3GPP TSG-T (Terminals) Meeting #21
Frankfurt, Germany
17 - 19 September, 2003

TP-030172

Agenda Item: 5.2.3

Source: T2

Title: Change Requests to AT commands

Document for: Approval

_____

Spec	CR	Rev	Rel	Subject	Cat	Version-Current	Version-New	T2 Tdoc	Workitem
27.007	111	-	Rel-6	Adding reference to 24.008 for the 3G QoS AT-commands.	A	6.2.0	6.3.0	T2-030510	TEI5
27.007	112	-	Rel-5	Adding reference to 24.008 for the 3G QoS AT-commands.	F	5.3.0	5.4.0	T2-030511	TEI5
27.007	113	-	Rel-4	Corrections to AcTs of PLMN Selection	F	4.6.0	4.7.0	T2-030524	TI-ATC
27.007	114	-	Rel-5	Corrections to AcTs of PLMN Selection	A	5.3.0	5.4.0	T2-030525	TI-ATC
27.007	115	-	Rel-6	Corrections to AcTs of PLMN Selection	A	6.2.0	6.3.0	T2-030526	TI-ATC

CR-Form-v7

CHANGE REQUEST

| ⌘ | **27.007** CR **111** | ⌘**rev** | **-** | ⌘ | Current version: | **6.2.0** | ⌘ |

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

| **Proposed change affects:** | UICC apps⌘ ☐ | ME **X** | Radio Access Network ☐ | Core Network ☐ |

Title:	⌘	Adding reference to 24.008 for the 3G QoS AT-commands.
Source:	⌘	T2
Work item code:⌘	TEI5	*Date:* ⌘ 27/08/2003

Category:	⌘	**A**		*Release:* ⌘	Rel-6

Use one of the following categories:	*Use one of the following releases:*
F (correction)	2 (GSM Phase 2)
A (corresponds to a correction in an earlier release)	R96 (Release 1996)
B (addition of feature),	R97 (Release 1997)
C (functional modification of feature)	R98 (Release 1998)
D (editorial modification)	R99 (Release 1999)
Detailed explanations of the above categories can	Rel-4 (Release 4)
be found in 3GPP TR 21.900.	Rel-5 (Release 5)
	Rel-6 (Release 6)

Reason for change:	⌘	Clarification of 3G QoS parameters value range.
Summary of change:⌘		The granularity of the parameters value range for the commands AT+CGEQREQ, AT+CGEQMIN and AT+CGEQNEG is not reflected in the in the text describing these commands. A reference to the 3GPP TS 24.008 shall be included for each of the above AT-commands.
Consequences if not approved:	⌘	Misleading parameters value range will confuse the the applicability of the AT-commands.

Clauses affected:	⌘	10.1.6, 10.1.7, 10.1.8

		Y	**N**		
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/specs/CR.htm.
Below is a brief summary:

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

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

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

10.1.6 3G Quality of Service Profile (Requested) +CGEQREQ

Table 109: +CGEQREQ parameter command syntax

Command	Possible Response(s)
+CGEQREQ=[<cid> [,<Traffic class> [,<Maximum bitrate UL> [,<Maximum bitrate DL> [,<Guaranteed bitrate UL> [,<Guaranteed bitrate DL> [,<Delivery order> [,<Maximum SDU size> [,<SDU error ratio> [,<Residual bit error ratio> [,<Delivery of erroneous SDUs> [,<Transfer delay> [,<Traffic handling priority>]]]]]]]]]]]]]	OK ERROR
+CGEQREQ?	+CGEQREQ: <cid>, <Traffic class> ,<Maximum bitrate UL> ,<Maximum bitrate DL> ,<Guaranteed bitrate UL> ,<Guaranteed bitrate DL> ,<Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority> [<CR><LF>+CGEQREQ: <cid>, <Traffic class> ,<Maximum bitrate UL> ,<Maximum bitrate DL> ,<Guaranteed bitrate UL> ,<Guaranteed bitrate DL> ,<Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority> […]]
+CGEQREQ=?	+CGEQREQ: <PDP_type>, (list of supported <Traffic class>s) ,(list of supported <Maximum bitrate UL>s), (list of supported <Maximum bitrate DL>s), (list of supported <Guaranteed bitrate UL>s), (list of supported <Guaranteed bitrate DL>s),(list of supported <Delivery order>s) ,(list of supported <Maximum SDU size>s) ,(list of supported <SDU error ratio>s) ,(list of supported <Residual bit error ratio>s) ,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>s) [<CR><LF>+CGEQREQ: <PDP_type>, (list of supported <Traffic class>s) ,(list of supported <Maximum bitrate UL>s), (list of supported <Maximum bitrate DL>s), (list of supported <Guaranteed bitrate UL>s), (list of supported <Guaranteed bitrate DL>s),(list of supported <Delivery order>s) ,(list of supported <Maximum SDU size>s) ,(list of supported <SDU error ratio>s) ,(list of supported <Residual bit error ratio>s)

Command	Possible Response(s)

	`,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>s)`
	
	 `[…]]`

Description

This command allows the TE to specify a UMTS 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>`. The specified profile will be stored in the MT and sent to the network only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGEQREQ 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, +CGEQREQ= `<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 +CGDCONT and +CGDSCONT commands).

