ADH8066 Quad band GSM/GPRS Module

AT Command Reference Manual
<V1.6>

Revision History

Version	Date	Description
1.6	2009-04-01	Correct some mistakes of AT commands and add notes
1.5	2008-09-25	Add IPR AT commands
1.4	2008-09-05	Add some examples and notes for AT commands
1.3	2008-08-29	Correct some mistakes of AT commands
1.2	2008-08-26	Correct some mistakes & add detail for some AT commands
1.1	2008-08-04	Add parameter description for some AT commands
1.0	2008-07-08	Review all AT commands and correct the mistake.
0.11	2007-12-21	Revised version, correct some mistakes.
0.1	2007-12-5	Draft

Contents

1 PURPOSE AND SCOPE

1.1 PURPOSE

This document describes the AT command supported by the ME.

Those commands can be used by any TE connected to the ME by any medium (Serial link, IRDA, Blue-tooth)

2 REFERENCES

2.1 Applicable Documents

Documents whose application is mandatory for this ERD are:

Table 1: Applicable Documents

Ref.	Id.	Document name	Date issued	Status	Version	Comment
[07.05]	TS 100 585	Digital cellular telecommunications system (Phase 2+) - Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE - DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)	1999-04	Release	6.0.0	
[27.007]	3GPP TS 27.007	AT command set for User Equipment	2002-12	Release	3.e.0	
[V25ter]	ITU-T V.25 ter	Data communication over the telephone network – Serial asynchronous automatic dialing and control	1997-07	Approved		
[TIA578A]	TIA/EIA-578-A	Facsimile Digital Interfaces - Asynchronous Facsimile DCE Control Standard, Service Class 1	1995-05	Approved		
[03.40]	ETS 300 901	Digital cellular telecommunications system (Phase 2+) – Technical realization of the Short Message Service (SMS) Point-to-Point (PP)	1998-07	Release	6.1.0	
[04.08]	ETS 300 940	Digital cellular telecommunications system (Phase 2+) – Mobile radio interface layer 3 specification	1999-12	Release	6.7.0	
[01.04]		Digital cellular telecommunications system (Phase 2+) – Abbreviations and acronyms	1999-08	Release	7.0.0	

3   TERMINOLOGY

3.1 Definitions

For the purposes of this TS, the following syntactical definitions apply (refer also clause 4):

<CR> Carriage return character, which value is specified with command S3.

<LF> Linefeed character, which value is specified with command S4.

<...>   Name enclosed in angle brackets is a syntactical element. Brackets themselves do not appear in the command line.

[...]   Optional subparameter of a command or an optional part of TA information response is enclosed in square brackets. Brackets themselves do not appear in the command line. When subparameter is not given in *parameter type* commands, new value equals to its previous value. In *action type* commands, action should be done on the basis of the recommended default setting of the subparameter.

underline   Underlined defined subparameter value is the recommended default setting of this subparameter. In *parameter type* commands, this value should be used in factory settings which are configured by V.25ter [14] command &F0. In *action type* commands, this value should be used when subparameter is not given.

3.2 Acronyms/Abbreviations

All abbreviations listed in [01.04] are applicable.

Abbreviations	Description
SAT	SIM Application Toolkit

4   AT command syntax

This clause summarizes general aspects on AT commands and issues related to them. For further information refer ITU-T Recommendation V.25ter [14].

4.1 Command line

See figure 1 for general structure of a command line. Standardized basic commands are found only in V.25ter [14]. GSM commands use syntax rules of extended commands. Every extended command has a test command (trailing =?) to test the existence of the command and to give information about the type of its subparameters. Parameter type commands also have a read command (trailing?) to check the current values of subparameters. Action type commands do not store the values of any of their possible subparameters, and therefore do not have a read command.
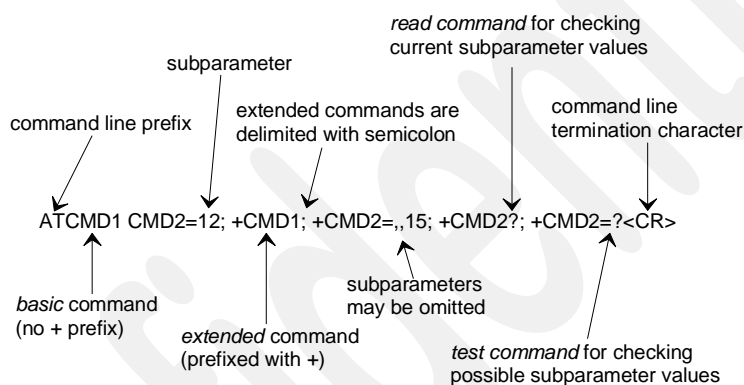
Figure   1: Basic structure of a command line

If verbose responses are enabled with command V1 and all commands in a command line has been performed successfully, result code <CR><LF>OK<CR><LF> is sent from the TA to the TE. If numeric responses are enabled with command V0, result code 0<CR> is sent instead.

If verbose responses are enabled with command V1 and subparameter values of a command are not accepted by the TA (or command itself is invalid, or command cannot be performed for some reason), result code <CR><LF>ERROR<CR><LF> is sent to the TE and no subsequent commands in the command line are processed. If numeric responses are enabled with command V0, result code 4<CR> is sent instead. ERROR (or 4) response may be replaced by +CME ERROR: <err> (refer clause 9) when command was not processed due to an error related to ME operation.

4.2 Information responses and result codes

The TA response for the example command line of figure 1 could be as shown in figure 2. Here, verbose response format is enabled with command V1. If numeric format V0 would have been used, <CR><LF> headers of information responses would have been left out and final result code changed to 0<CR>.

information response to +CMD2=?

also string type subparameters possible

information response to +CMD2?

```
<CR><LF>+CMD2: 3,0,15,"GSM"<CR><LF>
<CR><LF>+CMD2: (0-3),(0,1),(0-12,15),("GSM","IRA")<CR><LF>
<CR><LF>OK<CR><LF>
```

shows acceptable ranges of each subparameter

final result code

Figure 2: Response to a command line

So called intermediate result codes inform about progress of TA operation (e.g. connection establishment CONNECT), and so called unsolicited result codes indicate occurrence of an event not directly associated with issuance of a command from TE (e.g. ring indication RING).

