MOTODEV
The Motorola developer network

AT Commands Reference for Motorola OS Handsets

MOTOROLA OS 3G-GSM

AT Commands Reference for Motorola OS Handsets

January 30, 2009

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Contents

&C   Circuit 109 Behavior

Description

Determines how the state of the DCD (Data Carrier Detect) line relates to the detection of the received line signal from the distant end.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Usage

Command	Response
&C<param>	OK
&C?	&C:<param>
&C=?	&C:(list of supported <param>s)

Input Parameters

<param>	Description
0	The DCD (Data Carrier Detect) signal is always ON.
1	This is the default value. The DCD signal is set to ON when: • a CSD (Circuit Switched Data) carrier is detected. • a GPRS (General Packet Radio Service) external session is being established. The DCD signal is set to OFF when: • no CSD (Circuit Switched Data) carrier is detected. This can happen when a CSD call has been disconnected or when the Embedded Mobile Phone Module enters CSD online command mode (switch operation). • the Embedded Mobile Phone Module has lost its GPRS (General Packet Radio Service) connection with the network (PDP context was deactivated and the IP address is cancelled).
2	The DCD signal is set to ON when the PDP (Packet Data Protocol) context is activated and the IP address is received from the network. The DCD signal is set to OFF when the PDP context is deactivated and the IP address is cancelled.

NOTE: If &C is set to 2 when a CSD call is set, the DCD signal will always remain OFF.

Examples

```
AT&C?
&C: 1
OK
AT&C0
OK
```

Spec Reference

ITU-T V.25

MMINS

&D   *Circuit 108 Behavior*

Description

Determines how the Embedded Mobile Phone Module responds when the DTR (Data Terminal Ready) status is changed from ON to OFF during the online data state. The DTR is an input line that indicates that the terminal is ready.

The DTR line must be active (low) for the Embedded Mobile Phone Module to recognize the terminal. This signal is raised by the terminal when a process activates the serial port. If the DTR is not used by the application, it should connect this line to ground (DTR active). The default value is active (low).

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Usage

Command	Response
&D<param>	OK
&D?	&D:<param>
&D=?	&D:(list of supported <param>s)

Input Parameters

<param>	Description
0	**In CSD calls:** Ignores DTR changes. **In GPRS calls:** Ignores DTR changes. **In MUX and MUX_INIT state:** Ignores DTE (Data Terminal Equipment) changes.
1	**In CSD calls:** Switches the CSD (Circuit Switched Data) call to asynchronous command mode (the call remains connected). **In GPRS calls:** Deactivates the GPRS (General Packet Radio Service) and returns to command mode. **In MUX and MUX_INIT state:** Ignores DTE changes.
2	This is the default value. **In CSD calls:** Disconnects the call and returns to the command mode. **In GPRS calls:** Deactivates the GPRS and returns to command mode. **In MUX and MUX_INIT state:** Ignores DTE changes
3	**In CSD calls:** Disconnects the call and returns to command mode. **In GPRS calls:** Deactivates the GPRS and returns to command mode. **In MUX and MUX_INIT state:** Ignores DTE changes.
4	**In CSD calls:** Ignores DTR changes. **In GPRS calls:** Ignores DTR changes. **In MUX and MUX_INIT state:** Drops the MUX application and returns to PRE_MUX state.

Examples

```
AT&D?
&D: 2
OK
AT&D1
OK
```

Spec Reference

ITU-T V.25

MMINS

&F   Set to Factory Defined Configuration

Description

Restores the factory default configuration profile. The Embedded Mobile Phone Module only supports one factory default profile, 0.

When this command is received during an incoming or active call (both voice and video calls), the parameters are restored to their default values without affecting the call (the call is neither answered or disconnected).

When this command is received during an active call, it is treated as a standalone command and subsequent commands are ignored.

The &F command restores the default values for the following commands: +CMER, +CCWA, +CLIP, +CREG, +CBST, *MCLI, +CRC.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

DoCoMo specific version.

Usage

Command	Response
&F<value>	OK
	+CMS ERROR: <err>
&F?	<current profile number>

Input Parameters

<value>	Description
0	Factory default configuration profile. This is the only value supported.

Examples

Standby

AT&F

OK (Factory settings restored)

AT&F?

ERROR

AT&F=?

ERROR

Call in progress

AT&F

OK (Without disconnecting the active call, factory settings have been restored)

Spec Reference

ITU-T V.25

MMINS

&G   Selects Guard Tone

Description

This command is supported for backward compatibility only and has no effect.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Spec Reference

MMINS

&K   RTS/CTS Flow Control

Description

Configures the RTS/CTS flow control. The RTS (Request To Send) is an input line. The RTS signal is received from the terminal and a low condition indicates that the Embedded Mobile Phone Module can send more data. The CTS (Clear To Send) is an output line. The CTS signal is sent to the terminal and a low state indicates that more data can be sent to the Embedded Mobile Phone Module.

The RTS and CTS together make up what is called RTS/CTS or "hardware" flow control. Both lines are used when "hardware flow control" is enabled in both the terminal and the Embedded Mobile Phone Module devices. When the terminal is ready and able to receive data, it puts the CTS line in an active (low) condition to indicate this to the Embedded Mobile Phone Module. If the terminal is not able to receive data (typically because its receive buffer is almost full), it puts the CTS line in an inactive (high) condition as a signal to the Embedded Mobile Phone Module to stop sending data. When the terminal is ready to receive more data (for example, after data has been removed from its receive buffer), it places this line back in the active condition. The RTS line complements the CTS line. The Embedded Mobile Phone Module puts the RTS line in an active condition to tell the terminal that it is ready to receive the data. Likewise, if the Embedded Mobile Phone Module is unable to receive data, it places the RTS line in an inactive condition.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Usage

Command	Response
&K<param>	OK
&K?	&K: <param>
&K=?	&K: (list of supported <param>s)

Input Parameters

<param>	Description
0	Disables all terminal/Embedded Mobile Phone Module flow control.
3	Enables CTS/RTS terminal/Embedded Mobile Phone Module flow control. (Default value.)
4	Enables Xon/Xoff terminal/Embedded Mobile Phone Module flow control.
5	Enables Xon/Xoff terminal/Embedded Mobile Phone Module flow control.
6	Enables CTS/RTS.

Examples

```
AT&K?
&K: 3
OK
AT&K4
OK
```

Spec Reference

MMINS

&Q Asynchronous Mode

Description

Selects the asynchronous mode.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Input Parameters

<n>	Description
0	Normal asynchronous operation (no error correction).
5	Error corrected operation. (Default value.)
6	Normal asynchronous operation (no error correction).

Spec Reference

MMINS

&S   Define DSR Behavior

Description

DSR (Data Set Ready)

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Spec Reference

MMINS

\A   *Set the Maximum MNP*

Description

Sets the maximum MNP (an Error Correction/Data compression protocol for modems) block size.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Public

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Spec Reference

MMINS

\B

Description

Transmits break to remote.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Public

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Spec Reference

MMINS

\G   Software Control

Description

Sets the use of the software control. This command is supported for backward compatibility only.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Public

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Spec Reference

MMINS

W

Description

Adjusts the terminal auto rate.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Public

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Spec Reference

MMINS

\W Display Link Type

Description

Displays the link type.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Public

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Spec Reference

MMINS

+BINP   Attach a Phone Number to a Voice Tag

Description

Provides a means to a Bluetooth (BT) Hands-Free (HF) device for reading numbers from the phone for the purpose of creating a unique voice tag and storing the number and its linked voice tag in the Bluetooth Hands-Free device's memory.

Derivation

Bluetooth Hands-Free Profile (HFP) v 0.93

Implementation

Public

Implementation Specific Behavior

This command is only supported on Bluetooth-enabled GSM (Group Special Mobile) platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
+BINP=<datarequest>	+BINP:<dataresp>1...<dataresp>n	<dataresp> is data returned by the phone. Its type depends on the value of the <datarequest> parameter.
+BINP=?	+BINP: (list of supported <datarequest>s) OK ERROR	Shows if the command is supported.

Input Parameters

<datarequest>	Description
1	Phone number corresponding to the last voice tag recorded in the HF.

Output Parameters

<dataresp>	Description
<datarequest> = 1	Phone number string (max. 32 digits). The format of the phone number string is number format 145 when dialing string includes international access code character "+" and number format 129 otherwise.

Examples

```
AT+BINP=1
+BINP: "4255551234"            /* phone number type = 129 */
OK


AT+BINP=1
+BINP: "+358501234567"         /* phone number type = 145 */
OK


AT+BINP=1                      /* Request was rejected by the
                               phone. The phone could be ERROR in a
                               state in which it is unable to
                               process the request.*/


AT+BINP=2                      /* Wrong <datarequest> value */
ERROR
```

Spec Reference

BT-FP-1.5

P2KATCMD

+CACM   Accumulated Call Meter

Description

Set command resets all the accumulated call meter values in the SIM.

Read command returns the current value of accumulated call meter (ACM).

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K (Platform 2000) phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 7.07 Section 8.25

Implementation

Optional

Implementation Specific Behavior

This command is only supported on phones that have the AOC (Advice of Charge) feature enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported. Refer to the corresponding +MAID bit to see if AOC feature is supported or not.

Usage

Command	Response	Description
+CACM=<passwd>	OK	Resets all the accumulated call meter values.
+CACM?	+CACM: <acm>	Reads the current value of ACM in hex format.

Input Parameters

<passwd>   SIMPIN2 password.

Output Parameters

<acm>   3 bytes of accumulated call meter value, specified in hex format.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CACM?
+CACM: "00001E"
OK
AT+CAOC=0
+CAOC: "00001E"
OK
AT+CACM="0000"
OK
AT+CACM?
+CACM: "000000"
OK
AT+CAOC=0
+CAOC: "000000"
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CAMM   Accumulated Call Meter Maximum

Description

Set command sets the maximum accumulated call meter value (ACMmax) in the SIM. This is the maximum value a subscriber is allowed to use.

Read command returns the current value of ACMmax. When ACM reaches ACMmax, the calls are not allowed to be made. If ACMmax is set to "0", this feature is disabled.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 7.07 Section 8.26

Implementation

Optional

Implementation Specific Behavior

This command is only supported on phones that have the AOC (Advice of Charge) feature enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported. Refer to the corresponding +MAID bit to see if the AOC feature is supported or not.

Usage

Command	Response	Description
+CAMM=<acmmax>,<passwd>	OK	ACMmax in hex format, SIMPIN2 password.
+CAMM?	+CAMM: <acmmax>	Reads the current value of ACMmax.

Output Parameters

<acmmax>   3 bytes of output, specified in hex format.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CAMM="00100E","0000"
OK
AT+CAMM?
+CAMM: "00100E"
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CAOC   *Advice of Charge*

Description

Allows the subscriber to get information about the cost of calls.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 7.07 Section 7.15

Implementation

Optional

Implementation Specific Behavior

Only mode 0 "query CCM" is supported.

This command is only supported on phones that have the AOC (Advice of Charge) feature enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported. Refer to the corresponding +MAID bit to see if AOC feature is supported or not.

Usage

Command	Response	Description
+CAOC[=mode]	+CAOC: <ccm>	Gets the advice of charge.
+CAOC?	+CAOC: <mode>	Reads the AOC selected.
+CAOC=?	+CAOC: (supported modes)	Tests the AOC allowed.

Input Parameters

mode	Description
0	Query CCM (Current Call Meter) is the only mode supported.

Output Parameters

<ccm>   3 bytes of the current call meter value, specified in hex format.

Examples

```
AT+MODE=2                         {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CAOC=0
+CAOC: "00001E"
OK
AT+CAOC?
+CAOC: 0
OK
AT+CA             OC=?
+CAOC: (0)
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CBC   Battery Charge Level

Description

Returns the charge level of the battery. The battery connection status (bcs) describes the power source that the Terminal Application is currently using and the battery charge level (bcl) describes the amount of energy remaining in the battery from 0 (empty) to 100 (fully charged).

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 8.4

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

DoCoMo specific version.

Usage

Command	Response	Description
+CBC	+CBC: \<bcs\>,\<bcl\> +CME ERROR: \<err\>	Returns battery connection status \<bcs\> and battery charge level \<bcl\> of the Mobile Equipment.
+CBC=?	+CBC: (list of supported \<bcs\>s),(list of supported \<bcl\>s)	

Output Parameters

<bcs>	Description
Battery charge level. Values 0-3 are GSM 07.07 definitions, others are Motorola specific.	
0	Battery Powered.
1	Externally powered, battery connected.
2	Externally powered, no battery connected.
3	Invalid power supply.

<bcl>   Battery Charge Level. 0 indicates no battery, 1-100 indicates percent charge remaining.

Examples

```
AT+MODE=2                         {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CBC
+CBC: 0,57
OK
AT+CBC
+CBC:0,80
OK
AT+CBC?
ERROR
AT+CBC=?
+CBC:(0-3),(0-100)
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CBST Select Bearer Service Type

Description

Set command selects the bearer service <name> with data rate <speed> and the connection element <ce> to be used when calls are originating from the mobile station's internal TV-phone function. Values may also be used during mobile terminated data call setup, especially in case of single numbering scheme calls.

This command selects the connection type. When optional parameters are omitted, the mobile station interprets the command assuming the defaults were input.

Derivation

USB - DUN (Dial-Up Networking via USB)

3GPP TS 07.07 v7.6.0 [18]

Implementation

Supported AT command on Mode 0.

Mandatory when data calls are implemented.

Implementation Specific Behavior

DoCoMo specific version.

This command is supported on platforms that have feature 27586/88 enabled.

Complies to spec but underloaded — limited supported speeds and names.

+CBST: (list of supported <speed>s), (list of supported <name>s), (list of supported <ce>s)

Motorola Range

+CBST: (000,004,006,007,014,016,068,070,071,075,080,081),(000-001),(000-003)

Spec Range

+CBST: (0,1,2,3,4,5,6,7,12,14,15,16,17,34,36,38,39,43,47,48,49,50,51,65,66,68,70,71,75,79,80,81,82,83,84,115,116,120,121,130,131,132,133,134),(0-7),(0-3)

Usage

Command	Response
+CBST=[<speed>[,<name>[,<ce>]]]	+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)

Input Parameters

<speed>	Description
0	autobauding (automatic selection of the speed)
4	2400 bps(V.22bis)
6	4800 bps (V.32)
7	9600 bps (V.32)(default)
14	14400 bps (V.34)
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)

<name>	Description
0	Data circuit asynchronous. (Default value.)
1	Data circuit synchronous.

<ce>	Description
0	Transparent
1	Non-transparent. (Default value.)
2	Both, transparent preferred.
3	Both, non-transparent preferred.

Examples

```
AT+CBST=7,0,1
OK
AT+CBST=
OK
AT+CBST?
+CBST:7,0,1
OK
AT+CBST=?
+CBST:(000,004,006,007,014,016,068,070,071,075),(000-001),(000-003)
OK
```

Spec Reference

3GPP TS 27.007 6.7

3GPP TS 07.07

MMINS

+CCFC Call Forwarding Number and Conditions

Description

Allows control of the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are all supported. When querying the status of a network service (<mode>=2), the response line for the "not active" case (<status>=0) is returned only if the service is not active for any <class>.

Test command returns reason values supported by the Terminal Application as a compound value.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Section 7.10

Implementation

Mandatory

Implementation Specific Behavior

This command is only supported on platforms that have feature 10322 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CCFC=<reason>,<mode>[,<number>[,<type>[,<class>[,<subaddr>[,<satype>[,<time>]]]]]]	**When command is unsuccessful:** +CME ERROR: <err> **When command is successful:** OK **When <mode>=2 and command is successful:** AT+CCFC=<reason>,2 +CCFC: <status>,<class 1>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]]]<CR><LF>+CCFC: <status>,<class 2>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]] [...]]
+CCFC=?	+CCFC: (list of supported <reason>s)

Input Parameters

+CCFC <reason>	Description
0	Unconditional
1	Mobile busy
2	No reply
3	Not reachable
4	All call forwarding
5	All conditional call forwarding

+CCFC <mode>	Description
0	Disable
1	Enable
2	Query status
3	Registration
4	Erasure

<class n>	Description
Sum of integers each representing a class of information. (Default value is 7.)	
1	Voice

<class n>	Description
2	Data (refers to all bearer services; with <mode>=2, this may refer only to some bearer service if Terminal Application does not support values 16, 32, 64, and 128).
3	Fax

For example, to apply <mode> operation to both Voice and Data classes, use 3 (=Voice+Data = 1+2) as <class n>.

<number>   Quoted string of a phone number to which incoming calls are forwarded. Format is specified by <type>. A valid number, other than own phone number, must be provided.

<type>   Type of address octet in integer format.

<subaddr>   String type subaddress of format specified by <satype>. Currently not supported.

<satype>   Type of subaddress octet in integer format. Currently not supported.

<time>   Time, in seconds, to wait before call is forwarded when "no reply" is enabled or queried. This field defaults to 20 when no value is provided. Valid range is 1- 30.

The result of +CCFC is network dependant on the value of the "no reply" <time> parameter. Results may include "+CME ERROR: unknown" for values of that are not multiples of 5, or rounding of to the nearest multiple of 5 seconds.

Output Parameters

<status>   0 = Inactive, 1 = Active.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CCFC=?
+CCFC: (0,1,2,3,4,5)
OK
AT+CCFC?
+CME ERROR: operation not supported

{Register 01256316830 to forward all incoming calls}
AT+CCFC=0,3,"01256316830",129,1
OK
AT+CCFC=0,2
+CCFC: 1,1,"01256316830",129,,,1
+CCFC: 0,2
+CCFC: 0,4
OK
AT+CCFC=0,4                      {Erase the registration}
```

```
OK
AT+CCFC=0,2
+CCFC: 0,1
+CCFC: 0,2
+CCFC: 0,4

{Register +61895555555 to forward an incoming voice call when there is no reply
after ringing for 10 seconds}
AT+CCFC=2,3,"+61895555555",145,1,,,10
OK
AT+CCFC=2,2
+CCFC: 1,1,"+61895555555",145,,,10
+CCFC: 0,2
+CCFC: 0,4
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CCLK   Clock

Description

Sets the Subscriber Unit's current date and time settings. The timezone offset is corrected with the current DST (Daylight Saving) of Subscriber Unit's location.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 8.15

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

None.

Usage

Command	Response	Description
+CCLK=<time>	+CME ERROR: <err>	Sets the system clock's date and time.
+CCLK?	+CCLK: <time> +CME ERROR: <err>	Returns the current date and time setting of the clock, in format "yy/MM/dd,hh:mm:ss:zz".
+CCLK=?	+CCLK: <flexed_end_date>	Returns valid parameters for cclk set command.

Input Parameters

<time>	**Description**
An ASCII string of format "yy/MM/dd,hh:mm:ss:zz", where characters indicate year (two last digits), month, day, hour, minutes, seconds, and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -96...+96). For example, 6th of May 1994, 22:10:00 GMT+2 hours equals to "94/05/06,22:10:00+08." yy = (<flexed start year> through <flexed end year>).	
The earliest year ("start year") allowed and greatest year ("end year") allowed are flexed onto the phone. If the "yy" is less than the flexed start year or more than the flexed end year, the phone returns an error. If "yy" is a valid year (from the start year through end year), then the full year begins with "20" followed by the "yy" value. After reaching the end date (for example, Dec 31 2088), the date rolls over to Jan 1st of the end year (for example, Jan 1 2088).	
MM	2-digit month [01-12].
dd	2-digit day of month [01-31].
hh	2-digit hour [00-23].
mm	2-digit minute [00-59].
ss	2-digit seconds [00-59].
zz	2-digit (timezone offset+DST) from GMT, in quarter-hours [-48...+52]. The timezone cannot be set using CCLK. Any values entered for "zz" in the set command is ignored.

Output Parameters

<time>　　　　　　　　Current setting of the clock in format "yy/MM/dd,hh:mm:ss±zz".

<flexed_end_date>　　Flexed end date string in format "yy/MM/dd,hh:mm:ss±zz".

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
{Assume the flexed start year is 2005 and flexed end year is 2088, and the
phone is located in the US CST at GMT-6}
AT+CCLK=?
+CCLK: "88/12/31,23:59:59,(-48-+52)"
OK
AT+CCLK?
+CCLK: "05/07/12,08:30:05-24"
OK
AT+CCLK="05/12/25,08:30:00"
OK
AT+CCLK?
+CCLK: "05/12/25,08:30:05-24"
```

```
OK
AT+CCLK="89/12/31,23:59:59"
ERROR
AT+CCLK="00/12/31,23:59:59"
ERROR
AT+CCLK="87/12/31,23:59:59"
OK
AT+CCLK?
+CCLK: "88/01/01,00:00:01-24"
AT+CCLK="88/12/31,23:59:59"
OK
{Has rolled over to Jan 1st of flexed end year}
AT+CCLK?
+CCLK: "88/01/01,00:01:01-24"
AT+CCLK="07/01/01,00:00:00+43"
OK
{Date is changed but timezone is not affected by set cmd}
AT+CCLK?
+CCLK: "07/01/01,00:00:05-24"
OK
{Phone is moved into a new timezone making hh and zz fields update}
AT+CCLK?
+CCLK: "07/01/01,01:00:06-20"
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

![MOTODEV](logo)

+CCWA   Call Waiting

Description

Enables/disables the Call Waiting notification unsolicited result code. Activation, deactivation, and status query are supported. When querying the status of a network service (<mode>=2), the response line for a "not active" case (<status>=0) is returned only if service is not active for any <class>. Parameter <n> disables/enables the presentation of an unsolicited result code +CCWA:
<number>,<type>,<class>,[<alpha>][,<CLI validity>] to the Terminal Equipment when the call waiting service is enabled. Command is aborted when the network is interrogated.

If <mode> is set to 0 (or 1), the Call Waiting feature is disabled (or enabled).

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07, section 7.11

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on 3G and Telematics platforms, Bluetooth enabled GSM (Group Special Mobile) platforms, CDMA platforms, and PCMCIA card. On CDMA platforms, this command only supports the <n> parameter. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CCWA=[<n>[,<mode>[,<class>]]]	**When command is unsuccessful:**
	+CME ERROR: <err>
	When <mode>=2 and command is successful:
	AT+CCWA=<n>,2[,<class>]
	+CCWA: <status>,<class>
	Unsolicited Result Code:
	+CCWA: <number>,<type>,<class>[,<alpha>]
+CCWA?	+CCWA: <n>
+CCWA=?	+CCWA: (list of supported <n>s)

Input Parameters

<n>	Description
Sets/shows the result code presentation status in the Terminal Application.	
0	Disable
1	Enable

<mode>	Description
When <mode> parameter is not given, network is not interrogated.	
0	Disable
1	Enable
2	Query status

<class>   Only 1 for Voice (telephony) is supported.

Output Parameters

<status>	Description
0	Enable
1	Disable

<number>   String type phone number of calling address.

<alpha>   Entry name found in phonebook.

Examples

```
AT+MODE=2                      {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CCWA=1                      {Enable result code}
OK
AT+CCWA=?
+CCWA: (0,1)
OK
AT+CCWA?
+CCWA: 1
OK
AT+CCWA=1,2
+CCWA: 1,1                     {Call waiting is enabled for class 1, voice}
OK
AT+CCWA=1,0                    {Disable the call waiting feature}
OK
AT+CCWA=1,2
+CCWA: 0,1                     {Call waiting is disabled for class 1}
OK
AT+CCWA=1,1                    {Enable the call waiting feature}
OK
AT+CCWA=1;+COLP=1              {Enable call waiting and COLP result codes}
OK
ATD9311234567                 {Originate a voice call}
+COLP: "+358311234567",145
OK
{...conversation...}
+CCWA: "+358317654321",145,1,"Bob"       {Another call is waiting}
AT+CHLD=2   {Put first call on hold and answer the second one}
OK
{...conversation...}
AT+CHLD=1   {Release the second (active) call and recover the first (held)
call}
OK
ATH                                      {Release the first call}
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CEER   Extended Error Report

Description

Returns the cause of disconnection of the previous call. The cause of disconnection means, for example, local disconnection in circuit switching, disconnection by the called party in packet switching, etc.

The Subscriber Unit stores the cause of an active call's disconnection until either the next call is originated or the Subscriber Unit is turned off. The Subscriber Unit converts the cause of a call's disconnection to an integer (0–127) and reports it to the Terminal Equipment.

In situations where there is no stored disconnection reason, such as when the phone is turned on, the Subscriber Unit does not return an intermediate result to the command, it only returns OK.

The execution command causes the Terminal Application to return one or more lines of information text <report>, determined by the Mobile Equipment manufacturer, which should offer the user of the Terminal Application an extended report of the reason for:

- the failure in the last unsuccessful call setup (originating or answering) or incall modification,
- the last call release,
- the last unsuccessful GPRS (General Packet Radio Service) attach or unsuccessful PDP (Packet Data Protocol) context activation, or
- the last GPRS detach or PDP context deactivation.

Typically, the text consists of a single line containing the cause information given by GSM network in textual format.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

Spec Compliant. Error codes output are implementation specific. This command is only supported on PCMCIA cards when feature 27587 is enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

DoCoMo specific version.

Usage

Command	Response
+CEER	+CEER:<report>
+CEER=?	OK

Output Parameters

<report> The disconnection reason for the last call. The total number of characters, including line terminators, in the information text shall not exceed 2,041 characters.

Examples

```
AT+CEER?
ERROR
AT+CEER=?
OK
```

Normal call disconnection
```
AT+CEER
+CEER:16
OK
```

Phone has just been turned on
```
AT+CEER
OK
```

Spec Reference

3GPP 3GPP TS 27.007 6.10

3GPP TS 07.07

MMINS

+CFUN   Set Phone Functionality

Description

Sets the functionality level of the phone. The phone may also be reset with the <rst> parameter, where the phone defaults to the <fun> value on power up. When <rst>=1 and <fun>=0, the phone powers off and does not reset.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Optional

Implementation Specific Behavior

This command is only supported on platforms that have feature 26678 and/or 27586/88 enabled

Usage

Command	Response	Description
+CFUN=[<fun>[,<rst>]]	OK	Sets phone functionality level.
+CFUN?	+CFUN:<fun> (phone functionality level)	Requests phone functionality setting.
+CFUN=?	+CFUN: (list of supported <fun>s),(list of supported <rst>s)	Lists range for parameters.

Input Parameters

<fun>	Description
0	Turns the phone off.
1	Turns off airplane mode. (This is the default value.)
4	Turns on airplane mode.

<rst>	Description
0	Do not reset the phone before setting functionality. (This is the default value.)
1	Resets the phone before setting functionality.

Examples

```
AT+CFUN=                    {Turn off airplane mode}
OK
AT+CFUN=4                   {Turn on airplane mode}
OK
AT+CFUN=1,1                 {Reset phone}
OK
AT+CFUN=?                   {Get parameters range}
+CFUN:(0,1,4),(0,1)
OK
AT+CFUN?
+CFUN:1                     {Airplane mode off}
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CGACT Context Activate or Deactivate

Description

The execution command activates or deactivates the specified PDP (Packet Data Protocol) 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 GPRS (General Packet Radio Service) attached when the activation form of the command is executed, the MT first performs a GPRS attach and then 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.
- Read command returns the current activation states for all the defined PDP contexts.
- Test command requests 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.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

Spec Compliant.