The following parameters are defined in 3GPP TS 23.107 [46] -

`<Traffic class>`: a numeric parameter that indicates the type of application for which the UMTS bearer service is optimised.
   0 - conversational
   1 - streaming
   2 - interactive
   3 - background
   4 - subscribed value

   If the Traffic class is specified as conversational or streaming, then the Guaranteed and Maximum bitrate parameters should also be provided. Other values are reserved.

`<Maximum bitrate UL>`: a numeric parameter that indicates the maximum number of kbits/s delivered to UMTS (up-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). This parameter should be provided if the Traffic class is specified as conversational or streaming. (refer TS 24.008 [8] subclause 10.5.6.5).

`<Maximum bitrate DL>`: a numeric parameter that indicates the maximum number of kbits/s delivered by UMTS (down-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming. (refer TS 24.008 [8] subclause 10.5.6.5).

`<Guaranteed bitrate UL>`: a numeric parameter that indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming. (refer TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate DL>: a numeric parameter that indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming. (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery order>: a numeric parameter that indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not.
0 - no
1 - yes
2 - subscribed value.

Other values are reserved.

<Maximum SDU size>: a numeric parameter (1,2,3,…) that indicates the maximum allowed SDU size in octets. If the parameter is set to '0' the subscribed value will be requested. (refer TS 24.008 [8] subclause 10.5.6.5).

<SDU error ratio>: a string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. AT+CGEQREQ=…,"5E3",…). '0E0' means subscribed value. (refer TS 24.008 [8] subclause 10.5.6.5).

<Residual bit error ratio>: a string parameter that indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the bit error ratio in the delivered SDUs. The value is specified as 'mEe'. As an example a target residual bit error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. AT+CGEQREQ=…,"5E3",…). '0E0' means subscribed value. (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery of erroneous SDUs>: a numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not.
0 - no
1 - yes
2 - no detect
3 - subscribed value

Other values are reserved.

<Transfer delay>: a numeric parameter (0,1,2,…) that indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds. If the parameter is set to '0' the subscribed value will be requested. (refer TS 24.008 [8] subclause 10.5.6.5).

<Traffic handling priority>: a numeric parameter (1,2,3,…) that specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers. If the parameter is set to '0' the subscribed value will be requested. (refer TS 24.008 [8] subclause 10.5.6.5).

<PDP_type>: (see +CGDCONT and +CGDSCONT commands).

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.

10.1.7   3G Quality of Service Profile (Minimum acceptable) +CGEQMIN

Table 110: +CGEQMIN parameter command syntax

Command	Possible Response(s)
+CGEQMIN=[<cid> [,<Traffic class> [,<Maximum bitrate UL> [,<Maximum bitrate DL> [,<Guaranteed bitrate UL> [,<Guaranteed bitrate DL> [,<Delivery	OK ERROR

Command	Possible Response(s)
`order> [,<Maximum SDU size> [,<SDU error ratio> [,<Residual bit error ratio> [,<Delivery of erroneous SDUs> [,<Transfer delay> [,<Traffic handling priority>]]]]]]]]]]]]]`	

`+CGEQMIN?`	`+CGEQMIN: <cid>, <Traffic class> ,<Maximum bitrate UL>, <Maximum bitrate DL> ,<Guaranteed bitrate UL> ,<Guaranteed bitrate DL>, <Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority>`
	
	`[<CR><LF>+CGEQMIN: <cid>, <Traffic class> ,<Maximum bitrate UL> ,<Maximum bitrate DL> ,<Guaranteed bitrate UL> ,<Guaranteed bitrate DL>, <Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority>`
	
	`[…]]`

`+CGEQMIN=?`	`+CGEQMIN: <PDP_type>, (list of supported <Traffic class>s) ,(list of supported <Maximum bitrate UL>s) ,(list of supported <Maximum bitrate DL>s), (list of supported <Guaranteed bitrate UL>s), (list of supported <Guaranteed bitrate DL>s) ,(list of supported <Delivery order>s) ,(list of supported <Maximum SDU size>s) ,(list of supported <SDU error ratio>s) ,(list of supported <Residual bit error ratio>s) ,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>s)`  `[<CR><LF>+CGEQMIN: <PDP_type>, (list of supported <Traffic class>s) ,(list of supported <Maximum bitrate UL>s), (list of supported <Maximum bitrate DL>s) ,(list of supported <Guaranteed bitrate UL >s), (list of supported <Guaranteed bitrate DL >s) ,(list of supported <Delivery order>s) ,(list of supported <Maximum SDU size>s) ,(list of supported <SDU error ratio>s) ,(list of supported <Residual bit error ratio>s) ,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>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/Modify PDP Context Accept message.

The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. The specified profile will be stored in the MT and checked against the negotiated profile only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGEQMIN 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, +CGEQMIN= <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 +CGDCONT and +CGDSCONT commands).