5   AT Command Implementation Notices

- When using this module to connect to network through GPRS with 3rd party software, the 3rd party software might send commands to change value setting without user's notice. For example, while using Windows to connect to the Internet through GSM module, the software reset ATE/ATS0/ATV/CMGF setting to factory default value.
- Before using MCU or other method to send the AT command to module, it's set ATE0 first to turn off the echo message.
- In order to prevent conflict between AT commands and response messages, it's highly recommended to send succeeding AT command *after* receiving the response (i.e., "OK") of previous AT command.
  When the system reboots due to unexpected interruption, a response error message will be sent from the system. It's recommended to ignore that message.
- If the SMS storage of SIM CARD is full, system will not response a notice automatically when a new SMS will coming. You had better to check and delete old SMS if the storage is full before receive a new SMS message.
- Avoid to unplug the SIM card when system is startup and system is not ready.
- It's recommended to restart the system when unplug and plug the SIM card again.

6 AT command List

M: means mandatory

O: means optional

[07.05] commands		M/O
Select Message Service +CSMS	+CSMS	M
Preferred Message Storage +CPMS	+CSMS	M
Message Format +CMGF	+CMGF	M
Service Center Address +CSCA	+CSCA	M
Select cell broadcast message types +CSCB	+CSCB	O
Set Text Mode Parameters +CSMP	+CSMP	M[1]
Show Text Mode Parameters +CSDH	+CSDH	M[1]
Save Settings +CSAS	+CSAS	O
Restore Settings +CRES	+CRES	O
New Message Indications to TE +CNMI	+CNMI	M[2]
List Messages +CMGL	+CMGL	O
Read Message +CMGR	+CMGR	O
Send Message +CMGS	+CMGS	O
Send Message from Storage +CMSS	+CMSS	O
Write Message to Memory +CMGW	+CMGW	O
Delete Message +CMGD	+CMGD	O
[07.05] Result codes		
Received SMSPP indication +CMTI	+CMTI	O
Received SMSPP content +CMT	+CMT	O
Received CBM Content +CBM	+CBM	O
Received SMS status report Content +CDS	CDS	O
Message Service Failure +CMS ERROR	+CMS ERROR	M
[27.007] commands		
Manufacturer identification +CGMI	+CGMI	O
Model identification +CGMM	+CGMM	O
Revision identification +CGMR	+CGMR	O
Product serial number identification +CGSN	+CGSN	O
Select TE character set +CSCS	+CSCS	M[3]
Request international mobile subscriber identity +CIMI	+CIMI	O
Select type of address +CSTA	+CSTA	M[4]
Call mode +CMOD	+CMOD	M[5]
Hang-up call +CHUP	+CHUP	M[5]
Select bearer service type +CBST	+CBST	M[6]

1 Mandatory when text mode is implemented

2 Mandatory when any of the new message indications implemented

3 Mandatory when a command using the setting of this command is implemented

4 Mandatory when other than default value allowed

5 Mandatory when alternating mode calls are implemented in the TA

6 Mandatory when data calls implemented

Radio link protocol +CRLP	+CRLP	M[7]
Service reporting control +CR	+CR	M[6]
Extended error report +CEER	+CEER	O
Cellular result codes +CRC	+CRC	M[8]
Voice hang up control +CVHU	+CVHU	O
Subscriber number +CNUM	+CNUM	O
Network registration +CREG	+CREG	O
Operator selection +COPS	+COPS	O
Facility lock +CLCK	+CLCK	M[9]
Change password +CPWD	+CPWD	O
Calling line identification presentation +CLIP	+CLIP	O
Calling line identification restriction +CLIR	+CLLR	O
Connected line identification presentation +COLP	+COLP	O
Call forwarding number and conditions +CCFC	+CCFC	M[9]
Call waiting +CCWA	+CCWA	O
Call related supplementary services +CHLD	+CHLD	O
Advice of Charge +CAOC	+CAOC	O
Unstructured supplementary service data +CUSD	+CUSD	O
Supplementary service notifications +CSSN	+CSSN	O
List current calls +CLCC	+CLCC	O[10]
Preferred operator list +CPOL	+CPOL	O
Read operator names +COPN	+COPN	O
Phone activity status +CPAS	+CPAS	M[11]
Enter PIN +CPIN	+CPIN	M[12]
Battery charge +CBC	+CBC	O
Signal quality +CSQ	+CSQ	O
Mobile Equipment control mode +CMEC	+CMEC	M[13]
Indicator control +CIND	+CIND	O
Mobile Equipment event reporting +CMER	+CMER	M[13]
Select phonebook memory storage +CPBS	+CPBS	M[14]
Read phonebook entries +CPBR	+CPBR	O
Find phonebook entries +CPBF	+CPBF	O
Write phonebook entry +CPBW	+CPBW	O
Clock +CCLK	+CCLK	O
Alert sound mode +CALM	+CALM	O
Ringer sound level +CRSL	+CRSL	O
Vibrator mode +CVIB	+CVIB	O
Loudspeaker volume level +CLVL	+CLVL	O

7 Mandatory when RLP implemented

8 Mandatory when data or fax circuit mode calls implemented or for a MT/TA supporting AT commands only and eMLPP or VGCS or VBS is implemented

