol to be used between the TE and MT

NULL	none, for PDP type OSP:IHOSS
PPP	Point-to-point protocol for a PDP such as IP
PAD	character stream for X.25 character (triple X PAD) mode (Obsolete)
X25	X.25 L2 (LAPB) for X.25 packet mode (Obsolete)
M-xxxx	manufacturer-specific protocol (xxxx is an alphanumeric string)

If the value is omitted, the layer 2 protocol is unspecified. Other values are reserved and will result in an ERROR response.

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Implementation

Optional if the D (dial) command can be used to specify Packet Domain operation.

10.1.12 Configure local triple-X PAD parameters +CGCLPAD (GPRS only) (Obsolete)

Table 120: CGCLPAD parameter command syntax

Command	Possible Response(s)
+CGCLPAD=[<parm>, <value>]	OK ERROR
+CGCLPAD?	+CGCLPAD: <parm>, <value> [<CR><LF>+CGCLPAD: <parm>, <value>> […]]
+CGCLPAD=?	+CGCLPAD: <parm>, (list of supported <value>s) [<CR><LF>+CGCLPAD: <parm>, (list of supported <value>s) […]]

Description

The set command sets the value of a specified X.3 PAD parameter in the local PAD. A minimum set of parameters to be supported is listed in 3GPP TS 27.060[34].

The read command returns, one per line, the value of each of the supported parameters.

The test command returns, one per line, the permitted range of values for each of the supported parameters.

Defined values

<parm>: a numeric parameter which specifies the X.3 parameter to be configured

<value>: a numeric parameter which specifies the value to which the X.3 parameter is to be set

If <value> is omitted for a particular class then <parm> is set to the X.3 defined default, if any.

Implementation

Optional.

10.2.1.1 Request Packet Domain service 'D'

Table 5: D command syntax

Command	Possible Response(s)
D*<GPRS_SC>[*[<called_address>] [*[<L2P>][*[<cid>[,<cid>[,…]]]]]]#	CONNECT ERROR

Description

This command causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN.

The V.25ter 'D' (Dial) command causes the MT to enter the V.25ter online data state and, with the TE, to start the specified layer 2 protocol. The MT shall return CONNECT to confirm acceptance of the command prior to entering the V.25ter online data state. No further commands may follow on the AT command line.

The detailed behaviour after the online data state has been entered is dependent on the PDP type. It is described briefly in clauses 8 (for X.25) and 9 (for IP) of 3GPP TS 27.060[34]. PS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT and +CGACT commands.

When the layer 2 protocol has terminated, either as a result of an orderly shut down of the PDP or an error, the MT shall enter V.25ter command state and return the NO CARRIER final result code.

If <called address> is supported and provided, the MT shall automatically set up a virtual call to the specified address after the PDP context has been activated.

If <L2P> and <cid> are supported, their usage shall be the same as in the +CGDATA command. The +CGDCONT, +CGQREQ, etc. commands may be used in the modem initialization AT command string to set values for for PDP type, APN, QoS etc..

If <L2P> is not supported or is supported but omitted, the MT shall use a layer 2 protocol appropriate to the PDP type.

If <cid> is not supported or is supported but omitted, the MT shall attempt to activate the context using:

(a) any information provided by the TE during the PDP startup procedure, e.g. the TE may provide a PDP type and/or PDP address to the MT,

or, (b) a priori knowledge, e.g. the MT may implement only one PDP type,

or, (c) using the 'Empty PDP type' (TS 24.008). (No PDP address or APN shall be sent in this case and only one PDP context subscription record shall be present in the HLR for this subscriber.)

This command may be used in both normal and modem compatibility modes.

NOTE: The dial string conforms to the syntax specified in 3GPP TS 22.030 [19].

Defined Values

<GPRS_SC>: (GPRS Service Code) a digit string (value 99) which identifies a request to use the Packet Domain service

<called_address>: a string that identifies the called party in the address space applicable to the PDP. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent may be used. Also, the character comma ',' may be used as a substitute for the character period '.'.
~~For PDP type OSP:IHOSS, the following syntax may be used for <called_address>:~~
~~[<host>][@[<port>][@[<protocol>]]]~~
~~where <host>, <port> and <protocol> are defined in the +CGDCONT description. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent to the hostname may be used. However, this should be avoided if at all possible.~~

<L2P>: a string which indicates the layer 2 protocol to be used (see +CGDATA command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used:
0 NULL
1 PPP
2 PAD (Obsolete)
3 X25 (Obsolete)
9yyyy M-xxxx
Other values are reserved and will result in an ERROR response

<cid>: a digit string which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Implementation

Optional if the +CGDATA command is supported. If the D command is provided, then support for <called_address>, <L2P> and <cid> are optional. If they are not supported but values are provided by the TE, the values shall be ignored and this shall not constitute an error.

3GPP TSG-T2 #15
Cancun, Mexico
26-30 November 2001

T2-010967

CR-Form-v4

CHANGE REQUEST

⌘ **27.007** **CR** **073** ⌘ ev **-** ⌘ Current version: **3.9.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Clarifications to AT commands used with circuit swiched data
Source:	⌘	T2
Work item code:	⌘	TEI
Date:	⌘	09-Nov-01
Category:	⌘	**F**
Release:	⌘	R99

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)

Reason for change:	⌘	The usage and validity of HSCSD AT commands in UTRAN mode are not clear and may cause misunderstandings.
Summary of change:	⌘	Clarifications to clear the misunderstandings are added to all HSCSD AT commands.
Consequences if not approved:	⌘	There may be varying implementations regarding the HSCSD AT commands in UTRAN single mode UE.

Clauses affected:	⌘	6.12 - 6.18
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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.

6.12 HSCSD device parameters +CHSD

Table 1: +CHSD action command syntax

Command	Possible response(s)
+CHSD	+CHSD: <mclass>,<maxRx>,<maxTx>,<sum>,<codings> *+CME ERROR: <err>*
+CHSD=?	

Description

Execution command returns information about HSCSD features (refer 3GPP TS 22.034 [29]) supported by the ME/TA. Refer subclause 9.2 for possible <err> values.

The return information is only applicable in GERAN.

Defined values

<mclass>: integer type; multislot class

<maxRx>: integer type; maximum number of receive timeslots that ME can use

<maxTx>: integer type; maximum number of transmit timeslots that ME can use

<sum>: integer type; total number of receive and transmit timeslots that ME can use at the same time (per TDMA frame). The following applies in a HSCSD call: 1 ≤ (receive slots) + (transmit slots) ≤ <sum>

<codings> is a sum of integers each representing a supported channel coding (e.g. value 5 indicates that 4,8k and 9,6k channel codings are supported):

1 4,8k full rate data traffic channel

4 9,6k full rate data traffic channel

8 14,4k full rate data traffic channel

16 28,8k full rate data traffic channel (only possible when 14.4k is supported)

32 32,0k full rate data traffic channel (only possible in a two-timeslot configuration)

64 43,2k full rate data traffic channel (only possible when 14.4k is supported)

Implementation

Mandatory when HSCSD implemented.

This command is not applicable to UTRAN single mode UE.

6.13 HSCSD transparent call configuration +CHST

Table 2: +CHST parameter command syntax

Command	Possible response(s)
+CHST=[<wRx>[,<codings>]]	
+CHST?	+CHST: <wRx>,<codings>
+CHST=?	

Description

Set command controls parameters for transparent HSCSD calls in GERAN. Changing them during a call does not affect the current call.

Note: In UTRAN, values set with this command are not needed. The only applicable parameter is <SPEED>, which is set with +CBST command.

Defined values

<wRx>: integer type; wanted amount of receive timeslots. Default value 0 indicates that TA shall calculate a proper value from currently selected fixed network user rate (<speed> subparameter from +CBST command) and <codings>

<codings>: a sum of integers each representing a channel coding that is accepted for transparent HSCSD calls. Default value 0 indicates that all supported codings are accepted (refer +CHSD command for other values)

Implementation

Mandatory when transparent HSCSD implemented.

This command is not applicable to UTRAN single mode UE.

6.14 HSCSD non-transparent call configuration +CHSN

Table 3: +CHSN parameter command syntax

Command	Possible response(s)
+CHSN=[<wAiur>[,<wRx>[,<topRx>[,<codings>]]]]	
+CHSN?	+CHSN: <wAiur>,<wRx>,<topRx>,<codings>
+CHSN=?	+CHSN: (list of supported <wAiur>s), (list of supported <wRx>s), (list of supported <topRx>, (list of supported <codings>s)

Description

Set command controls parameters for non-transparent HSCSD calls. In GERAN, cChanging <topRx> or <codings> value during a call does not affect the current call. In GERAN, cChanging of <wAiur> or <wRx> affects the current call only if <topRx> was non-zero when call was established.