The following parameters are defined in 3GPP TS 23.107 [46] -

<Traffic class>: a numeric parameter that indicates the type of application for which the UMTS bearer service is optimised.
0 - conversational
1 - streaming
2 - interactive
3 - background

Other values are reserved.

<Maximum bitrate UL>: a numeric parameter that indicates the maximum number of kbits/s delivered to UMTS (up-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Maximum bitrate DL>: a numeric parameter that indicates the maximum number of kbits/s delivered by UMTS (down-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate UL>: a numeric parameter that indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate DL>: a numeric parameter that indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery order>: a numeric parameter that indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not.
0 - no
1 - yes
Other values are reserved.

<Maximum SDU size>: a numeric parameter (1,2,3,…) that indicates the maximum allowed SDU size in octets. (refer TS 24.008 [8] subclause 10.5.6.5).

<SDU error ratio>: a string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. AT+CGEQMIN=…,"5E3",…). (refer TS 24.008 [8] subclause 10.5.6.5).

<Residual bit error ratio>: a string parameter that indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the bit error ratio in the delivered SDUs. The value is specified as 'mEe'. As an example a target residual bit error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. AT+CGEQMIN=…,"5E3",…). (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery of erroneous SDUs>: a numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not.
0 - no
1 - yes
2 - no detect

Other values are reserved.

<Transfer delay>: a numeric parameter (0,1,2,…) that indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds. (refer TS 24.008 [8] subclause 10.5.6.5).

<Traffic handling priority>: a numeric parameter (1,2,3,…) that specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers. (refer TS 24.008 [8] subclause 10.5.6.5).

<PDP_type>: (see +CGDCONT and +CGDSCONT commands).

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 no check is made against the negotiated profile.

10.1.8   3G Quality of Service Profile (Negotiated) +CGEQNEG

Table 111: +CGEQNEG action command syntax

Command	Possible Response(s)

`+CGEQNEG =[<cid>[,<cid>[,…]]]`	`+CGEQNEG: <cid>, <Traffic class> ,<Maximum bitrate UL>, <Maximum bitrate DL> ,<Guaranteed bitrate UL>, <Guaranteed bitrate DL> ,<Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority>`
	
	`[<CR><LF>+CGEQNEG: <cid>, <Traffic class> ,<Maximum bitrate UL>, <Maximum bitrate DL> ,<Guaranteed bitrate UL>, <Guaranteed bitrate DL> ,<Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority>`
	
	`[…]]`

`+CGEQNEG=?`	`+CGEQNEG: (list of <cid>s associated with active contexts)`

Description

This command allows the TE to retrieve the negotiated QoS profiles returned in the Activate PDP Context Accept message.

The execution command returns the negotiated QoS profile for the specified context identifiers, `<cid>`s. The QoS profile consists of a number of parameters, each of which may have a separate value.

The test command returns a list of `<cid>`s associated with active contexts.

Defined values

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

The following parameters are defined in 3GPP TS 23.107 [46] -

> `<Traffic class>`: a numeric parameter that indicates the type of application for which the UMTS bearer service is optimised.
> 0 - conversational
> 1 - streaming
> 2 - interactive
> 3 - background
> Other values are reserved.

> `<Maximum bitrate UL>`: a numeric parameter that indicates the maximum number of kbits/s delivered to UMTS (up-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. +CGEQNEG:…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

> `<Maximum bitrate DL>`: a numeric parameter that indicates the maximum number of kbits/s delivered by UMTS (down-link traffic) at a SAP As an example a bitrate of 32kbit/s would be specified as '32' (e.g. +CGEQNEG:…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate UL>: a numeric parameter that indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. +CGEQNEG:…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate DL>: a numeric parameter that indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. +CGEQNEG:…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery order>: a numeric parameter that indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not.
0 - no
1 - yes
Other values are reserved.

<Maximum SDU size>: a numeric parameter that (1,2,3,…) indicates the maximum allowed SDU size in octets. (refer TS 24.008 [8] subclause 10.5.6.5).

<SDU error ratio>: a string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. +CGEQNEG:…,"5E3",…). (refer TS 24.008 [8] subclause 10.5.6.5).

<Residual bit error ratio>: a string parameter that indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the bit error ratio in the delivered SDUs. The value is specified as 'mEe'. As an example a target residual bit error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. +CGEQNEG:…,"5E3",…). (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery of erroneous SDUs>: a numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not.
0 - no
1 - yes
2 - no detect

Other values are reserved.

<Transfer delay>: a numeric parameter (0,1,2,…) that indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds. (refer TS 24.008 [8] subclause 10.5.6.5).

<Traffic handling priority>: a numeric parameter (1,2,3,…) that specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers. (refer TS 24.008 [8] subclause 10.5.6.5).

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

Implementation

Optional.