9 Mandatory for MT/TA supporting AT commands only and not supporting the control through dial command D

10 as number 9

11 Recommended when +CHLD command Mandatory when MT can be operated from TE is implemented

12 Mandatory for MT not supporting the +CKPD command and supporting AT commands only

13 Mandatory when any of keypad, display or indicator commands is implemented

14 Mandatory when phonebook read, find or write command, or direct dialing is implemented

Accumulated call meter +CACM	+CACM	O
Accumulated call meter maximum +CAMM	+CAMM	O
Price per unit and currency table +CPUC	+CPUC	O
Call Meter maximum event +CCWE	+CCWE	O
Set Language +CLAN	+CLAN	O
Set Greeting Text +CSGT	+CSGT	O
Set Voice Mail Number +CSVM	+CSVM	O
Ring Melody Playback +CRMP	+CRMP	O
Mute control +CMUT	+CMUT	O
List all available AT commands +CLAC	+CLAC	O
Report Mobile Equipment error +CMEE	+CMEE	M[15]
Define PDP Context +CGDCONT	+CGDCONT	M[16]
Quality of Service Profile (Requested) +CGQREQ	+CGQREQ	O
Quality of Service Profile (Minimum acceptable) +CGQMIN	+CGQMIN	O
GPRS attach or detach +CGATT	+CGATT	O
PDP context activate or deactivate +CGACT	+CGACT	O
Show PDP address +CGPADDR	+CGPADDR	O
Enter data state +CGDATA	+CGDATA	O[17]
GPRS mobile station class +CGCLASS	+CGCLASS	O
GPRS network registration status +CGREG	+CGREG	O
Select service for MO SMS messages +CGSMS	+CGSMS	O
Request GPRS service D*	D*	O[18]
DTMF and tone generation +VTS	+VTS	M
Tone duration +VTD	+VTD	M
[27.007] Result codes		
Service reporting +CR	+CR	M[19]
Ringing indication +CRING	+CRING	O
Service reporting +CREG	+CREG	O
Calling line identification presentation +CLIP	+CLIP	O
Connected line identification presentation +COLP	+COLP	O
Call waiting +CCWA	+CCWA	O
Unstructured supplementary service data +CUSD	+CUSD	O
Supplementary service notification +CSSI	+CSSI	O
Supplementary service notification +CSSU	+CSSU	O
Current Call Meter notification +CCCM	+CCCM	O
Indicator event report	+CIEV	O
Call Meter warning value +CCWV	+CCWV	O
Error result code +CME ERROR	+CME ERROR	M[20]
[V25ter] commands		
Answer A	A	O

15 Mandatory for <n> values 0 and 1
16 Mandatory unless only a single subscribed context is supported
17 Optional if the D (dial) command can be used to specify Packet Domain operation
18 Optional if the +CGDATA command is supported
19 Mandatory when data calls implemented
20 Mandatory for numeric format codes applicable to implemented command set

Dial D	D	M
Hang up H	H	O
Monitor speaker loudness L	L	M
Monitor speaker mode M	M	M
Online O	O	M
Pulse dialing P	P	M
Automatic answer S0	S0	O
Pause before blind dialing S6	S6	M
Connection completion timeout S7	S7	M
Comma dial modifier time S8	S8	M
Automatic disconnect delay S10	S10	M
Tone dialing T	T	M
Repeat last command A/	A/	O
Identification information I	I	O
Reset default configuration Z	Z	M
Factory defined configuration &F	&F	M
Complete capabilities list +GCAP	+GCAP	M
Manufacturer identification +GMI	+GMI	M
Model identification +GMM	+GMM	M
Revision identification +GMR	+GMR	M
Serial number identification +GSN	+GSN	O
Echo E	E	M
Result code suppression Q	Q	M
Line termination character S3	S3	M
Response formatting character S4	S4	M
Line editing character S5	S5	M
TA response format V	V	M
Result code selection and call progress monitoring control X	X	M
Data carrier detect (DCD) behavior &C	&C	M
Data Terminal Ready (DTR) behavior &D	&D	M
Fixed TE rate +IPR	+IPR	O
TE-TA character framing +ICF	+ICF	O
TE-TA local flow control +IFC	+IFC	O
[V25ter] result codes		
Engaged signal BUSY	BUSY	M
Connection established CONNECT	CONNECT	M
Invalid command line ERROR	ERROR	M
Connection completion timeout NO ANSWER	NO ANSWER	M
Connection terminated or connection attempt fails NO CARRIER	NO CARRIER	M
Command execution acknowledge OK	OK	M
Incoming call signal RING	RING	M
[TIA578A] commands		
Manufacturer identification +FMI	+FMI	O
Model identification +FMM	+FMM	O
Revision identification +FMR	+FMR	O

Service Class +FCLASS	+FCLASS	M
HDLC transmit +FTH	+FTH	M
HDLC receive +FRH	+FRH	M
Facsimile transmit +FTM	+FTM	M
Facsimile receive +FRM	+FRM	M
Proprietary commands		
Communication option B	B	O
Negotiate handshake option N	N	O
Ring count S1	S1	O
Escape character S2	S2	O
DTMF Dialing speed S11	S11	O
Extended result code W	W	O
Flow control option &K	&K	O
DSR option &S	&S	O
Configuration profile &V	&V	O
Store active profile &W	&W	O
Service Class #CLS	#CLS	O

7 AT Commands description

Only supported AT commands are described in this document.

Except when restriction is given, commands description is the one specified in the recommendation it belongs to. Description and possible values of the parameters are the one that can be found in the corresponding recommendation. This document only gives the supported and default values.

Default value appears in underlined and bold style.

Only non-ERROR or non-OK result codes are described in Possible response(s).

At command line is limited to 200 bytes, response line is limited to 200.

7.1 [07.05] Command description

7.1.1 General AT commands

7.1.1.1 Select Message Service +CSMS

Command	Possible response(s)
+CSMS=<service>	+CSMS: <mt>,<mo>,<bm>
	+CMS ERROR: <err>
+CSMS?	+CSMS: <service>,<mt>,<mo>,<bm>
+CSMS=?	+CSMS: (list of supported <service>s)

Supported and default parameter values

<service>: 0. See Data impacted by &F for default value.

Response values

<mt>: Mobile Terminated Messages

  0：Type not supported

  1：Type supported

<mo>: Mobile Originated Messages

  0：Type not supported

  1：Type supported

<bm>:Broadcast Type Messages

  0：Type not supported

  1：Type supported

7.1.1.2 Preferred Message Storage +CPMS

Command	Possible response(s)
+CPMS=<mem1>[, <mem2>[,<mem3>]]	+CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3>
	+CMS ERROR: <err>

+CPMS?	+CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3> +CMS ERROR: <err>
+CPMS=?	+CPMS: (list of supported <mem1>s),(list of supported <mem2>s),(list of supported <mem3>s)

Supported and default parameter values

<mem1>,<mem2>,<mem3>: "SM" (capacity varies with SIM card).

The write command selects memory storages <mem1>,<mem2>, <mem3> to be used for reading, writing, etc

Response values

<used1>,<used2>,<used3>：Number of messages currently in <mem n>,n=1,2,3

<total1> ,<total2>,<total3>：Number of messages storable in <mem n>,n=1,2,3

Notice

1. If the SMS storage of SIM CARD is full, system will not response a notice automatically when a new SMS will coming. You had better to check and delete old SMS if the storage is full before receive a new SMS message.

2. ONLY SUPPORT "SM"

7.1.1.3 *Message Format +CMGF*

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

Supported and default parameter values

<mode>:.

