3GPP TSG-T (Terminals) Meeting #25
Palm Springs, CA, USA
8 - 10 September 2004

TP-040170

Agenda Item: 5.2.3

Source: T2

Title: Change Request on AT commands

Document for: Approval

Spec	CR	Rev	Rel	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Workitem
27.007	117	-	Rel-6	Correction to AT command +CHSN	F	6.5.0	6.6.0	T2-040313	HSCSD
27.007	118	-	Rel-6	Support of logical channels in AT commands	B	6.5.0	6.6.0	T2-040360	TEI6

3GPP TSG-T2 #26
Montreal, Canada
23-27 August 2004

T2-040313

CR-Form-v7

CHANGE REQUEST

⌘ **27.007** **CR** **117** ⌘ **rev** **-** ⌘ Current version: **6.5.0** ⌘

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

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

Title:	⌘	CR 27.007 Rel-6: Correction to AT command +CHSN
Source:	⌘	T2
Work item code:	⌘	HSCSD
Date:	⌘	13/8/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

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: ⌘ The reason for this change is to clarify the rules for the AT command +CHSN. The rules are not fully clear and have lead to incorrect implementation of test case 26.13.2.1.1-4 in TS 3GPP 51.010.

The purpose of the initial conditions in the test cases are to bring the terminal into a stable condition of an *incoming* data call using 14.4kbps.

The System Simulator (SS) issues +CHSN(14.4kbps). The SS then sends SETUP with Bearer Capabilities (BC) with 28.8kbps. The MS (supporting 28.8kbps) will then return CALL CONFIRMED with BC(28.8kbps). However, the SS expects CALL CONFIRMED with BC(14.4kbps) and the test case failed. Ericsson claimed that this is incorrect. Instead the SS should have continued the set up. GCF agreed and the test case was downgraded.

The end user should be able to make settings for *outgoing* data calls using the +CHSN command. If the end user receives an *incoming* data call were the network proposed a certain data rate (in this case 28.8kbps) it shall not be expected that the MS changes this to the data rate that the end user would like to use for *outgoing* data calls.

It needs to be remembered that the end user is not aware of the capabilities of the incoming data call. It should also be noted that several different interfaces could be used, i.e. USB, IrDA, RS-232, BlueTooth and you can even have several logical AT command links multiplexed over one of the physical bearer, and all of these interfaces will have it's own independent AT+CHSN setting.

It is therfore proposed to clarify the rules for +CHSN. Note: this clarification has already been done for +CBST.

Summary of change:	⌘	The rules for +CHSN have been clarified.
Consequences if not approved:	⌘	It will be unclear on how to implement the above mentioned test cases.

Clauses affected:	⌘	6.14			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

6.7 Select bearer service type +CBST

Table 14: +CBST parameter command syntax

Command	Possible response(s)
+CBST=[<speed>[,<name>[,<ce>]]]	
+CBST?	+CBST: <speed>,<name>,<ce>
+CBST=?	+CBST: (list of supported <speed>s),(list of supported <name>s),(list of supported <ce>s)

Description

Set command selects the bearer service <name> with data rate <speed>, and the connection element <ce> to be used when data calls are originated (refer 3GPP TS 22.002 [1]). Values may also be used during mobile terminated data call setup, especially in case of single numbering scheme calls (refer +CSNS).

Test command returns values supported as compound values.

Defined values

NOTE: The default values of the subparameters are manufacturer specific since they depend on the purpose of the device and data services provided by it. Not all combinations of these subparameters are supported by GSM/UMTS (refer 3GPP TS 22.002 [1]).

<speed>:

0	autobauding (automatic selection of the speed; this setting is possible in case of 3.1 kHz modem and non-transparent service)
1	300 bps (V.21)
2	1200 bps (V.22)
3	1200/75 bps (V.23)
4	2400 bps (V.22bis)
5	2400 bps (V.26ter)
6	4800 bps (V.32)
7	9600 bps (V.32)
12	9600 bps (V.34)
14	14400 bps (V.34)
15	19200 bps (V.34)
16	28800 bps (V.34)
17	33600 bps (V.34)
34	1200 bps (V.120)
36	2400 bps (V.120)