+CGACT: (list of supported <state>s)

Motorola Range

+CGACT: (0,1)

Spec Range

+CGACT: (0,1)

Usage

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

Input Parameters

<state>	Description

<cid>	Description

Spec Reference

3GPP TS 27.007 10.1.10

3GPP TS 07.07

MMINS

+CGATT   GPRS Attach or Detach

Description

The execution command attaches the MT to, or detaches the MT from, the GPRS service. After the command has completed, the MT remains in V.25ter command state. If the MT is already in the requested state, the command is ignored and the OK response is returned. If the requested state cannot be achieved, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command.

- Any active PDP context is automatically deactivated when the attachment state changes to detached.
- Read command returns the current GPRS service state.
- Test command requests information on the supported GPRS service 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.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

Spec Compliant

+CGATT: (list of supported <state>s)

Motorola Range

+CGATT: (0,1)

Spec Range

+CGATT: (0,1)

Usage

Command	Response
+CGATT= [<state>]	OK
	ERROR
+CGATT?	+CGATT: <state>
+CGATT=?	+CGATT: (list of supported <state>s)

Input Parameters

<state>	Description

Spec Reference

3GPP TS 27.007 10.1.9

3GPP TS 07.07

MMINS

+CGCLASS   GPRS Mobile Station Class

Description

Sets the User Equipment mode of operation to the specified GPRS (General Packet Radio Service) mobile class. If the requested class is not supported, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command.

Read command returns the current GPRS mobile class.

Test command requests information on the supported GPRS mobile classes.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

Complies to spec but underloaded — all options not supported.

CGCLASS AT command returns Class B when on GSM RAT and class A when on WCDMA RAT. Motorola User Equipments are class A devices on UMTS (Universal Mobile Telecommunication System) and class B devices on GSM => on GSM, current generation Motorola User Equipments do not support dual transmission mode.

+CGCLASS: (list of supported <class>s)

Motorola Range

+CGCLASS: (B)

+CGCLASS: (A)

Spec Range

+CGCLASS: (A,B,CG,CC)

Usage

Command	Response
+CGCLASS= [<class>]	OK
	ERROR
+CGCLASS?	+CGCLASS: <class>
+CGCLASS=?	+CGCLASS: (list of supported <class>s)

Input Parameters

<class>   A string parameter that indicates the mode of operation.

Spec Reference

3GPP TS 27.007 10.1.17

3GPP TS 07.07

MMINS

+CGDCONT   Define PDP Context

Description

Set command specifies PDP (Packet Data Protocol) 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.

Read command returns the current settings for each defined context.

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.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

Complies to spec but underloaded — Motorola does not implement all PDP types: d_comp and h_comp.

+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)]]]

Motorola Range

+CGDCONT: (1-3),"IP",,,(0,1),(0,1)

Spec Range

+CGDCONT: (any-valid-number), ("X.25" | "IP" | "IPv6" | "OSPIH" | "PPP"),,,(0-2),(0-3)

Motorola supports PDP type PPP for M1000.

Usage

Command	Response
+CGDCONT=[<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,…[,pdN]]]]]]]]	OK ERROR
+CGDCONT?	+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d_comp>, <h_comp>[,<pd1>[,…[,pdN]]] [<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d_comp>, <h_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)]]] [...]]

Spec Reference

3GPP TS 27.007 10.1.1

3GPP TS 07.07

MINS

+CGEQMIN   Quality of Service Profile (Minimum Acceptable)

Description

Handles the minimum acceptable Quality of Service. User Equipment usually checks this against the negotiated Quality of Service.

Allows the Terminal Equipment 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.

Set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. The specified profile is 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 Quality of Service 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.

Read command returns the current settings for each defined context.

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.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

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

Implementation Specific Behavior

Complies to spec but underloaded.

Motorola Range

+CGEQMIN: "IP",(2-4),(0-128),(0-384),,,(0-2),(0-1500),(0E0|1E6|1E4|1E3),(0E0|6E8|4E3|1E5),(0-3),,(0-3)

Spec Range

+CGEQMIN: ("X.25" | "IP" | "IPv6" | "OSPIH" | "PPP"),(0-4),(0-8640),(0-8640),(0-8640),(0-8640),(0-1),(0-1520),(0E0|1E2|7E3|1E3|1E4|1E5|1E6|1E1),(0E0|5E2|1E2|5E3|4E3|1E3|1E4|1E5|1E6|6E8),(0-2),(0-4000 ms),(0-3)

Motorola supports PDP type PPP for M1000.

Usage

Command	Response
+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> [,<Source statistics descriptor> [,<Signalling indication>]]]]]]]]]]]]]]	OK ERROR
+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> ,<Source statistics descriptor> ,<Signalling indication> [<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> ,<Source statistics descriptor> ,<Signalling indication> [...]]
+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) ,(list of supported <Source statistics descriptor>s) ,(list of supported <Signalling indication>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) ,(list of supported <Source statistics descriptor>s) ,(list of supported <Signalling indication>s) [...]]

Input Parameters

\<cid\> A numeric parameter that specifies a particular PDP context definition. See +CGDCONT and +CGDSCONT commands.

\<Traffic class\> A numeric parameter that indicates the type of application for which the UMTS (Universal Mobile Telecommunication System) bearer service is optimized. Other values are reserved.

Traffic class	Description
0	conversational
1	streaming
2	interactive
3	background

\<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' (for example, AT+CGEQMIN=…,32, …).

\<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' (for example, AT+CGEQMIN=…,32, …).

\<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' (for example, AT+CGEQMIN=…,32, …).

\<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' (for example, AT+CGEQMIN=…,32, …).

\<Delivery order\> A numeric parameter that indicates whether the UMTS bearer shall provide in-sequence SDU (Service Data Unit) delivery or not. Other values are reserved.

Delivery order	Description
0	no
1	yes

\<Maximum SDU size\> A numeric parameter (1,2,3,…) that indicates the maximum allowed SDU (Service Data Unit) size in octets.

<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 5o10-3 would be specified as '5E3' (for example, AT+CGEQMIN=…,"5E3",…).
<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 5o10-3 would be specified as '5E3' (for example, AT+CGEQMIN=…,"5E3",…).
<Delivery of erroneous SDUs>	A numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not. Other values are reserved.

Delivery of erroneous SDUs	Description
0	no
1	yes
2	no detect

<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.
<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.
<Source Statistics Descriptor>	A numeric parameter that specifies characteristics of the source of the submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as conversational or streaming. Other values are reserved.

Source Statistics Descriptor	Description
0	Characteristics of SDUs is unknown. (This is the default value.)
1	Characteristics of SDUs corresponds to a speech source.

<Signalling Indication>   A numeric parameter used to indicate signalling content of submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as interactive.

Signalling Indication	Description
0	PDP context is not optimized for signalling. (This is the default value.)
1	PDP context is optimized for signalling.

<PDP_type>   If a value is omitted for a particular class then the value is considered to be unspecified. See +CGDCONT and +CGDSCONT commands.

Spec Reference

3GPP TS 27.007 10.1.7

MMINS

+CGEQNEG   Quality of Service Profile (Negotiated)

Description

Queries the Quality of Service negotiated with the network. Allows the Terminal Equipment to retrieve the negotiated Quality of Service profiles returned in the Activate PDP Context Accept message.

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

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

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Optional

Usage

Command	Response
+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)

Input Parameters

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

Traffic class	Description
A numeric parameter that indicates the type of application for which the UMTS (Universal Mobile Telecommunication System) bearer service is optimized. Other values are reserved.	
0	conversational
1	streaming
2	interactive
3	background

<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' (for example, +CGEQNEG:…,32, …).
<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' (for example, +CGEQNEG:…,32, …).
<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' (for example, +CGEQNEG:…,32, …).
<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' (for example, +CGEQNEG:…,32, …).

Delivery order	Description
A numeric parameter that indicates whether the UMTS (Universal Mobile Telecommunication System) bearer shall provide in-sequence SDU delivery or not. Other values are reserved.	
0	no
1	yes

<Maximum SDU size>	A numeric parameter that (1,2,3,…) indicates the maximum allowed SDU size in octets.
<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 5o10-3 would be specified as '5E3' (for example, +CGEQNEG:…,"5E3",…).
<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 5o10-3 would be specified as '5E3' (for example, +CGEQNEG:…,"5E3",…).

Delivery of erroneous SDUs	Description
A numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not. Other values are reserved.	
0	no
1	yes
2	no detect

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

Spec Reference

3GPP TS 27.007 10.1.8

MMINS

+CGEQREQ   Quality of Service Profile (Requested)

Description

Allows the Terminal Equipment to specify a UMTS (Universal Mobile Telecommunication System) Quality of Service Profile that is used when the MT sends an Activate PDP Context Request message to the network.

Set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. The specified profile is 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 Quality of Service 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.

Read command returns the current settings for each defined context.

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.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

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

Implementation Specific Behavior

Complies to spec but underloaded.

+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)

Motorola Range

+CGEQREQ: "IP",(2-4),(0-64),(0-384),,,(0-2),(0-1500),(0E0|1E6|1E4|1E3),(0E0|6E8|4E3|1E5),(0-3),,(0-3)

Spec Range

+CGEQREQ: ("X.25" | "IP" | "IPv6" | "OSPIH" | "PPP"),(0-4),(0-8640),(0-8640),(0-8640),(0-8640),(0-1),(0-1520),(0E0|1E2|7E3|1E3|1E4|1E5|1E6|1E1),(0E0|5E2|1E2|5E3|4E3|1E3|1E4|1E5|1E6|6E8),(0-2),(0-4000 ms),(0-3)

Motorola supports PDP type PPP for M1000.

Usage

Command	Response
+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> [,<Source statistics descriptor> [,<Signalling indication>]]]]]]]]]]]]]]]	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> ,<Source statistics descriptor> ,<Signalling indication> [<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> ,<Source Statistics Descriptor> ,<Signalling Indication> […]]

Command	Response
+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) ,(list of supported <Source statistics descriptor>s) ,(list of supported <Signalling indication>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) ,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>s)) ,(list of supported <Source statistics descriptor>s) ,(list of supported <Signalling indication>s)
	[…]]

Input Parameters

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

Traffic class	Description
A numeric parameter that indicates the type of application for which the UMTS (Universal Mobile Telecommunication System) bearer service is optimized. 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.	
0	conversational
1	streaming
2	interactive
3	background
4	subscribed value

<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' (for example, AT+CGEQREQ=…,32,

…). This parameter should be provided if the Traffic class is specified as conversational or streaming.

<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' (for example, 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.
<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' (for example, AT+CGEQREQ=…,32, …). If the parameter is set to '0', the subscribed value is requested. This parameter should be provided if the Traffic class is specified as conversational or streaming.
<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' (for example, AT+CGEQREQ=…,32, …). If the parameter is set to '0', the subscribed value is requested. This parameter should be provided if the Traffic class is specified as conversational or streaming.

Delivery order	Description
A numeric parameter that indicates whether the UMTS (Universal Mobile Telecommunication System) bearer provides in-sequence SDU delivery or not. Other values are reserved.	
0	no
1	yes
2	subscribed value

<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 is requested.
<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 5o10-3 would be specified as '5E3' (for example, AT+CGEQREQ=…,"5E3",…). '0E0' means subscribed value.
<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 5o10-3 would be specified as '5E3' (for example, AT+CGEQREQ=…,"5E3",…). '0E0' means subscribed value.

<Delivery of erroneous SDUs>	Description
A numeric parameter that indicates whether SDUs detected as erroneous is delivered or not. Other values are reserved.	
0	no
1	yes
2	no detect
3	subscribed value

<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 is requested.

<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 is requested.

<Source Statistics Descriptor>	Description
A numeric parameter that specifies characteristics of the source of the submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as conversational or streaming. Other values are reserved.	
0	Characteristics of SDUs is unknown. (This is the default value.)
1	Characteristics of SDUs corresponds to a speech source.

<Signalling Indication>	Description
A numeric parameter used to indicate signalling content of submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as interactive.	
0	PDP context is not optimized for signalling. (This is the default value.)
1	PDP context is optimized for signalling <PDP_type>: (see +CGDCONT and +CGDSCONT commands).

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

Spec Reference

3GPP TS 27.007 10.1.6

MMINS

+CGMI   Request Manufacturer Identification

Description

Returns a string indicating that this is a Motorola Subscriber Unit.

The execution command causes the Terminal Application to return one or more lines of information text <manufacturer>, determined by the Mobile Equipment manufacturer, which is intended to permit the user of the Terminal Application to identify the manufacturer of the Mobile Equipment to which it is connected to. Typically, the text consists of a single line containing the name of the manufacturer, but manufacturers may choose to provide more information if desired.

Text shall not contain the sequence 0<CR> or OK<CR>.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

+CGMI: GSM 07.07 section 5.1

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

None.

Usage

Command	Response
+CGMI	<manufacturer>
	+CME ERROR: <err>
+CGMI=?	

Output Parameters

<manufacturer>   The total number of characters, including line terminators, in the information text shall not exceed 2,048 characters.

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CGMI
+CGMI: "Motorola CE, Copyright 2000"
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CGMM Request Model Identification

Description

Execution command causes the Terminal Application to return one or more lines of information text <model>, determined by the Mobile Equipment manufacturer, which is intended to permit the user of the Terminal Application to identify the specific model of the Mobile Equipment to which it is connected to. Typically, the text consists of a single line containing the name of the product, but manufacturers may choose to provide more information if desired.

Text shall not contain the sequence 0<CR> or OK<CR>.

Returns a string containing information about the specific model. This should include information about the technology used and possibly the particular model number. If multiple technologies are supported, return all supported technologies.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

+CGMM: GSM 07.07 section 5.2 (optional)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

None.

Usage

Command	Response
+CGMM	<model>
	+CME ERROR: <err>
+CGMM=?	

Output Parameters

+CGMM Technology support strings	Description
"CDMA800"	IS-95 at 800 MHz.
"CDMA1900"	IS-95 at 1900 MHz.
"TDMA800"	IS-136 at 800 MHz.
"TDMA1900"	IS-136 at 1900 MHz.
"AMPS800"	AMPS analog at 800 MHz.
"GSM900"	GSM at 900 MHz.
"GSM1800"	GSM at 1800 MHz.
"GSM1900"	GSM at 1900 MHz (North American PCS).
"ISAT"	Iridium Satellite Service.
"iDEN"	iDEN Service.
"WCDMA"	WCDMA service.

<model>   The total number of characters, including line terminators, in the information text shall not exceed 2,048 characters.

Examples

```
AT+MODE=2                         {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CGMM
+CGMM: "TDMA800","TDMA1900","GSM1900","GSM1800"
+CGMM: "GSM900","MODEL=L7890A"
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CGMR Request Revision Identification

Description

Returns the core software version string of the software contained within the Subscriber Unit. Typically, the version is a quoted string with less than 255 characters. The accessory protocol version can be obtained using the +MAPV command.

The execution command causes the Terminal Application to return one or more lines of information text <revision>, determined by the Mobile Equipment manufacturer, which is intended to permit the user of the Terminal Application to identify the version, revision level or date, or other pertinent information of the Mobile Equipment to which it is connected to. Typically, the text consists of a single line containing the version of the product, but manufacturers may choose to provide more information if desired.

Text shall not contain the sequence 0<CR> or OK<CR>.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

+CGMR: GSM 07.07 section 5.3 (optional)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

DoCoMo specific version.

Usage

Command	Response
+CGMR	<revision>
	+CME ERROR: <err>
+CGMR=?	OK

Output Parameters

\<revision>   The total number of characters, including line terminators, in the information text shall not exceed 2,048 characters.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CGMR
+CGMR: "p2k-c_p_2000.08.38_"
OK
AT+CGMR
1234512345123456
OK
AT+CGMR?
ERROR
AT+CGMR=?
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CGPADDR   Show PDP Address

Description

The execution command returns a list of PDP (Packet Data Protocol) addresses for the specified context identifiers.

Test command returns a list of defined <cid>s.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

+CGPADDR: (list of defined <cid>s)

Motorola Range

+CGPADDR: (1,2,3)

Motorola uses <cid> values between 1 and 3. Spec does not mandate any range.

Usage

Command	Response
+CGPADDR=[<cid> [,<cid> [,…]]]	+CGPADDR: <cid>,<PDP_addr> [<CR><LF>+CGPADDR: <cid>,<PDP_addr> [...]]
CGPADDR=?	+CGPADDR: (list of defined <cid>s)

Input Parameters

<cid> A numeric parameter that specifies a particular PDP context definition (refer to the +CGDCONT command). If no <cid> is specified, the addresses for all defined contexts are returned.

<PDP_address> A string that identifies the MT in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it is the one set by the +CGDCONT command when the context was defined. For a dynamic address, it

is the one assigned during the last PDP context activation that used the context definition referred to by <cid>. <PDP_address> is omitted if none is available.

Spec Reference

3GPP TS 27.007 10.1.14

3GPP TS 07.07

MMINS

+CGQMIN   Quality of Service Profile (Minimum Acceptable)

Description

Allows the Terminal Equipment to specify a minimum acceptable profile that is checked by the MT against the negotiated profile returned in the Activate PDP Context Accept message.

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 command, the +CGQMIN command is effectively an extension to the +CGDCONT command. The Quality of Service 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.

Read command returns the current settings for each defined context.

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

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

+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)

Motorola Range

+CGQMIN: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)

Spec Range

+CGQMIN: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)

Motorola supports PDP type PPP for M1000

Usage

Command	Response
+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) […]]

Input Parameters

<cid> A numeric parameter that specifies a particular PDP context definition (refer to the +CGDCONT command).

Spec Reference

3GPP TS 27.007 10.1.5

3GPP TS 07.07

MMINS

+CGQREQ Quality of Service Profile (Requested)

Description

Allows the Terminal Equipment to specify a Quality of Service Profile that is used when the MT sends an Activate PDP Context Request message to the network.

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 command, the +CGQREQ command is effectively an extension to the +CGDCONT command. The Quality of Service 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.

Read command returns the current settings for each defined context.

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.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

+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)

Motorola Range

+CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)

Spec Range

+CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)

Motorola supports PDP type PPP for M1000

Usage

Command	Response
+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) […]]

Output Parameters

<cid> A numeric parameter that specifies a particular PDP context definition (refer to the +CGDCONT and +CGDSCONT commands).

Spec Reference

3GPP TS 27.007 10.1.4

3GPP TS 07.07

MMINS

+CGREG   GPRS Network Registration Status

Description

Enables/disables the sending of unsolicited result codes (from Subscriber Unit to Terminal Equipment) that indicate changes in the GPRS (General Packet Radio Service) network registration status or change of network cell.

Set command controls the presentation of an unsolicited result code +CGREG: <stat> when <n>=1 and there is a change in the MT's GPRS network registration status, or code +CGREG: <stat>[,<lac>,<ci>] when <n>=2 and there is a change of the network cell.

Read command returns the status of result code presentation and an integer <stat> that shows whether the network has currently indicated the registration of the MT. Location information elements <lac> and <ci> are returned only when <n>=2 and MT is registered in the network.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

NOTE: If the GPRS MT also supports circuit mode services, the +CREG command and +CREG: result code applies to the registration status and location information for those services.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Section 10.1.14

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on PCMCIA cards and platforms that have feature 13816 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Feature 13816 does not support <n>=2, and also does not support <stat>=2 or <stat>=3.

Feature 26678, 27588 supports <n>=2 and <stat>=3.

Usage

Command	Response	Description
+CGREG=[<n>]	OK	Controls the presentation of an unsolicited result code +CGREG: <stat> when <n>=1 and there is a change in the MT network registration status, or code +CGREG: <stat>[,<lac>,<ci>] when <n>=2 and there is a change of the network cell.
+CGREG?	+CGREG: <n>,<stat>[,<lac>,<ci>] +CME ERROR: <err>	Returns the status of result code presentation and an integer <stat> that shows whether the network has currently indicated the registration of the MT. Location information elements <lac> and <ci> are returned only when <n>=2 and MT is registered in the network.
+CGREG=?	+CGREG: (list of supported <n>s)	

Input Parameters

<n>	Description
0	Disables network registration unsolicited result code. It is the default value of <n> for +CGREG set command.
1	Enables network registration unsolicited result code +CGREG: <stat>.
2	Enables network registration and location information unsolicited result code +CGREG: <stat>[,<lac>,<ci>]. *This <n> is not supported for feature 13816.* *This <n> is supported for feature 27588.*

Output Parameters

<value>	<stat>	Description
0	Not registered and not searching	Not registered. Mobile Equipment is not currently searching for an operator to register to. The MS is in GMM state GMM-NULL or GMM-DEREGISTERED-INITIATED. The GPRS service is disabled, the MS is allowed to attach for GPRS if requested by the user.
1	Registered, home network	Registered, home network. The MS is in GMM state GMM-REGISTERED or GMM-ROUTING-AREA-UPDATING-INITIATED INITIATED on the home PLMN.
2	Not registered and searching	Not registered, but Mobile Equipment is currently trying to attach or searching for an operator to register to. The MS is in GMM state GMM-DEREGISTERED or GMM-REGISTERED-INITIATED. The GPRS service is enabled, but an allowable PLMN is currently not available. The MS starts a GPRS attach as soon as an allowable PLMN is available. *This <stat> is not supported for feature 13816.* *This <stat> is supported for feature 27588.*
3	Registration denied	Registration denied. The MS is in GMM state GMM-NULL. The GPRS service is disabled, the MS is not allowed to attach for GPRS if requested by the user. *This <stat> is not supported for feature 13816.*
4	Unknown	All other cases.
5	Registered, roaming	Registered, roaming. The MS is in GMM state GMM-REGISTERED or GMM-ROUTING-AREA-UPDATING-INITIATED on a visited PLMN.

<lac>   String type; two byte location area code in hexadecimal format (for example, "00C3" equals 195 in decimal).

<ci>   String type; two byte cell ID in hexadecimal format.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CGREG=?
+CGREG: (0-2)
OK
AT+CGREG=1                        {Enable unsolicited result code}
OK
AT+CGREG?
+CGREG: 1,1                       {<n>=1,<stat> - registered, home network}
OK
...
+CGREG: 1,2648,988c

If feature 13816 is implemented:
AT+CGREG=?
+CGREG: (0-1)
OK
AT+CGREG=1
OK
AT+CGREG?
+CGREG: 1,1
OK
...
+CGREG: 5
{Unsolicited result code when moved from a home network to a roaming network}
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CGSMS   Select Service for MO SMS Messages

Description

Set command specifies the service or service preference that the MT uses to send MO SMS messages.

Read command returns the currently selected service or service preference.

Test command requests information on the currently available services and service preferences.

Allows the accessory to change the transport method. If the command fails, result code +CMS ERROR: <err> is returned.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0.

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on platforms that support GPRS (General Packet Radio Service). If GPRS is not supported, or is not flexed on, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CGSMS= [<service>]	OK ERROR
+CGSMS?	+CGSMS: <service>
+CGSMS=?	+CGSMS: (list of currently available <service>s)

Input Parameters

<service>	Description
Integer type. Indicates the service or service preference for outgoing messages.	
0	Packet Switched (PS) — GPRS only.
1	Circuit Switched (CS).
2	PS preferred, CS fallback.
3	CS preferred, PS fallback.

Output Parameters

<service>   A numeric parameter that indicates the service or service preference to be used.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CGSMS=1
OK
AT+CGSMS?
+CGSMS: 1
OK
AT+CGSMS=?
+CGSMS: (0-3)
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CGSN Request Product Serial Number Identification

Description

Returns the serial number (15 characters) of the product. Software on the PC can easily generate any representation desired, given what the format is of the ESN that is returned. However, the phone only outputs the number in decimal.

Execution command causes the Terminal Application to return one or more lines of information text <sn>, determined by the Mobile Equipment manufacturer, which is intended to permit the user of the Terminal Application to identify the individual Mobile Equipment to which it is connected to. Typically, the text consists of a single line containing the IMEI (International Mobile station Equipment Identity; refer to GSM 03.03 [7]) number of the Mobile Equipment, but manufacturers may choose to provide more information if desired.

Text shall not contain the sequence 0<CR> or OK<CR>.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 5.4 (optional)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

DoCoMo specific version.

+CGSN returns different values on GSM (Group Special Mobile) phones versus TDMA/CDMA phones. In the case of CDMA and TDMA devices, this is the decimal Electronic Serial Number (ESN). It is important to note that this is decimal not dotted decimal (refer to example below). In the case of GSM products, this is the IMEI that is returned using +CIMI.

Usage

Command	Response
+CGSN	\<sn\>
	+CME ERROR: \<err\>
+CGSN=?	OK

Output Parameters

\<sn\>   The total number of characters, including line terminators, in the information text shall not exceed 2,048 characters.

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CGSN
+CGSN: 2182231126    {Decimal}
```