0：PDU (Protocol data unit) mode   The message Both of English and Chinese.

1：Text mode   The message just only have English.

See Data impacted by &F for default value

7.1.2 Message Configuration Commands

7.1.2.1 *Service Center Address +CSCA*

Command	Possible response(s)

+CSCA=<sca>[,<tosca>]	
+CSCA?	+CSCA: <sca>,<tosca>
+CSCA=?	

Default Values

<sca> and <tosca> : See Data stored by +CSAS for default values.

7.1.2.2   *Select cell broadcast message types +CSCB*

Command	Possible response(s)
+CSCB=[<mode>[,<mids>[,<dcss>]]]	
+CSCB?	+CSCB: <mode>,<mids>,<dcss>
+CSCB=?	+CSCB: (list of supported <mode>s)

Supported parameter values

<mode>: Message mode   see.[07.05]

   0：Accept messages that are defined in <mids> and <dcss>

   1：Forbid messages that are defined in <mids> and <dcss>

<mids>: This list contains all accepted <mids>. Ranges are not supported (see.[07.05])

<dcss>: This list contains all accepted <dcss>. Default value : no <dcs> accepted. Ranges are not
        supported (see [07.05])

Clarification

AT+CSCB=1 means all dcss are accepted but this command has no effect on the list of the <mids>
accepted.

So, to modify those lists : use before the AT+CSCB=0 command to select no mid and no dcs, and after
this operation, add some dcs or mid to the current lists"

AT+CSCB=0,<mids> : add the <mids> values in the <mids> current list handle by the mobile.

AT+CSCB=0,<dcss> : add the <dcss> values in the < dcss > current list handle by the mobile

This command could return OK even is execution is partial. Ex :

    at+cscb?

    +CSCB: 0,"1,2,3,4,5,6,7,8,9,10,11,12,13,14,15",""   => list of mids is full

    OK

    At+cscb=0,"16"

    OK

    at+cscb?

    +CSCB: 0,"1,2,3,4,5,6,7,8,9,10,11,12,13,14,15",""   => no mids add in list OK

7.1.2.3 Set Text Mode Parameters +CSMP

Command	Possible response(s)
+CSMP=[<fo>[,<vp>[,<pid>[,<dcs>]]]]	+CSMP: <index> +CSMP ERROR: <err>
+CSMP?	+CSMP: <fo>,<vp>,<pid>,<dcs>
+CSMP=?	

Default Values

<fo> First Octet

depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT

(default 17),SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format, 0...17...255

<vp>

Depending on SMS-SUBMIT <fo> setting: GSM 03.40 TP-Validity-Period either in integer format or in

timestring format (refer <dt>), 0...167...255

<pid> Protocol Identifier

GSM 03.40 TP-Protocol-Identifier in integer format, 0...255

<dcs> Data Coding Scheme

GSM 03.38 SMS Data Coding Scheme, or Cell Broadcast Data Coding Scheme in integer format,

0...247

See Data stored by +CSAS for default values.

7.1.2.4 Show Text Mode Parameters +CSDH

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

Supported and default parameter values

<show>

0：Do not show header values defined in commands AT+CSCA and AT+CSMP (<sca>,

<tosca>,<fo>,<vp>, <pid>and <dcs>) nor <length>, <toda> or <tooa> in "+CMTI", AT+CMGL,

AT+CMGR result codes for SMS-DELIVERs and SMS-SUBMITs in text mode; for

SMS-COMMANDs in +CMGR result code, do not show <pid>,<mn>,<da>,<toda>, <length> or

<cdata>.

1：Show the values in result codes. See Data impacted by &F for default value.

7.1.2.5   Save Settings +CSAS

Command	Possible response(s)
+CSAS[=<profile>]	+CMS ERROR: <err>
+CSAS=?	+CSAS: (list of supported <profile>s)

Supported and default parameter values

<profile>: 0,1

see Data stored by +CSAS to know which setting is saved.

7.1.2.6   Restore Settings +CRES

Command	Possible response(s)
+CRES[=<profile>]	+CMS ERROR: <err>
+CRES=?	+CRES: (list of supported <profile>s)

Supported and default parameter values

<profile>: 0,1

see Data stored by +CSAS to know which setting is saved.

7.1.3 Message Receiving and Reading Commands

7.1.3.1   New Message Indications to TE +CNMI

Command	Possible response(s)
+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)

Supported and default parameter values

<mode>: 0, 1, 2

<mt>: 0, 1, 2

<bm> : 0, 2

<ds>: 0, 1

<bfr>: 0, 1

See Other stored data for default value.

7.1.3.2   List Messages +CMGL

Command	Possible response(s)
+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)**

Supported parameter values

<stat>: 0, 1, 2, 3, 4 in PDU mode

    0: REC UNREAD messages are listed, 1: READ messages are listed

    2: STO UNSENT messages are listed, 3: STO SENT messages are listed

    4: all messages are listed

"REC UNREAD", "REC READ", "STO UNSET", "STO SENT", "ALL" in text mode

Other parameters are extracted from memory storage.

Example 1 (Sent message in text mode)

Command	Possible response(s)
+CSCA?	+CSCA: "+886932400841",145
+CMGF=1	OK
+CMGF?	+CMGF: 1

+CMGS="cell phoneNumber"
(e.g.+CMGS="0988817791")
	1. > Enter the content you want to sent & Ctrl Z
	   (e.g. > TEST SMS & Ctrl Z)
	2. +CMGS: 44 OK
	   +CMTI: "SM",16

+CMGR=16	+CMGR: "REC UNREAD","+886988817791","","08/07/31,17:31:34+32" TEST SMS OK

Example 2 (Sent message in PDU mode)

Command	Possible response(s)
+CSCA?	+CSCA: "+886932400841", 145
+CMGF=0	OK
+CMGF?	+CMGF: 0
+CMGS=the content length of encode (e.g.+CMGS=23)	1. > Enter the content you want to sent & Ctrl Z (e.g.>0011000C918896881877190000AA0AE8329BFD4697D9EC37 & Ctrl Z) 2. +CMGS: 45 OK +CMTI: "SM",17
+CMGR=17	+CMGR: 1,"",28 07918896230480140400C918896881877190000807013712455230AE8329 BFD4697D9EC37 OK