CR-Form-v7

CHANGE REQUEST

| ⌘ | **27.007** CR **112** | ⌘**rev** | **-** | ⌘ | Current version: | **5.3.0** | ⌘ |

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

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

Title:	⌘	Adding reference to 24.008 for the 3G QoS AT-commands.
Source:	⌘	T2

Work item code:⌘	TEI5			***Date:*** ⌘	27/08/2003

Category:	⌘	**F**	***Release:*** ⌘ Rel-5

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

Use one of the following releases:
2   (GSM Phase 2)
R96   (Release 1996)
R97   (Release 1997)
R98   (Release 1998)
R99   (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Clarification of 3G QoS parameters value range.
Summary of change:⌘		The granularity of the parameters value range for the commands AT+CGEQREQ, AT+CGEQMIN and AT+CGEQNEG is not reflected in the in the text describing these commands.
		A reference to the 3GPP TS 24.008 shall be included for each of the above AT-commands.
Consequences if not approved:	⌘	Misleading parameters value range will confuse the the applicability of the AT-commands.

Clauses affected:	⌘	10.1.6, 10.1.7, 10.1.8

		Y	**N**		
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/specs/CR.htm.
Below is a brief summary:

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

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

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

10.1.6   3G Quality of Service Profile (Requested) +CGEQREQ

Table 109: +CGEQREQ parameter command syntax

Command	Possible Response(s)
+CGEQREQ=[<cid> [,<Traffic class> [,<Maximum bitrate UL> [,<Maximum bitrate DL> [,<Guaranteed bitrate UL> [,<Guaranteed bitrate DL> [,<Delivery order> [,<Maximum SDU size> [,<SDU error ratio> [,<Residual bit error ratio> [,<Delivery of erroneous SDUs> [,<Transfer delay> [,<Traffic handling priority>]]]]]]]]]]]]]	OK ERROR
+CGEQREQ?	+CGEQREQ: <cid>, <Traffic class> ,<Maximum bitrate UL> ,<Maximum bitrate DL> ,<Guaranteed bitrate UL> ,<Guaranteed bitrate DL> ,<Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority> [<CR><LF>+CGEQREQ: <cid>, <Traffic class> ,<Maximum bitrate UL> ,<Maximum bitrate DL> ,<Guaranteed bitrate UL> ,<Guaranteed bitrate DL> ,<Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority> […]]
+CGEQREQ=?	+CGEQREQ: <PDP_type>, (list of supported <Traffic class>s) ,(list of supported <Maximum bitrate UL>s), (list of supported <Maximum bitrate DL>s), (list of supported <Guaranteed bitrate UL>s), (list of supported <Guaranteed bitrate DL>s),(list of supported <Delivery order>s) ,(list of supported <Maximum SDU size>s) ,(list of supported <SDU error ratio>s) ,(list of supported <Residual bit error ratio>s) ,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>s) [<CR><LF>+CGEQREQ: <PDP_type>, (list of supported <Traffic class>s) ,(list of supported <Maximum bitrate UL>s), (list of supported <Maximum bitrate DL>s), (list of supported <Guaranteed bitrate UL>s), (list of supported <Guaranteed bitrate DL>s),(list of supported <Delivery order>s) ,(list of supported <Maximum SDU size>s) ,(list of supported <SDU error ratio>s) ,(list of supported <Residual bit error ratio>s)

Command	Possible Response(s)

	`,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>s)`
	
	`[…]]`

Description

This command allows the TE to specify a UMTS 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>`. The specified profile will be stored in the MT and sent to the network only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGEQREQ 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, +CGEQREQ= `<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 +CGDCONT and +CGDSCONT commands).

The following parameters are defined in 3GPP TS 23.107 [46] -

    `<Traffic class>`: a numeric parameter that indicates the type of application for which the UMTS bearer service is optimised.
      0 - conversational
      1 - streaming
      2 - interactive
      3 - background
      4 - subscribed value

      If the Traffic class is specified as conversational or streaming, then the Guaranteed and Maximum bitrate parameters should also be provided. Other values are reserved.

    `<Maximum bitrate UL>`: a numeric parameter that indicates the maximum number of kbits/s delivered to UMTS (up-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). This parameter should be provided if the Traffic class is specified as conversational or streaming. (refer TS 24.008 [8] subclause 10.5.6.5).

    `<Maximum bitrate DL>`: a numeric parameter that indicates the maximum number of kbits/s delivered by UMTS (down-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming. (refer TS 24.008 [8] subclause 10.5.6.5).

    `<Guaranteed bitrate UL>`: a numeric parameter that indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming. (refer TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate DL>: a numeric parameter that indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming. (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery order>: a numeric parameter that indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not.
0 - no
1 - yes
2 - subscribed value.

Other values are reserved.

<Maximum SDU size>: a numeric parameter (1,2,3,…) that indicates the maximum allowed SDU size in octets. If the parameter is set to '0' the subscribed value will be requested. (refer TS 24.008 [8] subclause 10.5.6.5).

<SDU error ratio>: a string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. AT+CGEQREQ=…,"5E3",…). '0E0' means subscribed value. (refer TS 24.008 [8] subclause 10.5.6.5).

<Residual bit error ratio>: a string parameter that indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the bit error ratio in the delivered SDUs. The value is specified as 'mEe'. As an example a target residual bit error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. AT+CGEQREQ=…,"5E3",…). '0E0' means subscribed value. (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery of erroneous SDUs>: a numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not.
0 - no
1 - yes
2 - no detect
3 - subscribed value

Other values are reserved.