This ESN in hexadecimal representation would be 82123456. This can be converted to dotted decimal by first converting the two left-most digits to decimal and then the final six digits to decimal inserting a dot in between the two values. The dotted decimal representation is 130.1193046.

```
AT+CGSN
123456789012345
OK
AT+CGSN?
ERROR
AT+CGSN=?
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CHLD Call Related Supplementary Services

Description

Controls the following call related services:

- Call hold
- Multiparty conversation
- Explicit call transfer

Allows the control of the following call related services:

- a call can be temporarily disconnected from the Mobile Equipment but the connection is retained by the network.
- multiparty conversation (conference calls).
- the served subscriber who has two calls (one held and the other either active or alerting) can connect the other parties and release the served subscriber's own connection.

Calls can be put on hold, recovered, released, added to conversation, and transferred similarly as defined in GSM 02.30 [19].

This is based on the GSM supplementary services HOLD (Call Hold), MPTY (MultiParty), and ECT (Explicit Call Transfer). The interaction of this command with other commands based on other GSM supplementary services is described in the GSM standard.

When Feature 8644 is enabled: AT+CHLD=<n> is issued to do call control activities as per 8644 design specifications.

NOTE: Call Hold, MultiParty, and Explicit Call Transfer are only applicable to teleservice 11.

It is recommended (although optional) that the test command return a list of operations that are supported. The call number required by some operations is denoted by "x" (for example, +CHLD: (0,1,1x,2,2x,3)).

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

Bluetooth Hands Free Profile version 0.93 section 4.24.2, GSM 07.07 section 7.12

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on 3G and GSM platforms that have Bluetooth or Telematics enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CHLD=[<n>]	**When command is unsuccessful:** +CME ERROR: <err> **When command is successful:** OK
+CHLD=?	[+CHLD: (list of supported <n>s)] +CHLD: (0,1,1x,2,2x,3,4) Here *x* is not a placeholder for a numeric value call index. Here *x* is exactly what is printed.

Input Parameters

<n>	Description
0	Releases all held calls *or* sets User Determined User Busy (UDUB) for a waiting call. (The held call is released even though there is an outgoing call (dialing) happening at the same time.)
1	Releases all active calls and accepts the held or waiting call.
1x	Releases call *x*. *x* is a placeholder for any digit from 1 to 7 representing the call to be disconnected and represents the call's <idx> and returned by +CLCC command. For example, 13 means release call 3.
2	Places all active calls on hold and accepts the held or waiting call.
2x	Splits call *x* for private conversation from a multiparty call. x is a placeholder for any digit from 1 to 7 representing the call to be split and represents the call's <idx> and returned by +CLCC command. For example, 22 means split call 2.
3	Adds a held call to the conversation.
4	Connects the held and waiting call and disconnects the user.

Examples

```
AT+MODE=2          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>


AT+CHLD=?
+CHLD: (0,1,1x,2,2x,3,4)
OK


AT+CCWA=1;+COLP=1  {Enable call waiting and COLP result codes}
OK
ATD0123456789      {Originate a voice call}
OK
D: VOICE
+COLP: "0123456789",129,""
{...conversation...}
+CCWA: "+358317654321",145,1,"Bob"   {Another call is waiting}
AT+CHLD=2    {Put first call on hold and answer the second one}
OK
{...conversation...}
AT+CHLD=0          {Release the first (held) call}
OK
ATH                {Release the second (active) call}
OK
```

If 8644 feature is enabled

```
AT+MODE=2          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>


AT+CCWA=1          {Enable call waiting Notification}
OK


ATD0123456789      {Originate a voice call}
OK
                   {...conversation...}


+CCWA: "+358317654321",145,1,"Bob"
                   {another call Waiting Notification}
AT+CHLD=2          {Put first call on hold and answer the second one}
OK
```

```
                    {...conversation...}
+CCWA: "+358317654332",129,1,"james"
                    {another call Waiting Notification}
AT+CHLD=0           {disconnect the 3rd incoming call and retains the
OK                  active call and network HELD call.}
+CCWA: "+358317654332",129,1,"james"
                    {another call Waiting Notification}
AT+CHLD=1           {3rd incoming call will be accepted and active
OK                  call will be terminated}
                    {...conversation...}
+CCWA: "+358317654321",145,1,"Bob"
                    {another call Waiting Notification}
AT+CHLD=2           {call on hold gets terminated, move the active
OK                   call to hold and answer the 3rd waiting call}
                    {...conversation...}
+CCWA: "+358317654567",155,1,"Sam"
                    {another call Waiting Notification}


AT+CHLD=3           {call on hold will be added to the active call as
OK                   conversation and continue playing the call waiting
                     notification to the user}
                    {...conversation...}
+CCWA: "+358317654567",155,1,"Sam"
                    { call Waiting Notification continues}
AT+CHLD=4           {- connect the active call and call on hold
OK                    - disconnect the user from both calls and
                      - ring the 3rd Waiting Call as regular call alert}
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CHUP   Hangup Call

Description

Execution command causes the Terminal Application to hangup the current GSM call of the Mobile Equipment.

NOTE: The purpose of this command is not to replace the V.25ter [14] command H, but to give an assured procedure to terminate an alternating mode call.

Hangs up a particular call. All versions terminate an active call in progress whether it is a data or voice call, regardless whether the accessory started the call or not. Emergency calls are expected to be handled by the other layers, thus if the call should not be hung up, an error message is expected.

The Subscriber Unit returns OK when +CHUP is received while in standby mode, or when there is no active call. +CHUP rejects the incoming call if the command is issued while the phone is ringing. If +CHUP is issued when the call has already been connected, the call is terminated.

When Feature 8644 is enabled: If the headset sends a reject command to the handset AT+CHUP, the handset rejects the 3rd incoming call with no impact on currently active/held calls.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 6.5 and 6.19, ISO-707A.3 section 4.5.8

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

GSM (Group Special Mobile) phones actually send a "release" to the network, as well as stop ringing and cause the display to go back to idle. CDMA and TDMA phones do not have the capability to send a "release" to the network, but the user interface acts the same way as GSM.

This command is only supported on 3G and Telematics platforms, and Bluetooth enabled GSM platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CHUP	
+CHUP=?	

Examples

AT+MODE=2   {Change to Accessories Mode 2}

OK

+MBAN: *<copyright string>*

While the phone is in a call

ATH

OK   {Call has been terminated}

While the phone is ringing

RING

AT+CHUP

OK   {Call has been rejected}

When there is no active call

ATH

OK

AT+CHUP

OK

If 8644 feature is enabled

AT+MODE=2   {Change to Accessories Mode 2}

OK

+MBAN: <copyright string>

AT+CCWA=1   {Enable Call Waiting Notification}

OK

+CRING: VOICE

ATA   {Answering the incoming call}

OK

{...conversation...}

+CCWA: "+358317654321",145,1,"Bob"

                   {2nd Call: Call Waiting Notification}

AT+CHLD=2   {Put 1st Call on Hold and answer the 2nd Call}

```
OK
                {...conversation...}
+CCWA: "+358317654332",129,1,"james"
                {3rd Call: Call Waiting Notification}
AT+CHUP   {3rd incoming call gets rejected with no impact on OK
currently active/held calls}
```

Spec Reference

3GPP TS 27.007 6.5

3GPP TS 07.07

MMINS

+CHV   *Hang Up Voice Call*

Description

All versions terminate an active call in progress whether if it is a data or voice call, regardless whether the accessory started the call or not. Emergency calls are expected to be handled by the other layers, thus if the call should not be hung up, an error message is expected.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 6.5 and 6.19, ISO-707A.3 section 4.5.8

Implementation

Optional

Implementation Specific Behavior

GSM (Group Special Mobile) phones actually send a "release" to the network, as well as stop ringing and cause the display to go back to idle. CDMA and TDMA phones do not have the capability to send a "release" to the network, but the user interface acts the same way as GSM.

This command is only supported on 3G and Telematics platforms, and Bluetooth enabled GSM platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Description
+CHV	Hangs up voice call.

Examples

```
AT+MODE=2                                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
```

While the phone is in a call

ATH

OK   {Call has been terminated}

While the phone is ringing

RING

AT+CHUP

OK   {Call has been rejected}

When there is no active call

ATH

OK

AT+CHUP

OK

Spec Reference

3GPP TS 07.07

P2KATCMD

+CIMI   *Request International Mobile Subscriber Identity*

Description

Execution command causes the Terminal Application to return <IMSI>, which is intended to permit the Terminal Equipment to identify the individual SIM that is attached to Mobile Equipment.

Returns a string of text information that identifies the Subscriber Unit. On platforms supporting IMSI numbers, this is the IMSI number. The output string can not have double quotes.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 5.6 (optional)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

On platforms not supporting IMSI numbers, this command responds with a +CME ERROR indicating that the operation is not supported. Telematics platforms receives the prefix "+CIMI: " for backward compatibility.

Usage

Command	Response
+CIMI	<IMSI>
	+CME ERROR: <err>
+CIMI=?	

Output Parameters

<IMSI>   International Mobile Subscriber Identity (string without double quotes).

Examples

```
AT+MODE=2                         {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CIMI                           {Call on platform supporting IMSI numbers}
314566320021400
OK
AT+CIMI                           {Call on platform not supporting IMSI numbers}
+CME ERROR: 4                     {Operation not supported)
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CIND   Indicator Control

Description

Set command sets the values of Mobile Equipment indicators. <ind> value 0 means that the indicator is off (or in state that can be identified as "off" state), 1 means that indicator is on (or in a state that is more substantial than "off" state), 2 is more substantial than 1, and so on. If the indicator is a simple on/off style element, it has values 0 and 1. The number of elements is Mobile Equipment specific. If Mobile Equipment does not allow setting of indicators or Mobile Equipment is not currently reachable, +CME ERROR: <err> is returned. If a certain indicator is not writable, setting of it is ignored. If parameter is empty field, indicator remains in the previous value.

Read command returns the status of Mobile Equipment indicators. If Mobile Equipment is not currently reachable, +CME ERROR: <err> is returned.

Test command returns pairs, where string value <descr> is a maximum 16 character description of the indicator and compound value is the allowed values for the indicator. If Mobile Equipment is not currently reachable, +CME ERROR: <err> is returned.

This private AT command allows an accessory to request the status of some of the display indicators currently available in the Subscriber Unit, such as if it is in use or not, or if it is in service or not, etc. Not all indicators are available through this command, some are accessible through other commands (for example, SMS and RSSI indicators).

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 and Motorola Accessory

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on 3G and Telematics platforms, and Bluetooth enabled GSM platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

In MODE 14, the existing 5 indicators (Voice Mail, service, call, Roam, signal) must present at the first 5 positions, any new indicators must be added after the existing five.

Usage

Command	Response	Description
+CIND=[<ind>[,<ind>[,...]]]	+CME ERROR: <err>	
+CIND?	+CIND: <value> [, <value> [, ...]] +CME ERROR: <err>	Queries and returns current indicators status.
+CIND=?	+CIND: (<descr>, list of supported <value>) [,(<descr>, list of supported <value>) [, ...]] +CME ERROR: <err>	Lists the description of the indicators.

Input Parameters

<ind>   Indicates the indicator order number. Motorola Telematics devices use a 0-based indicator order number and a 1-based indicator order number is used for all other devices.

Output Parameters

<value>   The value of the indicator — in case of binary indicators 0 <-> False and 1 <-> True; non-binary indicators can have a value of any non-negative integer.

<descr>   Short description of the indicator.

<ind>	<value>	<descr>	Description	Type
1 [a]	0-1	"Voice Mail"	Indicates presence of voice message(s).	Binary
2	0-1	"service"	Indicates if the Subscriber Unit has network service available.	Binary
3	0-1	"call"	Indicates if the Subscriber Unit is currently in use.	Binary
4	0-2[a]	"Roam"	Indicates if the Subscriber Unit is: 0 — currently registered in its home network . 1 — roaming in its home network . 2 — roaming on a non-home network.	Non-negative Integer
5	0-5	"signal"	Indicates the signal strength, in bars(0-lowest, 5-highest), received by the Subscriber Unit.	Non-negative integer

<ind>	<value>	<descr>	Description	Type
6	0-3	"callsetup"	Indicates the Subscriber Unit call setup state where: 0 — means not currently in call set up. 1 — means an incoming call process ongoing. 2 — means an outgoing call set up is ongoing. 3 — means remote party being alerted in an outgoing call.	Non-negative integer
7	0-1	"smsfull"	Indicates the status of <mem3> 1 — indicates that <mem3> is full. 0 — indicates that <mem3> is available.	Binary
8 [a]	0-5	"battchg"	Indicates the battery charge level of the Subscriber Unit (0-lowest, 5-highest).	Non-negative integer
9 [b]	0-1	"callheld"	Indicates whether there are any calls on hold: 0 — No calls held. 1 — A held call and an active call exist. 2 — A held call exists but no active calls exist.	Non-negative integer

a.   If the MAID bit for HFP 1.5 is enabled, the "Roam" indicator supports only values (0,1) instead of (0-2). In this case, 0 indicates not roaming and 1 indicates roaming.

b.   The "battchg" indicator is only supported if the MAID bit for HFP 1.5 is enabled.

Examples

Example: HFP 1.5 not enabled

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CIND?
+CIND: 0,1,0,1,4,0,0
OK


AT+CIND=?
+CIND: ("Voice Mail",(0,1)),("service",(0,1)), ("call",(0,1)),("Roam",(0-
2)),("signal",(0-5)), ("callsetup",(0-3)),("smsfull",(0,1))
OK
```

Example: HFP 1.5 enabled

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CIND?
+CIND: 0,1,0,1,4,0,0,5,0
OK


AT+CIND=?
+CIND: ("Voice Mail",(0,1)),("service",(0,1)),
("call",(0,1)),("Roam",(0,1)),("signal",(0-5)), ("callsetup",(0-
3)),("smsfull",(0,1)),("battchg",(0-5)), ("callheld",(0-2))
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CKPD　　Keypad Control

Description

Execution command emulates Mobile Equipment keypad by giving each keystroke as a character in a string <keys>. <time>*0.1 seconds is the time to stroke each key and <pause>*0.1 seconds is the length of pause between two strokes. If emulating fails in an Mobile Equipment error, +CME ERROR: <err> is returned. This command should be accepted (OK returned) before actually starting to press the keys. Thus unsolicited result codes of key pressing and display events can be returned.

This command is provided to allow the emulated pressing of keys as if entered from the Subscriber Unit keypad or from a remote handset. The keycodes used by this command are virtual keycodes that may not be supported by all Subscriber Unit's. If a key is not supported by an Subscriber Unit, the Subscriber Unit returns +CME ERROR: indicating that error 25 (Invalid character) has occurred.

This command is provided primarily to support test efforts and to allow the emulation of a handset device by a peripheral. This command is not intended to be used by accessory devices to access items within Subscriber Unit menus. Use commands intended for manipulating features for this purpose, to preserve compatibility across Subscriber Unit's and Subscriber Unit versions.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 8.7 (optional)

For 27587 feature:

3GPP TS 07.07: AT command set for GSM Mobile Equipment (ME) v7.6.0 [18]

3GPP TS 27.007: AT command set for 3G User Equipment (UE) v5.3.0 [19]

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

None.

Usage

Command	Response
+CKPD=<keys>[,<time>[,<pause>]]	**If keypress accepted:** OK **If keypress rejected:** +CME ERROR: <err> **If keypress echo is enabled and phone is not locked:** +CKEV: <see ....>
+CKPD=?	

Input Parameters

<keys>   A string of characters representing keys. Colon character (IRA 58) followed by one character can be used to indicate a manufacturer specific key not listed here. All characters from a semicolon character (IRA 59) to the next single semicolon character are treated as alpha entries and are not converted to key equivalents. All semicolon characters inside alpha entries should be duplicated in the Terminal Equipment and stripped to one before entering to the Mobile Equipment. Pause character (IRA 87 or 119) can be used to pause between key pressing for a time specified by <pause>. All IRA values not listed here are reserved.

- # key

* - * key

0 - 0 key

1 - 1 key

2 - 2 key

3 - 3 key

4 - 4 key

5 - 5 key

6 - 6 key

7 - 7 key

8 - 8 key

9 - 9 key

V - Down navigation key

^ - Up navigation key

< - Left navigation key

> - Right navigation key

Y - Delete last character

D - Volume down key

E - End key

M - Menu key

P - Power key (In order to power off the phone this key needs to be held for 2.5 second

S - Send key

U - Volume up key

[- Left softkey

] - Right softkey

:0 - Center select key

:1 - Camera

C – clear the display

W – pause character

<time>   Time, in 0.1 seconds, to hold the key for.

<pause>   Time, in 0.1 seconds, to pause between key presses.

Examples

```
AT+MODE=2                      {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
```

If 27587 feature is not enabled

```
AT+CMER=3,2,0,0,0              {Enable the +CKEV keypad event reporting}
OK
AT+CKPD="#"
OK
+CKEV: "#",1                  {If the phone is not locked}
+CKEV: "#",0
AT+CKPD=35                    {Use ASCII value of '#' character}
OK
+CKEV: "#",1
+CKEV: "#",0
```

If 27587 feature is enabled

```
AT+CKPD="#",25,0 - # key is pressed
OK
AT+CKPD="*",25,0- * key is pressed
Ok
AT+CKPD="4",25,0 - key 4 is pressed
```

```
OK
AT+CKPD="S",25,0 - Send key is pressed
OK
AT+CKPD="M",50,0 - Menu key is pressed
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CLAC   List All Available AT Commands

Description

Returns an alphabetically ordered list of AT commands that are available to the user. Execution of this command causes the phone to return one or more lines of AT commands. This command returns both standard and proprietary commands. To obtain the available list of Bluetooth commands, a Bluetooth device must be connected. This command is useful in determining what AT command set is supported on different platforms.

NOTE: This command only returns the AT commands that are available for the user.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 8.36 (optional)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

None.

Usage

Command	Response
+CLAC	<AT Command1> [<CR> <LF> <AT Command2>[…]]
	+CME ERROR: <err>
+CLAC=?	+CME ERROR: <err>

Output Parameters

<AT Command>   AT command including the prefix AT.

Examples

```
AT+MODE=2                      {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>

AT+CLAC
AT+CBC
AT+CBST
AT+CCLK
AT+CEER
....
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CLCC   *List Current Calls*

Description

Returns the list of current calls on the Mobile Equipment. If the command succeeds but no calls are available, no information response is sent to Terminal Equipment.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 7.17

Implementation

Supported AT command on Mode 0.

Optional. Recommended when CHLD is implemented.

Implementation Specific Behavior

This command is only supported on platforms that have feature 10322 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CLCC	When the command is successful and there are no calls on the Mobile Equipment, no information response is sent to the Mobile Equipment:
	[+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>,[,<number>,<type>, [,<alpha>]]
	[<CR><LF>+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>,[,<number>, <type>,[,<alpha>]]
	[...]]]
	OK
	When command is unsuccessful:
	+CME ERROR: <err>
+CLCC=?	OK

Output Parameters

<idx> Integer type; call identification number that can be used in +CHLD command operations.

Parameter	Range	Data Type	Description
<idx>	1 - 7	Integer	Call identification number as defined in GSM 02.30 section 4.5.5.1.
<dir>	0 - Mobile originated 1 - Mobile terminated	Integer	Call direction.
<stat>	0 - Active 1 - Held 2 - Dialing 3 - Alerting 4 - Incoming 5 - Waiting	Integer	State of the call.
<mode>	0 - Voice 1 - Data 2 - Fax 3 - Voice followed by data, voice mode 4 - Alternating voice/ data, voice mode 5 - Alternating voice/fax, voice mode 6 - Voice followed by data, data mode 7 - Alternating voice/ data, data mode 8 - Alternating voice/fax, fax mode 9 - Unknown	Integer	Bearer/teleservice.
<mpty>	0 - Not multiparty 1 - Multiparty	Integer	Multiparty status.

Parameter	Range	Data Type	Description
<number>	Up to 32 characters	String type	Phone number in format specified by <type>.
<type>	129 145	Integer	Phone number display format.
<alpha>	Up to 20 characters	String type	Text representation of phonebook entry. Character set as specified by +CSCS command.

Examples

```
AT+MODE=2                                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
{...conversation...}
AT+CLCC=?
OK
AT+CLCC
+CLCC: 1,1,0,0,0,"4254875802",129,"Jeff"
OK
+CCWA: "8317654321",129,1,"Bob"           {Another call is waiting}
AT+CHLD=2    {Put first call on hold and answer the second one}
OK
{...conversation...}
AT+CLCC
+CLCC: 1,1,1,0,0,"4254875802",129,"Jeff"
+CLCC: 2,1,0,0,0,"8317654321",129,"Bob"
OK
AT+CSCS="UCS2"
OK
AT+CLCC
+CLCC: 1,1,1,0,0,"4254875802",129,004A004500460046
+CLCC: 2,1,0,0,0,"8317654321",129,0042004F0042
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CLCK   *Facility Lock*

Description

Execute command locks, unlocks, or interrogates an Mobile Equipment or a network facility <fac>. Password is normally needed to do such actions. When querying the status of a network service (<mode>=2), the response line for 'not active' case (<status>=0) should be returned only if service is not active for any <class>. This command should be aborted when network facilities are set or interrogated.

Call barring facilities are based on GSM supplementary services. The interaction of these with other commands based on other GSM supplementary services is described in the GSM standard.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Section 7.4

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

This command is only supported on 3G and GSM platforms, and on PCMCIA cards. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CLCK=<fac>,<mode>[,<passwd>[,<class n>]]	**When command is unsuccessful:**
	+CME ERROR: <err>
	For <fac> that <class> is irrelevant, that is, "SC":
	+CLCK: <status>
	For <fac> with several supported <class>:
	+CLCK: <status>,<class 1>
	+CLCK: <status>,<class 2>
	+CLCK: <status>,<class 3>
+CLCK=?	+CLCK: (list of supported <fac>s)
	+CME ERROR: <err>

Input Parameters

Performs the specified <mode> action to the specified <fac>.

where:

<fac>	Description
Network facility.	
"SC"	SIM Card PIN Setting
	(<mode>=0 means DISABLE PIN; <mode>=1 means ENABLE PIN)
"AO"	BAOC (Bar All Outgoing Calls)
"OI"	BOIC (Bar Outgoing International Calls)
"OX"	BOIC-exHC (Bar Outgoing International Calls except to Home Country)
"AI"	BAIC (Bar All Incoming Calls)
"IR"	BIC-Roam (Bar Incoming Calls when Roaming outside the home country)
"AB"	All Barring services (applicable only for <mode>=0)
"AG"	All outGoing barring services (applicable only for <mode>=0)
"AC"	All inComing barring services (applicable only for <mode>=0)
"FD"	SIM PIN2 (fixed dialing)
	Only supported for PCMCIA card

<mode>	Description
Action to a <fac>.	
0	Unlock
1	Lock
2	Query status

<passwd>   Password for a network facility. This field is mandatory except for query commands (<mode>=2).

<class n>	Description
Sum of integers each representing a class of information <class>. The default is 7. This field only applies to call barring related facilities, that is, it is irrelevant for <fac>="SC" (SIM Card PIN Setting).	
1	Voice
2	Data
4	Fax

Output Parameters

<status>	Description
0	Inactive
1	Active

Examples

```
AT+MODE=2                         {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CLCK=?
+CLCK: ("SC","AO","OI","OX","AI","IR","AB","AG","AC")
OK
AT+CLCK="SC",2
+CLCK: 0
OK

AT+CLCK="SC",1
+CME ERROR: SIM PIN required
{Assume SIM PIN = "1234"}
```

```
AT+CLCK="SC",1,"1111"
+CME ERROR:  incorrect password
AT+CLCK="SC",1,"1234"
OK
```

If "FD" is not supported

```
AT+CLCK="FD",1,"1234"
+CME ERROR: invalid characters in text string
{Assume Call Barring Password = "4444"}
AT+CLCK="AB",0,"1111"
+CME ERROR:  incorrect password
{<class n> defaults to 7 when not specified}
AT+CLCK="IR",2
+CLCK: 0,1
+CLCK: 0,2
+CLCK: 0,4
OK
AT+CLCK="IR",1,"4444"
OK
AT+CLCK="IR",2
+CLCK: 1,1
+CLCK: 1,2
+CLCK: 1,4
OK
{<class n>=2 applies the action only to Data(<class>=2)}
AT+CLCK="OI",2
+CLCK: 0,1
+CLCK: 0,2
+CLCK: 0,4
OK
AT+CLCK="OI",1,"4444",2
OK
AT+CLCK="OI",2
+CLCK: 0,1
+CLCK: 1,2
+CLCK: 0,4
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CLIP   *Calling Line Identification Presentation*

Description

Allows the control over whether the Calling Line Identity (CLI) is presented to attached accessories. When enabled (and allowed on the Subscriber Unit), the CLI information is transmitted when an incoming call is detected. This information is broadcast to all attached accessories once enabled.

If the Subscriber Unit is not provisioned for CLI, or the network does not support CLI, no CLI is sent to accessories.

Read command gives the status of <n> and also triggers an interrogation of the provision status of the CLIP service.

The provided information varies depending on what is provided by the network.