7.1.3.3   Read Message +CMGR

Command	Possible response(s)

+CMGR=<index>	if text mode (+CMGF=1), command successful and SMS-DELIVER:
	 +CMGR: <stat>,<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>, <sca>,<tosca>,<length>]<CR><LF><data>
	 if text mode (+CMGF=1), command successful and SMS-SUBMIT:
	 +CMGR: <stat>,<da>,[<alpha>][,<toda>,<fo>,<pid>,<dcs>,[<vp>], <sca>,<tosca>,<length>]<CR><LF><data>
	 if text mode (+CMGF=1), command successful and SMS-STATUS-REPORT:
	 +CMGR: <stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>
	 if text mode (+CMGF=1), comm and successful and SMS-COMMAND:
	 +CMGR: <stat>,<fo>,<ct>[,<pid>,[<mn>],[<da>],[<toda>],<length> <CR><LF><cdata>]
	 if text mode (+CMGF=1), command successful and CBM storage:
	 +CMGR: <stat>,<sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data>
	 otherwise:
	 +CMS ERROR: <err>

+CMGR=?	

Supported parameter values

<index>: 0..255

<stat>: 0, 1, 2, 3, 4 in PDU mode

  0: REC UNREAD messages are listed，1: READ messages are listed

  2: STO UNSENT messages are listed， 3: STO SENT messages are listed

  4: all messages are listed

  "REC UNREAD", "REC READ", "STO UNSET", "STO SENT", "ALL" in text mode

  Other parameters are extracted from memory storage.

Notice

If the SMS storage of SIM CARD is full, system will not response a notice automatically when a new SMS will

coming. You had better to check and delete old SMS if the storage is full before receive a new SMS message.

7.1.4 Message sending and writing commands

7.1.4.1 Send Message +CMGS

Command	Possible response(s)

if text mode (+CMGF=1):
+CMGS=<da>[,<toda>]<CR>
text is entered<ctrl-Z/ESC>
	if text mode (+CMGF=1) and sending successful:
	+CMGS: <mr>[,<scts>]
	if sending fails:
	+CMS ERROR: <err>

+CMGS=?	

Parameter values
Text length is limited to PDU max length (164).

7.1.4.2 Send Message from Storage +CMSS

Command	Possible response(s)

+CMSS=<index>[,<da>[,<toda>]]	if text mode (+CMGF=1) and sending successful:
	+CMSS: <mr>[,<scts>]
	if sending fails:
	+CMS ERROR: <err>

+CMSS=?	

TP-User-Data-Header-Indication is never set as it is not managed.

Parameter values

<index>: 0..255. the number of message in the SIM card

7.1.4.3 Write Message to Memory +CMGW

Command	Possible response(s)
if text mode (+CMGF=1): +CMGW[=<oa/da>[,<tooa/toda>[,<stat>]]]<CR> text is entered<ctrl-Z/ESC>	+CMGW: <index> +CMS ERROR: <err>
+CMGW=?	

Parameter values
Text length is limited to PDU max length (164).

<index>: 0..255. the number of message in the SIM card

7.1.4.4 Delete Message +CMGD

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

Supported parameter values

<index>: 0..255. the number of message in the SIM card

< delflag >: 0-4. See [07.05]

7.1.5 Result code commands

7.1.5.1   *Received SMSPP indication +CMTI*

Result code
+CMTI:
<mem>,<index>

Supported and default parameter values

<mem>: "SM" (Send message)

<index>: given by the SIM card (the number of message in the SIM card)

7.1.5.2   *Received SMSPP content +CMT*

Result code	mode
+CMT: [<alpha>],<length><CR><LF><pdu>	**PDU**
+CMT:<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data>	**Text .About parameters in italics, refer command Show Text Mode Parameters +CSDH**

Parameter values

All parameters are extracted from received message

7.1.5.3   *Received CBM Content +CBM*

Result code	Mode
+CBM: <length><CR><LF><pdu>	**PDU**
+CBM:<sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data>	**text**

Parameter values

All parameters are extracted from received message

7.1.5.4   *Received SMS status report Content +CDS*

Result code	Mode

+CDS: <length><CR><LF><pdu>	PDU
+CDS: <fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>	text

Parameter values

All parameters are extracted from received message

7.1.5.5 *Message Service Failure +CMS ERROR*

Result code
+CMS ERROR: <err>

Supported parameter values

<err>: See [07.05]

7.2 Hayes proprietary commands

7.2.1 Standard Hayes commands

7.2.1.1 *Communication option B*

Command	Possible response(s)
B[<standard>]	

Supported parameter values
<standard>: 0..99

7.2.1.2 *Negotiate handshake option N*

Command	Possible response(s)
N[<option>]	

Supported parameter values
<option>: 0..9

7.2.1.3 *Ring count S1*

Command	Possible response(s)
S1?	<num>

Supported and default parameter values

<num> : 0..255. See Data stored by &W for default value.

7.2.1.4 Escape character S2

Command	Possible response(s)
S2=<escp>	
S2?	<escp>

Supported and default parameter values
<escp>: 43 (i.e. '+')

7.2.1.5 DTMF Dialing Speed S S11

Command	Possible response(s)
S11=<time>	

Supported and default parameter values
<time>: 0..999

7.2.1.6 Extended result code W

Command	Possible response(s)
W<mode>	

Supported and default parameter values
<mode>: 0 (only result code CONNECT supported)

7.2.2 Advanced Hayes commands

7.2.2.1 Flow control option &K

Command	Possible response(s)
&K<mode>	

Description
Execution command set the flow control <mode>.

Supported and default parameter values
<mode> : See Data impacted by &F for default value
  0: Disable all flow control.
  3: Enable bi-directional hardware flow control.(Only supported if using an USB data cable).
  4: Enable XON/XOFF flow control.(Only supported if not using an USB data cable

7.2.2.2   DSR option &S

Command	Possible response(s)
&S<profile>=0	DSR line is always ON
&S<profile>=1	TA in command mode: DSR is OFF. TA in data mode: DSR is ON.

Description
Execution command displays the active and stored <profile>.
Refer to Data stored by &W to know which command are part of displayed profile.

Supported and default parameter values
<profile>: 0,1

7.2.2.3   Display current configuration &V

Command	Possible response(s)
&V<profile>	Display setting command

7.2.2.4   Store active profile &W

Command	Possible response(s)
&W<profile>	

Description
Execution command stores the active <profile>. Two profiles are supported but they are equivalent.
Refer to Data stored by &W to know which command is part of saved profile.