<Transfer delay>: a numeric parameter (0,1,2,…) that indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds. If the parameter is set to '0' the subscribed value will be requested. (refer TS 24.008 [8] subclause 10.5.6.5).

<Traffic handling priority>: a numeric parameter (1,2,3,…) that specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers. If the parameter is set to '0' the subscribed value will be requested. (refer TS 24.008 [8] subclause 10.5.6.5).

<PDP_type>: (see +CGDCONT and +CGDSCONT commands).

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.

10.1.7   3G Quality of Service Profile (Minimum acceptable) +CGEQMIN

Table 110: +CGEQMIN parameter command syntax

Command	Possible Response(s)
+CGEQMIN=[<cid> [,<Traffic class> [,<Maximum bitrate UL> [,<Maximum bitrate DL> [,<Guaranteed bitrate UL> [,<Guaranteed bitrate DL> [,<Delivery	OK ERROR

Command	Possible Response(s)
`order> [,<Maximum SDU size> [,<SDU error ratio> [,<Residual bit error ratio> [,<Delivery of erroneous SDUs> [,<Transfer delay> [,<Traffic handling priority>]]]]]]]]]]]]]`	

`+CGEQMIN?`	`+CGEQMIN: <cid>, <Traffic class> ,<Maximum bitrate UL>, <Maximum bitrate DL> ,<Guaranteed bitrate UL> ,<Guaranteed bitrate DL>, <Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority>`
	
	`[<CR><LF>+CGEQMIN: <cid>, <Traffic class> ,<Maximum bitrate UL> ,<Maximum bitrate DL> ,<Guaranteed bitrate UL> ,<Guaranteed bitrate DL>, <Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority>`
	
	`[…]]`

`+CGEQMIN=?`	`+CGEQMIN: <PDP_type>, (list of supported <Traffic class>s) ,(list of supported <Maximum bitrate UL>s) ,(list of supported <Maximum bitrate DL>s), (list of supported <Guaranteed bitrate UL>s), (list of supported <Guaranteed bitrate DL>s) ,(list of supported <Delivery order>s) ,(list of supported <Maximum SDU size>s) ,(list of supported <SDU error ratio>s) ,(list of supported <Residual bit error ratio>s) ,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>s)`  `[<CR><LF>+CGEQMIN: <PDP_type>, (list of supported <Traffic class>s) ,(list of supported <Maximum bitrate UL>s), (list of supported <Maximum bitrate DL>s) ,(list of supported <Guaranteed bitrate UL >s), (list of supported <Guaranteed bitrate DL >s) ,(list of supported <Delivery order>s) ,(list of supported <Maximum SDU size>s) ,(list of supported <SDU error ratio>s) ,(list of supported <Residual bit error ratio>s) ,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>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/Modify PDP Context Accept message.

The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. The specified profile will be stored in the MT and checked against the negotiated profile only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGEQMIN 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, +CGEQMIN= <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 +CGDCONT and +CGDSCONT commands).

The following parameters are defined in 3GPP TS 23.107 [46] -

<Traffic class>: a numeric parameter that indicates the type of application for which the UMTS bearer service is optimised.
0 - conversational
1 - streaming
2 - interactive
3 - background

Other values are reserved.

<Maximum bitrate UL>: a numeric parameter that indicates the maximum number of kbits/s delivered to UMTS (up-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Maximum bitrate DL>: a numeric parameter that indicates the maximum number of kbits/s delivered by UMTS (down-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate UL>: a numeric parameter that indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate DL>: a numeric parameter that indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery order>: a numeric parameter that indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not.
0 - no
1 - yes
Other values are reserved.

<Maximum SDU size>: a numeric parameter (1,2,3,…) that indicates the maximum allowed SDU size in octets. (refer TS 24.008 [8] subclause 10.5.6.5).

<SDU error ratio>: a string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. AT+CGEQMIN=…,"5E3",…). (refer TS 24.008 [8] subclause 10.5.6.5).

<Residual bit error ratio>: a string parameter that indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the bit error ratio in the delivered SDUs. The value is specified as 'mEe'. As an example a target residual bit error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. AT+CGEQMIN=…,"5E3",…). (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery of erroneous SDUs>: a numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not.
0 - no
1 - yes
2 - no detect

Other values are reserved.

<Transfer delay>: a numeric parameter (0,1,2,…) that indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds. (refer TS 24.008 [8] subclause 10.5.6.5).

<Traffic handling priority>: a numeric parameter (1,2,3,…) that specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers. (refer TS 24.008 [8] subclause 10.5.6.5).

<PDP_type>: (see +CGDCONT and +CGDSCONT commands).

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 no check is made against the negotiated profile.