Defined values

<wAiur>: integer type; wanted air interface user rate. Default value 0 indicates that TA shall calculate a proper value from currently selected fixed network user rate (<speed> subparameter from +CBST command), <codings>, and <wRx> (or <maxRx> from +CHSD command if <wRx>=0). Other values:

1 9600 bps

2 14400 bps

3 19200 bps

4 28800 bps

5 38400 bps

6 43200 bps

7 57600 bps

<wRx>: integer type; wanted amount of receive timeslots. Default value 0 indicates that TA shall calculate a proper value from currently selected <wAiur> and <codings>. This parameter is not applicable to UTRAN single mode UE.

<topRx>: integer type; top value for <wRx> that user is going to request during the next established non-transparent HSCSD call. Default value 0 indicates that user is not going to change <wAiur>/<wRx> during the next call. This parameter is not applicable to UTRAN single mode UE.

<codings>: a sum of integers each representing a channel coding that is accepted for non-transparent HSCSD calls. Default value 0 indicates that all supported codings are accepted (refer +CHSD command for other values). This parameter is not applicable to UTRAN single mode UE.

Implementation

Mandatory when non-transparent HSCSD implemented.

6.15 HSCSD current call parameters +CHSC

Table 4: +CHSC action command syntax

Command	Possible response(s)
+CHSC	+CHSC: <rx>,<tx>,<aiur>,<coding>
+CHSC=?	

Description

Execution command returns information about current HSCSD call. If no HSCSD call is active, all parameters returned shall equal zero. If HSCSD call is active in UTRAN, all non-applicable parameters returned shall be equal to zero. (It is manufacturer specific whether non-zero information is returned in case of an active normal single-slot data call.)

Defined values

<rx>: integer type; number of receive timeslots currently in use. This parameter is not applicable in UTRAN.

<tx>: integer type; number of transmit timeslots currently in use. This parameter is not applicable in UTRAN.

<aiur>: integer type; current air interface user rate (in case of transparent service this equals fixed network user rate) (refer +CHSN command for possible values). For the two-timeslot ECSD bit transparent configuration the following additional values apply:

8 56000 bps

9 64000 bps

<coding>: current channel coding (refer +CHSD command for possible values). This parameter is not applicable in UTRAN.

Implementation

Optional.

6.16 HSCSD parameters report +CHSR

Table 5: +CHSR action command syntax

Command	Possible response(s)
+CHSR=[<mode>]	
+CHSR?	+CHSR: <mode>
+CHSR=?	+CHSR: (list of supported <mode>s)

Description

Enabled command returns intermediate result code +CHSR: <type> from the TA to the TE when an HSCSD call is being set up. The result code represents the current (negotiated or renegotiated) HSCSD parameters. If enabled, the intermediate result code is transmitted at the point of the call setup negotiation where the TA has determined what type of an HSCSD connection will be used. Result code transmission is done after possible service (+CR), error control (+ER), and/or compression (+DR) reporting but before possible TE-TA rate (+ILRR) reporting and before the intermediate result code CONNECT is transmitted. The format of the intermediate result code is:

+CHSR: <rx>,<tx>,<aiur>,<coding>

For the value definitions, refer to +CHSN and +CHSC commands. For instance, for a non-transparent HSCSD call, result code '+CHSR: 2,2,4,8' means that the call has two timeslots in both up- and downlink, the air interface user rate is 28800 bps, and the used channel coding TCH/F14.4.

In UTRAN, all non-applicable parameters returned shall be equal to zero.

Defined values

<mode>:

0 disables reporting

1 enables reporting

Implementation

Mandatory when HSCSD implemented

6.17 HSCSD automatic user initiated upgrading + CHSU

Table 6: +CHSU parameter command syntax

Command	Possible response(s)
+CHSU=<mode>	
+CHSU?	+CHSU: <mode>
+CHSU=?	+CHSU: (list of supported <mode>s)

Description

Set command controls whether or not automatic user initiated service level upgrading shall be used for non-transparent HSCSD calls. "Automatic" means that, if enabled, the ME/TA shall use the UP bit in the received RLP frames to determine when to initiate user initiated service level upgrading (i.e. when to modify the +CHSN parameters <wAiur> and/or <wRx> for the current call). Refer to 3GPP TS 27.001 for details on the interpretation of the UP bit(s).

NOTE1: The validity of the UP bit in the RLP frames depends on the result of the RLP negotiations. The UP bit shall only be used if the result of the RLP negotiations were successful with respect to the UP bit.

NOTE2: This command is only applicable in GERAN.

Defined values

<mode>:

0 disables use of UP bit for upgrading

1 enables use of UP bit for upgrading

Implementation

Optional

This command is not applicable to UTRAN single mode UE.

6.18 HSCSD non-transparent asymmetry configuration +CHSA

Table 7: +CHSA parameter command syntax

Command	Possible response(s)
+CHSA=<mode>	
+CHSA?	+CHSA: <mode>
+CHSA=?	+CHSA: (list of supported <mode>s)

Description

Set command controls the preferred asymmetry bias for non-transparent ECSD calls. Downlink biased asymmetry means that 8-PSK modulation is preferred downlink and GMSK modulation uplink. Uplink based asymmetry means that 8-PSK modulation is preferred uplink and GMSK downlink. Changing of <mode> affects the current call only if <topRx> (refer +CHSN) was non-zero when call was established.

Test command returns values supported by the ME/TA as compound values. The <mode> subparameter range indirectly indicates the MS Type; range (0-1) indicates MS Type A and range (0-2) indicates MS Type B.

NOTE1: ECSD is also controlled by +CHSD, +CHSN and +CHST.

NOTE2: This command is only applicable in GERAN.

Defined values

<mode>:

0 No preference

1 Downlink biased asymmetry

2 Uplink biased asymmetry

Implementation

Mandatory when non-transparent ECSD is implemented.

This command is not applicable to UTRAN single mode UE.

3GPP TSG-T2 #15
Cancun, Mexico
26-30 November 2001

T2-010968

CR-Form-v4

CHANGE REQUEST

⌘ **27.007** **CR** **074** ⌘ ev **-** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Clarifications to AT commands used with circuit swiched data
Source:	⌘	T2
Work item code:	⌘	TEI-ATC
Date:	⌘	09-Nov-01
Category:	⌘	**A**
Release:	⌘	REL-4

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)*

Reason for change:	⌘	The usage and validity of HSCSD AT commands in UTRAN mode are not clear and may cause misunderstandings.
Summary of change:	⌘	Clarifications to clear the misunderstandings are added to all HSCSD AT commands.
Consequences if not approved:	⌘	There may be varying implementations regarding the HSCSD AT commands in UTRAN single mode UE.

Clauses affected:	⌘	6.12 - 6.18		
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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.

6.12 HSCSD device parameters +CHSD

Table 1: +CHSD action command syntax

Command	Possible response(s)
+CHSD	+CHSD: <mclass>,<maxRx>,<maxTx>,<sum>,<codings> *+CME ERROR: <err>*
+CHSD=?	

Description

Execution command returns information about HSCSD features (refer 3GPP TS 22.034 [29]) supported by the ME/TA. Refer subclause 9.2 for possible <err> values.

The return information is only applicable in GERAN.

Defined values

<mclass>: integer type; multislot class

<maxRx>: integer type; maximum number of receive timeslots that ME can use

<maxTx>: integer type; maximum number of transmit timeslots that ME can use

<sum>: integer type; total number of receive and transmit timeslots that ME can use at the same time (per TDMA frame). The following applies in a HSCSD call: 1 ≤ (receive slots) + (transmit slots) ≤ <sum>

<codings> is a sum of integers each representing a supported channel coding (e.g. value 5 indicates that 4,8k and 9,6k channel codings are supported):

1 4,8k full rate data traffic channel

4 9,6k full rate data traffic channel

8 14,4k full rate data traffic channel

16 28,8k full rate data traffic channel (only possible when 14.4k is supported)

32 32,0k full rate data traffic channel (only possible in a two-timeslot configuration)

64 43,2k full rate data traffic channel (only possible when 14.4k is supported)

Implementation

Mandatory when HSCSD implemented.

This command is not applicable to UTRAN single mode UE.

6.13 HSCSD transparent call configuration +CHST

Table 2: +CHST parameter command syntax

Command	Possible response(s)
+CHST=[<wRx>[,<codings>]]	
+CHST?	+CHST: <wRx>,<codings>
+CHST=?	

Description

Set command controls parameters for transparent HSCSD calls in GERAN. Changing them during a call does not affect the current call.

Note: In UTRAN, values set with this command are not needed. The only applicable parameter is <SPEED>, which is set with +CBST command.

Defined values

<wRx>: integer type; wanted amount of receive timeslots. Default value 0 indicates that TA shall calculate a proper value from currently selected fixed network user rate (<speed> subparameter from +CBST command) and <codings>

<codings>: a sum of integers each representing a channel coding that is accepted for transparent HSCSD calls. Default value 0 indicates that all supported codings are accepted (refer +CHSD command for other values)

Implementation

Mandatory when transparent HSCSD implemented.

This command is not applicable to UTRAN single mode UE.