Supported and default parameter values
<profile>: 0, 1 Number of profile

7.3   [V25ter] commands

7.3.1 Call control commands

7.3.1.1   Answer A

Command	Possible response(s)
A	

Supported and default parameter values
N/A

7.3.1.2 Dial D

Command	Possible response(s)
D<str>[<clir>][<cug>][<semicolon>]	

Clarification

If option AT_CMD_IMPROVEMENT_FTR is disabled result code "OK" is send to PC immediately after ATD else result code "OK" is send to PC when a voice call is established with the remote.
This behaviour described in the last case is no very compliant with the recommendation but follow the de facto standards available on the market (Wavecom and Siemens modules).ATDRestriction <clir>, <cug> and characters T, P, D, !, @ and , in <str> are ignored.
If SAT call control modifies the call into an SS or USSD and error is return to the TE.

Supported parameter values

<clir>: i I
<cug>: g G
<str>: a string of the characters : 0 1 2 3 4 5 6 7 8 9 * # + a b c d A B C D , T P t p ! W w @
or >[<mem>]<n> where:
<mem>: one of supported values of <storage> in +CPBS command
<n>: index in this <mem>
<semicolon>: ;

7.3.1.3 Hang up H

Command	Possible response(s)
H[<type>]	

Supported and default parameter values

<type>: 0

7.3.1.4 Monitor speaker loudness L

Command	Possible response(s)
L [<volume>]	

Supported parameter values

<volume>: 0..9

7.3.1.5 Monitor speaker mode M

Command	Possible response(s)
M[<mode>]	

Supported parameter values

<mode>: 0..9

7.3.1.6 Online O

Command	Possible response(s)
O[<type>]	

Supported and default parameter values
    <type>: 0

7.3.1.7 Pulse dialing P

Command	Possible response(s)
P	

7.3.1.8 Automatic answer S0

Command	Possible response(s)
S0=<num>	
S0?	<num>

Supported and default parameter values
    <num> : 0..255 .
    0: automatic answering is disabled
    1..255: enable automatic answering on the specified ring number
    See Data stored by &W for default value.

7.3.1.9 Pause before blind dialing S6

Command	Possible response(s)
S6=<time>	

Supported parameter values
    <time>: 0..999

7.3.1.10 Connection completion timeout S7

Command	Possible response(s)
S7=<time>	
S7?	<time>

Supported parameter values
    <time> : 1..255 . See Data stored by &W for default value.

7.3.1.11   *Comma dial modifier time S8*

Command	Possible response(s)
S8=<time>	
S8?	<time>

Supported parameter values
   <time> : 0..255. See Data stored by &W for default value.

7.3.1.12   *Automatic disconnect delay S10*

Command	Possible response(s)
S10=<time>	
S10?	<time>

Supported parameter values
   <time> : 1..254. See Data stored by &W for default value.

7.3.1.13   *Tone dialing T*

Command	Possible response(s)
T	

7.3.2   Generic TA control command

7.3.2.1   *Repeat last command A/*

Command	Possible response(s)
A/	

Description
   Repeat last command.

7.3.2.2   *Identification information I*

Command	Possible response(s)
I[<info>]	

Supported and default parameter values
   <info>:
      0: Model identifier
      1,2,6,7: ignored
      3: Software version
      4: if the switch ATP_REMOVE_TCD_NB_TMP is active:
       - manufacturer id and model id

else
- manufacturer id and TCD number
5: manufacturer id.

7.3.2.3   Reset default configuration Z

Command	Possible response(s)
Z[<profile>]	

Supported and default parameter values
<profile>: 0, 1 Reset to user profile
See Data reset by Z to know which parameter is reset.

7.3.2.4   Factory defined configuration &F

Command	Possible response(s)
&F[<fact>]	

Supported and default parameter values
<fact>: 0
See Data impacted by &F to know which parameter is reset.

7.3.2.5   Complete capabilities list +GCAP

Command	Possible response(s)
+GCAP	**+GCAP:<list>**

Supported and default parameter values
<list>: +FCLASS,+CGSM

7.3.2.6   Manufacturer identification +GMI

Command	Possible response(s)
+GMI	**<manufacturer>**
	+CME ERROR: <err>
GMI=?	

See Manufacturer identification +CGMI

7.3.2.7   Model identification +GMM

Command	Possible response(s)
+GMM	**<model>**
	+CME ERROR: <err>
+GMM=?	

See Model identification +CGMM

7.3.2.8   Revision identification +GMR

Command	Possible response(s)
+GMR	\<revision\> +CME ERROR: \<err\>
+GMR=?	

See Model identification +CGMM

7.3.2.9   Serial number identification +GSN

Command	Possible response(s)
+GSN	\<sn\> +CME ERROR: \<err\>
+GSN=?	

See Product serial number identification +CGSN

7.3.3 TA-TE interface command

7.3.3.1   Echo E

Command	Possible response(s)
E[\<echo\>]	+GCAP:\<list\>

Supported and default parameter values
   \<echo\>
     0：Echo mode off
     1：Echo mode on
See Data stored by &W for default value.

7.3.3.2   Result code suppression Q

Command	Possible response(s)
Q[\<result\>]	+GCAP:\<list\>

Supported and default parameter values
   \<result\>
     0：DCE transmits result code
     1：Result codes are suppressed and not transmitted
See Data stored by &W for default value.

7.3.3.3   Line termination character S3

Command	Possible response(s)
S3=<char>	
S3?	<char>

Supported and default parameter values
<char> : 13 : <CR> carriage return.
See Data stored by &W for default value.

7.3.3.4   Response formatting character S4

Command	Possible response(s)
S4=<char>	
S4?	<char>

Supported and default parameter values
<char> : 10 : <LF> line feed.
See Data stored by &W for default value.

7.3.3.5   Line editing character S5

Command	Possible response(s)
S5=<char>	
S5?	<char>

Supported and default parameter values
<char> : 8 : <BS> back space.
See Data stored by &W for default value.

7.3.3.6   TA response format V

Command	Possible response(s)
V[<format>]	

Supported and default parameter values
<format> : 0, 1. Data stored by &W for default value.