NOTE: In GSM, the COLP read command is network dependent. Since COLP read command is to query the information from the network, some networks do not allow the interrogation of the networks.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 7.6 (optional)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

GSM/3G do provide for determination of provisioned state, CDMA/TDMA do not.

Usage

Command	Response	Description
+CLIP=[<n>]		Sets presentation state.
+CLIP?	+CLIP: <n>,<m>	Queries current setting and availability, returns enable/disable state and network provisioning state (on GSM/3G only, not CDMA/TDMA).
+CLIP=?	+CLIP: (list of supported <n>s)	

Input Parameters

<n>	Description
0	Disables CLI presentation.
1	Enables CLI presentation.

Output Parameters

<m>	Description
CLIP service status in the network (GSM/3G only).	
0	CLIP/COLP is not provisioned.
1	CLIP/COLP is provisioned.
2	Unknown (for example, no network).

Examples

```
AT+MODE=2                      {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CLIP?
+CLIP: 0                       {CDMA/TDMA}
AT+CLIP?
+CLIP: 0,1                     {GSM/3G}
AT+CLIP=1
...                            {Incoming call}
RING
+CLIP: "2173845400",129,,,"Doe, John"
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CLIR   *Calling Line Identification Restriction*

Description

Allows a calling subscriber to enable or disable the presentation of the CLI to the called party when originating a call.

Set command overrides the CLIR subscription (default is restricted or allowed) when temporary mode is provisioned as a default adjustment for all following outgoing calls. This adjustment can be revoked by using the opposite command.

Read command gives the default adjustment for all outgoing calls (given in <n>) and also triggers an interrogation of the provision status of the CLIR service (given in <m>).

Test command returns values supported by the Terminal Application as a compound value.

NOTE: On a per call basis, CLIR functionality is explained in subclause "ITU-T V.25 ter [14] dial command."

Used to specify settings determining whether or not the phone number of the calling party is to be displayed when a line exchange call is placed. If there is no #31# or *31# in the dialing storage string of the D command, then the settings specified using the +CLIR command should be used. If there is a #31# or *31#, then the #31# or *31# setting should be given precedence and added to the CLIR elements.

NOTE: While this command is a settings command, the settings specified is not stored in the nonvolatile memory written to using &W (it is written to a different type of memory), and that &F, Z, and power on/off cannot be used to perform a reset.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

DoCoMo specific version. This command is only supported on GSM platforms and Telematics enabled platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
+CLIR=[<n>]		
+CLIR?	+CLIR: <n>,<m>	If m cannot be determined, returns 2 – "unknown."
+CLIR=?	+CLIR: (list of supported <n>s)	

Input Parameters

<n>	Description
0	Sends (or does not send) calling number in accordance with CLIR service contract.
1	Do not display caller's number to called party.
2	Displays caller's number to called party. (This is the default value.)

Output Parameters

<m>	Description
0	CLIR is not in operation (Constant notification).
1	CLIR is in constant operation (Constant non-notification).
2	Unknown (for example, no network, etc.).
3	CLIR temporary mode (Default: No notification).
4	CLIR temporary mode (Default: Notification).

Examples

```
AT+CLIR=0
OK
AT+CLIR?
+CLIR:0,1
OK
AT+CLIR=?
+CLIR:(0-2)
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CLVL   Loudspeaker Volume Level

Description

Sets or gets the speaker volume of the internal loudspeaker of the Mobile Equipment. The supported classes are handsets, headsets, speakerphones, and hands-free devices. A device is considered active for this purpose when it is used for voice audio during a voice or video call.

Test command returns supported values as compound value.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

3GPP 27.007 Section 8.23

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on phones that have feature 9046 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
+CLVL=<level>	+CME ERROR: <err>	Sets the voice volume of the active audio class.
+CLVL?	+CLVL: <level> +CME ERROR: <err>	Reads the volume level that is currently selected.
+CLVL=?	+CLVL: (list of supported <level>s) +CME ERROR: <err>	Tests the possible values of the volume level.

Input Parameters

<level>   Integer type value with manufacturer specific range (smallest value represents the lowest sound level).

Examples

```
AT+MODE=2                    {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CLVL=2
OK
AT+CLVL?
+CLVL:2
OK
AT+CLVL=?
+CLVL:(0-7)
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CMAR   *Master Reset*

Description

Allows the subscriber to reset user data saved on the Mobile Equipment (PCMCIA card). The user data in the card is reset to default values (factory defaults). If re-setting fails, an error is returned.

If the Mobile Equipment is locked and this command is used, then the Mobile Equipment is unlocked after the master reset.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Section 8.35

Implementation

Optional

Implementation Specific Behavior

This command is only supported on a PCMCIA card. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CMAR=<phone_lock_code>	+CMAR: Resetting... OK +CMAR: Done OK

Input Parameters

<phone_lock_code>   String type.

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CMAR="000000"
+CMAR: Resetting...
OK
+CMAR: Done
OK
AT+CMAR="123456"
+CME ERROR: INCORRECT PASSWORD
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CMEE   *Report Mobile Equipment Error*

Description

Set command disables or enables the use of result code +CME ERROR: <err> as an indication of an error relating to the functionality of the Subscriber Unit. When enabled, Subscriber Unit related errors cause +CME ERROR: <err> final result code instead of the regular ERROR final result code. ERROR is returned normally when error is related to syntax, invalid parameters, or Terminal Application functionality.

Read command reads the current setting format of result code.

Test command returns all supported format values as a compound value.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

3GPP TS 07.07 section 9.1

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

None.

Usage

Command	Response	Description
+CMEE=[<n>]		Disables or enables the use of +CME ERROR: <err> or +CMS ERROR: <err> result code instead of ERROR.
+CMEE?	+CMEE: <n>	Returns the current <n> value.
+CMEE=?	+CMEE: (list of supported <n>s)	Returns supported values for <n>.

Input Parameters

<n>	Description
0	Disables +CME ERROR: <err> or +CMS ERROR: <err> result code. Use ERROR instead.
1	Enables +CME ERROR: <err> and +CMS ERROR: <err> result code. Use numeric <err> values.
2	Enables +CME ERROR: <err> and +CMS ERROR: <err> result code. Use verbose <err> values.

Examples

```
AT+MODE=2                       {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CMEE=?
+CMEE: (0-2)
OK
AT+CMEE?
+CMEE: 0
OK
AT+BADCOMMAND
ERROR
AT+CMEE=1
OK
AT+BADCOMMAND
+CME ERROR: 100
AT+CMEE=2
OK
AT+BADCOMMAND
+CME ERROR: unknown
AT+CMGR=12
+CMS ERROR: invalid memory index
```

Spec Reference

3GPP TS 27.007 9.1

3GPP TS 07.07

P2KATCMD

+CMER   Mobile Equipment Event Reporting

Description

Set command enables or disables sending of unsolicited result codes from Terminal Application to Terminal Equipment in the case of key pressing, display changes, and indicator state changes. <mode> controls the processing of unsolicited result codes specified within this command. <bfr> controls the effect on buffered codes when <mode> 1, 2, or 3 is entered. If setting is not supported by the Mobile Equipment, +CME ERROR: <err> is returned.

Allows an external accessory to receive keypress information from the keypad internal to the Subscriber Unit. This is used in some cases to track user activity for re-display on a vehicle system, or to perform accessory specific menu operations.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

NOTE: This command is used for more than just enabling/disabling keypad event reporting. Information on the other event reporting modes is contained in other sections, follow the test-links to find descriptions of the event enablers.

Derivation

USB - DUN (Dial-Up Networking via USB)

Motorola OEM Unique

For 27587 feature:

3GPP TS 07.07: AT command set for GSM Mobile Equipment (ME) v7.6.0 [18]

3GPP TS 27.007: AT command set for 3G User Equipment (UE) v5.3.0 [19]

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

None.

Usage

Command	Response	Description
+CMER=[<mode>[,<keyp>[,<disp>[,<ind>[,<bfr>]]]]]	OK +CME ERROR: <err>	Sets event reporting mode.
+CMER?	+CMER: <mode>,<keyp>,<disp>,<ind>,<bfr>	Returns current event reporting settings.
+CMER=?	+CMER: (list of supported <mode>s),(list of supported <keyp>s),(list of supported <disp>s),(list of supported <ind>s),(list of supported <bfr>s)	Returns list of supported event reporting settings.

Input Parameters

<mode>	Description
0	Buffers unsolicited result codes in Subscriber Unit.
1	Discards unsolicited result codes in online mode.
2	Buffers result codes in on-line mode.
3	Forwards unsolicited result codes.

<keyp>	Description
0	Do not report keypad events.
1	Keypad event reporting using result code +CKEV. Only those key pressing, which are not caused by the +CKPD command, are reported.
2	Keypad event reporting using result code +CKEV. All key pressing, including key pressing caused by the +CKPD command, are reported.

<disp>	Description
0	Do not report display events.

<ind>	Description
0	Do not report indicator events.
1	Reports indicator events not caused by +CIND.
2	Reports all indicator events.

<bfr>	Description
0	Clears buffer when <mode> 1...3 is entered.
1	Flushes buffer when <mode> 1...3 is entered.

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
```

If 27587 feature is enabled
```
AT+CMER=?
+CMER: (0,3),(0),(0),(0,1,2),(0)
OK
```

If 27587 feature is not enabled
```
AT+CMER=?
+CMER: (0,3),(0,1,2),(0),(0,1,2),(0)
OK
AT+CMER=
OK
AT+CMER?
+CMER: 0,0,0,0,0
OK
AT+CMER=3,0,0,1,0
OK
AT+CMER?
+CMER: 3,0,0,1,0
OK
AT+CMER=3
OK
AT+CMER=3,2,0,2,0
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CMGC   Send Message

Description

Execution command sends a command message from a Terminal Equipment to the network (SMS-COMMAND). The entering of text is done similarly as specified in command Send Message +CMGS, but the format is fixed to be a sequence of two IRA character long hexadecimal numbers that Mobile Equipment/Terminal Application converts into 8-bit octets. Message reference value <mr> is returned to the Terminal Equipment on successful message delivery. Optionally, when +CSMS <service> value is 1 and network supports, <scts> is returned. Values can be used to identify message upon unsolicited delivery status report result code. If sending fails in a network or an Mobile Equipment error, final result code +CMS ERROR: <err> is returned. This command should be aborted.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to
+MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 section 3.5

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on platforms with feature 8194 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
If text mode (+CMGF=1): +CMGC=<fo>,<ct>[,<pid>[,<mn>[,<da>[,<toda>]]]]<CR>text is entered<ctrl-Z/ESC>	**If sending successful:** +CMGC: <mr>[,<scts>] OK **If sending fails:** +CMS ERROR: <err> ERROR

Input Parameters

Parameter	Description
<ctrl-Z>	Indicates the ending of the message body.
<ESC>	Cancels processing of the command.
<fo>	First octet of GSM 03.40 SMS-COMMAND in integer format. (The default value is 2.)
<ct>	GSM 03.40 TP-Command-Type in integer format. (The default value is 0.)
<pid>	GSM 03.40 TP-Protocol-Identifier in integer format. (The default value is 0.)
<mn>	GSM 03.40 TP-Message-Number in integer format. (The default value is 0.)
<da>	GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected Terminal Equipment character set (refer to command +CSCS in TS 07.07); type of address given by <toda>. (The default value is "".)
<toda>	GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43), the default value is 145, otherwise the default value is 129).

Examples

```
AT+MODE=2                       {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
{Send hex-encoded message "123456789A"}
AT+CMGC=2,0
>123456789A^Z
+CMGC: 3
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CMGD *Delete Message*

Description

Execution command deletes message from preferred message storage <mem1> location <index>. If <delflag> is present and not set to 0, then the Mobile Equipment ignores <index> and follow the rules for <delflag> shown below. If deleting fails, final result code +CMS ERROR: <err> is returned.

Test command shows the valid memory locations and optionally the supported values of <delflag>.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is not supported if DoCoMo feature 13206 is implemented.

Usage

Command	Response
+CMGD=<index>[,<delflag>]	+CMS ERROR: <err>
+CMGD=?	+CMGD: (list of supported <index>s)[,(list of supported <delflag>s)]

Input Parameters

<delflag>	Description
An integer indicating multiple message deletion request as follows. Allows the accessory to delete messages from preferred Subscriber Unit message storage <mem1> location <index>. (<mem1> is selected with the +CPMS command.) If deleting fails, result code +CMS ERROR: <err> is returned.	
0 (or omitted)	Deletes the message specified in <index>.
1	Deletes all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched.
2	Deletes all read messages from preferred message storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched.
3	Deletes all read messages from preferred message storage, sent and unsent mobile originated messages leaving unread messages untouched.
4	Deletes all messages from preferred message storage including unread messages.
<ctrl-Z>	Indicates the ending of the message body.
<ESC>	Cancels processing of the command.

<index>   Integer type; this is the index in the SMS memory of the message to be deleted.

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CMGL
+CMGL: 193,"REC READ","+61404851479"
Test
+CMGL: 192,"REC READ","+61404851479"
Test 1
OK
AT+CMGD=193                 {Message was deleted}
OK
AT+CMGD=193                 {Deleting an empty index returns an error}
+CMS ERROR: invalid memory index
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CMGF   Message Format

Description

Set command tells the Terminal Application which input and output format of messages to use. <mode> indicates the format of messages used with send, list, read, and write commands and unsolicited result codes resulting from received messages. Mode can be either PDU mode (entire TP data units used) or Text mode (headers and body of the messages given as separate parameters). Text mode uses the value of parameter <chset> specified by command +CSCS to inform the character set to be used in the message body in the Terminal Application interface.

Test command returns supported modes as a compound value.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Mandatory when only one mode implemented.

Implementation Specific Behavior

The default is set to PDU Mode. For backward compatibility, a flex option can be used to set the default mode to Text. CDMA platform default is set to TEXT mode. CDMA platform currently does not support PDU mode.

In case the attached device is a Telematics device, the default would be set to Text Mode.

Usage

Command	Response	Description
+CMGF=[<mode>]		Sets the message format.
+CMGF?	+CMGF: <mode>	Reads current message format.
+CMGF=?	+CMGF: (list of supported <mode>s) +CMGF: (0,1)	Lists all supported message formats.

Input Parameters

<mode> Format of messages. 0 indicates PDU mode, 1 indicates TEXT mode.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CMGF=1
OK
AT+CMGF?
+CMGF: 1
AT+CMGF=?
+CMGF: (0,1)
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CMGL   List Messages

Description

Execution command returns messages with status value <stat> from message storage <mem1> to the Terminal Equipment. (<mem1> is selected with the +CPMS command.) Returns a series of responses, one per message. The responses are different for Text and PDU Mode. The Text Mode response contains message index, status (string type), origination/destination address and data. The PDU Mode response contains message index, status (integer type), length of message and <pdu>. For each message, if the status of the message is "received unread," the status is changed to "received read." If listing fails, final result code +CMS ERROR: <err> is returned.

NOTE: If the selected <mem1> can contain different types of SMs (for example, SMS-DELIVERs, SMS-SUBMITs, SMS-STATUS-REPORTs and SMS-COMMANDs), the response may be a mix of the responses of different SM types. Terminal Equipment application can recognize the response format by examining the third response parameter.

Test command gives a list of all status values supported by the Terminal Application.

During execution of CMGL, if a message has a missing part, the parts that are not missing, is printed, followed by text embedded at the end of the message indicating that there is missing text (the English version of the text is "*\Missing Text*", other languages have different text). There are a number of conditions:

1 If the missing part is the first part of the message, the message is not printed at all.

2 If a part in the middle is missing, only the starting parts are printed — for example, if part 2 of a 4 part message is missing, only part 1 is printed followed by the missing text string.

All remaining messages (after the slightly corrupted message) is printed.

NOTE: Missing Text is applied to Text Mode only. In PDU mode, only messages less than 160 characters are printed.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is not supported if DoCoMo feature 13206 is implemented.

Usage

Command	Response
+CMGL[=<stat>]	**If text mode (+CMGF=1), command successful and SMS-SUBMITs and/or SMS-DELIVERs:**
	+CMGL: <index>,<stat>,<oa/da>,[<alpha>],[<scts>][,<tooa/toda>,<length>]<CR><LF><data>[<CR><LF>
	+CMGL: <index>,<stat>,<da/oa>,[<alpha>],[<scts>][,<tooa/toda>,<length>]<CR><LF><data>[...]]
	If text mode (+CMGF=1), command successful and SMS-STATUS-REPORTs:
	+CMGL: <index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>[<CR><LF>
	+CMGL: <index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>[...]]
	If text mode (+CMGF=1), command successful and SMS-COMMANDs:
	+CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF>
	+CMGL: <index>,<stat>,<fo>,<ct>[...]]
	If text mode (+CMGF=1), command successful and CBM storage:
	+CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages><CR><LF><data>[<CR><LF>
	+CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages><CR><LF><data>[...]]
	Otherwise:
	+CMS ERROR: <err>
+CMGL=?	+CMGL: (list of supported <stat>s)

Input Parameters

<stat>   String.

Output Parameters

<index>   The message number of the message.

<oa/da>   Originating/destination address value in string format. When Email SMS feature is available, this address is a string that contains one or more MIN numbers and/or email addresses, separated by space; otherwise, this field should contain a single MIN number.

<data>   Message data.

<length>   Length of the message.

<pdu>   The SMSC addresses followed by the TPDU.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
```

In Text Mode

```
AT+CMGL="ALL"               {Read all SMS messages}
+CMGL: 1,"REC READ","+358501234567"
This is the body of the message.
+CMGL: 2,"STO UNSENT","+358501234567"
This is the body of the reply.
OK
AT+CMGL=?
+CMGL: ("REC UNREAD","REC READ","STO UNSENT","STO SENT","ALL")
OK
```

In PDU Mode

```
AT+CMGL=4                        {Read all SMS messages}
+CMGL: 1,1,,23
0011000B916407281553F80000AA0AE8329BFD4697D9EC37
+CMGL: 2,2,,28
07917283010010F5040B917238880900F10000993092516195800AE8329BFD4697D9EC37
OK
AT+CMGL=?
+CMGL: (0,1,2,3,4)
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CMGR   Read Message

Description

Execution command returns message with location value <index> from message storage <mem1> to the Terminal Equipment. (<mem1> is selected with the +CPMS command.) About text mode parameters in italics (refer to +CSDH). If status of the message is "received unread," status in the storage changes to "received read." If reading fails, final result code +CMS ERROR: <err> is returned.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is not supported if DoCoMo feature 13206 is implemented.

Usage

Command	Response
+CMGR=<index>	**If text mode (+CMGF=1) and command successful:**
	+CMGR: <stat>,<oa/da>[,<scts>]<CR><LF><data><CR><LF>
	If PDU mode:
	+CMGR: <stat>,,<length><CR><LF><pdu><CR><LF>
	Otherwise:
	+CMS ERROR: <err>
+CMGR=?	

Input Parameters

\<index\>   Integer type; this is the index in the SMS memory of the message to be retrieved.

Output Parameters

\<stat\>   String.

\<oa/da\>   Originating/destination address value in string format. When Email SMS feature is available, this address is a string that contains one or more MIN numbers and/or email addresses, separated by space; otherwise, this field should contain a single MIN number.

\<scts\>   Service center time stamp in time string format "yy/MM/dd,hh:mm:ss±zz". For example, 6th of May 1994, 22:10:00 GMT+2 hours equals to "94/05/06,22:10:00+08". This field is not displayed for outbox and draft messages ("STO SENT" and "STO UNSENT").

\<data\>   Message data.

\<stat\> in text mode	\<stat\> in PDU mode	Description
"REC UNREAD"	0	Received unread (that is, new) message. (Default.)
"REC READ"	1	Received read message.
"STO UNSENT"	2	Stored unsent message.
"STO SENT"	3	Stored sent message.
"ALL"	4	All messages (only applicable to +CMGL).

Examples

In Text Mode

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>

{Read the message}
AT+CMGR=2
+CMGR: "REC UNREAD","+358507654321","95/07/03,17:38:15+04"
This is Mr. Jones testing
OK
{"STO SENT" message does not have the <scts> field}
AT+CMGR=693
+CMGR: "STO SENT","+61417152776"
Test
OK
```

In PDU Mode

AT+MODE=2   {Change to Accessories Mode 2}

OK

+MBAN: *<copyright string>*

{Read the message}

AT+CMGR=2

+CMGR: 2,,28

07917283010010F5040B917238880900F10000993092516195800AE8329BFD4697D9EC37

OK

Spec Reference

3GPP TS 07.05

P2KATCMD

+CMGS   Send Message

Description

Execution command sends message from a Terminal Equipment to the network (SMS-SUBMIT). Message reference value <mr> is returned to the Terminal Equipment on successful message delivery. Optionally, when +CSMS <service> value is 1 and network supports, <scts> is returned. Values can be used to identify message upon unsolicited delivery status report result code. If sending fails in a network or an Mobile Equipment error, final result code +CMS ERROR: <err> is returned. This command should be aborted.

In PDU mode, the Service Center Address in the <pdu> is optional. In case the SMSC address is not specified, then the Service Center Address set by +CSCA would be used.

When User Data Header Indication (UDHI) is set, 3G phones (P0633 onwards) now support WAP PUSH SI PDU. Note that GSM/CDMA line does not support this functionality.

When fixed dial is enabled, a SMS message is not sent to the MIN destination address if the MIN is not in the fixed dial phonebook list. If the MIN destination address is not in the fixed dial phonebook list, then the command responds with "+CMS ERROR: operation not allowed."

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on CDMA platform and platforms with feature 8194 enabled. Refer to the corresponding +MAID bit for PDU mode implementation. If PDU mode is selected using +CMGF, this command does not support UDHI headers and returns error code 304 (invalid PDU mode parameter). On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
If text mode (+CMGF=1): +CMGS=<da><CR>text is entered<ctrl-Z/ESC>	**If text mode (+CMGF=1) and sending successful:** +CMGS: <mr> **If sending fails:** +CMS ERROR: <err>
If PDU mode: +CMGS=<length><CR><pdu><ctrl-Z/ESC>	

Input Parameters

<da>   Single destination address (MIN or email address) in quoted string.

<length>   Length of the message.

<ctrl-Z>   Used to indicate the ending of the message body.

<ESC>   Used to cancel processing of the command.

Output Parameters

<mr>   Message reference number.

Examples

1   If fixed dial is disabled.

In PDU Mode
```
AT+MODE=2                      {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
   AT+CMGS=23
               0011000B916407281553F80000AA0AE8329BFD4697D9EC37^Z
               +CMGS: 12
               OK
```

In Text Mode
```
AT+MODE=2                      {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
   AT+CMGS="5477556757"
This is the message body. ^Z
+CMGS: 13
OK
```

2 **If fixed dial is enabled and 0433220848 is not in the fixed dial phonebook list.**

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CMGS="0433220848"
+CMS ERROR: operation not allowed
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CMGW   Write Message to Memory

Description

Execution command stores message (either SMS-DELIVER or SMS-SUBMIT) to memory storage <mem2>. Memory location <index> of the stored message is returned. By default message status is set to "stored unsent," but parameter <stat> allows also other status values to be given. The entering of text is done similarly as specified in command +CMGS. If writing fails, final result code +CMS ERROR: <err> is returned.

Stores message to memory storage <mem2>. <mem2> is selected with the +CPMS command.

NOTE: SMS-COMMANDs and SMS-STATUS-REPORTs cannot be stored in text mode.

NOTE: E-mail addresses cannot contain the '#' character.

NOTE: SIM card cannot set multiple destinations to the message.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

If PDU mode is selected using +CMGF, this command does not support UDHI headers and returns error code 304 (invalid PDU mode parameter). This command is not supported if DoCoMo feature 13206 is implemented.

Usage

Command	Response	Description
If text mode (+CMGF=1): +CMGW=\<da>\<CR>text is entered\<ctrl-Z/ESC>	**If text mode (+CMGF=1) and sending successful:** +CMGW: \<index> **If sending fails:** +CMS ERROR: \<err>	Entered text greater than 160 characters is silently truncated to 160 characters and the truncated part is not echoed. Invalid characters in the entered text are silently discarded and not echoed.
If PDU mode: +CMGW=\<length>\<CR>\<pdu>\<ctrl-Z/ESC>		

Input Parameters

\<da>   Destination address in quoted string. When Email SMS feature is available, this address is a string that contains one or more MIN numbers and/or email addresses, separated by space; otherwise, this field should contain a single MIN number.

\<length>   Length of the message.

\<ctrl-Z>   Used to indicate the ending of the message body.

\<ESC>   Used to cancel processing of the command.

Output Parameters

\<index>   This is the index in memory storage.

Examples

In Text Mode

```
AT+MODE=2                    {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CMGW="5124335432"
>This is the message body. ^Z
+CMGW: 7
OK
```

In PDU Mode

```
AT+MODE=2                    {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CMGW=23
>0011000B916407281553F80000AA0AE8329BFD4697D9EC37^Z
```

```
+CMGW: 3
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CMMS   More Messages to Send

Description

Set command controls the continuity of SMS relay protocol link. When feature is enabled (and supported by network), multiple messages can be sent much faster as link is kept open.

Test command returns supported values as a compound value.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 section 3.5

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on platforms that have feature 8194 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CMMS=[<n>]	**If <n> is supported:** OK **If <n> is not supported:** +CMS ERROR: <err> ERROR
+CMMS?	+CMMS: <n>
+CMMS=?	+CMMS: (list of supported <n>s)

Input Parameters

<n>	Description
0	Disable. This is the default option.
1	Keep enabled until the time between the response of the latest message send command (+CMGS, +CMSS, etc.) and the next send command exceeds 1-5 seconds (the exact value is up to Mobile Equipment implementation), then Mobile Equipment closes the link and Terminal Application switches <n> automatically back to 0.
2	Enable (if the time between the response of the latest message send command and the next send command exceeds 1-5 seconds (the exact value is up to Mobile Equipment implementation), Mobile Equipment closes the link but Terminal Application shall not switch automatically back to <n>=0).