6.14 HSCSD non-transparent call configuration +CHSN

Table 3: +CHSN parameter command syntax

Command	Possible response(s)
+CHSN=[<wAiur>[,<wRx>[,<topRx>[,<codings>]]]]	
+CHSN?	+CHSN: <wAiur>,<wRx>,<topRx>,<codings>
+CHSN=?	+CHSN: (list of supported <wAiur>s), (list of supported <wRx>s), (list of supported <topRx>, (list of supported <codings>s)

Description

Set command controls parameters for non-transparent HSCSD calls. In GERAN, cChanging <topRx> or <codings> value during a call does not affect the current call. In GERAN, cChanging of <wAiur> or <wRx> affects the current call only if <topRx> was non-zero when call was established.

Defined values

<wAiur>: integer type; wanted air interface user rate. Default value 0 indicates that TA shall calculate a proper value from currently selected fixed network user rate (<speed> subparameter from +CBST command), <codings>, and <wRx> (or <maxRx> from +CHSD command if <wRx>=0). Other values:

1 9600 bps

2 14400 bps

3 19200 bps

4 28800 bps

5 38400 bps

6 43200 bps

7 57600 bps

<wRx>: integer type; wanted amount of receive timeslots. Default value 0 indicates that TA shall calculate a proper value from currently selected <wAiur> and <codings>. This parameter is not applicable to UTRAN single mode UE.

<topRx>: integer type; top value for <wRx> that user is going to request during the next established non-transparent HSCSD call. Default value 0 indicates that user is not going to change <wAiur>/<wRx> during the next call. This parameter is not applicable to UTRAN single mode UE.

<codings>: a sum of integers each representing a channel coding that is accepted for non-transparent HSCSD calls. Default value 0 indicates that all supported codings are accepted (refer +CHSD command for other values). This parameter is not applicable to UTRAN single mode UE.

Implementation

Mandatory when non-transparent HSCSD implemented.

6.15 HSCSD current call parameters +CHSC

Table 4: +CHSC action command syntax

Command	Possible response(s)
+CHSC	+CHSC: <rx>,<tx>,<aiur>,<coding>
+CHSC=?	

Description

Execution command returns information about current HSCSD call. If no HSCSD call is active, all parameters returned shall equal zero. If HSCSD call is active in UTRAN, all non-applicable parameters returned shall be equal to zero. (It is manufacturer specific whether non-zero information is returned in case of an active normal single-slot data call.)

Defined values

<rx>: integer type; number of receive timeslots currently in use. This parameter is not applicable in UTRAN.

<tx>: integer type; number of transmit timeslots currently in use. This parameter is not applicable in UTRAN.

<aiur>: integer type; current air interface user rate (in case of transparent service this equals fixed network user rate) (refer +CHSN command for possible values). For the two-timeslot ECSD bit transparent configuration the following additional values apply:

8 56000 bps

9 64000 bps

<coding>: current channel coding (refer +CHSD command for possible values). This parameter is not applicable in UTRAN.

Implementation

Optional.

6.16 HSCSD parameters report +CHSR

Table 5: +CHSR action command syntax

Command	Possible response(s)
+CHSR=[<mode>]	
+CHSR?	+CHSR: <mode>
+CHSR=?	+CHSR: (list of supported <mode>s)

Description

Enabled command returns intermediate result code +CHSR: <type> from the TA to the TE when an HSCSD call is being set up. The result code represents the current (negotiated or renegotiated) HSCSD parameters. If enabled, the intermediate result code is transmitted at the point of the call setup negotiation where the TA has determined what type of an HSCSD connection will be used. Result code transmission is done after possible service (+CR), error control (+ER), and/or compression (+DR) reporting but before possible TE-TA rate (+ILRR) reporting and before the intermediate result code CONNECT is transmitted. The format of the intermediate result code is:

+CHSR: <rx>,<tx>,<aiur>,<coding>

For the value definitions, refer to +CHSN and +CHSC commands. For instance, for a non-transparent HSCSD call, result code '+CHSR: 2,2,4,8' means that the call has two timeslots in both up- and downlink, the air interface user rate is 28800 bps, and the used channel coding TCH/F14.4.

In UTRAN, all non-applicable parameters returned shall be equal to zero.

Defined values

<mode>:

0 disables reporting

1 enables reporting

Implementation

Mandatory when HSCSD implemented

6.17 HSCSD automatic user initiated upgrading + CHSU

Table 6: +CHSU parameter command syntax

Command	Possible response(s)
+CHSU=<mode>	
+CHSU?	+CHSU: <mode>
+CHSU=?	+CHSU: (list of supported <mode>s)

Description

Set command controls whether or not automatic user initiated service level upgrading shall be used for non-transparent HSCSD calls. "Automatic" means that, if enabled, the ME/TA shall use the UP bit in the received RLP frames to determine when to initiate user initiated service level upgrading (i.e. when to modify the +CHSN parameters <wAiur> and/or <wRx> for the current call). Refer to 3GPP TS 27.001 for details on the interpretation of the UP bit(s).

NOTE1: The validity of the UP bit in the RLP frames depends on the result of the RLP negotiations. The UP bit shall only be used if the result of the RLP negotiations were successful with respect to the UP bit.

NOTE2: This command is only applicable in GERAN.

Defined values

<mode>:

0 disables use of UP bit for upgrading

1 enables use of UP bit for upgrading

Implementation

Optional

This command is not applicable to UTRAN single mode UE.

6.18 HSCSD non-transparent asymmetry configuration +CHSA

Table 7: +CHSA parameter command syntax

Command	Possible response(s)
+CHSA=<mode>	
+CHSA?	+CHSA: <mode>
+CHSA=?	+CHSA: (list of supported <mode>s)

Description

Set command controls the preferred asymmetry bias for non-transparent ECSD calls. Downlink biased asymmetry means that 8-PSK modulation is preferred downlink and GMSK modulation uplink. Uplink based asymmetry means that 8-PSK modulation is preferred uplink and GMSK downlink. Changing of <mode> affects the current call only if <topRx> (refer +CHSN) was non-zero when call was established.

Test command returns values supported by the ME/TA as compound values. The <mode> subparameter range indirectly indicates the MS Type; range (0-1) indicates MS Type A and range (0-2) indicates MS Type B.

NOTE1: ECSD is also controlled by +CHSD, +CHSN and +CHST.

NOTE2: This command is only applicable in GERAN.

Defined values

<mode>:

0 No preference

1 Downlink biased asymmetry

2 Uplink biased asymmetry

Implementation

Mandatory when non-transparent ECSD is implemented.

This command is not applicable to UTRAN single mode UE.

3GPP TSG-T2 #15
Cancún, Mexico
26-30 November 2001

T2-010974

CR-Form-v4

CHANGE REQUEST

⌘ **27.007** **CR** **075** ⌘ ev **-** ⌘ Current version: **3.9.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction in the +CGACT command explanation
Source:	⌘	T2
Work item code:	⌘	TEI
Date:	⌘	2001-11-05
Category:	⌘	**F**
Release:	⌘	R99

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)

Reason for change:	⌘	Incorrect text in the explanation of the command about secondary PDP context.
Summary of change:	⌘	Deletion of a text where an incorrect definition of active secondary PDP context is given. There is not active secondary PDP context, but secondary PDP context activation procedure. Once the PDP context is active there is no distintion on primary or secondary.
Consequences if not approved:	⌘	The specification is not aligned with the R99 GPRS specifications 23.060 and 27.060.

Clauses affected:	⌘	10.1.10
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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.

10.1.10 PDP context activate or deactivate +CGACT

Table 1: CGACT action command syntax

Command	Possible Response(s)
+CGACT=[<state> [,<cid>[,<cid>[,…]]]]	OK ERROR
+CGACT?	+CGACT: <cid>, <state> [<CR><LF>+CGACT: <cid>, <state> [...]]
+CGACT=?	+CGACT: (list of supported <state>s)

Description

The execution command is used to activate or deactivate the specified PDP context (s). After the command has completed, the MT remains in V.25ter command state. If any PDP context is already in the requested state, the state for that context remains unchanged. If the requested state for any specified context cannot be achieved, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command. If the MT is not PS attached when the activation form of the command is executed, the MT first performs a PS attach and them attempts to activate the specified contexts. If the attach fails then the MT responds with ERROR or, if extended error responses are enabled, with the appropriate failure-to-attach error message.

If no <cid>s are specified the activation form of the command activates all defined contexts.

If no <cid>s are specified the deactivation form of the command deactivates all active contexts.

~~An active secondary context can exist if and only if the corresponding active primary context exists. If the primary PDP context associated with a PDP address is deactivated, all the associated secondary contexts are deactivated too and the data transfer for that PDP address is disabled.~~

The read command returns the current activation states for all the defined PDP contexts.

The test command is used for requesting information on the supported PDP context activation states.

NOTE. This command has the characteristics of both the V.25ter action and parameter commands. Hence it has the read form in addition to the execution/set and test forms.

Defined Values

<state>: indicates the state of PDP context activation
0 - deactivated
1 - activated
Other values are reserved and will result in an ERROR response to the execution command.

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Implementation

Optional.