7.3.3.7   Result code selection and call progress monitoring control X

Command	Possible response(s)
X[<result>]	

Supported and default parameter values
<result> : 0..4. See Data stored by &W for default value.

7.3.3.8 Data carrier detect (DCD) behavior &C

Command	Possible response(s)
&C[<behavior>]	

Supported and default parameter values
<behavior>
   0：DCD line is always ON
   1：DCD line is ON in the presence of data carrier only
Data stored by &W for default value.

7.3.3.9 Data Terminal Ready (DTR) behavior &D

Command	Possible response(s)
&D[<behavior>]	

Clarification
In case of "Drop DTR", if the signal remains in the off state more than two seconds, it is considered as a PC disconnection and no "OK" is sent to the TE (cable considered unplugged). The behavior of the command complies to the recommendation description only with DTR pulses (pulse = DTR signal stay in the off state unless 2 seconds).

Supported and default parameter values
<behavior>
   0：TA ignores status of DTR.
   1：ON->OFF on DTR: Change to command mode while retaining the connected call.
   2：ON->OFF on DTR: Disconnect data call, change to command mode. During state DTR = OFF is auto-answer off
See Data stored by &W for default value.

7.3.3.10 Fixed TE rate +IPR

Command	Possible response(s)
+IPR=<rate>	
+IPR?	+IPR: <rate>
+IPR=?	+IPR: (list of supported auto-detectable<rate>s)[,(list of supported fixed-only<rate>s)]

Supported and default parameter values
<rate>:Support 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200 baud rate.
   Default value is 115200
   0 : auto baud rate is not support
Notice
After set fixed TE rate to a new value. System must be restart and then change to new baud rate.

7.3.3.11 TE-TA character framing +ICF

Command	Possible response(s)

+ICF=[<format>[,<parity>]]	
+ICF?	+ICF:<format>,<parity>
+ICF=?	+ICF:(list of supported <format>s), (list of supported<parity>s)

Supported and default parameter values
  <format>: 3
  <parity>: 3

7.3.3.12   TE-TA local flow control +IFC

Command	Possible response(s)
+IFC=[<TA_by_TE >[,<TE_by_TA>]]	
+IFC?	+IFC:< TA_by_TE >,< TE_by_TA >
+IFC=?	+IFC:(list of supported <TA_by_TE>s), (list of supported<TE_by_TA >s)

Restriction
  If option HARDWARE_FLOW_CONTROL) is enabled or with the USB data cable, hardware flow
  control or no flow control are allowed, else software flow control or no flow control are allowed.
Supported and default parameter values
  <TA_by_TE>: 0, 1
  <TE_by_TA>: 0, 1
See Data stored by &W for default value.

7.3.4 Result code commands

7.3.4.1   Engaged signal BUSY

Result code	V
BUSY	1
7	0

7.3.4.2   Connection established CONNECT

Result code	Q	V
CONNECT<text>	>0	1
CONNECT	0	
1		0

Supported parameter values

  <text>: 2400, 4800, 9600

7.3.4.3 Invalid command line ERROR

Result code	V
ERROR	1
4	0

7.3.4.4 Connection completion timeout NO ANSWER

Result code	V
NO ANSWER	1
8	0

7.3.4.5 Connection terminated or connection attempt fails NO CARRIER

Result code	V
NO CARRIER	1
3	0

7.3.4.6 Command execution acknowledge OK

Result code	V
OK	1
0	0

7.3.4.7 Incoming call signal RING

Result code	+CRC	V
+CRING<type>	1	
RING	0	1
2		0

Supported and default parameter values

<type>: see Ringing indication +CRING

7.4 [27.007] commands

7.4.1 General commands

7.4.1.1   Revision identification +CGMR

Command	Possible response(s)
+CGMR	<revision> +CME ERROR: <err>
+CGMR=?	

Supported parameter values

<revision>: read revision date from configuration parameter

7.4.1.2   Product serial number identification +CGSN

Command	Possible response(s)
+CGSN	<sn> +CME ERROR: <err>
+CGSN=?	

Supported parameter values

<sn>: International mobile equipment identity (IMEI)

7.4.1.3　Select TE character set +CSCS

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

Supported and default parameter values

<chset>

"GSM"：GSM default alphabet (GSM 03.38 subclause 6.2.1); Note: This setting may cause software flow

control problems since the codes used to stop and resume data flow used to stop and resume

data flow (XOFF = decimal 19, XON = decimal 17) are interpreted as normal characters.

"UCS2"：16-bit universal multiple-octet coded character set (ISO/IEC10646 [32]); UCS2 character strings

are converted to hexadecimal numbers from 0000 to FFFF; e.g. "004100620063" equals three

16-bit characters with decimal values 65, 98 and 99, $(AT R97)$

"IRA"： international reference alphabet (ITU-T T.50 [13])

See Data impacted by &F for default value.

7.4.1.4　Request international mobile subscriber identity +CIMI

Command	Possible response(s)
+CIMI	<IMSI> +CME ERROR: <err>
+CIMI=?	

Supported parameter values

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

7.4.2 Call control commands

7.4.2.1　Select type of address +CSTA

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

Supported and default parameter values

<type>: See Data impacted by &F for default value.

    129: ISDN / telephony numbering plan, national / international unknown

    145: ISDN / telephony numbering plan, international number

7.4.2.2 Call mode +CMOD

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

Supported and default parameter values

    <mode>: 0: single mode. See Data impacted by &F for default value.

7.4.2.3 Hang-up call +CHUP

Command	Possible response(s)
+CHUP	
+CHUP=?	

7.4.2.4 Select bearer service type +CBST

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

Supported and default parameter values

  <speed>

    0：auto bauding

    7：9600 bps (V.32)

    71：9600 bps (V.110)

  <name> 0：asynchronous modem

  <ce> 1：non-transparent

See Other stored data for default value.

7.4.2.5 Radio link protocol +CRLP

Command	Possible response(s)
+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)]] [...]]

Supported and default parameter values

<iws> Interworking window size (IWF to MS), 0..61

<mws>Mobile window size (MS to IWF),0..61

<T1>Acknowledgement timer (T1 in 10 ms units),44..255

<N2>Re-transmission attempts N2,1..255

<ver>RLP version number in integer format; when version indication is not present it, shall equal 0. 0

<T4>: 7

See Data impacted by &F for default value.