Examples

```
AT+MODE=2                       {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CMMS=1                       {Keep enabled SMS continuity relay protocol
link}
OK
AT+CMMS=                        {Disable SMS continuity relay protocol link}
OK                              {Equivalent to AT+CMMS=0}
AT+CMMS?                        {Test current <n> value}
+CMMS: 0
OK
AT+CMMS=?                       {Show supported <n>s}
+CMMS: (0-2)
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CMOD Call Mode

Description

Set command selects the call mode of further dialling commands (D) or for next answering command (A). Mode can be either single or alternating (in the present document, terms "alternating mode" and "alternating call" refer to all GSM bearer and teleservices that incorporate more than one basic service (voice, data, fax) within one call). When single mode is selected the call originating and hangup procedures are similar to procedures specified in ITUT Recommendations V.25ter [14], T.31 [11], and T.32 [12]. In GSM, there can be voice followed by data, alternating voice/data and alternating voice/fax calls.

Test command returns values supported by the Terminal Application as a compound value.

NOTE: +CMOD is set to zero after a successfully completed alternating mode call. It is set to zero also after a failed answering. The powerup, factory (&F) and user resets (Z) also set the value to zero. This reduces the possibility that alternating mode calls are originated or answered accidentally.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

Complies to spec but underloaded.

Motorola Range

Supports modes 0 and 1.

Spec Range

0-3

Usage

Command	Response
+CMOD=[<mode>]	
+CMOD?	+CMOD: <mode>
+CMOD=?	+CMOD: (list of supported <mode>s)

Spec Reference

3GPP TS 27.007 6.4

3GPP TS 07.07

MMINS

+CMSS   Send Message from Storage

Description

Execution command sends message with location value <index> from preferred message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND). If new recipient address <da> is given for SMS-SUBMIT, it is used instead of the one stored with the message. Reference value <mr> is returned to the Terminal Equipment on successful message delivery. Optionally (when +CSMS <service> value is 1 and network supports), <scts> is returned. Values can be used to identify message upon unsolicited delivery status report result code. If sending fails in a network or an Mobile Equipment error, final result code +CMS ERROR: <err> is returned. This command should be aborted.

Selects a pre-stored message from message storage <mem2> and sends it. <mem2> is selected with the +CPMS command.

When fixed dial is enabled, SMS messages is not sent to the MIN destination address if the MIN is not in the fixed dial phonebook list. If an SMS message is to be sent to multiple MIN addresses, then all the MIN destination addresses must be in the fixed dial phonebook list. If one of MIN destination address is not in the fixed dial phonebook list, then the command responds with "+CMS ERROR: operation not allowed" and the SMS would not be sent to any of the addresses.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is not supported if DoCoMo feature 13206 is implemented.

Usage

Command	Response	Description
+CMSS=<index>[,<da>[,<toda>]]	**If text mode (+CMGF=1) and sending successful:** +CMSS: <mr> **If sending fails:** +CMS ERROR: <err>	Sends a message from storage to the network.

Input Parameters

<index>   Integer type; this is the index in the SMS memory of the message to be sent.

Output Parameters

<mr>   Message reference number.

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
```

1   If fixed dial is disabled.

```
{Send a message from storage}
AT+CMSS=7
+CMSS: 12
OK
```

2   If fixed dial is enabled. 0433220848 is in the fixed dial list, while 0411261740 is not.

```
{Store the SMS message}
AT+CMGW="0433220848 0411261740"
> Test 2 ^Z
+CMGW: 23
OK
{Send the SMS from storage}
AT+CMSS=23
+CMS ERROR: operation not allowed
{Error is returned and no SMS is sent because 0411261740 is not in the fixed
dial list}
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CMUT   Mute Control

Description

Enables and disables the uplink voice muting during a voice call.

Test command returns supported values as compound value.

Allows the accessory to request a mute/unmute of the currently active microphone path. Overrides the current mute state. This affects whatever audio path is active at the present time. This does not affect any tones that are being generated.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

Motorola Accessory

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

None.

Usage

Command	Response	Description
+CMUT=<n>	OK +CME ERROR: <err>	Sets mute/unmute state of microphone.
+CMUT?	+CMUT: <n> +CME ERROR: <err>	Requests current mute/unmute state.
+CMUT=?	+CMUT: (list of supported <n>s)	Requests valid mute states.

Input Parameters

<n>	Description
0	Unmutes microphone path.
1	Mutes Microphone path.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CMUT?
+CMUT: 0
AT+CMUT=1
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CNMA   New Message Acknowledgement

Description

Execution command confirms correct reception of a new message (SMS-DELIVER or SMS-STATUS-REPORT) that is routed directly to the Terminal Equipment (refer to +CNMI). This acknowledgement command (causing Mobile Equipment to send RP-ACK to the network) is used when +CSMS parameter <service> equals 1. Terminal Application should not send another +CMT or +CDS result code to Terminal Equipment before previous one is acknowledged.

If Mobile Equipment does not get acknowledgement within required time (network timeout), Mobile Equipment should send RP-ERROR to the network. Mobile Equipment/Terminal Application automatically disables routing to Terminal Equipment by setting both <mt> and <ds> values of +CNMI to zero.

If command is executed but no acknowledgement is expected, or some other Mobile Equipment related error occurs, final result code +CMS ERROR: <err> is returned.

NOTE: In case a directly routed message must be buffered in Mobile Equipment/Terminal Application (possible when +CNMI parameter <mode> equals 0 or 2) or AT interpreter remains too long in a state where result codes cannot be sent to Terminal Equipment (for example, user is entering a message using +CMGS), acknowledgement (RP-ACK) must be sent to the network without waiting +CNMA command from Terminal Equipment. Later, when buffered result codes are flushed to Terminal Equipment, Terminal Equipment must send +CNMA acknowledgement for each result code. In this way, Mobile Equipment/Terminal Application can determine if message should be placed in non-volatile memory and routing to Terminal Equipment disabled (+CNMA not received).

Confirms the correct reception of a new message that is routed directly to the Terminal Equipment. If the command is executed but no +CNMA expected, error is returned.

In PDU mode, a test command AT+CNMA=? is supported. This always returns 0 indicating that the command operates similarly in PDU mode as in Text mode. In Text mode, this command responds with a +CME error indicating that the operation is not supported.

NOTE: According to GSM 07.05, the Mobile Equipment should send RP-ACK to network when receiving the +CNMA acknowledgement from Terminal Equipment. However, the behavior of this command is slightly different because in the existing implementation the message is already saved in database and acknowledged to network by the SP-MT. The +CNMA command simply deletes the message from the database. A timer keeps track of expected and duplicate acknowledgements.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

This command is only supported on 3G and Telematics platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
If text mode (+CMGF=1): +CNMA	+CMS ERROR: <err>	
+CNMA=?		(Only supported in PDU mode).

Examples

```
AT+MODE=2          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
```

In Text or PDU Mode

```
AT+CNMA            {Send acknowledgement to the network for message received}
OK
AT+CNMA            {Try to acknowledge again}
+CMS ERROR : 340  {No acknowledgement expected}
```

In PDU Mode

```
AT+CNMA=?
+CNMA: (0)
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CNMI New Message Indications

Description

Enables unsolicited notification of the accessory when an SMS message is received by the Subscriber Unit. If the Subscriber Unit does not support the requested indication, the final result code +CMS ERROR: <err> is returned.

Test command returns the settings supported by the Terminal Application as compound values.

NOTE: When DTR signal is not available or the state of the signal is ignored (V.25ter command &D0), reliable message transfer can be assured by using +CNMA acknowledgement procedure.

NOTE: Command Select Message Service +CSMS should be used to detect Mobile Equipment support of mobile terminated SMs and CBMs and to define whether a message routed directly to Terminal Equipment should be acknowledged or not (refer to +CNMA).

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Mandatory when +CMTI implemented.

Implementation Specific Behavior

This command is only supported on 3G and Telematics platforms, and Telematics platforms or platforms with EONS (Enhanced Operator Name String) SMS support. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]	+CMS ERROR: <err>
+CNMI?	+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>
+CNMI=?	+CNMI: (list of supported <mode>s),(list of supported <mt>s),(list of supported <bm>s),(list of supported <ds>s),(list of supported <bfr>s)

Input Parameters

<mode>	Description
Integer. Controls the processing of unsolicited result codes specified within this command, <mt> sets the result code indication routing for SMS-DELIVERs, <bm> for CBMs and <ds> for SMS-STATUS-REPORTs. <bfr> defines the handling method for buffered result codes when <mode> 1, 2 or 3 is enabled. If Mobile Equipment does not support requested item (although Terminal Application does), final result code +CMS ERROR: <err> is returned.	
0	Do not forward unsolicited result codes.
3	Forwards unsolicited codes to accessory.

<mt>	Description
Integer.	
0	Disables SMS notification.
1	Enables unsolicited response for indication of incoming message in storage (refer to +CMTI).

<bm>	Description
Integer.	
0	Disables broadcast SMS notification.

<ds>	Description
Integer.	
0	Disables SMS status reports.

<bfr>	**Description**
Integer.	
0	Flushes Subscriber Unit's result code buffer is when <mode> 1...3 is entered.

Examples

```
AT+MODE=2                         {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
{Query new message unsolicited result code modes}
AT+CNMI=?
+CNMI: (0,3),(0-2),(0),(0),(0)
OK
AT+CNMI?                          {Query current settings}
+CNMI: 0,0,0,0,0
OK
AT+CNMI=3,1,0,0,0                 {Turn on new SMS indication}
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CNUM Subscriber Number

Description

Displays the number of the mobile unit.

Action command returns the MSISDNs related to the subscriber (this information can be stored in the SIM or in the Mobile Equipment). If subscriber has different MSISDN for different services, each MSISDN is returned in a separate line.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

DoCoMo specific version. If the <number> parameter is a string parameter, then it must be enclosed in quotation marks in the intermediate response.

If feature 11785 is implemented and Bluetooth is active, the result string includes a leading space after ':'.

Usage

Command	Response
+CNUM	+CNUM: [<alpha1>],<number1>,<type1>[,<speed>,<service>[,<itc>]]
	[<CR><LF>+CNUM: [<alpha2>],<number2>,<type2>[,<speed>,<service> [,<itc>]]
	[...]]
	+CME ERROR: <err>
+CNUM=?	ERROR
+CNUM=?	OK

Output Parameters

Heading	Description
<alpha x>	Optional alphanumeric string associated with <number x>; used character set should be the one selected with command Select Terminal Equipment Character Set +CSCS.
<number x>	String type phone number of format specified by <type x>. Quoted string of the phone number in format specified by <type>. This field is always quoted regardless of the current character set.
<type x>	Type of address octet in integer format. Phone number type.
<speed>	
<service>	Service related to the phone number. Only 4 (voice) and 5 (fax) service types are supported.

<type>	Description
129	Include full international access code.
145	Use '+' for international access code.
128	Unknown.

If the UIM status is unknown, one of the following response codes should be returned:

- For V0 and +CMEE=0: 4
- For V1 and +CMEE=0:Error
- For any V setting when +CMEE=1: +CMEE Error: 100
- For any V setting when +CMEE=2: +CMEE Error: Unknown

If no UIM is found, one of the following response codes should be returned.

- For V0 and +CMEE=0: 4
- For V1 and +CMEE=0:Error
- For any V setting when +CMEE=1: +CMEE Error: 10
- For any V setting when +CMEE=2: +CMEE Error: SIM not inserted

Examples

The following examples, unless specified, assume Bluetooth is not active.

1   For Electra

```
AT+CNUM
+CNUM:,"2173848500",129
OK
AT+CNUM?
ERROR
AT+CNUM=?
OK
AT+CNUM
+CNUM:,"+819012345678",145
OK
```

2   For V2000

```
AT+CNUM
+CNUM:,"0404851479",129,,4
OK
AT+CNUM?
ERROR
AT+CNUM=?
OK
AT+CNUM
+CNUM: ,"0404851479",129,,4
OK
{If Bluetooth is active, the result string has a leading space after ':' as
seen above}
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+COLP Connected Line Identification Presentation

Description

Enables (or disables) the reporting of the Connected Line Identification Presentation or COLP (that is, the identification of the called party) for mobile originated calls. The ability to present COLP at the Terminal Equipment is controlled by the network provisions. In GSM, the COLP read command is network dependent. Since COLP read command is to query the information from the network, some networks do not allow the interrogation of the network.

Read command gives the status of <n> and also triggers an interrogation of the provision status of the COLP service.

Test command returns values supported by the Terminal Application as a compound value.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 7.8

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

In MODE 14, the output of +COLP command must be in one of the following 2 formats: either the name string is not supported, or there are 4 commas before the name string, same as the format for CLIP.

This command is only supported on 3G and Telematics platforms, and Bluetooth enabled GSM platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

The COLP read command provides determination of provisioned state on GSM/3G networks, but not on CDMA/TDMA.

Usage

Command	Response	Description
+COLP=[<n>]		Changes current setting.
+COLP?	+COLP: <n>,<m>	Gets current setting of Calling Line Presentation.
+COLP=?	+COLP: (list of supported <n>s)	

Input Parameters

<n>	Description
0	Disables CLI presentation.
1	Enables CLI presentation.

Output Parameters

<m>	Description
COLP service status in the network (GSM/3G only).	
0	CLIP/COLP not provisioned.
1	CLIP/COLP provisioned.
2	Unknown (for example, no network).

Spec Reference

3GPP TS 07.07

P2KATCMD

+COPN   Read Operator Names

Description

Returns a list of operator names and their PLMN IDs stored in Mobile Equipment.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Section 7.19

Implementation

Optional

Implementation Specific Behavior

This command is only supported on PCMCIA cards or when feature 26678 is enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
+COPN? or COPN	+COPN: <numeric1>,<alpha 1> +COPN: <numeric1>,<alpha 1> ... OK	Returns pair of numeric operator code <numeric n> and its alphanumeric equivalent <alpha n>.

Examples

AT+MODE=2   {Change to Accessories Mode 2}

OK

+MBAN: *<copyright string>*

AT+COPN

+COPN: 425-01, "IL-Orange"

+COPN: 425-02, "IL-Celcom"

OK

Spec Reference

3GPP TS 07.07

P2KATCMD

+COPS Operator Selection

Description

Set command forces an attempt to select and register with a specified operator. Only <mode> = 0, 1, 3, and 4 are supported. <mode> selects whether the selection is done automatically by the Mobile Equipment or is forced by this command to operator <oper> (it is given in format <format>). If the selected operator is not available, no other operator is selected (except <mode>=4). The selected operator name format applies 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 (for example, after <mode>=2, Mobile Equipment is unregistered until <mode>=0 or 1 is selected). This command should be aborted when registration/de-registration attempt is made.

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

Test command returns a list of quadruplets, each representing an operator present in the network. Quadruplet consists of an integer indicating the availability of the operator <stat>, long and short alphanumeric format of the name of the operator, and numeric format representation of the operator. Any of the formats may be unavailable and should then be an empty field. The list of operators is in order: home network, networks referenced in SIM, and other networks.

After the operator list, the Terminal Application returns lists of supported <mode>s and <format>s. These lists are delimited from the operator list by two commas.

NOTE: \Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Section 7.3

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

The <mode>=2 (deregister) is not supported. The <format>=1 (short name presentation) is not supported. The combination of AT+COPS=<mode>, <format>,<oper> where the <mode>=1, or 4 and <format> is 0 or 1, is not supported. If the long format of <oper> doesn't exist, numeric format of the <oper> name is output. The <stat>=0 and 3 are not supported. A maximum of 16 characters of <oper> name is no longer valid, since some <oper> name is longer than 16. Also, the format of operator's MCC and MNC is in a reverse order of GSM format (for example, mcc1mcc2mcc3mnc1mnc2).

This command is only supported on 3G and GSM platforms, and on PCMCIA cards. It is also supported with limited functionality on CDMA platforms that have feature 11785 enabled. On such phones, the set command only supports the combination of <mode>=3 and <format>=0, and the test command is not supported. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Test command is not supported on CDMA phones with feature 11785 enabled.

For Feature 27586/88, a new AcT parameter has been added for read and test operations only.

Usage

Command	Response	Description
+COPS=[<mode>[,<format>[, <oper>]]]	OK +CME ERROR: <err>	Sets and registers to a specified network.
+COPS?	+COPS: <mode>[,<format>,<oper>] +CME ERROR: <err>	Returns the current mode and the currently selected operator.
+COPS=?	+COPS: [list of supported (<stat>,long alphanumeric <oper>,short alphanumeric <oper>,numeric <oper>)s][,,(list of supported <mode>s),(list of supported <format>s)] +CME ERROR: <err>	Returns a list of present networks in the area and a list of supported parameters.

Input Parameters

<mode>	Description
0	Automatic
1	Manual
3	Set <format> only
4	Manual/Automatic

<format>	Description
0	Long format alphanumeric <oper>
1	Short format alphanumeric <oper> (not supported)
2	Numeric <oper>

<oper>   String type; <format> indicates if the format is alphanumeric or numeric; Long alphanumeric format can be up to 16 characters long. Numeric format is the GSM Location Area Identification number that consists of a three BCD digit country code, plus a

two or three BCD digit network code based on the value of country code. Returned <oper> shall not be in BCD format, but in IRA characters converted from BCD.

Output Parameters

<stat>	Description
1	Available
2	Current

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+COPS=?
+COPS: (2,"T-Mobile",,"310260"),(1,"Cingular
Wireless",,"310410"),,(0,1,3,4),(0,2)
OK
AT+COPS?
+COPS: 0,0,"T-Mobile"
OK
AT+COPS=1,2,"310410"          {Selecting Cingular Wireless}
OK
AT+COPS?
+COPS: 1,2,"310410"
OK
AT+COPS=3,0
OK
AT+COPS?
+COPS: 3,0,"Cingular Wireless"
OK
{...No network area...}
AT+COPS?
+COPS: 3
OK
AT+COPS=?
+COPS: (,,,),,(0,1,3,4),(0,2)
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CPAS   Phone Activity Status

Description

Execution command returns the activity status <pas> of the Mobile Equipment. It can be used to interrogate the Mobile Equipment before requesting action from the phone.

Test command returns list of supported phone activity statuses (<pas>).

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

3GPP TS 07.07 section 8.1

Implementation

Supported AT command on Mode 0.

Mandatory when Mobile Termination can be operated from Terminal Equipment.

Implementation Specific Behavior

This command is only supported on platforms with feature 8194 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Complies to spec but underloaded.

Motorola Range

+CPAS: (0, 2, 3, 4)

Spec Range

+CPAS: (0-5)

Usage

Command	Response	Description
+CPAS	+CPAS: <pas> +CME ERROR: <err>	Returns the activity status.
+CPAS=?	+CPAS: (list of supported <pas>s) +CME ERROR: <err>	Returns supported values as a compound value.

Output Parameters

<pas>	Description
0	Ready (Mobile Equipment allows commands from Terminal Application/Terminal Equipment).
1	Unavailable (Mobile Equipment does not allow commands from Terminal Application/Terminal Equipment). This status is not supported.
2	Unknown (Mobile Equipment is not guaranteed to respond to instructions).
3	Ringing (Mobile Equipment is ready for commands from Terminal Application/Terminal Equipment, but the ringer is active).
4	Call in progress (Mobile Equipment is ready for commands from Terminal Application/Terminal Equipment, but a call is in progress).
5	Asleep (Mobile Equipment is unable to process commands from Terminal Application/Terminal Equipment because it is in a low functionality state). This status is not supported.
6..127	Reserved by 3GPP TS 27.007.

Examples

```
AT+MODE=2                    {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CPAS=?
+CPAS: (0,2-4)
OK
AT+CPAS
+CPAS: 0
OK
```

Spec Reference

3GPP TS 27.007 8.1

3GPP TS 07.07

P2KATCMD

+CPBF Find Phonebook Entries

Description

Execution command returns phonebook entries (from the current phonebook memory storage selected with +CPBS) that alphanumeric field start with string <findtext>. Entry fields returned are location number <indexn>, phone number stored there <number> (of format <type>) and text <text> associated with the number. If listing fails in an Mobile Equipment error, +CME ERROR: <err> is returned.

Test command returns the maximum lengths of <number> and <text> fields. In the case of SIM storage, the lengths may not be available. If Mobile Equipment is not currently reachable, +CME ERROR: <err> is returned.

Allows the accessory to search in the phonebook for a particular <text> entry starting with alphanumeric string <findtext>. The search is case-sensitive. If no match is found, the command returns OK. If multiple matches are found, all are returned.

Acts on the currently active phonebook, as selected with the +CPBS command. The phone list with storage ids "DC", "EN", "SD", "LD", "MC", "RC", "ON", and "QD" are not supported for +CPBF.

NOTE: This AT Command may fail if issued too soon after the Phone power-up and during PB Init time.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 8.13 (optional)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

If feature 12878 is implemented, the search is based on <reading_name>.

Usage

Command	Response	Description
+CPBF=<findtext>	[+CPBF: <index1>,<number>,<type>,<text>[[...] <CR><LF>+CBPF: <index2>,<number>,<type>,<text>]] +CME ERROR: <err>	
+CPBF=?	+CPBF: [<nlength>],[<tlength>] +CME ERROR: <err>	Obtains information about phonebook on this phone.

Input Parameters

<findtext> The text sub-string to search for. Character set as specified by command +CSCS. This substring is only compared to the starting characters of each record and is case-sensitive.

Examples

NOTE: These examples are for phones without feature 10625. If 10625 is implemented, index ranges for SM, ME, MT, and AD memory types is offset by +9.

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CPBF=?
+CPBR: 32,20
OK
AT+CPBF="Moto"
+CPBF: 2,"8475767800",129,"Moto Voicemail"
+CPBF: 3,"8475767867",129,"Motorola 151-1"
OK
AT+CPBF="MoTo"
OK
AT+CPBF="Voice"
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CPBR Read Phonebook Entries

Description

Execution command returns phonebook entries in location number range <index1>...<index2> from the current phonebook memory storage selected with +CPBS. If <index2> is left out, only location <index1> is returned. Entry fields returned are location number <indexn>, phone number stored there <number> (of format <type>) and text <text> associated with the number. If all queried locations are empty (but available), no information text lines may be returned. If listing fails in an Mobile Equipment error, +CME ERROR: <err> is returned.

Test command returns location range supported by the current storage as a compound value and the maximum lengths of <number> and <text> fields. In the case of SIM storage, the lengths may not be available. If Mobile Equipment is not currently reachable, +CME ERROR: <err> is returned.

Recall from the phonebook by location number. This command can be used to recall from a specific location or from a range of locations. If only one location is specified and that location is empty, OK is returned. If a range is requested, all locations that contain data within that range are returned.

This command can also be used to obtain information about the number of locations and the maximum size of the phone number and alpha tag fields in the phone book.

NOTE: This AT Command may fail if issued too soon after the Phone power-up and during PB Init time.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 8.12 (optional)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

Feature 13302 (Japan Basic Phone Book Enhancements) implemented

If the <number> field is displayed, "n" and "w" characters in the <number> field is not output. These two Motorola specific characters are ignored by DoCoMo.

Feature 10625 (Phone Book Restructuring) implemented & feature 13206 (DoCoMo AT Modifications) not implemented

Indices 1 through 9 of the phonebook are reserved for "User Assigned" speed dial numbers and cannot be read from by +CPBR or written to by +CPBW. This only applies to the "SM", "Mobile Equipment", "MT", and "AD" memory types. All ranges for these memory types is shifted up by 9 and phone_book_start_index is 10. Note that the maximum index of 1400 described below remains unchanged.

Feature 10625 (Phone Book Restructuring) implemented & feature 13206 (DoCoMo AT Modifications) implemented

"User Assigned" speed dial is not supported by AT commands, phone_book_start_index is 1.

Feature 10625 (Phone Book Restructuring) implemented

For memory types "MT" and "AD", which are SIM and internal phone memory combined, internal phone entries occupies indices pb_start_index through (phone_book_start_index + max_phone_entries -1) and SIM entries occupies (phone_book_start_index + max_phone_entries) through (phone_book_start_index + max_phone_entries + max_sim_entries).

For memory type "Mobile Equipment" the maximum range reported by the +CPBR/+CPBW test commands is 1400, even if the phone can support more entries. This is to support Motorola car kits that can only handle indices up to 1400. Only the +CPBR/+CPBW test commands are affected, and phonebook entries above this range can still be read from and written to by +CPBR/+CPBW.

Because of this, indices for "SM" and "Mobile Equipment" memory types must be remapped so SIM entries occupy the lower indices. For "SM" memory type, valid range is phone_book_start_index through (phone_book_start_index + max_sim_entries - 1), and valid range for "Mobile Equipment" memory type is (phone_book_start_index + max_sim_entries - 1) through (phone_book_start_index + max_sim_entries + max phone entries). This mapping is the reverse of the +MPBWE/+MPBRE mapping.

Usage

Command	Response	Description
+CPBR=<index1>[,<index2>]	[+CPBR: <index1>,<number>,<type>,<text>[[...] <CR><LF>+CPBR: <index2>,<number>,<type>,<text>]] +CME ERROR: <err>	Reads phonebook entries.
+CPBR=?	+CPBR: (list of supported <index>s),[<nlength>],[<tlength>] +CME ERROR: <err>	Obtains information about phonebook on this phone.