3GPP TSG-T2 #15
Cancún, Mexico
26-30 November 2001

T2-010975

CR-Form-v4

CHANGE REQUEST

⌘ **27.007** **CR** **076** ⌘ ev **-** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction in the +CGACT command explanation
Source:	⌘	T2
Work item code:	⌘	TI-ATC
Date:	⌘	2001-11-09
Category:	⌘	**A**
Release:	⌘	R4

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)

Reason for change:	⌘	Incorrect text in the explanation of the command about secondary PDP context.
Summary of change:	⌘	Deletion of a text where an incorrect definition of active secondary PDP context is given. There is not active secondary PDP context, but secondary PDP context activation procedure. Once the PDP context is active there is no distintion on primary or secondary.
Consequences if not approved:	⌘	The specification is not aligned with the R99 GPRS specifications 23.060 and 27.060.

Clauses affected:	⌘	10.1.10
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:

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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.

10.1.10 PDP context activate or deactivate +CGACT

Table 1: CGACT action command syntax

Command	Possible Response(s)
+CGACT=[<state> [,<cid>[,<cid>[,…]]]]	OK ERROR
+CGACT?	+CGACT: <cid>, <state> [<CR><LF>+CGACT: <cid>, <state> [...]]
+CGACT=?	+CGACT: (list of supported <state>s)

Description

The execution command is used to activate or deactivate the specified PDP context (s). After the command has completed, the MT remains in V.25ter command state. If any PDP context is already in the requested state, the state for that context remains unchanged. If the requested state for any specified context cannot be achieved, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command. If the MT is not PS attached when the activation form of the command is executed, the MT first performs a PS attach and them attempts to activate the specified contexts. If the attach fails then the MT responds with ERROR or, if extended error responses are enabled, with the appropriate failure-to-attach error message.

If no <cid>s are specified the activation form of the command activates all defined contexts.

If no <cid>s are specified the deactivation form of the command deactivates all active contexts.

~~An active secondary context can exist if and only if the corresponding active primary context exists. If the primary PDP context associated with a PDP address is deactivated, all the associated secondary contexts are deactivated too and the data transfer for that PDP address is disabled.~~

The read command returns the current activation states for all the defined PDP contexts.

The test command is used for requesting information on the supported PDP context activation states.

NOTE. This command has the characteristics of both the V.25ter action and parameter commands. Hence it has the read form in addition to the execution/set and test forms.

Defined Values

<state>: indicates the state of PDP context activation
0 - deactivated
1 - activated
Other values are reserved and will result in an ERROR response to the execution command.

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Implementation

Optional.

3GPP TSG-T2 #15
Cancún, Mexico
26-30 November 2001

T2-011241

CR-Form-v4

CHANGE REQUEST

⌘ **27.007** **CR** **077** ⌘ ev **-** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction of chapter heading and references
Source:	⌘	T2
Work item code:	⌘	TI-ATC
Date:	⌘	2001-11-30
Category:	⌘	**F**
Release:	⌘	REL-4

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)*

Reason for change:	⌘	Incorrect name in a chapter heading and incorrect references
Summary of change:	⌘	The AT commands listed under chapter "10 Commands for UMTS Packet Domain" are also applicable to GERAN, so the reference to UMTS shall be deleted. The references in +CGQREQ and +CGQMIN commands where the QoS parameters are defined are incorrect; it shall be 23.107 specification instead of 03.60.
Consequences if not approved:	⌘	Incorrect chapter heading which will confuse the applicability of the AT commands under it, and incorrect references in the specification

Clauses affected:	⌘	10, 10.1.4, 10.1.5
Other specs Affected:	⌘	☐ 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/3G_Specs/CRs.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.

10 Commands for ~~UMTS~~ Packet Domain

This clause defines commands that a TE may use to control a MT supporting packet switched services. Other aspects of a Packet Domain MT are described in 3GPP TS 27.060 [34].

It is anticipated that Packet Domain MTs will vary widely in functionality. At one extreme, a MT supporting CS/PS or class-A mode of operation might support multiple PDP types as well as circuit switched data, and use multiple external networks and QoS profiles. At the other extreme a MT supporting only PS or class-C mode of operation might support only a single PDP type using a single external network, and rely on the HLR to contain the PDP context definition.

A comprehensive set of Packet Domain-specifc commands is defined in clause 10.1 to provide the flexibility needed by the more complex MT. The commands are designed to be expandable to accommodate new PDP types and interface protocols, merely by defining new values for many of the parameters. Multiple contexts may be activated if the interface link-layer protocol is able to support them. The commands use the extended information and error message capabilities described in this specification.

For MTs of intermediate complexity, most commands have simplified forms where certain parameters may be omitted.

For the simplest MTs, and for backwards compatibility with existing communications software, it is possible to control access to the Packet Domain using existing modem-compatible commands. A special dial-string syntax is defined for use with the D command. This "modem compatible" mode of operation is described in subclause 10.2.

A discussion on the interaction of the AT commands, Packet Domain Management and Packet Data Protocols, together with examples of command sequences for a number of applications may be found in 3GPP TS 27.060 [34].

10.1.4 Quality of Service Profile (Requested) +CGQREQ

Table 1: +CGQREQ parameter command syntax

Command	Possible Response(s)
+CGQREQ=[<cid> [,<precedence > [,<delay> [,<reliability.> [,<peak> [,<mean>]]]]]]	OK ERROR
+CGQREQ?	+CGQREQ: <cid>, <precedence >, <delay>, <reliability>, <peak>, <mean> [<CR><LF>+CGQREQ: <cid>, <precedence >, <delay>, <reliability.>, <peak>, <mean> […]]
+CGQREQ=?	+CGQREQ: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s) , (list of supported <peak>s), (list of supported <mean>s) [<CR><LF>+CGQREQ: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s) , (list of supported <peak>s), (list of supported <mean>s) […]]

Description

This command allows the TE to specify a Quality of Service Profile that is used when the MT sends an Activate PDP Context Request message to the network.

The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGQREQ command is effectively an extension to these commands. The QoS profile consists of a number of parameters, each of which may be set to a separate value.

A special form of the set command, +CGQREQ= <cid> causes the requested profile for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, the parameter value ranges for each PDP type are returned on a separate line.

Defined values

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

The following parameters are defined in ~~GSM 03.60~~ 3GPP TS 23.107 [46]

<precedence>: a numeric parameter which specifies the precedence class

<delay>: a numeric parameter which specifies the delay class

<reliability>: a numeric parameter which specifies the reliability class

<peak>: a numeric parameter which specifies the peak throughput class

<mean>: a numeric parameter which specifies the mean throughput class

If a value is omitted for a particular class then the value is considered to be unspecified.

Implementation

Optional. If the command is not implemented then all the values are considered to be unspecified.

10.1.5 Quality of Service Profile (Minimum acceptable) +CGQMIN

Table 2: +CGQMIN parameter command syntax

Command	Possible Response(s)
+CGQMIN=[<cid> [,<precedence > [,<delay> [,<reliability.> [,<peak> [,<mean>]]]]]]	OK ERROR
+CGQMIN?	+CGQMIN: <cid>, <precedence >, <delay>, <reliability>, <peak>, <mean> [<CR><LF>+CGQMIN: <cid>, <precedence >, <delay>, <reliability.>, <peak>, <mean> […]]
+CGQMIN=?	+CGQMIN: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s) , (list of supported <peak>s), (list of supported <mean>s) [<CR><LF>+CGQMIN: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s) , (list of supported <peak>s), (list of supported <mean>s) […]]

Description

This command allows the TE to specify a minimum acceptable profile which is checked by the MT against the negotiated profile returned in the Activate PDP Context Accept message.

The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGQMIN command is effectively an extension to these commands. The QoS profile consists of a number of parameters, each of which may be set to a separate value.

A special form of the set command, +CGQMIN= <cid> causes the minimum acceptable profile for context number <cid> to become undefined. In this case no check is made against the negotiated profile.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, the parameter value ranges for each PDP type are returned on a separate line.

Defined values

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

The following parameters are defined in ~~GSM 03.60~~ 3GPP TS 23.107 [46]

<precedence>: a numeric parameter which specifies the precedence class

<delay>: a numeric parameter which specifies the delay class

<reliability>: a numeric parameter which specifies the reliability class

<peak>: a numeric parameter which specifies the peak throughput class

<mean>: a numeric parameter which specifies the mean throughput class

If a value is omitted for a particular class then this class is not checked.

Implementation

Optional. If the command is not implemented then no check is made against the negotiated profile.

3GPP TSG-T2 #15
Cancun, Mexico
26-30 November 2001

T2-010979

CR-Form-v5

CHANGE REQUEST

⌘ **27.007** **CR** **078** ⌘ **rev** **-** ⌘ Current version: **3.9.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Different compression algorithms in AT command +CGDCONT and +CGDSCONT
Source:	⌘	T2
Work item code:	⌘	TEI
Date:	⌘	2001-11-14
Category:	⌘	**F**
Release:	⌘	R99

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)

Reason for change:	⌘	Different compression algorithms are introduced in 3GPP TS 04.65
Summary of change:	⌘	Introduction of different compression algorithms in AT command +CGDCONT and +CGDSONT
Consequences if not approved:	⌘	If more than one compression algorithm is supported by the ME the user is not able to select a specific one. It is also not determinable which algorithm will be used for a context. This causes different behavior in different networks.
Clauses affected:	⌘	2, 10.1.1 and 10.1.2
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TS 22.002: "3rd Generation Partnership Project; Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN)".