38	4800 bps (V.120)
39	9600 bps (V.120)
43	14400 bps (V.120)
47	19200 bps (V.120)
48	28800 bps (V.120)
49	38400 bps (V.120)
50	48000 bps (V.120)
51	56000 bps (V.120)
65	300 bps (V.110)
66	1200 bps (V.110)
68	2400 bps (V.110 or X.31 flag stuffing)
70	4800 bps (V.110 or X.31 flag stuffing)
71	9600 bps (V.110 or X.31 flag stuffing)
75	14400 bps (V.110 or X.31 flag stuffing)
79	19200 bps (V.110 or X.31 flag stuffing)
80	28800 bps (V.110 or X.31 flag stuffing)
81	38400 bps (V.110 or X.31 flag stuffing)
82	48000 bps (V.110 or X.31 flag stuffing)
83	56000 bps (V.110 or X.31 flag stuffing; this setting can be used in conjunction with asynchronous non-transparent UDI or RDI service in order to get FTM)
84	64000 bps (X.31 flag stuffing; this setting can be used in conjunction with asynchronous non-transparent UDI service in order to get FTM)
115	56000 bps (bit transparent)
116	64000 bps (bit transparent)
120	32000 bps (PIAFS32k)
121	64000 bps (PIAFS64k)
130	28800 bps (multimedia)
131	32000 bps (multimedia)
132	33600 bps (multimedia)
133	56000 bps (multimedia)
134	64000 bps (multimedia)

also all other values below 128 are reserved by the present document.

<name>:

0	data circuit asynchronous (UDI or 3.1 kHz modem)
1	data circuit synchronous (UDI or 3.1 kHz modem)
2	PAD Access (asynchronous) (UDI)
3	Packet Access (synchronous) (UDI)
4	data circuit asynchronous (RDI)
5	data circuit synchronous (RDI)
6	PAD Access (asynchronous) (RDI)
7	Packet Access (synchronous) (RDI)

also all other values below 128 are reserved by the present document.

<ce>:

0	transparent
1	non-transparent
2	both, transparent preferred
3	both, non-transparent preferred

Implementation

Mandatory when data calls implemented.

6.14 HSCSD non-transparent call configuration +CHSN

Table 21: +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 originating non-transparent HSCSD calls. Values may also be used during mobile terminated data call setup. In GERAN, changing <topRx> or <codings> value during a call does not affect the current call. In GERAN, changing 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.

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CHANGE REQUEST

⌘ **27.007** **CR** **118** ⌘ **rev** **-** ⌘ Current version: **6.5.0** ⌘

*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:	⌘	Support of logical channels in AT commands
Source:	⌘	T2
Work item code:	⌘	TEI6
Date:	⌘	26/08/2004
Category:	⌘	B
Release:	⌘	Rel-6

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:

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R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The Rel-4 UICC, and also existing SIM/WIM cards, offer the ability to send commands on different logical channels. This means that a terminal application can communicate with a card application, other than the SIM, on a selected logical channel. It is necessary to provide AT commands for opening and closing logical channels and also for sending APDU commands on these logical channels.
Summary of change:	⌘	The following new commands were added in order to enable the usage of the logical channels functionality. The new Open Channel +CCHO and Close Channel +CCHC AT commands will enable the opening and closing of logical channels. The new UICC +CRLA and +CGLA AT command are created to allow communication with a UICC application on a logical channel.
Consequences if not approved:	⌘	No means to communicate with a UICC application other than SIM. And misalignement between TS 27.007 and TS 31.101

Clauses affected:	⌘	2, 8.x, 8.z, 8.y, 8.w			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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)".

[…]

[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; 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; Packet Data Convergence Protocol (PDCP)".

[63] 3GPP TS 23.101: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; General UMTS Architecture "

[xx] 3GPP TS 31.101: "UICC-Terminal Interface; Physical and Logical Characteristics"

8.x Generic UICC Logical Channel access +CGLA

Table 77: +CGLA action command syntax

Command	Possible response(s)
+CSIM=<sessionid>,<length>,<command>	+CSIM: <length>,<response> *+CME ERROR: <err>*
+CSIM=?	

Description

Set command transmits to the MT the <command> it then shall send as it is to the UICC. In the same manner the UICC <response> shall be sent back by the MT to the TA as it is. Refer subclause 9.2 for <err> values.

This command allows a direct control of the UICC by a distant application on the TE. The TE shall then take care of processing UICC information within the frame specified by GSM/UMTS.

NOTE: Compared to Restricted UICC Access command +CRLA, the definition of +CGLA allows TE to take more control over the UICC-MT interface. The locking and unlocking of the interface may be done by a special <command> value or automatically by TA/MT (by interpreting <command> parameter). In case that TE application does not use the unlock command (or does not send a <command> causing automatic unlock) in a certain timeout value, MT may release the locking.

Defined values

<sessionid>: integer type; this is the identifier of the session to be used in order to send the APDU commands to the UICC. It is manadatory in order to send commands to the UICC when targeting applications on the smart card using a logical channel other than the default channel (channel "0").

<length> : integer type; length of the characters that are sent to TE in <command> or <response> (two times the actual length of the command or response)

<command> : command passed on by the MT to the UICC in the format as described in 3GPP TS 31.101 [xx] (hexadecimal character format; refer +CSCS)

<response> : response to the command passed on by the UICC to the MT in the format as described in 3GPP TS 31.101 [xx] (hexadecimal character format; refer +CSCS)

Implementation

Optional.