Examples

NOTE: These examples are for phones without feature 10625. If 10625 is implemented, index ranges for SM, Mobile Equipment, MT and AD memory types is offset by +9.

```
AT+MODE=2                         {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CPBS=SM
OK
AT+CPBR=?
+CPBR: (1-210),40,18
OK
AT+CPBR=2
+CPBR: 2,"8475767800",129,"SIM 2"
OK
AT+CPBR=1,210
+CPBR: 2,"8475767800",129,"SIM 2"
+CPBR: 10,"8475551212",129,"SIM 10"
OK
AT+CPBS=Mobile Equipment
OK
AT+CPBR=?
+CPBR: (211-1400),40,24
OK
AT+CPBR=211
+CPBR: 211,"12345678",129,"Index PHONE 211"
OK
AT+CPBS=AD
OK
AT+CPBR=?
+CPBR: (1-10710),40,18
OK
AT+CPBR=1,10710
+CPBR: 1,"12345678",129,"Index PHONE 211"
+CPBR: 10502,"12345678",129,"SIM 2"
+CPBR: 10510,"12345678",129,"SIM 10"
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CPBS   Select Phonebook Memory Storage

Description

Set command selects phonebook memory storage <storage>, which is used by other phonebook commands. If setting fails in an Mobile Equipment error, +CME ERROR: <err> is returned.

Read command returns currently selected memory, and when supported by manufacturer, number of used locations and total number of locations in the memory.

Test command returns supported storages as compound value.

In Subscriber Units that contain more than one phonebook memory (that is, a GSM phone that allows separate storage on the SIM card and in the Subscriber Units internal EEPROM), this command selects the memory that is to be used for reading and writing entries.

NOTE: This AT Command may fail if issued too soon after the Phone power-up and during PB Init time.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 8.11

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

The available phonebooks in a particular Subscriber Unit depends on the implementation.

If feature 10625 is implemented, the read command returns 1400 as the maximum entry number for the "Mobile Equipment" memory type. This is to support Motorola car kits that can only handle indices up to 1400. The total number of available slots is 1400 minus the number of SIM entries for example, if there are 250 SIM entries, 1150 is returned for the number of available slots for "Mobile Equipment."

Usage

Command	Response	Description
+CPBS=<storage>	+CME ERROR: <err>	Sets active phonebook to <storage>.
+CPBS?	+CPBS: <storage>[,<used>,<total>] +CME ERROR: <err>	Returns currently selected storage, number of used locations and total number of locations in the memory.
+CPBS=?	+CPBS: (list of supported <storage>s)	Returns list of available storage identifiers.

Input Parameters

<storage>

Examples

```
AT+MODE=2                        Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
```

1 Legacy implementation

```
AT+CPBS=?
+CPBS: ("DC","MC","Mobile Equipment","RC")
OK
AT+CPBS?
+CPBS: "Mobile Equipment",0,1000
OK
AT+CPBS="DC"
OK
```

2 If feature 10625 is implemented

```
{Select Mobile Equipment memory type}
AT+CPBS="Mobile Equipment"
OK
AT+CPBR=?
+CPBR: (251-1400),40,24   {Maximum entry number is 1400}
OK
AT+CPBS?
+CPBS: "Mobile Equipment",0,1150
{Total number of available slots is 1400-250=1150}
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CPBW   Write Phonebook Entry

Description

Execution command writes phonebook entry in location number <index> in the current phonebook memory storage selected with +CPBS. Entry fields written are phone number <number> (in the format <type>) and text <text> associated with the number. If those fields are omitted, phonebook entry is deleted. If <index> is left out, but <number> is given, entry is written to the first free location in the phonebook (the implementation of this feature is manufacturer specific). If writing fails in an Mobile Equipment error, +CME ERROR: <err> is returned.

Test command returns location range supported by the current storage as a compound value, the maximum length of <number> field, supported number formats of the storage, and the maximum length of <text> field. In the case of SIM storage, the lengths may not be available. If Mobile Equipment is not currently reachable, +CME ERROR: <err> is returned. If storage does not offer format information, the format list should be an empty parenthesis.

Allows storage of a new entry (or deletion of an existing entry) to the phonebook from an accessory. The command allows an entry to be stored to a particular location, or to store to the next available location in the phonebook.

Acts on the currently active phonebook, as selected with the +CPBS command.

NOTE: This AT Command may fail if issued too soon after the Phone power-up and during PB Init time.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 8.14 (optional)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

Feature 13336 (DoCoMo Restricted Phonebook Dial) implemented

If the restricted dial lock is on, phonebook modification is disallowed.

Feature 8009 (SyncML over local transport) implemented

Locks access to the phonebook database and unlock when writing is finished. "+CME ERROR: operation not allowed" is returned if the phonebook database has already been locked by another application.

Feature 10625 (Phone Book Restructuring) implemented

Refer to the +CPBR for +CPBW command limitations when feature 10625 is implemented. The name field <text> is optional if this feature is enabled.

Usage

Command	Response	Description
+CPBW=[<index>][,<number>[,<type>[,<text>]]]	+CME ERROR: <err>	If feature 10625 is not implemented, the <text> field becomes mandatory.
+CPBW=?	+CPBW: (list of supported <index>s),[<nlength>],(list of supported <type>s),[<tlength>] +CME ERROR: <err>	Queries allowable locations and sizes.

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CPBW=?
+CPBW: (10-10609),40,(129,145),16
```

1   Store information in first available location

```
AT+CPBW=,"8005551212",129,"Sam Spade"
OK
```

2   Erase location 21

```
AT+CPBW=21
OK
```

3   Write an entry without a name (applicable only if feature 10625 is enabled)

```
AT+CPBW=,"8005551212"  {<text> field must be empty)
OK
AT+CPBW=,"8005551212",""
ERROR              {Using empty quotes causes an error}
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CPIN   *Enter PIN*

Description

Sets password needed to operate User Equipment. If the PIN is to be entered twice, the Terminal Application automatically repeats the PIN. If no PIN request is pending, no action is taken towards Mobile Equipment and an error message, +CME ERROR, is returned to Terminal Equipment.

NOTE: SIM PIN, SIM PUK, PH-SIM PIN, PH-FSIM PIN, PH-FSIM PUK, SIM PIN2, and SIM PUK2 refer to the PIN of the selected application on the UICC. For example, in an UTRAN context, the selected application on a UICC should be a USIM and the SIM PIN then represents the PIN of the selected USIM.

If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, <newpin>, replaces the old pin in the SIM.

NOTE: Commands that interact with Mobile Equipment that are accepted when Mobile Equipment is pending SIM PIN, SIM PUK, or PHSIM are: +CGMI, +CGMM, +CGMR, +CGSN, D112; (emergency call), +CPAS, +CFUN, +CPIN, +CDIS (read and test command only), and +CIND (read and test command only).

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Unlocks or unblocks the SIM card when the proper SIM PIN or SIM PUK has been provided. This section is only relevant to phones that utilize SIM Cards. Note that the SIM card lock is another level of security independent of the phone lock.

A SIM card related error is returned if an AT command operation is unsuccessful due to a SIM card problem. Here are the errors:

- 10   SIM not inserted — returned if the SIM Card is not inserted.

- 11   SIM PIN required — returned if the SIM Card is waiting for SIM PIN to be entered.

- 12   SIM PUK required — returned if the SIM PIN is blocked.

- 13   SIM failure — returned if SIM Card is permanently blocked.

- 17   SIM PIN2 required — returned if SIM Card is waiting for SIM PIN2 to be entered.

- 18   SIM PUK2 required — returned if SIM PIN2 is blocked.

The Read command can be used to determine which, if any, code is required by the SIM. The error code 10 or "SIM not inserted" is returned if there is no SIM Card. The error code 13 or "SIM failure" is returned if the SIM Card is permanently blocked.

The Set command issued should give the code corresponding to the error code returned, or the result of the Read command. For example, if the SIM PIN is blocked and the AT command operation require SIM

Card access, then the error code 11 or "SIM PIN required" is returned. The user should then issue the Set command with the SIM PUK and new SIM PIN passed in.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Section 8.3

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

Command currently not supported.

This command is only supported on platforms that have Telematics enabled, on 3G and GSM platforms, and on PCMCIA card. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
+CPIN=<pin>[,<newpin>]	+CME ERROR: <err>	Enters the password to the Subscriber Unit.
+CPIN?	+CPIN: <code> +CME ERROR: <err>	Returns an alphanumeric string indicating whether some password is required or not. This is an independent SIM Card lock status check only, it does not check the phone lock status.

Input Parameters

<pin>,<newpin>   String of length 4-8. If the PIN required (determined by the error code returned from the requested operation or the Read command), is SIM PUK or SIM PUK2, the second parameter, <newpin>, is required. <newpin> replaces the old pin in the SIM.

Output Parameters

<code>	Description
READY	Subscriber Unit is not waiting for a password.
SIM PIN	Subscriber Unit is waiting for the SIM PIN to unlock the GSM phone's SIM card.
SIM PUK	Subscriber Unit is waiting for SIM PUK.
SIM PIN2	Subscriber Unit is waiting for SIM PIN2.
SIM PUK2	Subscriber Unit is waiting for SIM PUK2.

Examples

```
AT+MODE=2                         {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>

{Check status of SIM}
AT+CPIN?
+CPIN: SIM PIN
OK
{Assume SIM PIN = "123456", enter incorrect PIN}
AT+CPIN="000000"
+CME ERROR: INCORRECT_PASSWORD
{Enter the correct SIM PIN}
AT+CPIN="123456"
OK
{Check status of unlocked SIM}
AT+CPIN?
+CPIN: READY
OK
{SIM is already unlocked, return OK only, no action is taken towards Subscriber
Unit}
AT+CPIN="123456"
OK
```

Spec Reference

3GPP TS 27.007 8.3

3GPP TS 07.07

P2KATCMD

+CPMS Preferred Message Storage

Description

Set command selects memory storages <mem1>, <mem2>, and <mem3> to be used for reading, writing, etc. If chosen storage is not appropriate for the Mobile Equipment (but is supported by the Terminal Application), final result code +CMS ERROR: <err> is returned.

Test command returns lists of memory storages supported by the Terminal Application.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

In order to be backward compatible, the read and test commands for +CPMS do not have quotes around the memory storage values in Mode 14 and 16. All other modes have the required quotes in order to be compliant with the GSM 7.05 spec. The BM folder is only returned as available when the message cell broadcast feature is available.

If DoCoMo feature 13206 is implemented, this command only returns a count of messages in SIM storage "SM" or the "SM" part of memory types that is, "IM", "OM", and "MT". For all other memory types, the message count is 0 regardless of how many messages have been received to that particular memory space.

Usage

Command	Response	Description
+CPMS=<mem1>[, <mem2>[,<mem3>]]	+CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3> +CMS ERROR: <err>	Sets the memory storage.
+CPMS?	+CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>, <mem3>,<used3>,<total3> +CMS ERROR: <err>	Reads current message storage.
+CPMS=?	+CPMS: (list of supported <mem1>s),(list of supported <mem2>s),(list of supported <mem3>s)	Lists all supported memory storage for <mem1>, <mem2>, and <mem3>.

Input Parameters

<mem1>   Memory from which messages are read and deleted.

<mem2>   Memory to which writing and sending are made.

<mem3>   Memory to which receiving SMSs are to be stored.

<mem>	Description	Storage/ Location for <mem1>	Storage/ Location for <mem2>	Storage/ Location for <mem3>
"IM"	Inbox message storage*	IM/NVM&SIM	N/A	IM/msg_specific**
"OM"	Outbox message storage	OM/NVM&SIM	OM/default***	N/A
"DM"	Draft message storage	DM/NVM	DM/NVM	N/A
"BM"	Broadcast message storage	BM/NVM	N/A	N/A
"SM"	SIM message storages	IM&OM/SIM	OM/SIM	IM/SIM
"Mobile Equipment"	NVM message storages	IM&OM&DM&BM/ NVM	OM/NVM	IM/NVM
"MT"	MT messages	IM&OM&DM&BM/ NVM&SIM	OM/default***	IM/msg_specific**

(*) This is the text message inbox only. If the phone has a separate folder for email inbox ("Email Client" feature), this folder is not supported via AT commands.

(**) Msg_specific location means that the location (SIM or NVM) is chosen depending on specific properties of incoming SMS message (class and type).

(***) Default location means that the location (SIM or NVM) is the same as what it was when the phone was powered up.

Output Parameters

<used>   The number of messages stored.

<total>   Total storage space.

Examples

It is assumed that it may be possible to store up to **100** messages in the SIM and the NVM (combined).

1   **In Mode 14 or 16**

AT+MODE=2   {Change to Accessories Mode 2}

OK

+MBAN: *<copyright string>*

AT+CPMS="IM","OM","IM" or AT+CPMS=IM,OM,IM
+CPMS: 2,100,3,100,2,100

OK

AT+CPMS?

+CPMS: IM,2,100,OM,3,100,IM,2,100

OK

AT+CPMS=?

+CPMS: (MT,Mobile Equipment,SM,IM,OM,BM,DM),(MT,Mobile
Equipment,SM,OM,DM),(MT,Mobile Equipment,SM,IM)

OK

2   **In all other modes**

AT+MODE=2   {Change to Accessories Mode 2}

OK

+MBAN: *<copyright string>*

AT+CPMS?

+CPMS: "IM",2,100,"OM",3,100,"IM",2,100

AT+CPMS=?

+CPMS: ("MT","Mobile Equipment","SM","IM","OM","BM","DM"),("MT","Mobile
Equipment","SM","OM","DM"),("MT","Mobile Equipment","SM","IM")

OK

3   **Select a memory storage for <mem1>. <mem2> and <mem3> are not changed**

```
AT+CPMS=MT
+CPMS: 5,100

OK

AT+CPMS=IM
+CPMS: 2,100                  {All the locations of IM storage}

OK

AT+CPMS=Mobile Equipment
+CPMS: 5,100                  {NVM location of IM and OM, DM and BM}

OK

AT+CPMS=SM
+CPMS: 0,100                  {SIM location of IM and OM}

OK

AT+CPMS=OM
+CPMS: 3,100                  {All the locations of OM storage}

OK
```

4   **Change memory stages of <mem1>, <mem2>, <mem3>. IM, OM, BM, DM on SIM and NVM for <mem1>; NVM location of OM for <mem2>; and msg_specific location of IM for <mem3>**

```
AT+CPMS=MT,Mobile Equipment,IM
+CPMS: 5,100,3,100,2,100

OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CPOL   *Preferred Operator List*

Description

Allows a user to edit the SIM preferred network list.

Execute command writes an entry in the SIM list of preferred operators. If <index> is given but <oper> is left out, the entry is deleted. If <oper> is given but <index> is left out, <oper> is put in the next free location. If only <format> is given, the format of the <oper> in the read command is changed. <index> also serves as a priority of the network operator.The first record of the list must always be the home PLMN and it cannot be deleted.

For the read command, if <format>=1 (or 0) and an operator is added to the list in a numeric format, the Subscriber Unit checks to see whether it has a short operator (or long alphanumeric) name stored with this PLMN. If the short operator (or long alphanumeric) name is found, it is displayed in the read command. If not, the PLMN number (in the format it was supplied in the add command) is displayed in the read command.

While performing the delete operation, if the deleted index is not the last operator stored index, then the list automatically collapses so that all inner gaps are eliminated.

While performing the add operation, if <index> is supplied with a value smaller than the last stored operator index, then an attempt is made to store the network operator in the supplied <index> causing a relocation of all the other network operators in the list. If <index> is supplied with a value greater than the (last stored operator index + 1), then the new operator is stored in index (last stored operator index + 1). If there is no free space in the list of preferred network operators, then this command fails.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Section 7.18

Implementation

Optional

Implementation Specific Behavior

This command is only supported on PCMCIA cards. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

This command is supported on platforms that have feature 27586 enabled.

Usage

Command	Response	Description
+CPOL=[<index>][,<format>[, <oper>]]	OK	Adds/deletes preferred list entries; set <format>.
+CPOL?	+CPOL: <index1>,<format>,<oper1>[<CR> <LF>+CPOL:<index2>,<format>, <oper2>[...]]	Returns a list of user preferred operators.
+CPOL=?	+CPOL: (list of supported <index>s),(list of supported <format>s)	Returns a list of supported <index>s and <format>s.

Input Parameters

<format>	Description
0	Long format alphanumeric <oper>.
1	Short format alphanumeric <oper> (not supported).
2	Numeric <oper>.

<index>   Integer value in the range of 1 to Max operators allowed in the SIM.

<oper>   String type; <format> indicates if the format is alphanumeric or numeric. Long alphanumeric format can be up to 16 characters long. Numeric format is the GSM Location Area Identification number that consists of a three BCD digit country code, plus a two or three BCD digit network code based on the value of country code. Returned <oper> is not in BCD format, but in IRA characters converted from BCD.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CPOL=?
+CPOL: (0-33),(0-2)
OK
AT+CPOL?
+CPOL: 0,0,"IL Orange" {Operator at index 0 is home plmn}
+CPOL: 1,0,"IL Cellcom"{Start of user preferred list}
OK
AT+CPOL=2                        {Operator stored at index 2 will be deleted}
OK
```

AT+CPOL=0   {Home plmn cannot be deleted}
ERROR

{Requested operator will be added to the first free location in the user
network preferred list}

AT+CPOL=,2,"42501"

OK

{Operator "Cellcom" will be added at the second location and the existing
operator will be moved to the third location}

AT+CPOL=2,0,"IL Cellcom"

OK

AT+CPOL=,2   {Set format to numeric for read operation}

OK

Spec Reference

3GPP TS 07.07

P2KATCMD

+CPWD Change Password

Description

Sets a new password for the facility lock function.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Section 7.5

3GPP TS 27.007 v5.3.0 Release 5 [19] (for feature 27587)

3GPP TS 07.07 v7.6.0 Release 1998 [18] (for feature 27587)

Implementation

Optional

Implementation Specific Behavior

This command is only supported on a PCMCIA card. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

This command is only supported on platforms that have feature 27586/27587 feature enabled.

Usage

Command	Response	Description
+CPWD=<fac>,<oldpwd>, <newpwd>	OK	
+CPWD=?	+CPWD: list of supported (<fac><pwdlength>)s	Returns a list of pairs representing available facilities and the maximum length of their password.

Input Parameters

<fac>	Description
"P2"	SIM PIN2
"AB"	Changes the call barring password.
"SC"	SIM PIN

<oldpwd>   Old password; string digit type.

<newpwd>   New password; string digit type.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CPWD="SC","1111","2222"      {Successful SIM PIN password change}
OK
AT+CPWD="SC","1234","2222"      {Unsuccessful SIM PIN password change}
ERROR
AT+CPWD=?
+CPWD: ("SC",8),("AB",8),("P2",8)
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CR   Enable Reporting

Description

Set command controls whether or not intermediate result code +CR: <serv> is returned from the Terminal Application to the Terminal Equipment. If enabled, the intermediate result code is transmitted at the point during connect negotiation at which the Terminal Application has determined which speed and quality of service is used, before any error control or data compression reports are transmitted, and before the intermediate result code CONNECT is transmitted.

NOTE: Replaces V.25ter [14] command Modulation Reporting Control +MR, which is not appropriate for use in the GSM network. Possible error control (other than radio link protocol) and data compression reporting can be enabled with V.25ter commands Error Control Reporting +ER and Data Compression Reporting +DR.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Usage

Command	Response
+CR=[<mode>]	
+CR?	+CR: <mode>
+CR=?	+CR: (list of supported <mode>s)

Input Parameters

<mode>

Spec Reference

3GPP TS 27.007 6.9

3GPP TS 07.07

MMINS

+CRC   Cellular Result Codes

Description

Controls the ring indicator. This allows the accessory to select either a simple RING or a more informative +CRING indicator.

Set command controls whether or not the extended format of incoming call indication or GPRS network request for PDP context activation is used. When enabled, an incoming call is indicated to the Terminal Equipment with unsolicited result code +CRING: <type> instead of the normal RING.

Test command returns values supported by the Terminal Application as a compound value.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 6.11

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

Spec compliant.

+CRC: (list of supported <mode>s)

Motorola Range

+CRC: (0-1)

Spec Range

+CRC: (0-1)

Usage

Command	Response	Description
+CRC=[<mode>]		Sets cellular result code state.
+CRC?	+CRC: <mode>	Gets current setting for cellular result code.
+CRC=?	+CRC: (list of supported <mode>s)	Gets possible settings for CRC.

Input Parameters

<mode>	Description
0	Extended format disabled.
1	Extended format enabled.

Examples

```
AT+MODE=2                         {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CRC?
+CRC: 0
OK
AT+CRC=?
+CRC: (0-1)
OK
AT+CRC=1
OK
```

Spec Reference

3GPP TS 27.007 6.11

3GPP TS 07.07

MMINS

+CREG Network Registration

Description

Allows accessories to access the network registration information.

Set command controls the presentation of an unsolicited result code +CREG: <stat> when <n>=1 and there is a change in the Mobile Equipment network registration status, or code +CREG: <stat>[,<lac>,<ci>] when <n>=2 and there is a change of the network cell.

Read command returns the status of result code presentation and an integer <stat> that shows whether the network has currently indicated the registration of the Mobile Equipment. Location information elements <lac> and <ci> are returned only when <n>=2 and Mobile Equipment is registered in the network.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

3GPP 27.007 Section 7.2

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is supported on platforms that have feature 8194 or 13816 enabled. It is also supported on CDMA phones and on PCMCIA cards. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Feature 8194 and 13816 do not support <n>=2 or <stat>=3.

Feature 27586/88 supports <n>=2 and <stat>=3.

Usage

Command	Response	Description
+CREG=[<n>]	OK	Controls the presentation of an unsolicited result code +CREG: <stat> when <n>=1 and there is a change in the MT network registration status, or code +CREG: <stat>[,<lac>,<ci>] when <n>=2 and there is a change of the network cell.
+CREG?	+CREG: <n>,<stat>[,<lac>,<ci>] +CME ERROR: <err>	Returns the status of result code presentation and an integer <stat> that shows whether the network has currently indicated the registration of the MT. Location information elements <lac> and <ci> are returned only when <n>=2 and MT is registered in the network.
+CREG=?	+CREG: (list of supported <n>s)	Returns list of supported <n>s.

Input Parameters

<n>	Description
0	Disables network registration unsolicited result code. It is the default value of <n> for +CREG set command.
1	Enables network registration unsolicited result code +CREG: <stat>.
2	Enables network registration and location information unsolicited result code +CREG: <stat>[,<lac>,<ci>]. *This <n> is only supported on a PCMCIA card. It is not supported for feature 8194 and 13816.* *This <n> is supported feature 27586/88.*

Output Parameters

<stat>	Description
0	Not registered, MT is not currently searching a new operator to register to.
1	Registered, home network.
2	Not registered, but MT is currently searching a new operator to register to.

<stat>	Description
3	Registration denied. *This <stat> is not supported for feature 8194 and 13816.* *This <n> is supported feature 27586/88.*
4	Unknown.
5	Registered, roaming.

<lac>   String type; two byte location area code in hexadecimal format (for example, "00C3" equals 195 in decimal).

<ci>   String type; two byte cell ID in hexadecimal format.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CREG=?
+CREG: (0-1)                     {On non-PCMCIA platforms}
OK
AT+CREG=?


+CREG: (0-2)                     {On PCMCIA card or feature 27586/88 enabled}
OK
AT+CREG=1                        {Enable unsolicited result code}
OK
AT+CREG?
+CREG: 1,1                       {<n>=1,<stat> - registered, home network}
OK
.....
+CREG: 5                         {New <stat> - registered, roaming}
.....
+CREG: 0                         {Now not registered}
AT+CREG=2                        {Enable unsolicited result code on PCMCIA card}
OK
.....
+CREG: 1,2648,988c               {PCMCIA card registered on home network}
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CRES   Restore Settings

Description

Execution command restores message service settings from non-volatile memory to active memory. A Terminal Application can contain several profiles of settings. Settings specified in commands Service Centre Address +CSCA, Set Message Parameters +CSMP, and Select Cell Broadcast Message Types +CSCB (if implemented) are restored. Certain settings may not be supported by the storage (for example, SIM SMS parameters) and therefore can not be restored.

Restores message service settings from non-volatile memory to active memory. A Terminal Application can contain several profiles of settings. Settings specified in commands Service Centre Address +CSCA, Set Message Parameters +CSMP, and Select Cell Broadcast Message Types +CSCB are restored. Certain settings may not be supported by the storage (for example, SIM SMS parameters) and therefore cannot be restored. Currently, AT commands do not support +CSMP.

If the protocol ID (<pid>), data coding scheme (<dcs>) are restored, the +CSMP parameter <fo> is forced to be SMS-SUBMIT (that is, bits 1-0 are set to '01'). In addition, if a validity period is restored <fo> is forced to indicate the relative validity period (that is, bits 4-3 are set to '10'). The rest of the <fo> bits are set to zero. Test command displays supported profile numbers. If profile does not exist, error is returned.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 section 3.3

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on platforms with feature 8194 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported. The command is only available after Mobile Equipment is initialized and has gone into the idle state.

Usage

Command	Response	Description
+CRES[=<profile>]	**If <profile> is supported:** OK **If <profile> is not supported:** ERROR or +CMS ERROR: <err>	Restores message service settings [from <profile>].
+CRES=?	+CRES: (list of supported <profile>s) OK	Shows list of supported profiles.

Input Parameters

<profile> 0 ... 255 manufacturer specific profile number from where settings are to be restored. If it is omitted, 0 is used.

Examples

The example illustrates a session to restore the message parameters from the Mobile Equipment to the Terminal Application and to set up the CBM identifiers that are to be received.

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
{Show the list of supported profiles}
AT+CRES=?
+CRES: (0-1)                     {Only (0-1) are supported by the phone}
OK
{Restore settings from the default profile (<profile>=0)}
AT+CRES
OK
{Restore settings from 1st profile}
AT+CRES=1
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CRLP   *Radio Link Protocol (RLP)*

Description

Parameters used when non-transparent data calls are originated may be altered with this command. Available command subparameters depend on the RLP versions implemented by the device (for example, <ver> may not be available if device supports only versions 0 and 1).