[2] 3GPP TS 22.003: "3rd Generation Partnership Project; Teleservices supported by a GSM Public Land Mobile Network (PLMN)".

[3] 3GPP TS 22.081: "3rd Generation Partnership Project; Line identification supplementary services - Stage 1".

[4] 3GPP TS 22.082: "3rd Generation Partnership Project; Call Forwarding (CF) supplementary services - Stage 1".

[5] 3GPP TS 22.083: "3rd Generation Partnership Project; Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 1".

[6] 3GPP TS 22.088: "3rd Generation Partnership Project; Call Barring (CB) supplementary services - Stage 1".

[7] 3GPP TS 23.003: "3rd Generation Partnership Project; Numbering, addressing and identification".

[8] 3GPP TS 04.08: "Digital cellular telecommunication system (Phase 2+); Mobile radio interface layer 3 specification".

[9] GSM MoU SE.13, GSM MoU Permanent Reference Document SE.13: "GSM Mobile Network Codes and Names".

[10] ITU-T Recommendation E.212: "Identification plan for land mobile stations".

[11] ITU-T Recommendation T.31: "Asynchronous facsimile DCE control, service class 1".

[12] ITU-T Recommendation T.32: "Asynchronous facsimile DCE control, service class 2".

[13] ITU-T Recommendation T.50: "International Reference Alphabet (IRA) (Formerly International Alphabet No. 5 or IA5) - Information technology - 7-bit coded character set for information exchange".

[14] ITU-T Draft new Recommendation V.25ter: "Serial asynchronous automatic dialling and control".

[15] Telecommunications Industry Association TIA IS-99: "Data Services Option Standard for Wideband Spread Spectrum Digital Cellular System".

[16] Telecommunications Industry Association TIA IS-135: "800 MHz Cellular Systems, TDMA Services, Async Data and Fax".

[17] Portable Computer and Communications Association PCCA STD-101 Data Transmission Systems and Equipment: "Serial Asynchronous Automatic Dialling and Control for Character Mode DCE on Wireless Data Services".

[18] 3GPP TS 24.022: "3rd Generation Partnership Project; Radio Link Protocol (RLP) for data and telematic services on the Mobile Station - Base Station System (MS - BSS) interface and the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

[19] 3GPP TS 22.030: "3rd Generation Partnership Project; Man Machine Interface (MMI) of the Mobile Station (MS)".

[20] 3GPP TS 05.08: "Digital cellular telecommunication system (Phase 2+); Radio subsystem link control".

[21] 3GPP TS 22.085: "3rd Generation Partnership Project; Closed User Group (CUG) supplementary services - Stage 1".

[22] 3GPP TS 22.084: "3rd Generation Partnership Project; MultiParty (MPTY) supplementary services - Stage 1".

[23] 3GPP TS 22.090: "3rd Generation Partnership Project; Unstructured Supplementary Service Data (USSD) - Stage 1".

[24] 3GPP TS 27.005: "3rd Generation Partnership Project; Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE - DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)".

[25] 3GPP TS 23.038: "3rd Generation Partnership Project; Alphabet and language specific information".

[26] 3GPP TS 22.024: "3rd Generation Partnership Project; Description of Charge Advice Information (CAI)".

[27] 3GPP TS 22.086: "3rd Generation Partnership Project; Advice of Charge (AoC) supplementary services - Stage 1".

[28] 3GPP TS 11.11: "Digital cellular telecommunication system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) interface".

[29] 3GPP TS 22.034: "3rd Generation Partnership Project; High Speed Circuit Switched Data (HSCSD) - Stage 1".

[30] 3GPP TS 22.091: "3rd Generation Partnership Project; Explicit Call Transfer (ECT) supplementary service - Stage 1".

[31] 3GPP TS 22.072: "3rd Generation Partnership Project; Call Deflection (CD) supplementary service - Stage 1".

[32] ISO/IEC10646: "Universal Multiple-Octet Coded Character Set (UCS)"; UCS2, 16 bit coding.

[33] 3GPP TS 22.022: "3rd Generation Partnership Project; Personalization of GSM Mobile Equipment (ME) Mobile functionality specification".

[34] 3GPP TS 27.060: "3rd Generation Partnership Project; General requirements on Mobile Stations (MS) supporting General Packet Radio Bearer Service (GPRS)".

[35] CCITT Recommendation V.110: "Support of data terminal equipments (DTEs) with V-Series interfaces by an integrated services digital network".

[36] CCITT Recommendation V.120: "Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing".

[37] ITU-T Recommendation X.31: "Support of packet mode terminal equipment by an ISDN".

[38] 3GPP TS 05.05: "Digital cellular telecommunication system (Phase 2+); Radio transmission and reception".

[39] 3GPP TS 29.061: "3rd Generation Partnership Project; General Packet Radio Service (GPRS); Interworking between the Public Land Mobile Network (PLMN) supporting GPRS and Packet Data Networks (PDN)".

[40] 3GPP TS 23.081: "3rd Generation Partnership Project; Technical Specification Group Core Network; Line identification supplementary services - Stage 2".

[41] 3GPP TS 27.001: "3rd Generation Partnership Project; Technical Specification Group Core Network; General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

[42] 3GPP TS 29.007: "3rd Generation Partnership Project; Technical Specification Group Core Network; General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[43] Infrared Data Association; Specification of Ir Mobile Communications (IrMC).

[44] IrDA Object Exchange Protocol.

[45] 3GPP TS 27.010: "3rd Generation Partnership Project; Terminal Equipment to User Equipment (TE-UE) multiplexer protocol User Equipment (UE)".

[46] 3GPP TS 23.107: "3rd Generation Partnership Project; Quality of Service, Concept and Architecture".

[47] 3GPP TS 23.060: "3rd Generation Partnership Project; General Packet Radio Service (GPRS) Service description; Stage 2".

[48] 3GPP TS 23.067: "3rd Generation Partnership Project; Enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 2".

[49] 3GPP TS 03.68: "Digital cellular telecommunication system (Phase 2+); Voice Group Call service (VGCS) - Stage 2".

[50] 3GPP TS 03.69: "Digital cellular telecommunication system (Phase 2+); Voice Broadcast Service (VBS) - Stage 2".

[51] 3GPP TS 24.067: "3rd Generation Partnership Project; Enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 3".

[52] 3GPP TS 04.68: "Digital cellular telecommunication system (Phase 2+); Voice Group Call service (VGCS) - Stage 3".

[53] 3GPP TS 04.69: "Digital cellular telecommunication system (Phase 2+); Voice Broadcast Service (VBS) - Stage 3".

[54] 3GPP TS 22.067: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 1".

[55] 3GPP TS 02.68: "Digital cellular telecommunication system (Phase 2+); Voice Group Call service (VGCS) - Stage 1".

[56] 3GPP TS 02.69: "Digital cellular telecommunication system (Phase 2+); Voice Broadcast Service (VBS) - Stage 1".

[57] 3GPP TS 24.008: "3rd Generation Partnership Project; Mobile Radio Interface Layer 3 specification; Core Network Protocols-Stage 3".

[58] 3GPP TS 31.102: "3rd Generation Partnership Project; Technical Specification Group Terminals; Characteristics of the USIM Application".

[59] 3GPP TS 04.65: "3rd Generation Partnership Project; Technical Specification Group Core Network; Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (Gprs); Mobile Station (MS) – Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDCP)".

10.1.1 Define PDP Context +CGDCONT

Table 1: +CGDCONT parameter command syntax

Command	Possible response(s)
+CGDCONT=[<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,…[,pdN]]]]]]]]]	OK ERROR
+CGDCONT?	+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <data_comp>, <head_comp>[,<pd1>[,…[,pdN]]] [<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <data_comp>, <head_comp>[,<pd1>[,…[,pdN]]] [...]]
+CGDCONT=?	+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [<CR><LF>+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [...]]

Description

The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
PPP Point to Point Protocol (IETF STD 51)

<APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.

If the value is null or omitted, then the subscription value will be requested.

<PDP_address>: a string parameter that identifies the MT in the address space applicable to the PDP.

If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.

The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

<d_comp>: a numeric parameter that controls PDP data compression (applicable for SNDCP only) (refer 3GPP TS 04.65 [59])
0 - off (default if value is omitted)
1 - on (manufacturer preferred compression)
2 - V.42bis
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression (refer 3GPP TS 04.65 [59])
0 - off (default if value is omitted)
1 - on (manufacturer preferred compression)
2 - RFC1144
3 - RFC2507
Other values are reserved.