10.1.8   3G Quality of Service Profile (Negotiated) +CGEQNEG

Table 111: +CGEQNEG action command syntax

Command	Possible Response(s)

`+CGEQNEG =[<cid>[,<cid>[,…]]]`	`+CGEQNEG: <cid>, <Traffic class> ,<Maximum bitrate UL>, <Maximum bitrate DL> ,<Guaranteed bitrate UL>, <Guaranteed bitrate DL> ,<Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority>`
	
	`[<CR><LF>+CGEQNEG: <cid>, <Traffic class> ,<Maximum bitrate UL>, <Maximum bitrate DL> ,<Guaranteed bitrate UL>, <Guaranteed bitrate DL> ,<Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority>`
	
	`[…]]`

`+CGEQNEG=?`	`+CGEQNEG: (list of <cid>s associated with active contexts)`

Description

This command allows the TE to retrieve the negotiated QoS profiles returned in the Activate PDP Context Accept message.

The execution command returns the negotiated QoS profile for the specified context identifiers, <cid>s. The QoS profile consists of a number of parameters, each of which may have a separate value.

The test command returns a list of <cid>s associated with active contexts.

Defined values

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

The following parameters are defined in 3GPP TS 23.107 [46] -

> <Traffic class>: a numeric parameter that indicates the type of application for which the UMTS bearer service is optimised.
> 0 - conversational
> 1 - streaming
> 2 - interactive
> 3 - background
> Other values are reserved.

> <Maximum bitrate UL>: a numeric parameter that indicates the maximum number of kbits/s delivered to UMTS (up-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. +CGEQNEG:…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

> <Maximum bitrate DL>: a numeric parameter that indicates the maximum number of kbits/s delivered by UMTS (down-link traffic) at a SAP As an example a bitrate of 32kbit/s would be specified as '32' (e.g. +CGEQNEG:…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate UL>: a numeric parameter that indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. +CGEQNEG:…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate DL>: a numeric parameter that indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. +CGEQNEG:…,32, …). (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery order>: a numeric parameter that indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not.
0 - no
1 - yes
Other values are reserved.

<Maximum SDU size>: a numeric parameter that (1,2,3,…) indicates the maximum allowed SDU size in octets. (refer TS 24.008 [8] subclause 10.5.6.5).

<SDU error ratio>: a string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. +CGEQNEG:…,"5E3",…). (refer TS 24.008 [8] subclause 10.5.6.5).

<Residual bit error ratio>: a string parameter that indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the bit error ratio in the delivered SDUs. The value is specified as 'mEe'. As an example a target residual bit error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. +CGEQNEG:…,"5E3",…). (refer TS 24.008 [8] subclause 10.5.6.5).

<Delivery of erroneous SDUs>: a numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not.
0 - no
1 - yes
2 - no detect

Other values are reserved.

<Transfer delay>: a numeric parameter (0,1,2,…) that indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds. (refer TS 24.008 [8] subclause 10.5.6.5).

<Traffic handling priority>: a numeric parameter (1,2,3,…) that specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers. (refer TS 24.008 [8] subclause 10.5.6.5).

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

Implementation

Optional.

CR-Form-v7

CHANGE REQUEST

| ⌘ | **27.007** CR **113** | ⌘**rev** | **-** | ⌘ | Current version: | **4.6.0** | ⌘ |

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

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

Title: ⌘	Corrections to AcTs of PLMN Selection	
Source: ⌘	T2	
Work item code: ⌘	TI-ATC	***Date:*** ⌘ 04/08/2003
Category: ⌘	**F**	***Release:*** ⌘ Rel-4

Use <u>one</u> 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 <u>one</u> of the following releases:
2   (GSM Phase 2)
R96   (Release 1996)
R97   (Release 1997)
R98   (Release 1998)
R99   (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘	Parameters of +COPS command are not in line with other specifications. In addition, the operation after the access technology is selected is not clear from current version of the specification. According to Core Network specifications, it is not possible to indicate situation where 3G part of network is forbidden and 2G is allowed. This is because there is no rejection cause which could tell us this e.g. "UMTS services not available in this PLMN". Currently operators may use e.g. cause #15 "No suitable cells in location area" to reject 3G LU attempt and force phone to search for other location areas of same PLMN, this search would also extend to other system. That rejection cause, and also other rejection causes which can be used to indicate that 3G roaming is not available in this network, are valid only for that one location area, not the whole AcT. This makes it impossible to classify different AcTs as 'forbidden' or 'allowed' as current version of the AT command specification requires.
Summary of change: ⌘	New AcT value GSM/UTRAN added to the +COPS command. A note explaining the situation after the selection is done added to the specification.
Consequences if not approved: ⌘	It is not possible to implement +COPS at all, or at least the implementations may vary between the manufacturers

Clauses affected: ⌘	7.3	

		Y	N		
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/specs/CR.htm. Below is a brief summary:

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

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

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

7.3   PLMN selection +COPS

Table 36: +COPS parameter command syntax

Command	Possible response(s)
+COPS=[<mode>[,<format> [,<oper>[,< AcT>]]]]	*+CME ERROR: <err>*
+COPS?	+COPS: <mode>[,<format>,<oper>[,< AcT>]] *+CME ERROR: <err>*
+COPS=?	+COPS: [list of supported (<stat>,long alphanumeric <oper> ,short alphanumeric <oper>,numeric <oper>[,< AcT>])s] [,,(list of supported <mode>s),(list of supported <format>s)] *+CME ERROR: <err>*