NOTE: If radio link protocol is not used, but some other error correcting protocol (for transparent data calls), V.25ter [14] Error Control Selection test command +ES=? may be used to indicate the presence of the protocol.

Read command returns current settings for each supported RLP version <verx>. Only RLP parameters applicable to the corresponding <verx> are returned.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

Spec ranges defined in 24.022.

+CRLP: (list of supported <iws>s), (list of supported <mws>s), (list of supported <T1>s), (list of supported <N2>s)[,<ver1> [,(list of supported <T4>s)]]

Motorola Range

+CRLP: (010-061),(010-061),(048-255),(006-010)

Usage

Command	Response
+CRLP=[<iws>[,<mws>[,<T1>[,<N2>[,<ver>[,<T4>]]]]]]	
+CRLP?	+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver1>[,<T4>]] [<CR><LF>+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver2>[,<T4>]] [...]]
+CRLP=?	+CRLP: (list of supported <iws>s),(list of supported <mws>s),(list of supported <T1>s),(list of supported <N2>s)[,<ver1>[,(list of supported <T4>s)]] [<CR><LF>+CRLP: (list of supported <iws>s),(list of supported<mws>s),(list of supported <T1>s),(list of supported <N2>s)[,<ver1>[,(list of supported <T4>s)]] [...]]

Spec Reference

3GPP TS 27.007 6.8

3GPP TS 07.07

MMINS

+CSAS   Save Settings

Description

Execution command saves active message service settings to a non-volatile memory. A Terminal Application can contain several profiles of settings. Settings specified in commands Service Centre Address +CSCA, Set Message Parameters +CSMP and Select Cell Broadcast Message Types +CSCB (if implemented) are saved. Certain settings may not be supported by the storage (for example, SIM SMS parameters) and therefore can not be saved.

Test command displays the supported profile numbers for reading and writing of settings.

Saves active message service settings to a non-volatile memory.

Settings specified in commands Service Centre Address +CSCA, Set Message Parameters +CSMP, and Select Cell Broadcast Message Types +CSCB are saved. Certain settings may not be supported by the storage (for example, SIM SMS parameters) and therefore cannot be saved. Currently, AT commands do not support +CSMP.

The SMSC address is not stored if +CSCA is not set or restored during the current session. Data coding scheme (<dcs>), the protocol ID (<pid>) and validity period (<vp>) are not stored if the +CSMP parameter <fo> does not indicate SMS-SUBMIT (that is, bits 1-0 are not '01'). In addition, the validity period is not stored if <fo> does not indicate the relative validity period format (that is bits 4-3 are not '10'). The destination address (<da>) and alpha tag cannot be stored through an AT interface.

NOTE: The values that are not stored should remain intact.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 section 3.3

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on platforms with feature 8194 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported. The command is only available after Mobile Equipment is initialized and has gone into the idle state.

Usage

Command	Response	Description
+CSAS[=<profile>]	**If <profile> is supported:** OK **If <profile> is not supported:** ERROR or +CMS ERROR: <err>	Saves settings to the <profile> in non-volatile memory.
+CSAS=?	+CSAS: (list of supported <profile>s) OK	Shows list of supported profiles.

Input Parameters

<profile>   0 ... 255 manufacturer specific profile number from where settings are to be saved. If it is omitted, 0 is used.

Examples

```
AT+MODE=2           {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
{Show the list of currently supported profiles}
AT+CSAS=?
+CSAS: (0-1)        {Only (0-1) are supported by the phone}
OK
{Save settings to the 1st profile}
AT+CSAS=1
OK                  {Save settings to the default profile (<profile>=0)}
AT+CSAS
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CSCA   *Service Center Address*

Description

Set command updates the service center address, through which mobile originated SMs are transmitted. In text mode, setting is used by send and write commands. In PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into <pdu> parameter equals zero.

This field is required on GSM platform only.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

None.

Usage

Command	Response	Description
+CSCA=<sca>[,<tosca>]		Sets the service center address.
+CSCA?	+CSCA: <sca>,<tosca>	
+CSCA=?		

Input Parameters

<sca>   Service Center Address, represented in a quoted string. Allowed characters are digits and '*', '#', and '+'. Character '+' is only allowed in the beginning of the string. Character conversion takes place based on the currently selected character set. The +CSCS command is used to select the character set.

<tosca>   Type of Service Center Address is the current address format setting.

Examples

AT+MODE=2   {Change to Accessories Mode 2}
OK
+MBAN: *<copyright string>*
AT+CSCA="4252833433"
OK
AT+CSCA?
+CSCA: "4252833433",129
OK

Spec Reference

3GPP TS 07.05

P2KATCMD

+CSCB   *Select Cell Broadcast Message Types*

Description

Set command selects which types of CBMs are to be received by the Mobile Equipment.

Test command returns supported modes as a compound value.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 section 3.3

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on platforms with feature 8194 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported. The command is only available after Mobile Equipment is initialized and has gone into the idle state.

Usage

Command	Response
+CSCB=[<mode>[,<mids>[,<dcss>]]]	OK
+CSCB?	+CSCB: <mode>,<mids>,<dcss> OK
+CSCB=?	+CSCB: (list of supported <mode>s) OK

Input Parameters

<mode>	Description
Selection type, default is 0.	
0	Message types specified in <mids> and <dcss> are accepted.
1	Message types specified in <mids> and <dcss> are not accepted.

Result of set command depends on this parameter. If <mode>=0, <mids>, and <dcss> (if they are valid) is accepted by Mobile Equipment. If <mode>=1, the command excludes <mids> and <dcss> from Mobile Equipment if they were previously marked as "accepted." The number of <mids> sent to Mobile Equipment is limited and depends on the device.

<mid> GSM 03.41 CBM Message Identifier in integer format. <mid> value 65535 inaccessible.

<dcs> Depending on the command or result code: GSM 03.38 Cell Broadcast Data Coding Scheme in integer format.

<mids> String type; all different possible combinations of Cell Broadcast Message message identifiers (refer to <mid>). (Default value is empty string); for example, "0,1,5,320-478,92." The maximum number of <mids> is limited by device. It also depends on maximum allowed active channels in the Mobile Equipment.

<dcss> String type; all different possible combinations of CBM data coding schemes (refer to <dcs>). (Default value is empty string); for example, "0-3,5". Some values of <dcs> are invalid (refer to GSM 03.38).

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
{List of supported <mode>s}
AT+CSCB=?
+CSCB: (0-1)
OK
{Current values of +CSCB}
AT+CSCB?
+CSCB: 0,"",""
OK


{Set acceptable CBMs types}
AT+CSCB=0,"10-65534","0-255"
OK


AT+CSCB?
```

```
+CSCB: 0,"10-25","0-255"
{Only 16 message IDs may be accepted at a time}
OK


{Excluding mids 0-65534 (equivalent to excluding 0-15)}
AT+CSCB=1,"0-65534"
OK


AT+CSCB?
+CSCB: 0,"16-25","0-255"
{Only first 16 mids from 0-65534 were excluded, that is, only 10-15 from range
10-25}
OK


{Empty mids list. dcss list was set to "" too!}
AT+CSCB=0,"","0-255"
OK


AT+CSCB?
+CSCB: 0,"",""
{Empty mids list always means empty dcss list}
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CSCS *Select Character Set*

Description

Selects the character set used on the Subscriber Unit.

Set command informs Terminal Application which character set <chset> is used by the Terminal Equipment. Terminal Application is then able to convert character strings correctly between Terminal Equipment and Mobile Equipment character sets.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 5.5 (mandatory when a command using the setting of this command is implemented).

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

None.

Usage

Command	Response	Description
+CSCS=[<chset>]		Sets character set.
+CSCS?	+CSCS: <chset>	Gets current character set.
+CSCS=?	+CSCS: (list of supported <chset>s)	Gets all character sets supported.

Input Parameters

<chset> (conversion schemes not listed here can be defined by manufacturers):

"GSM" GSM 7 bit default alphabet (3GPP TS 23.038 [25]); this setting causes easily software flow control (XON/XOFF) problems.

"HEX"   Character strings consist only of hexadecimal numbers from 00 to FF. For example, "032FE6" equals three 8-bit characters with decimal values 3, 47 and 230; no conversions to the original MT character set is done.

<chset>	Character Set	Input/Output Format
"ASCII"	ASCII	Quoted string. (For example, "AB" equals two 8-bit characters with decimal values 65, 66.)
"GSM"	GSM default alphabet (GSM 03.38 subclause 6.2.1).	Quoted string.
"UCS2"	Unicode (ISO/IEC 10646 [32])	HEX representation. (For example, 00410042 equals two 16-bit characters with decimal values 65, 66.)
"HEX"	Unicode (ISO/IEC 10646 [14]) for all commands except +CUSD.	HEX representation. (For example, 00410042 equals two 16-bit characters with decimal values 65, 66.)
"UTF8"	8-bit Unicode (ISO 10646 transformation format).	Quoted string[a]
"8859-1"	LATIN (ISO 8859-1)	Quoted string.
"8859-C"	Cyrillic (ISO 8859-5)	Quoted string.
"8859-A"	Arabic (ISO 8859-6)	Quoted string.
"8859-H"	Hebrew (ISO 8859-8)	Quoted string.
"KSC5601"	Korean Hangul (KSC5601-1987)	HEX representation.

a.All ASCII characters are identical in UTF8. However, to represent any other character it requires 2 or more 8-bit characters, see ISO 10646 for more information.

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CSCS=?
+CSCS: ("ASCII","GSM","UCS2","UTF8","8859-1","8859-C","8859-A","8859-
H","KSC5601")
OK
AT+CSCS?
+CSCS: "ASCII"
OK
AT+CPBW=1,"8475763000",129,"Lin Zhao"
OK
AT+CSCS="UCS2"
OK
```

```
AT+CPBR=1

+CPBR: 1, "8475763000",129,004C006E0020005A00680061006F

OK

AT+CSCS="GSM"

OK

AT+CPBR=1

+CPBR: 1, "8475763000",129,"Lin Zhao"

OK

AT+CSCS="UTF8"

OK

AT+CPBR=1

+CPBR: 1, "8475763000",129,"Lin Zhao"

OK
```

{CDMA and non-CDMA platforms displays most accented characters differently when switching between UCS2 and ASCII character sets. In CDMA, an accented character is converted to the nearest ASCII base character, but for non-CDMA platforms, the character is converted to a space.}

```
AT+CSCS="UCS2"

OK

AT+CPBW=1,"8475763000",129,"00C2" {"00C2" = Â}

OK

AT+CSCS="ASCII"

OK
```

{CDMA platform}

```
AT+CPBR=1

+CPBR: 1, "8475763000",129,"A"            {Converted to nearest ASCII}

OK
```

{non-CDMA platform}

```
AT+CPBR=1

+CPBR: 1, "8475763000",129," "            {Converted to space}

OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CSDH   *Show Text Mode Parameters*

Description

Set command controls whether detailed header information is shown in text mode result codes.

Test command returns supported values as a compound value.

Controls whether detailed header information is shown in the text mode result code. For SMS-DELIVERs and SMS-SUBMITs in result code for commands +CMGR and +CMGL, the detailed header information contains <sca>, <tosca>, <fo>, <vp>, <pid>, <dcs>, <length>, <toda>, and <tooa>; for SMS-COMMANDs in +CMGR result code, the detailed header include <pid>,<mn>,<da>,<toda>,<length>, and <cdata>.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Mandatory when text mode implemented.

Implementation Specific Behavior

None.

Usage

Command	Response	Description
+CSDH=[<show>]		
+CSDH?	+CSDH: <show>	Reads current value for <show>.
+CSDH=?	+CSDH: (list of supported <show>s)	Lists all supported values for <show>.

Input Parameters

<show>	Description
0	Not to show header values.
1	Shows the header value in result codes.

Examples

```
AT+MODE=2                       {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CSDH=0
OK
AT+CSDH?
+CSDH: 0
OK
AT+CSDH=?
+CSDH: (0)
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CSMS   *Select Message Service*

Description

Set command selects messaging service <service>. It returns the types of messages supported by the Mobile Equipment: <mt> for mobile terminated messages, <mo> for mobile originated messages, and <bm> for broadcast type messages. The only supported service value is manufacturer specific (128), all 3 messages types are supported. If chosen, service is not supported by the Mobile Equipment (but is supported by the Terminal Application), final result code +CMS ERROR: <err> is returned.

Read command returns supported message types along the current service setting.

Test command returns a list of all services supported by the Terminal Application.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.05 version 6.0.0

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

None.

Usage

Command	Response	Description
+CSMS=<service>	+CSMS: <mt>, <mo>, <bm> +CMS ERROR: <err>	Sets the type of service and returns the types of messages supported by Mobile Equipment.
+CSMS?	+CSMS: <service>, <mt>, <mo>, <bm>	Returns supported message types along with the current service setting.
+CSMS=?	+CSMS: (list of supported <service>s)	Returns a list of all services supported by the Terminal Application.

Input Parameters

\<service\>   Integer that defines the type of service. Values 1 to 127 are not supported, the only supported service value is 128 (manufacturer specific).

Output Parameters

\<mt\>,\<mo\>,\<bm\>	Description
0	The type is not supported by the Mobile Equipment.
1	The type is supported by the Mobile Equipment.

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CSMS=128
+CSMS: 1,1,1
OK
AT+CSMS?
+CSMS: 128,1,1,1
OK
AT+CSMS=?
+CSMS: (128)
OK
```

Spec Reference

3GPP TS 07.05

P2KATCMD

+CSQ   *Signal Quality*

Description

Execution command returns received signal strength indication <rssi> and channel bit error rate <ber> from the Mobile Equipment.

Derivation

USB - DUN (Dial-Up Networking via USB)

3GPP TS 07.07 v7.6.0 Release 1998 [18]

3GPP TS 27.007 v5.3.0 Release 5 [19]

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

Spec compliant. This command is only supported on platforms that have feature 27586 enabled.

+CSQ: (list of supported <rssi>s), (list of supported <ber>s)

Motorola Range

+CSQ: (0-31, 99), (0-7, 99)

Spec Range

+CSQ: (0-31, 99), (0-7, 99)

Usage

Command	Response
+CSQ	+CSQ: <rssi>,<ber>
	+CME ERROR: <err>
+CSQ=?	+CSQ: (list of supported <rssi>s),(list of supported <ber>s)

Spec Reference

3GPP TS 27.007 8.5

3GPP TS 07.07

MMINS

+CSSN   Enable/Disable Supplementary Service Notification

Description

Enables/disables supplementary service related network initiated notifications in the form of unsolicited result codes +CSSI and +CSSU from Subscriber Unit to Terminal Equipment.

When <n>=1 and a supplementary service notification is received after a mobile originated call setup, intermediate result code +CSSI: <code1> is sent to Terminal Equipment. One supplementary service notification may contain more than one indication. In such a case, each indication is displayed with a separate +CSSI result code.

When <m>=1 and a supplementary service notification is received during a mobile terminated call setup or during a call, unsolicited result code +CSSU:<code2> is sent to Terminal Equipment. In case of MT call setup, result code is sent after every +CLIP result code and when several different <code2>s are received from the network, each of them has its own +CSSU result code.

The default value for <n> and <m> is 0. <index> is only output in the case of closed user group calls.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 7.07 Section 7.16

Implementation

Optional

Implementation Specific Behavior

This command is only supported on a PCMCIA card. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
+CSSN=[<n>[,<m>]]	**Unsolicited result code when <n>=1** +CSSI: <code1>[,<index>] **Unsolicited result code when <m>=1** +CSSU: <code2>[,<index>[,<number>, <type>[,<subaddr>, <satype>]]]	Enables/disables supplementary service notification.
+CSSN?	+CSSN: <n>,<m>	Reads the status of supplementary service notification variables.
+CSSN=?	+CSSN: (list of supported <n>s),(list of supported <m>s)	Lists the valid values for parameters <n> and <m>.

Input Parameters

<n>,<m>   0 disables presentation of the appropriate result code (<n> for +CSSI, <m> for +CSSU), and 1 enables the presentation of the same result code.

Table 1: CSSI Values

Supplementary Service Notification	Result Code	Description
Some Unconditional call forwarding is active	+CSSI: 0	Indicates during a MO call setup that there is some call forwarding such as answering machine diversion present.
Some of the conditional call forwarding is active	+CSSI: 1	Indicates during a MO call setup that all incoming calls will be forwarded as planned.
Call has been forwarded	+CSSI: 2	Indicates during a MO call setup that the current call is being forwarded to a different number then the dialed number by the original designated number.
Call is waiting	+CSSI: 3	Indicates during a MO call setup that the call is in call waiting status at the designated side.
Closed User Group	+CSSI: 4	Indicates during a MO call setup that the designated number belongs to a closed user group, the <index> identifying the group is also displayed.
Outgoing calls are barred	+CSSI: 5	Indicates during a MO call setup that all outgoing calls are barred and therefore the current call fails.
Incoming calls are barred	+CSSI: 6	Indicates during a MO call setup that the designated number has incoming call barring active and therefore the current call fails.
CLIR Suppression rejected	+CSSI: 7	Indicates during a MO call setup that the request to restrict the presentation of the calling number (not display) on the receiving side was rejected by the network.

Table 2: CSSU Values

Supplementary Service Notification	Result Code	Description
This is a forwarded call	+CSSU: 0	Indicates during a MT call setup that the incoming call has been forwarded to this number by a third party.
Closed User Group	+CSSU: 1	Indicates during a MT call setup that the incoming call belongs to a closed user group, the <index> identifying the group is also displayed.
Call has been put on hold (during a voice call)	+CSSU: 2	Indicates during a voice call that the other caller has placed the current call on hold.
Call has been retrieved	+CSSU: 3	Indicates during a voice call that the current call that was previously placed on hold is now retrieved.
Multiparty call entered	+CSSU: 4	Indicates during a voice call that the current call was linked to a conference call.
Call on hold has been released	+CSSU: 5	Indicates during a voice call that a call that was currently on hold has terminated the connection.
Forward Check	+CSSU: 6	
Explicit Call transfer 1	+CSSU: 7	Indicates during a voice call that the call is being connected to a third party in alerting state.
Explicit Call Transfer 2	+CSSU: 8	Indicates during a voice call or during MT call setup that the call has been connected to a third party, <number>, and <sub-addr> may be present.

Examples

```
AT+MODE=2                    {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CSSN=1,1                  {Enable both +CSSI & +CSSU}
OK
AT+CSSN?                     {Query status of supplementary service
notification variables}
AT+CSSN: 1,1                 {+CSSI and +CSSU are enable}
OK
AT+CSSN=1                    {Enable +CSSI, +CSSU defaults to 0 if not
                             specified (even if it was enabled earlier)}
OK
AT+CSSN=,1                   {<m> cannot be specified without specifying <n>}
ERROR
AT+CSSN                      {<n> and <m> are not specified}
OK
AT+CSSN?                     {<n> and <m> are set to their default values}
```

```
AT+CSSN: 0,0
OK
AT+CSSN=?
+CSSN:(0-1),(0-1)
OK
+CSSI: 0                        {Unconditional call forwarding is active}
+CSSI: 2                        {Call has been forwarded}
+CSSI: 5                        {Outgoing calls are barred}
+CSSU: 0                        {This is a forwarded call (MT call setup)}
+CSSU: 3                        {Call has been retrieved (during a voice call)}
+CSSU: 4                        {Multiparty call entered (during a voice call)}
+CSSU: 5                        {Call on hold has been released (during a voice
call)}
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CSTA   *Select Type of Address*

Description

Set command selects the type of number for further dialling commands (D) according to GSM specifications.

Test command returns values supported by the Terminal Application as a compound value.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Usage

Command	Response
+CSTA=[<type>]	
+CSTA?	+CSTA: <type>
+CSTA=?	+CSTA: (list of supported <type>s)

Input Parameters

<type>   The type of address octet in integer format. Default value is 145 when dialing string includes international access code character "+", otherwise 129.

Spec Reference

3GPP TS 07.07

MMINS

+CUSD *Unstructured Supplementary Service Data*

Description

Sends USSD Strings to the network (either mobile originated requests or in response to a network initiated request). It also reports USSD Strings from the network as part of an unsolicited result code, if that reporting is enabled.

Allows control of the Unstuctured Supplementary Service Data (USSD). Both network and mobile initiated operations are supported. Parameter <n> disables/enables the presentation of an unsolicited result code (USSD response from the network or network initiated operation) +CUSD: <m>[,<str>,<dcs>] to the Terminal Equipment. In addition, value <n>=2 cancels an ongoing USSD session.

When <str> is given, a mobile initiated USSDstring or a response USSDstring to a network initiated operation is sent to the network. The response USSDstring from the network is returned in a subsequent unsolicited +CUSD result code.

NOTE: In case of successful mobile initiated operation, Terminal Application implemented according to a version prior to 6 of the present document, waits the USSD response from the network and sends it to the Terminal Equipment before the final result code. This blocks the AT command interface for the period of the operation. Such Terminal Application does not support <n> value 2.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 7.07 Section 7.14

3GPP TS 07.07: AT command set for GSM Mobile Equipment (ME) v7.6.0[20] (for 27587 feature)

3GPP TS 27.007: AT command set for 3G User Equipment (UE) v5.3.0 Release 5 [19]

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

This command is only supported on 3G and GSM platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported. This command is also supported on platforms where 27587 feature is implemented.

Usage

Command	Response
+CUSD=[<n>[,<str>[,<dcs>]]]	OK
	+CUSD: <m>[,<str>,<dcs>]
	+CME ERROR: <err>
+CUSD?	+CUSD: <n>
+CUSD=?	+CUSD: (list of supported <n>s)

Input Parameters

<n>	Description
0	Disables result code presentation.
1	Enables result code presentation.
2	Cancels session (not applicable to read command response). For set command with <n>=2 specified, no values should be entered for <str> and <dcs>.

<str>   If <dcs> indicates that a 7 bit default encoding is used, <str> is read or written based off of the current +CSCS setting, unless that setting is "HEX". If +CSCS is set to "HEX", the characters are read/written just as if <dcs> were set to a GSM 8 bit encoding, except more characters are allowed.

<dcs>   Data Coding Scheme. This is an 8-bit decimal value indicating how <str> is encoded (Default value is 0). Compressed data and messages having a message class are not supported and results in an error.

If <dcs> indicates that a GSM 8 bit scheme is used, then each 8 bit character in <str> is converted to a two character long IRA hexadecimal encoding, no matter what the current +CSCS setting is.

If <dcs> indicates that UCS2 is used, then <str> is read or written just as if +CSCS were set to "UCS2" no matter what the current +CSCS setting is.

Output Parameters

<m>	Description
0	No further user action required.
1	Further user action required.
2	USSD terminated by network.

<m>	Description
3	Other local client has responded (no USSD or DCS output).
4	Operation not supported (no USSD or DCS output).
5	Network time out (no USSD or DCS output).