~~NOTE: At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these.~~

<pd1>, … <pdN>: zero to N string parameters whose meanings are specific to the <PDP_type>

For PDP type OSP:IHOSS the following parameters are defined:
<pd1> = <host> the fully formed domain name extended hostname of the Internet host
<pd2> = <port > the TCP or UDP port on the Internet host
<pd3> = <protocol> the protocol to be used over IP on the Internet - "TCP" or "UDP

Implementation

Mandatory unless only a single subscribed context is supported.

10.1.2 Define Secondary PDP Context +CGDSCONT

Table 2: +CGDSCONT parameter command syntax

Command	Possible response(s)
+CGDSCONT=[<cid> ,<p_cid> [,<d_comp> [,<h_comp>]]]	OK ERROR
+CGDSCONT?	+CGDSCONT: <cid>, <p_cid>, <data_comp>, <head_comp> [<CR><LF>+CGDSCONT: <cid>, <p_cid>, <data_comp>, <head_comp> [...]]
+CGDSCONT=?	+CGDSCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [<CR><LF>+CGDCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts) ,<PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [...]]

Description

The set command specifies PDP context parameter values for a Secondary PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDSCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<p_cid>: (Primary PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition which has been specified by use of the +CGDCONT command. The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
PPP Point to Point Protocol (IETF STD 51)

<d_comp>: a numeric parameter that controls PDP data compression (applicable ~~to GPRS~~for SNDCP only)) (refer 3GPP TS 04.65 [59])
0 - off (default if value is omitted)
1 - on (manufacturer preferred compression)
2 - V.42bis
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression (refer 3GPP TS 04.65 [59])
0 - off (default if value is omitted)
1 - on (manufacturer preferred compression)
2 - RFC1144
3 - RFC2507
Other values are reserved.

~~NOTE. At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these. (GPRS only)~~

Implementation

Optional.

3GPP TSG-T2 #15
Cancun, Mexico
26-30 November 2001

T2-011242

CR-Form-v5

CHANGE REQUEST

⌘ **27.007** **CR** **079** ⌘ **rev** **-** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Different compression algorithms in AT commands +CGDCONT and +CGDSCONT
Source:	⌘	T2
Work item code:	⌘	TI-ATC
Date:	⌘	2001-11-14
Category:	⌘	**F**
Release:	⌘	REL-4

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)

Reason for change:	⌘	Different compression algorithms are introduced in 3GPP TS 44.065 and 3GPP TS 25.323
Summary of change:	⌘	Introduction of different compression algorithms in AT commands +CGDCONT and +CGDSCONT
Consequences if not approved:	⌘	If more than one compression algorithm is supported by the ME the user is not able to select a specific one. It is also not determinable which algorithm will be used for a context. This causes different behavior in different networks.
Clauses affected:	⌘	2, 10.1.1 and 10.1.2
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TS 22.002: "3rd Generation Partnership Project; Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN)".

[2] 3GPP TS 22.003: "3rd Generation Partnership Project; Teleservices supported by a GSM Public Land Mobile Network (PLMN)".

[3] 3GPP TS 22.081: "3rd Generation Partnership Project; Line identification supplementary services - Stage 1".

[4] 3GPP TS 22.082: "3rd Generation Partnership Project; Call Forwarding (CF) supplementary services - Stage 1".

[5] 3GPP TS 22.083: "3rd Generation Partnership Project; Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 1".

[6] 3GPP TS 22.088: "3rd Generation Partnership Project; Call Barring (CB) supplementary services - Stage 1".

[7] 3GPP TS 23.003: "3rd Generation Partnership Project; Numbering, addressing and identification".

[8] 3GPP TS 24.008: "3rd Generation Partnership Project; Mobile Radio Interface Layer 3 specification; Core Network Protocols-Stage 3".

[9] GSM MoU SE.13, GSM MoU Permanent Reference Document SE.13: "GSM Mobile Network Codes and Names".

[10] ITU-T Recommendation E.212: "Identification plan for land mobile stations".

[11] ITU-T Recommendation T.31: "Asynchronous facsimile DCE control, service class 1".

[12] ITU-T Recommendation T.32: "Asynchronous facsimile DCE control, service class 2".

[13] ITU-T Recommendation T.50: "International Reference Alphabet (IRA) (Formerly International Alphabet No. 5 or IA5) - Information technology - 7-bit coded character set for information exchange".

[14] ITU-T Draft new Recommendation V.25ter: "Serial asynchronous automatic dialling and control".

[15] Telecommunications Industry Association TIA IS-99: "Data Services Option Standard for Wideband Spread Spectrum Digital Cellular System".

[16] Telecommunications Industry Association TIA IS-135: "800 MHz Cellular Systems, TDMA Services, Async Data and Fax".

[17] Portable Computer and Communications Association PCCA STD-101 Data Transmission Systems and Equipment: "Serial Asynchronous Automatic Dialling and Control for Character Mode DCE on Wireless Data Services".

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[19] 3GPP TS 22.030: "3rd Generation Partnership Project; Man Machine Interface (MMI) of the Mobile Station (MS)".

[20] 3GPP TS 45.008: "Digital cellular telecommunication system (Phase 2+); Radio subsystem link control".

[21] 3GPP TS 22.085: "3rd Generation Partnership Project; Closed User Group (CUG) supplementary services - Stage 1".

[22] 3GPP TS 22.084: "3rd Generation Partnership Project; MultiParty (MPTY) supplementary services - Stage 1".

[23] 3GPP TS 22.090: "3rd Generation Partnership Project; Unstructured Supplementary Service Data (USSD) - Stage 1".

[24] 3GPP TS 27.005: "3rd Generation Partnership Project; Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE - DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)".

[25] 3GPP TS 23.038: "3rd Generation Partnership Project; Alphabet and language specific information".

[26] 3GPP TS 22.024: "3rd Generation Partnership Project; Description of Charge Advice Information (CAI)".

[27] 3GPP TS 22.086: "3rd Generation Partnership Project; Advice of Charge (AoC) supplementary services - Stage 1".

[28] 3GPP TS 51.011: "Digital cellular telecommunication system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) interface".

[29] 3GPP TS 22.034: "3rd Generation Partnership Project; High Speed Circuit Switched Data (HSCSD) - Stage 1".

[30] 3GPP TS 22.091: "3rd Generation Partnership Project; Explicit Call Transfer (ECT) supplementary service - Stage 1".

[31] 3GPP TS 22.072: "3rd Generation Partnership Project; Call Deflection (CD) supplementary service - Stage 1".

[32] ISO/IEC10646: "Universal Multiple-Octet Coded Character Set (UCS)"; UCS2, 16 bit coding.

[33] 3GPP TS 22.022: "3rd Generation Partnership Project; Personalization of GSM Mobile Equipment (ME) Mobile functionality specification".

[34] 3GPP TS 27.060: "3rd Generation Partnership Project; General requirements on Mobile Stations (MS) supporting General Packet Radio Bearer Service (GPRS)".

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[36] CCITT Recommendation V.120: "Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing".

[37] ITU-T Recommendation X.31: "Support of packet mode terminal equipment by an ISDN".

[38] 3GPP TS 45.005: "Digital cellular telecommunication system (Phase 2+); Radio transmission and reception".

[39] 3GPP TS 29.061: "3rd Generation Partnership Project; General Packet Radio Service (GPRS); Interworking between the Public Land Mobile Network (PLMN) supporting GPRS and Packet Data Networks (PDN)".

[40] 3GPP TS 23.081: "3rd Generation Partnership Project; Technical Specification Group Core Network; Line identification supplementary services - Stage 2".

[41] 3GPP TS 27.001: "3rd Generation Partnership Project; Technical Specification Group Core Network; General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

[42] 3GPP TS 29.007: "3rd Generation Partnership Project; Technical Specification Group Core Network; General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[43] Infrared Data Association; Specification of Ir Mobile Communications (IrMC).

[44] IrDA Object Exchange Protocol.

[45] 3GPP TS 27.010: "3rd Generation Partnership Project; Terminal Equipment to User Equipment (TE-UE) multiplexer protocol User Equipment (UE)".

[46] 3GPP TS 23.107: "3rd Generation Partnership Project; Quality of Service, Concept and Architecture".

[47] 3GPP TS 23.060: "3rd Generation Partnership Project; General Packet Radio Service (GPRS) Service description; Stage 2".

[48] 3GPP TS 23.067: "3rd Generation Partnership Project; Enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 2".

[49] 3GPP TS 43.068: "Digital cellular telecommunication system (Phase 2+); Voice Group Call service (VGCS) - Stage 2".

[50] 3GPP TS 43.069: "Digital cellular telecommunication system (Phase 2+); Voice Broadcast Service (VBS) - Stage 2".

[51] 3GPP TS 24.067: "3rd Generation Partnership Project; Enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 3".

[52] 3GPP TS 44.068: "Digital cellular telecommunication system (Phase 2+); Voice Group Call service (VGCS) - Stage 3".

[53] GSM 44.069: "Digital cellular telecommunication system (Phase 2+); Voice Broadcast Service (VBS) - Stage 3".

[54] 3GPP TS 22.067: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 1".