8.z Restricted UICC Logical Channel access +CRLA

Table 78: +CRLA action command syntax

Command	Possible response(s)
+CRSM=<sessionid>,<command>[,<fileid>[,<P1>,<P2>,<P3>[,<data>]]]	+CRSM: <sw1>,<sw2>[,<response>] *+CME ERROR: <err>*
+CRSM=?	

Description

By using this command instead of Generic UICC Access +CGLA TE application has easier but more limited access to the UICC database. Set command transmits to the MT the UICC <command> and its required parameters. MT handles internally all UICC-MT interface locking and file selection routines. As response to the command, MT sends the actual UICC information parameters and response data. MT error result code +CME ERROR may be returned when the command cannot be passed to the UICC, but failure in the execution of the command in the UICC is reported in <sw1> and <sw2> parameters. Refer to subclause 9.2 for <err> values.

Coordination of command requests to UICC and the ones issued by GSM/UMTS application inside the MT is implementation dependent. However the TE should be aware of the precedence of the GSM/UMTS application commands to the TE commands.

Defined values

<sessionid>: integer type; this is the identifier of the session to be used in order to send the APDU commands to the UICC. It is mandatory in order to send commands to the UICC when targeting applications on the smart card using a logical channel other than the default channel (channel "0").

<command> (command passed on by the MT to the UICC; refer 3GPP TS 31.101 [xx]):

176 READ BINARY

178 READ RECORD

192 GET RESPONSE

214 UPDATE BINARY

220 UPDATE RECORD

242 STATUS

all other values are reserved

NOTE 1: The MT internally executes all commands necessary for selecting the desired file, before performing the actual command.<fileid>: integer type; this is the identifier of a elementary datafile on UICC. Mandatory for every command except STATUS.

NOTE 2: The range of valid file identifiers depends on the actual UICC and is defined in 3GPP TS 31.101 [xx]. Optional files may not be present at all.<P1>, <P2>, <P3>: integer type; parameters passed on by the MT to the UICC. These parameters are mandatory for every command, except GET RESPONSE and STATUS. The values are described in 3GPP TS 31.101 [xx]

<data>: information which shall be written to the SIM (hexadecimal character format; refer +CSCS)

<sw1>, <sw2>: integer type; information from the UICC about the execution of the actual command. These parameters are delivered to the TE in both cases, on successful or failed execution of the command

<response>: response of a successful completion of the command previously issued (hexadecimal character format; refer +CSCS). STATUS and GET RESPONSE return data, which gives information about the current elementary datafield. This information includes the type of file and its size (refer 3GPP TS 31.101 [xx]). After READ BINARY or READ RECORD command the requested data will be returned. <response> is not returned after a successful UPDATE BINARY or UPDATE RECORD command

Implementation

Optional.

8.y Open Logical Channel +CCHO

Table xx: +CCHO action command syntax

Command	Possible response(s)
+CCHO=<dfname>	<sessionid> *+CME ERROR: <err>*
+CCHO=?	

Description

Execution of the command causes the MT to return <sessionid> to allow the TE to identify a channel that is being allocated by the UICC, which is attached to ME. The UICC will open a new logical channel; select the application identified by the <dfname> received with this command and return a session Id as the response. The ME shall restrict the communication between the TE and the UICC to this logical channel.

This <sessionid> is to be used when sending commands with Restricted UICC Logical Channel access +CRLA or Generic UICC Logical Channel access +CGLA commands.

Note that the logical channel number is contained in the CLASS byte of an APDU command, thus implicitly contained in all APDU commands sent to a UICC. In this case it will be up to the MT to manage the logical channel part of the APDU CLASS byte and to ensure that the chosen logical channel is relevant to the <sessionid> indicated in the AT command. See 3GPP TS 31.101 [xx] for further information on logical channels in APDU commands protocol.

Refer subclause 9.2 for possible <err> values.

Defined values

<dfname>: all selectable applications in the UICC are referenced by a DF name coded on 1 to 16 bytes

<sessionid>: A session Id to be used in order to target a specific application on the smart card (e.g. (U)SIM, WIM, ISIM) using logical channels mechanism (string without double quotes that represents a decimal value)

See 3GPP TS 31.101 [xx] for more information about defined values.

Implementation

Optional.

8.w Close Logical Channel +CCHC

Table xx: +CCHC parameter command syntax

Command	Possible response(s)
+CCHC=<sessionid>	*+CCHC ERROR: <err>*
+CCHC=?	

Description

This command asks the ME to close a communication session with the UICC. The ME shall close the previously opened logical channel. The TE will no longer be able to send commands on this logical channel. The UICC will close the logical channel when receiving this command. Refer subclause 9.2 for possible <err> values.

Defined values

<sessionid>: A session Id to be used in order to target a specific application on the smart card (e.g. (U)SIM, WIM, ISIM) using logical channels mechanism (string without double quotes that represents a decimal value)

Implementation

Optional.