Examples

```
AT+MODE=2                        {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+CUSD=?
+CUSD: (0-2)
OK
AT+CUSD?
+CUSD: 0
 OK
AT+CUSD=1
 OK
AT+CSCS="ASCII"
OK
AT+CUSD=1,"#646#",64          {Sends a USSD Request in GSM 7 bit format}
OK
+CUSD: 0,"As of 5/19 you have 19 whenever minutes",64

AT+CUSD=1,2336343623,68       {Sends a USSD Request in GSM 8 bit format - CSCS
is ignored}
OK
+CUSD: 0,"As of 5/19 you have 19 whenever minutes",64
{The <dcs> in the above reply is determined by the network and is not
necessarily the same <dcs> that the request was sent with}
AT+CUSD=2,"#646#",64
ERROR                         {When canceling, <str> and <dcs> should not be
supplied}
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+CVHU   Hang Up Voice Call

Description

All versions terminate an active call in progress whether if it is a data or voice call, regardless whether the accessory started the call or not. Emergency calls are expected to be handled by the other layers, thus if the call should not be hung up, an error message is expected.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 section 6.5 and 6.19, ISO-707A.3 section 4.5.8

Implementation

Optional

Implementation Specific Behavior

GSM (Group Special Mobile) phones actually send a "release" to the network, as well as stop ringing and cause the display to go back to idle. CDMA and TDMA phones do not have the capability to send a "release" to the network, but the user interface acts the same way as GSM.

This command is only supported on 3G and Telematics platforms, and Bluetooth enabled GSM platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response
+CVHU	Hangs up voice call.

Examples

```
AT+MODE=2                                    {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
```

While the phone is in a call

ATH

OK   {Call has been terminated}

While the phone is ringing

RING

AT+CHUP

OK   {Call has been rejected}

When there is no active call

ATH

OK

AT+CHUP

OK

Spec Reference

3GPP TS 07.07

P2KATCMD

+FCLASS   Select Mode

Description

Puts the Terminal Application into a particular mode of operation (data, fax, voice, etc.). This causes the Terminal Application to process information in a manner suitable for that type of information (rather than for other types of information).

Voice mode is of particular interest here and has an additional result code +VCON. Specifically, +VCON indicates that the Terminal Application is entering the voice command mode and there is a voice connection to at least one audio input or output. This pre-supposes that some mechanism has previously initiated a connection to that audio I/O.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Complies to spec but underloaded — Motorola does not support all modes.

Motorola Range

A1000 only supports mode 0 (data). E1000 does not support modes 0 (data) and 1 (fax class 1).

Spec Range

Modes 0,1,1.0,2,2.0,8,80.

Usage

Command	Response
+FCLASS=<n>	
+FCLASS?	<n>
+FCLASS=?	(list of supported <n>s)

Spec Reference

3GPP TS 27.007 C.2.1

3GPP TS 07.07

MMINS

+FLO   Flow Control Mode

Description

Sets the flow control mode for Fax.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Command not in spec

Motorola Range

value (0-2)

+FLO = 0	Turns off flow control.
+FLO = 1	Selects DC1/DC3 flow control.
+FLO = 2	Selects Ckt 106/133 flow control.

Spec Reference

ITU T.31

MMINS

+FMI Request Manufacturer Identification

Derivation

USB - DUN (Dial-Up Networking via USB)

+FMI: T.31

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Same definition as +GMI

Examples

```
AT+MODE=2                    {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+FMI
+FMI: "Motorola CE, Copyright 2000"
OK
```

Spec Reference

ITU T.31

P2KATCMD

+FMM   *Request Model Identification*

Description

Returns the same data as +CGMM and +GMM, with a different header (+FMM).

Derivation

USB - DUN (Dial-Up Networking via USB)

+FMM: T.31

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Same definition as +GMM

Examples

```
AT+MODE=2                       {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+FMM
+FMM: "GSM900","GSM1800","GSM1900","MODEL=280"
```

Spec Reference

ITU T.31

P2KATCMD

+FMR

Derivation

USB - DUN (Dial-Up Networking via USB)

+FMR: T.31

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Same definition as +GMR.

This version string is likely to be platform dependent.

Examples

```
AT+MODE=2                    {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+FMR
+FMR: "PHX4_G_0F.0DI"
```

Spec Reference

ITU T.31

P2KATCMD

+FPR

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Currently not in the spec and not supported in MOT 3G User Equipments.

Spec Reference

ITU T.31

MMINS

+FRH   *HDLC Receive*

Description

The command +FRH = <MOD> causes the DCE (Data Communications Equipment) to receive HDLC (High Level Data Link Control) framed data using the modulation mode selected in <MOD> and delivers the next received frame to the DTE (Data Terminal Equipment).

If the DCE detects the selected carrier with an HDLC flag, the DCE sends the CONNECT result code to the DTE. When the selected carrier is detected, the DCE sends the CONNECT result code to the DTE. If a different signal is detected and +FAR = 0, the DCE sends a +FCERROR result code to the DTE and return to command state, if +FAR = 1. The DCE returns to command state upon loss of carrier, sending the NO CARRIER result code to the DTE.

The DCE strips flags, and receives and buffers frames. The received data, starting with the first nonflag octet and continuing through the last FCS octet is transferred to the DTE. The DTE may ignore the value of the FCS octets. The DCE performs HDLC zero-bit deletion and error checking. The DCE filters the data stream.

After the FCS octets are transferred, the DCE marks the end of the frame with the characters <DLE>=<ETX>, and report the status of the frame reception to the DTE:

a   if the frame was received correctly (FCS is OK), the DCE returns the OK result code;

b   if the frame was received in error (FCS is not OK, or carrier lost, or data lost due to data overflow), the DCE returns the ERROR result code; the DTE should discard the frame.

After the status result code, the DCE accepts new commands from the DTE.

The DCE obeys the configured flow control from the DTE. If the DTE sends any character to the DCE other than DC1 or DC3 while the DCE is in this mode, the DCE enters command state and return the OK result code, and may discard any buffered data.

After sending the result code indicating that frame reception is complete, the DCE continues to receive and buffer data in the selected mode. If the DTE issues another +FRH = <MOD> command, the DCE returns another CONNECT result code and continue with HDLC reception. If the DTE issues any command that changes modulation, the DCE stops the receive process; any buffered data is discarded and the command is obeyed.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory values: 3

Public

Implementation Specific Behavior

Currently not in the spec and not supported in MOT 3G User Equipments.

Spec Reference

ITU T.31

MMINS

+FRM   *Facsimile Receive*

Description

The command +FRM = <MOD> causes the DCE (Data Communications Equipment) to enter receive mode using the modulation specified in <MOD>.

When the selected carrier is detected, the DCE sends the CONNECT result code to the DTE (Data Terminal Equipment). If a different signal is detected and +FAR = 0, the DCE sends a +FCERROR result code to the DTE and return to command state.

The DCE transfers all received data patterns to the DTE as consecutive start-stop framed octets, including leading Marking condition or Flags. The DCE marks the end of the stream with the <DLE>=<ETX> characters. The DCE filters data streams.

The DCE returns to command state upon loss of carrier and sends the NO CARRIER result code to the DTE.

The DCE obeys the configured flow control from the DTE. If the DTE sends any character to the DCE other than DC1 or DC3 while the DCE is in this mode, the DCE enters command state and sends the OK result code to the DTE.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory values: 24, 48

Public

Implementation Specific Behavior

Currently not in the spec and not supported in MOT 3G User Equipments

Usage

Command	Response	Description
+FRM = <MOD>		

Spec Reference

ITU T.31

MMINS

+FRS   *Receive Silence*

Description

The command +FRS = <Time> causes the DCE (Data Communications Equipment) to listen and to report back an OK result code when silence has been present on the line for the amount of time specified. The value <Time> is in 10 millisecond intervals. The command terminates when the required amount of silence on the line is detected or when the DTE (Data Terminal Equipment) sends the DCE another character other than DC1 (0/1) or DC3 (0/3), which is discarded. In either event, the OK result code is returned to the DTE.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory values: 0-255

Public

Implementation Specific Behavior

Currently not in the spec and not supported in MOT 3G User Equipments

Usage

Command	Response	Description
+FRS = <Time>		

Spec Reference

ITU T.31

MMINS

+FTH *HDLC Transmit*

Description

The command +FTH = <MOD> causes the DCE (Data Communications Equipment) to transmit data framed in HDLC (High Level Data Link Control) protocol using the modulation mode selected.

The DCE sends the CONNECT result code to the DTE (Data Terminal Equipment) and transmits signal converter training (if required), followed by flags until the first octet of data is sent by the DTE. During execution of the +FTH command, the DCE issues the CONNECT result code at the beginning of transmission of the training pattern for the selected modulation scheme rather than at the end of training.

The DCE decodes the data stream. The DCE detects the <DLE>=<ETX> characters as a data stream terminator.

When the buffer becomes empty, the DCE computes and appends the Frame Check Sequence (FCS) and a closing flag to the frame. The DCE ensures that the minimum number of flags are sent before the DTE begins to transmit data. Note that the DTE should always indicate the end of transmitted HDLC frames by appending the <DLE>=<ETX> sequence.

The DCE checks the Final Frame bit in the control field of each frame; this is the 5th received bit of the second octet of each frame. If the Final Frame bit is 1, the DCE ceases transmitting after the frame is sent, returns to command state, and sends the OK result code to the DTE. If the Final Frame bit is 0, the DCE sends the CONNECT result code to the DTE and continues to transmit flags until one of the following actions is taken by the DTE:

a   if the DTE sends additional data, the DCE transmits another frame;

b   if the DTE sends only <DLE>=<ETX> (a null frame), the DCE turns off transmit carrier and sends the OK result code to the DTE;

c   if five seconds elapses from the time when the DCE reported the CONNECT result code without any additional data transmitted from the DTE, the DCE turns off transmit carrier, returns to command mode, and sends the ERROR result code to the DTE.

The DCE performs HDLC transparency functions and FCS generation while in this mode.

The DCE buffers data in HDLC transmit mode. The DCE uses the configured method of flow control to pause the DTE as necessary.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory values: 3

Public

Implementation Specific Behavior

Currently not in the spec and not supported in MOT 3G User Equipments

Usage

Command	Response	Description
+FTH = <MOD>		

Spec Reference

ITU T.31

MMINS

+FTM   *Facsimile Transmit*

Description

The command +FTM = <MOD> causes the DCE (Data Communications Equipment) to transmit data using the modulation selected in <MOD>.

The DCE returns the CONNECT result code and transmits the proper training sequence in the selected mode, followed by constant 1 bits until data is received from the DTE (Data Terminal Equipment). During execution of the +FTM command, the DCE issues the CONNECT result code at the beginning of transmission of the training pattern for the selected modulation scheme rather than at the end of training.

The DCE detects <DLE>=<ETX> characters as data stream terminators. The DCE filters the data stream.

The DCE buffers data in this mode. The configured flow control method is used by the DCE as necessary to pause the DTE.

If the DCE's transmit buffer becomes empty and the last transmitted character is IRA NUL (00), the DCE continues to transmit NULs until the DTE sends more data or five seconds elapses. After five seconds elapse with an empty transmit buffer, the DCE turns off transmit carrier and returns to command state, returning the ERROR result code.

If the DCE's transmit buffer becomes empty and the last transmitted character was not NUL, the DCE turns off transmit carrier, returns to command state, and sends the OK result code to the DTE.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory values: 24, 48

Public

Implementation Specific Behavior

Currently not in the spec and not supported in MOT 3G User Equipments

Usage

Command	Response	Description
+FTM = <MOD>		

Spec Reference

ITU T.31

+FTS Transmit Silence

Description

The command +FTS = <Time> causes the DCE (Data Communications Equipment) to stop any transmission. The DCE then waits for the specified amount of time and then sends the OK result code to the DTE (Data Terminal Equipment). The value <Time> is in 10 millisecond intervals.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory values: 0-255

Public

Implementation Specific Behavior

Currently not in the spec and not supported in MOT 3G User Equipments.

Usage

Command	Response	Description
+FTS = <Time>		

Spec Reference

ITU T.31

MMINS

+GCAP   Request Complete User Equipment Capabilities List

Description

Requests complete User Equipment capabilities list. This extended-format command causes the DCE (Data Communications Equipment) to transmit one or more lines of information text in a specific format. The content is a list of additional capabilities command +<name>s, which is intended to permit the user of the DCE to identify the overall capabilities of the DCE.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

Complies to spec but underloaded.

Range of +<name>s

Motorola Range

+FCLASS

Spec Range

+FCLASS,+MS,+MV18S, +ES,+DS

Spec Reference

ITU-T V.25

MMINS

+GMI   *Request Manufacturer Identification*

Description

Returns the name of the manufacturer as an alphanumeric string. Note that while the actual values returned differ from one manufacturer to the next, units manufactured by the same manufacturer should all return the same response no matter when the product information has been provided and no matter what the version of the product.

Returns the same information as +CGMI, with a different header (+GMI).

Derivation

USB - DUN (Dial-Up Networking via USB)

+GMI: GSM 07.07 section 5.8, v.25 section 6.1.4 (mandatory)

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

DoCoMo specific version.

UsageOutput Parameters

\<manufacturer\>   The name of the manufacturer, as an alphanumeric string.

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+GMI
+GMI: "Motorola CE, Copyright 2000"
OK
AT+GMI?
ERROR
AT+GMI=?
OK
```

Spec Reference

ITU-T V.25

P2KATCMD

+GMM   Request Model Identification

Description

Returns the model number of a mobile unit.

Returns the same data as +CGMM, with a different header (+GMM).

Derivation

USB - DUN (Dial-Up Networking via USB)

+GMM: GSM 07.07 section 5.8, v.25 section 6.1.5 (mandatory)

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

DoCoMo specific version. For Electra, the output string is "FOMA M2501 HIGH SPEED".

UsageOutput Parameters

<model>   The model number of a mobile unit, as an alphanumeric string.

Examples

```
AT+GMM
FOMA 70xiG (For example: FOMA 701iG)
OK
AT+GMM?
ERROR
AT+GMM=?
OK
```

Spec Reference

ITU-T V.25

P2KATCMD

+GMR

Derivation

USB - DUN (Dial-Up Networking via USB)

+GMR: GSM 07.07 section 5.8, v.25 section 6.1.6 (mandatory)

Implementation

Supported AT command on Mode 0.

Mandatory

Implementation Specific Behavior

This version string is likely to be platform dependent.

Spec Reference

ITU-T V.25

P2KATCMD

+IFC

Description

Sets the local flow control setting between Terminal Equipment and MS.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

Motorola Range

+IFC: (0-3),(0-2)

Spec Range

+IFC: (0-3), (0-2)

Spec Reference

ITU-T V.25

MMINS

+IPR

Description

Specifies the data rate at which the DCE (Data Communications Equipment) accepts commands.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Optional

Implementation Specific Behavior

Motorola Range

+IPR: (0-115200)

Spec Range

Any range that DCE allows.

Spec Reference

ITU-T V.25

MMINS

+TCFG

Description

Manipulates registers that enable logging to terminal. This is used for testing GSM Data.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Spec Reference

MMINS

+VGR   Receive Gain Selection

Description

Refers to the amplification by the Terminal Application of audio samples sent from the Terminal Application to the computer. The command operates on an integer <n>, range 0...255. Values larger than 128 indicate a larger gain than nominal. Values less than 128 indicate a smaller gain than nominal. The entire range of 0...255 does not have to be provided. A value of zero implies the use of automatic gain control by the Terminal Application.

This refers to the amplification by the Terminal Application of audio samples sent from the Terminal Application to the computer.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

3GPP 27.007 Section Annex C: Command from TIA-IS 101

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

This command is only supported on platforms that have feature 8194 enabled. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
+VGR=<n>		
+VGR?	<n>	Reads the current value set for <n>.
+VGR=?	(list of supported <n>s)	The possible values of <n>.

Input Parameters

<n>	Description
n = 0	Automatic gain control. (The default value is 128.)
n = 128	Nominal level for receive gain from microphone.
n > 128	Increase gain above nominal level.
n < 128	Decrease gain below nominal level.

Examples

```
AT+MODE=2                    {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+VGR=129
OK
AT+VGR?
+VGR: 129
OK
AT+VGR=?
+VGR: (0,125-132)
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+VGT *Transmit Gain Selection*

Description

Refers to the amplification by the Terminal Application of audio samples sent from the computer to the Terminal Application. The command operates on an integer <n>, range 0...255. Values larger than 128 indicate a larger gain than nominal. Values less than 128 indicate a smaller gain than nominal. The entire range of 0...255 does not have to be provided. A value of zero implies the uses of automatic gain control by the Terminal Application.

This refers to the amplification by the Terminal Application of audio samples sent from the computer to the Terminal Application.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

3GPP 27.007 Section Annex C: Command from TIA-IS 101

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

This command is only supported on V600 and on E1000. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
+VGT=<n>		
+VGT?	<n>	Reads the current value set for <n>.
+VGT=?	(list of supported <n>s)	The possible values of <n>.

Input Parameters

\<n\> Integer type (0,125-132).

\<n\>	Description
n = 0	Automatic volume control. (The default value is 128.)
n = 128	Nominal volume level for sending to speaker.
n > 128	Increase volume above nominal level.
n < 128	Decrease volume below nominal level.

Examples

```
AT+MODE=2                          {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+VGT=125
OK
AT+VGT?
+VGT:125
OK
AT+VGT=?
+VGT:(0,125-132)
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+VTD   *Set Default Tone Duration*

Description

Sets the value of an integer <duration>, which defines the length of tones emitted as a result of the +VTS command. A value different than zero causes a tone of duration <duration>/10 seconds. The value zero causes a "manufacturer specific" value to be used.

NOTE: In GSM, the value of tone duration is preset and cannot be altered.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Annex C.2.12

Implementation

Supported AT command on Mode 0.

Public

Mandatory if +VTS is implemented

Implementation Specific Behavior

This command is only supported on 3G and Telematics platforms, and Bluetooth enabled GSM platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
+VTD=<duration>	ERROR +CME ERROR: <err>	Sets the value of <duration>.
+VTD?	<duration>	Reads the current value set for <duration>.
+VTD=?	(list of supported <duration>s) +VTD: (0-600)	Tests the possible values of <duration>.

Input Parameters

<duration>   An unsigned integer (0-600) in units of 100 milliseconds; the default value is set to be 3, which is 0.3 seconds; the value 0 causes default value to be used.

Examples

```
AT+MODE=2                       {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
AT+VTD=?
+VTD: (0-600)
AT+VTD?
+VTD: 3
AT+VTD=600
OK
AT+VTD?
+VTD: 600
```

Spec Reference

3GPP TS 07.07

P2KATCMD

+VTS   DTMF and Tone Generation

Description

Allows the transmission of DTMF tones and arbitrary tones. These tones may be used (for example) when announcing the start of a recording period. The command is write only. In this profile of commands, this command does not operate in data or fax modes of operation (+FCLASS=0,1,27).

NOTE: D is used only for dialing.

The string parameter of the command consists of combinations of the following, separated by commas:

1   <DTMF>. A single ASCII character in the set 09, #,*,AD. This is interpreted as a single ACSII character whose duration is set by the +VTD command.

In GSM, this operates only in voice mode.

2   [<tone1>,<tone2>,<duration>]. This is interpreted as a dual tone of frequencies <tone1> and <tone2>, lasting for a time <duration> (in 10 ms multiples).

This does not operate in GSM.

3   {<DTMF>,<duration>}. This is interpreted as a DTMF tone of different duration from that mandated by the +VTD command.

In GSM, this operates only in voice mode.

Allows the transmission of a list of specified DTMF tones. Tones is played only if the MS is currently in an active call or in a MO establishing call state; otherwise an error is returned. Once the command has been accepted and processed, it is not interruptible by other key presses. Thus, the command is not holding up processor time that would prevent other operations to be carried out while the tone is being transmitted. GSM valid phone number characters A, B, C, and D is not supported by this command.

The command allows the specification of a duration, in units of 100 milliseconds, for the specified DTMF tone to be transmitted. This duration value can be individually set to a default value (for the use of this command) by the command +VTD.

When the tone specified in the command has been started, the tone is only stopped either when the duration (given in the command or the saved value that is controlled by the command +VTD) has expired or when a stop DTMF tone command, +MVTSP, has been received for the currently playing tone.

NOTE: Make sure that command is running from Accessories Mode +MODE = 2. P2K phones default to +MODE = 0 on power-up.

Derivation

USB - DUN (Dial-Up Networking via USB)

GSM 07.07 Annex C.2.11

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

This command is only supported on 3G and Telematics platforms, and Bluetooth enabled GSM platforms. On all other platforms, this command responds with a +CME error indicating that the operation is not supported.

Usage

Command	Response	Description
+VTS=<DTMFtone>[,<duration>]	ERROR +CME ERROR: <err> An error is returned if the MS is not in an active call and a MO is not establishing call state.	Transmits the specified DTMF tone and optionally set the duration for this transmission.
+VTS?	+VTS: (the <DTMFtone> currently being transmitted) +CME ERROR: <err>, if no tone is currently being transmitted.	Reads the tone value currently being transmitted.
+VTS=?	(list of supported <tone1>s),(list of supported <tone2>s),(list of supported <duration>s) +VTS: (list of <DTMFtone>s),(0 - 600)	Tests the possible values of the parameters.

Input Parameters

<DTMFtone> The equivalent tones for the ASCII characters {0-9,#,*}, either enclosed in quotation marks or not.[1]

<duration> An unsigned integer (0-600) in units of 100 milliseconds.

Examples

```
AT+MODE=2                       {Change to Accessories Mode 2}
OK
+MBAN: <copyright string>
```

---

1. The GSM 07.07 specification is ambiguous with respect to the use of quotation marks with the +VTS command. For this reason, +VTS has been implemented to accept the <DTMF tone> ASCII character both quoted and unquoted.

```
AT+VTS=?
+VTS: ("0","1","2","3","4","5","6","7","8","9","*","#"),(0 - 600)
OK
{... the phone is in an active call ...}
AT+VTS="8",500
OK
{... the tone is currently transmitted ...}
AT+VTS?
+VTS: 8
OK
AT+VTS="*"
OK
```

Spec Reference

3GPP TS 07.07

P2KATCMD

ATA   Receiving a Data Call

Description

Instructs the modem to be the "answering modem." Either party may be the answering or the originating modem, but both parties cannot be the same modem at the same time.

You hear the modem handshake and see the result code "CONNECT."

NOTE: Outgoing Voice Call during CSD (Circuit Switched Data) Call, when switching to Command mode. If using Dial Command to make Outgoing Voice Call, currently active CSD Call is dropped and the new Voice Call is generated.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Spec Reference

ITU-T V.25

MMINS

ATDL

Description

Initial Response - Last Number retrieved:

ATDL: "DIAL DIGITS"

2nd response - Data/Fax call connected CONNECT

1st response - Voice call placement begins

OK

2nd response - Voice call connected OK

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Public

Implementation Specific Behavior

Command that is not defined in 3gpp spec.

Spec Reference

MMINS

ATE   Command Echo

Description

Defines whether input characters are echoed to output. If so, these characters are echoed at the same rate, parity, and format at which they were received.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Examples

```
ATE?
001
OK
```

Spec Reference

ITU-T V.25

MMINS

ATH   Hanging-Up a Call

Description

If you are using a communications program, use the "Hang up" or "Disconnect" AT command in the program to disconnect the call.

When using computers in the "Dumb Terminal mode," return to the Command mode by typing the Escape Sequence, +++, and then hang up by typing the Hang up command.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Spec Reference

ITU-T V.25

MMINS

ATO　　　　　Return to Online Data State

Description

Returns to Data mode after temporarily exiting by ESC.

After dialing or answering (ATD/ATA commands and connect), the phone enters the Online Data mode where it is able to transfer data, but not to enter AT commands.

The ESC command **+++**, transfers the phone to the Command mode (able to input AT commands, while preserving the Data call). The O command returns the phone to the fully Online Data mode (as it was before using the ESC command).

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Usage

Command	Response
ATO	CONNECT
	+CME ERROR: <err> If phone is not in data call
	NO CARRIER: If connection is not successfully resumed

Examples

```
ATD035684072 //Calling a remote modem - data call
CONNECT //Embedded Mobile Phone Module is in Data mode
//Escaping back to Command mode using the +++ sequence
OK
AT //Embedded Mobile Phone Module is in Command mode
OK
ATO //Returning to Data mode
CONNECT
```

Spec Reference

ITU-T V.25

MMINS

ATQ *Result Code Suppression*

Description

Determines whether to output the result codes. Information text transmitted in response to command is not affected by the setting of this parameter.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Usage

Command	Response	Description
ATQ<value>	OK +CME ERROR: <err>	Sets whether or not to output result codes.
ATQ?	<current value>	Reads the current setting for result code suppression.

Input Parameters

<value>	Description
0	Transmits result codes. (This is the default value.)
1	Suppresses result codes.

Examples

```
ATQ0
OK
ATQ?
Q: 0
OK
ATQ4
ERROR
ATQ1 //No response because result codes are suppressed.
ATQ4 //No response because result codes are suppressed.
```

Spec Reference

ITU-T V.25

P2KATCMD

ATS0 *Bit Map Registers*

Description

Reads/writes values of the S-registers. The Embedded Mobile Phone Module supports this command for various S values, according to official specifications (ITU-I, ETSI, or manufacturer specific).

Sets/gets number of rings before auto answer. Default value is 0. Minimum value is 0, maximum value is 255.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Usage

Command	Response	Description
ATSn=<value>	OK +CME ERROR: <err>	The set command is allowed for read/write S-registers, and not allowed for read-only S-registers.
ATSn?	<current value of S-register n> +CME ERROR: <err>	

Spec Reference

ITU-T V.25

MMINS

ATS3

Description

Sets/gets carriage return code character. Default value is 13. Minimum value is 0, maximum value is 127.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Spec Reference

ITU-T V.25

MMINS

ATS4

Description

Sets/gets line feed code character. Default value is 10. Minimum value is 0, maximum value is 127.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Spec Reference

ITU-T V.25

MMINS

ATS5

Description

Sets/gets command line editing character (backspace). Default value is 8. Minimum value is 0, maximum value is 127.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Spec Reference

ITU-T V.25

MMINS

ATS7

Description

Sets the number of seconds in which connection must be established before the call is disconnected. Default value is 30. Minimum value is 1, maximum value is 255.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Spec Reference

ITU-T V.25

MMINS

ATV   Display Result Code

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Usage

Command	Response	Description
ATV<value>	OK +CME ERROR: <err>	Sets the format of information responses and result codes.
ATV?	<current value>	Reads the current setting of response format.

Input Parameters

<value>	Description
0	Transmits limited headers and trailers, and numeric text.
1	Transmits full headers and trailers, and verbose response text. (This is the default value.)

Examples

```
ATV?
V: 1
OK
ATV0
0
ATV7
4
ATV1
OK
ATV7
ERROR
```

Spec Reference

ITU-T V.25

MMINS

ATX   Result Code Selection and Call Progress Monitoring Control

Description

Defines the CONNECT result code format. It determines whether or not the Embedded Mobile Phone Module transmits particular result codes to the user. It also controls whether the Embedded Mobile Phone Module verifies the presence of dial tone when it first goes off-hook to begin dialing, and whether the engaged tone (busy signal) detection is enabled.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Usage

Command	Response	Description
ATX<value>	OK +CME ERROR: <err>	Sets the result code and call progress monitoring control.
ATX?	<current value>	

Input Parameters

<value>	Description
0	(This is the default value.) CONNECT result code given upon entering online data state: • Dial tone detection - Disabled • Busy detection - Disabled
1	CONNECT <text> result code given upon entering online data state: • Dial tone detection - Disabled • Busy detection - Disabled

<value>	Description
2	CONNECT <text> result code given upon entering online data state: • Dial tone detection - Enabled • Busy detection - Disabled
3	CONNECT <text> result code given upon entering online data state: • Dial tone detection - Disabled • Busy detection - Enabled
4	CONNECT <text> result code given upon entering online data state: • Dial tone detection - Enabled • Busy detection - Enabled

Examples

```
ATX?
000
OK
```

Spec Reference

ITU-T V.25

P2KATCMD

ATZ   *Reset to Default Configuration*

Description

Drops the current call and resets the values to default configuration.

Derivation

USB - DUN (Dial-Up Networking via USB)

Implementation

Supported AT command on Mode 0.

Mandatory

Usage

Command	Response
ATZ<value>	OK
	+CMS ERROR: <err>

Input Parameters

<value>	Description
0	Sets to user profile 0. (This is the default value.)
1	Sets to user profile 1

Examples

```
ATZ0
OK
```

Spec Reference

ITU-T V.25

MMINS