[55] 3GPP TS 42.068: "Digital cellular telecommunication system (Phase 2+); Voice Group Call service (VGCS) - Stage 1".

[56] 3GPP TS 42.069: "Digital cellular telecommunication system (Phase 2+); Voice Broadcast Service (VBS) - Stage 1".

[57] void

[58] 3GPP TS 22.087: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects;User-to-User Signalling (UUS) - Stage 1"

[59] 3GPP TS 31.102: "3rd Generation Partnership Project; Technical Specification Group Terminals; Characteristics of the USIM Application".

[60] ETSI TS 102 221 "Smart Cards; UICC-Terminal interface; Physical and logical characteristics (Release 1999)".

[61] 3GPP TS 44.065: "3rd Generation Partnership Project; Technical Specification Group Core Network; Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (Gprs); Mobile Station (MS) – Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDCP)".

[62] 3GPP TS 25.323: "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Packet Data Convergence Protocol (PDCP)".

10.1.1 Define PDP Context +CGDCONT

Table 1: +CGDCONT parameter command syntax

Command	Possible response(s)
+CGDCONT=[<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,…[,pdN]]]]]]]]]	OK ERROR
+CGDCONT?	+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <data_comp>, <head_comp>[,<pd1>[,…[,pdN]]] [<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <data_comp>, <head_comp>[,<pd1>[,…[,pdN]]] [...]]
+CGDCONT=?	+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [<CR><LF>+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [...]]

Description

The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
PPP Point to Point Protocol (IETF STD 51)

<APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.

If the value is null or omitted, then the subscription value will be requested.

<PDP_address>: a string parameter that identifies the MT in the address space applicable to the PDP.

If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.

The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

<d_comp>: a numeric parameter that controls PDP data compression (applicable for SNDCP only) (refer 3GPP TS 44.065 [61])
0 - off (default if value is omitted)
1 - on (manufacturer preferred compression)
2 - V.42bis
3 - V.44
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression (refer 3GPP TS 44.065 [61] and 3GPP TS 25.323 [62])
0 - off (default if value is omitted)
1 - on (manufacturer preferred compression)
2 - RFC1144 (applicable for SNDCP only)
3 - RFC2507
4 - RFC3095 (applicable for PDCP only)
Other values are reserved.

~~NOTE: At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these.~~

<pd1>, … <pdN>: zero to N string parameters whose meanings are specific to the <PDP_type>

For PDP type OSP:IHOSS the following parameters are defined:
<pd1> = <host> the fully formed domain name extended hostname of the Internet host
<pd2> = <port > the TCP or UDP port on the Internet host
<pd3> = <protocol> the protocol to be used over IP on the Internet - "TCP" or "UDP

Implementation

Mandatory unless only a single subscribed context is supported.

10.1.2 Define Secondary PDP Context +CGDSCONT

Table 2: +CGDSCONT parameter command syntax

Command	Possible response(s)
+CGDSCONT=[<cid> ,<p_cid> [,<d_comp> [,<h_comp>]]]	OK ERROR
+CGDSCONT?	+CGDSCONT: <cid>, <p_cid>, <data_comp>, <head_comp> [<CR><LF>+CGDSCONT: <cid>, <p_cid>, <data_comp>, <head_comp> [...]]

+CGDSCONT=?	+CGDSCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [<CR><LF>+CGDCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts) ,<PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s) [...]]

Description

The set command specifies PDP context parameter values for a Secondary PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDSCONT= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line.

Defined values

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<p_cid>: (Primary PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition which has been specified by use of the +CGDCONT command. The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
PPP Point to Point Protocol (IETF STD 51)

<d_comp>: a numeric parameter that controls PDP data compression (applicable ~~to GPRS~~for SNDCP only) (refer 3GPP TS 44.065 [61])
0 - off (default if value is omitted)
1 - on (manufacturer preferred compression)
2 - V.42bis
3 - V.44
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression compression (refer 3GPP TS 44.065 [61] and 3GPP TS 25.323 [62])
0 - off (default if value is omitted)
1 - on (manufacturer preferred compression)
2 - RFC1144 (applicable for SNDCP only)
3 - RFC2507
4 - RFC3095 (applicable for PDCP only)
Other values are reserved.

~~NOTE. At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these. (GPRS only)~~

Implementation

Optional.

3GPP TSG-T2 #15
Cancun, Mexico
26-30 November 2001

T2-011179

CR-Form-v5

CHANGE REQUEST

⌘ **27.007** **CR** **080** ⌘ **rev** **-** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	New AT command +CRMC (Ring Melody Control)
Source:	⌘	T2
Work item code:	⌘	TI-ATC
Date:	⌘	2001-11-14
Category:	⌘	**B**
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)

Reason for change:	⌘	There is a command to playback a selected ring melody but there is no possibilty to set a ring melody.
Summary of change:	⌘	New AT command to set the ring melody.
Consequences if not approved:	⌘	The ring melody could not be changed by a TE application.
Clauses affected:	⌘	8.34
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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.

8.34 Ring Melody Control +CRMC

Table 1: +CRMC action command syntax

Command	Possible response(s)
+CRMC=<index>,<volume>[,[<call type>][,<profile>]]	*+CME ERROR: <err>*
+CRMC?	+CRMC: <index>,<volume>[,[<call type1>][,<profile1>]][<CR><LF> +CRMC: <index>,<volume>[,[<call type2>][,<profile1>]] [...]][<CR><LF> +CRMC: <index>,<volume>[,[<call type1>][,<profile2>]]][<CR><LF> +CRMC: <index>,<volume>[,[<call type2>][,<profile2>]] [...]] *+CME ERROR: <err>*
+CRMC=?	+CRMC: (list of supported <index>s),(list of supported <volume>s)[,[(list of supported <call type>s)][,(list of supported <profile>s)]] *+CME ERROR: <err>*

Description

Write command causes the MT to set a specific ring melody and volume for the selected call type and profile. The default values for the optional parameters are defined by the manufacturer.

Read command queries the settings for the ring melody. If call types and profiles are available the corresponding ring melodies are listed. Starting with call type1 and profile1 the ring melody settings for each available profile and call type is issued.

Test command returns the list of available ring melodies, volumes, call types and profiles.

Defined values:

<index>: integer type; manufacturer specific number to identify a certain ring melody

<volume>: integer type value with manufacturer specific range (smallest value represents the lowest sound level)

<call type*x*>: integer type; manufacturer specific number for a call type

<profile*x*>: integer type; manufacturer specific number for a profile

Implementation

Optional.

3GPP TSG-T2 #15
Cancún, Mexico
26-30 November 2001

T2-011180

CR-Form-v4

CHANGE REQUEST

⌘ **27.007** **CR** **081** ⌘ ev **-** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Added reference to 23.227
Source:	⌘	T2
Work item code:	⌘	TEI5
Date:	⌘	2001-11-20
Category:	⌘	**B**
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)

Reason for change:	⌘	Indicate the requirements that the TE-(TA)MT interface shall consider regarding interaction handling in the MT-TA.
Summary of change:	⌘	Indicate that an application in the TE, interfacing the MT-TA, shall fulfil the framework described in the interaction handling specification. The responses to AT commands requests, from MT-TA shall also follow the framework. Reference to the TS 23.227 “Applications and User interactions in the UE- Principles and specific requirements” added.
Consequences if not approved:	⌘	Incomplete view of the AT commands behaviour and environment.

Clauses affected:	⌘	1, 2		
Other specs Affected:	⌘	☐ 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/3G_Specs/CRs.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.

1 Scope

The present document specifies a profile of AT commands and recommends that this profile be used for controlling Mobile Equipment (ME) functions and GSM/UMTS network services from a Terminal Equipment (TE) through Terminal Adaptor (TA). The command prefix +C is reserved for Digital Cellular in ITU-T Recommendation V.25ter [14]. The present document has also the syntax details used to construct these extended GSM/UMTS commands. Commands from ITU-T Recommendation V.25ter [14] and existing digital cellular standards (TIA IS-99 [15] and TIA IS-135 [16]) are used whenever applicable. Some of the new commands are defined such way that they can be easily applied to ME of networks other than GSM/UMTS. ITU-T T.31 [11] and T.32 [12] fax AT commands may be used for GSM/UMTS fax transmission from TE. GSM/UMTS Short Message Service AT commands are defined in 3GPP TS 27.005 [24]. GPRS AT commands are defined in clause 10 of this specification. The present document assumes an abstract architecture comprising a TE (e.g. a computer) and a ME interfaced by a TA (see figure 1). The span of control of the defined commands should allow to handle any physical implementation that this abstract architecture may lead to:

- TA, ME and TE as three separate entities;
- TA integrated under the ME cover, and the TE implemented as a separate entity;
- TA integrated under the TE cover, and the ME implemented as a separate entity;
- TA and ME integrated under the TE cover as a single entity.

The commands described in the present document may be observed on the link between the TE and the TA. However, most of the commands retrieve information about the ME, not about the TA.