Description

Set command forces an attempt to select and register the GSM/UMTS network operator. <mode> is used to select whether the selection is done automatically by the MT or is forced by this command to operator <oper> (it shall be given in format <format>) to a certain access technology, indicated in <AcT>. If the selected operator is not available, no other operator shall be selected (except <mode>=4). If the selected access technology is not available, then the terminal shall select the same operator in another access technology. The selected operator name format shall apply to further read commands (+COPS?) also. <mode>=2 forces an attempt to deregister from the network. The selected mode affects to all further network registration (e.g. after <mode>=2, MT shall be unregistered until <mode>=0 or 1 is selected). Refer subclause 9.2 for possible <err> values. This command should be abortable when registration/deregistration attempt is made.

Read command returns the current mode, the currently selected operator and the current Access Technology. If no operator is selected, <format>, <oper> and < AcT> are omitted.

Test command returns a set of five parameters, each representing an operator present in the network. A set consists of an integer indicating the availability of the operator <stat>, long and short alphanumeric format of the name of the operator, numeric format representation of the operator and access technology. Any of the formats may be unavailable and should then be an empty field. The list of operators shall be in order: home network, networks referenced in SIM or active application in the UICC (GSM or USIM) in the following order: HPLMN selector, User controlled PLMN selector, Operator controlled PLMN selector and PLMN selector (in the SIM or GSM application), and other networks. <AcT> indicates the supported access technologies for the PLMN. Only one value shall be returned. The value 3 indicates that the operator supports both GSM and UTRAN access technologies.

It is recommended (although optional) that after the operator list TA returns lists of supported <mode>s and <format>s. These lists shall be delimited from the operator list by two commas.

NOTE: The access technology selected parameters, <AcT>, should only be used in terminals capable to register to more than one access technology. Selection of <AcT> does not limit the capability to carry out cell reselections, even though the access technology is selected; the phone may still re-select a cell in another access technology.

Defined values

<mode>:

0   automatic (<oper> field is ignored)

1   manual (<oper> field shall be present, and <AcT> optionally)

2   deregister from network

3   set only <format> (for read command +COPS?), do not attempt registration/deregistration (<oper> and < AcT> fields are ignored); this value is not applicable in read command response

4 manual/automatic (`<oper>` field shall be present); if manual selection fails, automatic mode (`<mode>`=0) is entered

`<format>`:

<u>0</u> long format alphanumeric `<oper>`

1 short format alphanumeric `<oper>`

2 numeric `<oper>`

`<oper>`: string type; `<format>` indicates if the format is alphanumeric or numeric; long alphanumeric format can be upto 16 characters long and short format up to 8 characters (refer GSM MoU SE.13 [9]); numeric format is the GSM Location Area Identification number (refer TS 24.008 [8] subclause 10.5.1.3) which consists of a three BCD digit country code coded as in ITU-T E.212 Annex A [10], plus a two BCD digit network code, which is administration specific; returned `<oper>` shall not be in BCD format, but in IRA characters converted from BCD; hence the number has structure: (country code digit 3)(country code digit 2)(country code digit 1)(network code digit 3)(network code digit 2)(network code digit 1)

`<stat>`:

0 unknown

1 available

2 current

3 forbidden

`<AcT>` access technology selected:

<u>0</u> GSM

1 GSM Compact

2 UTRAN

3 GSM/UTRAN (only in test command response)

Implementation

Optional.

CR-Form-v7

CHANGE REQUEST

| ⌘ | **27.007** CR **114** | ⌘**rev** | **-** | ⌘ | Current version: | **5.3.0** | ⌘ |

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

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

Title: ⌘	Corrections to AcTs of PLMN Selection	
Source: ⌘	T2	
Work item code: ⌘	TI-ATC	**Date:** ⌘ 04/08/2003
Category: ⌘ **A**		**Release:** ⌘ Rel-5

Use <u>one</u> 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 <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change: ⌘	Parameters of +COPS command are not in line with other specifications. In addition, the operation after the access technology is selected is not clear from current version of the specification. According to Core Network specifications, it is not possible to indicate situation where 3G part of network is forbidden and 2G is allowed. This is because there is no rejection cause which could tell us this e.g. "UMTS services not available in this PLMN". Currently operators may use e.g. cause #15 "No suitable cells in location area" to reject 3G LU attempt and force phone to search for other location areas of same PLMN, this search would also extend to other system. That rejection cause, and also other rejection causes which can be used to indicate that 3G roaming is not available in this network, are valid only for that one location area, not the whole AcT. This makes it impossible to classify different AcTs as 'forbidden' or 'allowed' as current version of the AT command specification requires.
Summary of change: ⌘	New AcT value GSM/UTRAN added to the +COPS command. A note explaining the situation after the selection is done added to the specification.
Consequences if not approved: ⌘	It is not possible to implement +COPS at all, or at least the implementations may vary between the manufacturers

Clauses affected: ⌘	7.3

	Y	N		
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/specs/CR.htm. Below is a brief summary:

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

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

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

7.3   PLMN selection +COPS

Table 36: +COPS parameter command syntax

Command	Possible response(s)
+COPS=[<mode>[,<format> [,<oper>[,< AcT>]]]]	*+CME ERROR: <err>*
+COPS?	+COPS: <mode>[,<format>,<oper>[,< AcT>]] *+CME ERROR: <err>*
+COPS=?	+COPS: [list of supported (<stat>,long alphanumeric <oper> ,short alphanumeric <oper>,numeric <oper>[,< AcT>])s] [,,(list of supported <mode>s),(list of supported <format>s)] *+CME ERROR: <err>*

Description

Set command forces an attempt to select and register the GSM/UMTS network operator. <mode> is used to select whether the selection is done automatically by the MT or is forced by this command to operator <oper> (it shall be given in format <format>) to a certain access technology, indicated in <AcT>. If the selected operator is not available, no other operator shall be selected (except <mode>=4). If the selected access technology is not available, then the terminal shall select the same operator in another access technology. The selected operator name format shall apply to further read commands (+COPS?) also. <mode>=2 forces an attempt to deregister from the network. The selected mode affects to all further network registration (e.g. after <mode>=2, MT shall be unregistered until <mode>=0 or 1 is selected). Refer subclause 9.2 for possible <err> values. This command should be abortable when registration/deregistration attempt is made.

Read command returns the current mode, the currently selected operator and the current Access Technology. If no operator is selected, <format>, <oper> and < AcT> are omitted.

Test command returns a set of five parameters, each representing an operator present in the network. A set consists of an integer indicating the availability of the operator <stat>, long and short alphanumeric format of the name of the operator, numeric format representation of the operator and access technology. Any of the formats may be unavailable and should then be an empty field. The list of operators shall be in order: home network, networks referenced in SIM or active application in the UICC (GSM or USIM) in the following order: HPLMN selector, User controlled PLMN selector, Operator controlled PLMN selector and PLMN selector (in the SIM or GSM application), and other networks. <AcT> indicates the supported access technologies for the PLMN. Only one value shall be returned. The value 3 indicates that the operator supports both GSM and UTRAN access technologies.

It is recommended (although optional) that after the operator list TA returns lists of supported <mode>s and <format>s. These lists shall be delimited from the operator list by two commas.

> NOTE: The access technology selected parameters, <AcT>, should only be used in terminals capable to register to more than one access technology. Selection of <AcT> does not limit the capability to carry out cell reselections, even though the access technology is selected; the phone may still re-select a cell in another access technology.

Defined values

<mode>:

0   automatic (<oper> field is ignored)

1   manual (<oper> field shall be present, and <AcT> optionally)

2   deregister from network

3   set only <format> (for read command +COPS?), do not attempt registration/deregistration (<oper> and < AcT> fields are ignored); this value is not applicable in read command response

4   manual/automatic (`<oper>` field shall be present); if manual selection fails, automatic mode (`<mode>`=0) is entered

`<format>`:

<u>0</u>   long format alphanumeric `<oper>`

1   short format alphanumeric `<oper>`

2   numeric `<oper>`

`<oper>`: string type; `<format>` indicates if the format is alphanumeric or numeric; long alphanumeric format can be upto 16 characters long and short format up to 8 characters (refer GSM MoU SE.13 [9]); numeric format is the GSM Location Area Identification number (refer TS 24.008 [8] subclause 10.5.1.3) which consists of a three BCD digit country code coded as in ITU-T E.212 Annex A [10], plus a two BCD digit network code, which is administration specific; returned `<oper>` shall not be in BCD format, but in IRA characters converted from BCD; hence the number has structure: (country code digit 3)(country code digit 2)(country code digit 1)(network code digit 3)(network code digit 2)(network code digit 1)

`<stat>`:

0   unknown

1   available

2   current

3   forbidden

`<AcT>` access technology selected:

<u>0</u>   GSM

1   GSM Compact

2   UTRAN

3   GSM/UTRAN (only in test command response)

Implementation

Optional.

CR-Form-v7

CHANGE REQUEST

| ⌘ | **27.007** CR **115** | ⌘**rev** | **-** | ⌘ | Current version: | **6.2.0** | ⌘ |

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<format>:

<u>0</u> long format alphanumeric <oper>

1 short format alphanumeric <oper>

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<oper>: string type; <format> indicates if the format is alphanumeric or numeric; long alphanumeric format can be upto 16 characters long and short format up to 8 characters (refer GSM MoU SE.13 [9]); numeric format is the GSM Location Area Identification number (refer TS 24.008 [8] subclause 10.5.1.3) which consists of a three BCD digit country code coded as in ITU-T E.212 Annex A [10], plus a two BCD digit network code, which is administration specific; returned <oper> shall not be in BCD format, but in IRA characters converted from BCD; hence the number has structure: (country code digit 3)(country code digit 2)(country code digit 1)(network code digit 3)(network code digit 2)(network code digit 1)

<stat>:

0 unknown

1 available

2 current

3 forbidden

<AcT> access technology selected:

<u>0</u> GSM

1 GSM Compact

2 UTRAN

3 GSM/UTRAN (only in test command response)

Implementation

Optional.