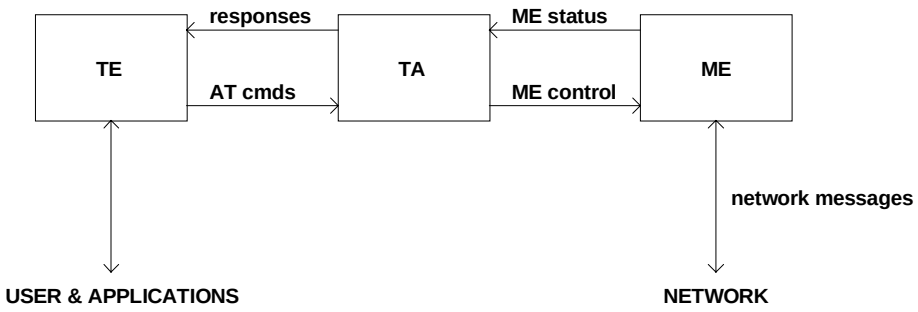

Figure 1: Setup

Interface between TE and TA is intended to operate over existing serial (ITU-T Recommendation V.24) cables, infrared link, and all link types with similar behaviour. For correct operation many of the defined commands require eight bit data and therefore it is recommended that TE-TA link is set to eight bits/ byte mode. (For infrared operation implementation refer informative references IrDA. For embedding AT commands and data during on-line data state refer TIA-617/ITU-T V.80.) Interface between TA and ME is dependent on the interface in the ME.

The functional blocks shown in Figure 1, using AT commands, shall follow the principles described in the interactions handling framework 3GPP TS 23.227 [61].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TS 22.002: "3rd Generation Partnership Project; Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN)".

[2] 3GPP TS 22.003: "3rd Generation Partnership Project; Teleservices supported by a GSM Public Land Mobile Network (PLMN)".

[3] 3GPP TS 22.081: "3rd Generation Partnership Project; Line identification supplementary services - Stage 1".

[4] 3GPP TS 22.082: "3rd Generation Partnership Project; Call Forwarding (CF) supplementary services - Stage 1".

[5] 3GPP TS 22.083: "3rd Generation Partnership Project; Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 1".

[6] 3GPP TS 22.088: "3rd Generation Partnership Project; Call Barring (CB) supplementary services - Stage 1".

[7] 3GPP TS 23.003: "3rd Generation Partnership Project; Numbering, addressing and identification".

[8] 3GPP TS 24.008: "3rd Generation Partnership Project; Mobile Radio Interface Layer 3 specification; Core Network Protocols-Stage 3".

[9] GSM MoU SE.13, GSM MoU Permanent Reference Document SE.13: "GSM Mobile Network Codes and Names".

[10] ITU-T Recommendation E.212: "Identification plan for land mobile stations".

[11] ITU-T Recommendation T.31: "Asynchronous facsimile DCE control, service class 1".

[12] ITU-T Recommendation T.32: "Asynchronous facsimile DCE control, service class 2".

[13] ITU-T Recommendation T.50: "International Reference Alphabet (IRA) (Formerly International Alphabet No. 5 or IA5) - Information technology - 7-bit coded character set for information exchange".

[14] ITU-T Draft new Recommendation V.25ter: "Serial asynchronous automatic dialling and control".

[15] Telecommunications Industry Association TIA IS-99: "Data Services Option Standard for Wideband Spread Spectrum Digital Cellular System".

[16] Telecommunications Industry Association TIA IS-135: "800 MHz Cellular Systems, TDMA Services, Async Data and Fax".

[17] Portable Computer and Communications Association PCCA STD-101 Data Transmission Systems and Equipment: "Serial Asynchronous Automatic Dialling and Control for Character Mode DCE on Wireless Data Services".

[18] 3GPP TS 24.022: "3rd Generation Partnership Project; Radio Link Protocol (RLP) for data and telematic services on the Mobile Station - Base Station System (MS - BSS) interface and the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

[19] 3GPP TS 22.030: "3rd Generation Partnership Project; Man Machine Interface (MMI) of the Mobile Station (MS)".

[20] 3GPP TS 45.008: "Digital cellular telecommunication system (Phase 2+); Radio subsystem link control".

[21] 3GPP TS 22.085: "3rd Generation Partnership Project; Closed User Group (CUG) supplementary services - Stage 1".

[22] 3GPP TS 22.084: "3rd Generation Partnership Project; MultiParty (MPTY) supplementary services - Stage 1".

[23] 3GPP TS 22.090: "3rd Generation Partnership Project; Unstructured Supplementary Service Data (USSD) - Stage 1".

[24] 3GPP TS 27.005: "3rd Generation Partnership Project; Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE - DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)".

[25] 3GPP TS 23.038: "3rd Generation Partnership Project; Alphabet and language specific information".

[26] 3GPP TS 22.024: "3rd Generation Partnership Project; Description of Charge Advice Information (CAI)".

[27] 3GPP TS 22.086: "3rd Generation Partnership Project; Advice of Charge (AoC) supplementary services - Stage 1".

[28] 3GPP TS 51.011: "Digital cellular telecommunication system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) interface".

[29] 3GPP TS 22.034: "3rd Generation Partnership Project; High Speed Circuit Switched Data (HSCSD) - Stage 1".

[30] 3GPP TS 22.091: "3rd Generation Partnership Project; Explicit Call Transfer (ECT) supplementary service - Stage 1".

[31] 3GPP TS 22.072: "3rd Generation Partnership Project; Call Deflection (CD) supplementary service - Stage 1".

[32] ISO/IEC10646: "Universal Multiple-Octet Coded Character Set (UCS)"; UCS2, 16 bit coding.

[33] 3GPP TS 22.022: "3rd Generation Partnership Project; Personalization of GSM Mobile Equipment (ME) Mobile functionality specification".

[34] 3GPP TS 27.060: "3rd Generation Partnership Project; General requirements on Mobile Stations (MS) supporting General Packet Radio Bearer Service (GPRS)".

[35] CCITT Recommendation V.110: "Support of data terminal equipments (DTEs) with V-Series interfaces by an integrated services digital network".

[36] CCITT Recommendation V.120: "Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing".

[37] ITU-T Recommendation X.31: "Support of packet mode terminal equipment by an ISDN".

[38] 3GPP TS 45.005: "Digital cellular telecommunication system (Phase 2+); Radio transmission and reception".

[39] 3GPP TS 29.061: "3rd Generation Partnership Project; General Packet Radio Service (GPRS); Interworking between the Public Land Mobile Network (PLMN) supporting GPRS and Packet Data Networks (PDN)".

[40] 3GPP TS 23.081: "3rd Generation Partnership Project; Technical Specification Group Core Network; Line identification supplementary services - Stage 2".

[41] 3GPP TS 27.001: "3rd Generation Partnership Project; Technical Specification Group Core Network; General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

[42] 3GPP TS 29.007: "3rd Generation Partnership Project; Technical Specification Group Core Network; General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[43] Infrared Data Association; Specification of Ir Mobile Communications (IrMC).

[44] IrDA Object Exchange Protocol.

[45] 3GPP TS 27.010: "3rd Generation Partnership Project; Terminal Equipment to User Equipment (TE-UE) multiplexer protocol User Equipment (UE)".

[46] 3GPP TS 23.107: "3rd Generation Partnership Project; Quality of Service, Concept and Architecture".

[47] 3GPP TS 23.060: "3rd Generation Partnership Project; General Packet Radio Service (GPRS) Service description; Stage 2".

[48] 3GPP TS 23.067: "3rd Generation Partnership Project; Enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 2".

[49] 3GPP TS 43.068: "Digital cellular telecommunication system (Phase 2+); Voice Group Call service (VGCS) - Stage 2".

[50] 3GPP TS 43.069: "Digital cellular telecommunication system (Phase 2+); Voice Broadcast Service (VBS) - Stage 2".

[51] 3GPP TS 24.067: "3rd Generation Partnership Project; Enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 3".

[52] 3GPP TS 44.068: "Digital cellular telecommunication system (Phase 2+); Voice Group Call service (VGCS) - Stage 3".

[53] GSM 44.069: "Digital cellular telecommunication system (Phase 2+); Voice Broadcast Service (VBS) - Stage 3".

[54] 3GPP TS 22.067: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 1".

[55] 3GPP TS 42.068: "Digital cellular telecommunication system (Phase 2+); Voice Group Call service (VGCS) - Stage 1".

[56] 3GPP TS 42.069: "Digital cellular telecommunication system (Phase 2+); Voice Broadcast Service (VBS) - Stage 1".

[57] void

[58] 3GPP TS 22.087: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects;User-to-User Signalling (UUS) - Stage 1"

[59] 3GPP TS 31.102: "3rd Generation Partnership Project; Technical Specification Group Terminals; Characteristics of the USIM Application".

[60] ETSI TS 102 221 "Smart Cards; UICC-Terminal interface; Physical and logical characteristics (Release 1999)".

[61] 3GPP TS 23.227 “3rd Generation Partnership Project; Technical Specification Group Terminals; Applications and User interaction in the UE-Principles and specific requirements”.