7.4.2.6 Service reporting control +CR

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

Supported and default parameter values

<mode>

0：disable

1：enable

See Data impacted by &F for default value.

7.4.2.7 Extended error report +CEER

Command	Possible response(s)
+CEER	+CEER: <report>
+CEER=?	

Supported parameter values

<report>: Cause Select: <cause_select> cause: <cause>"

<cause select>	<cause>
0: No cause	0: No cause
16: Service provider	0: Unknown
	1: Not Allowed

	2: No cause
	6: Wrong parameter
	9: Network access not allowed
	20: all call instances are used
	21 ACM over ACM Max
	22 invalid AOC element
	23 SIM increase not allowed
	24 switch off
	25 Unknown call id
	28 barred
65: Local cause	1: state error
	2: no call entity
	3: wrong TI
	6: DTMF buffer overflow
	7: call disconnected
	17: No cell available
	32: Local rejection
	33: PLMN not allowed
	34: emergency call not possible
	35: authentication rejected
	36: network rejection
	37: LA not allowed
	38: Local timeout
	39: server congestion
	40: local data rejection
	48: failed replace PDP context
66: MM network cause	See [04.08]
67: CC network cause	See [04.08]
69: RP cause	See [04.08]
71: SIM cause	0: Unknown problem
	1: Memory problem
	2: File Id not found
	6: Increase problem
	7: Technical problem
	11: Command not allowed
	15: SIM card out
	See [04.08]

See Data impacted by &F for default value.

7.4.2.8   Cellular result codes +CRC

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

Supported and default parameter values

<mode>

0：disable extended format

1：enable extended format

See Data impacted by &F for default value.

7.4.2.9 *Voice hang up control +CVHU*

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

Supported and default parameter values

<mode>: see [27.007] (See Data impacted by &F for default value).

7.4.3 Call control result code commands

7.4.3.1 *Service reporting +CR*

Result code

+CR: <serv>

Supported parameter values

<serv>: "ASYNC","SYNC","REL ASYNC","REL SYNC","GPRS"

7.4.3.2 *Ringing indication +CRING*

Result code
+CRING: <type>

Supported parameter values

<type>: "ASYNC","SYNC","REL ASYNC","REL SYNC","FAX","VOICE"

7.4.4 Network service related commands

7.4.4.1 *Subscriber number +CNUM*

Command	Possible response(s)
+CNUM	+CNUM: [<alpha1>],<number1>,<type1>[,<speed>,<service>[,<itc>]] [<CR><LF>+CNUM: [<alpha2>],<number2>,<type2>[,<speed>,<service> [,<itc>]] [...]] +CME ERROR: <err>

+CNUM=?	

Parameter values

<alphax>: optional alphanumeric string associated with <numberx>; used character set should be the one
   selected with command Select TE Character Set +CSCS

<numberx>: string type phone number of format specified by <typex>

<typex>: type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7)

<speed>: as defined in subclause 6.7

<service> (service related to the phone number):

   0：asynchronous modem

   1：synchronous modem

   2：PAD Access (asynchronous)

   3：Packet Access (synchronous)

   4：voice

   5：fax

   also all other values below 128 are reserved by this TS

<itc> (information transfer capability)

   0：.1kHz

   1：UDI

Example (Write & search the phone number)

Command	Possible response(s)
+CPBS=?	+CPBS: ("DC","EN","FD","MC","ON","RC","SM")
+CPBS?	+CPBS: "SM",4,250 OK
+CPBS="ON"	+CPBS: OK
+CPBW=1,"0912345678",129	OK
+CNUM	+CNUM: "","0912345678",129 OK

7.4.4.2 Network registration +CREG

Command	Possible response(s)
+CREG=[<n>]	
+CREG?	+CREG: <n>,<stat>[,<lac>,<ci>] +CME ERROR: <err>
+CREG=?	+CREG: (list of supported <n>s)

Supported and default parameter values

<n>

 0：disable network registration unsolicited result code

 1：enable network registration unsolicited result code +CREG: <stat>

 2：enable network registration and location information unsolicited result code +CREG: <stat>[,<lac>,<ci>]

See Data impacted by &F for default value.

<stat>

 0：not registered, ME is not currently searching a new operator to register to

 1：registered, home network

 2：not registered, but ME is currently searching a new operator to register to

 3：registration denied

 4：unknown

5：registered, roaming

<lac>：string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)

<ci>：string type; two byte cell ID in hexadecimal format

7.4.4.3 Operator selection +COPS

Command	Possible response(s)
+COPS=[<mode>[,<format>[,<oper>]]]	+CME ERROR: <err>
+COPS?	+COPS: <mode>[,<format>,<oper>] +CME ERROR: <err>
+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>

Supported and default parameter values

<mode>: See Data impacted by &F for default value.

 0: automatic (<oper> field is ignored)

 1: manual (<oper> field shall be present)

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

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

<format>:

 0: long format alphanumeric <oper>

 2: numeric <oper>

<oper>: string type. see [27.007]

<stat>:

 0: unknown

 1: available

 2: current

 3: forbidden

 * Total seek time is about 45~75 secs

7.4.4.4 Facility lock +CLCK

Command	Possible response(s)
+CLCK=<fac>,<mode>[,<passwd>[,<class>]]	+CME ERROR: <err> when <mode>=2 and command successful: +CLCK: <status>[,<class1>[<CR><LF>+CLCK: <status>,<class2>[…]]
+CLCK=?	+CLCK: (list of supported <fac>s) +CME ERROR: <err>

Clarification

the value "SC" of the <fac> parameter correspond to PIN1 code

the value "PN" of the <fac> parameter correspond to NCK code

the value "PU" of the <fac> parameter correspond to NSCK code

the value "PP" of the <fac> parameter correspond to SPCK code

Supported parameter values

<fac>: "SC","AO", "OI", "OX", "AI", "IR", "AB", "FD", "PN", "PU", "PP"   (see [27.007])

<mode>: see [27.007])

   0: unlock

   1: lock

   2: query status

<status>: see [27.007]

   0: not active

   1: active

<passwd>: string type. see [27.007]

<classx>: 1, 2, 4, 7 (see [27.007])

7.4.4.5   Change password +CPWD

Command	Possible response(s)
+CPWD=<fac>,<oldpwd>,<newpwd>	+CME ERROR: <err>
+CPWD=?	+CPWD: list of supported (<fac>,<pwdlength>)s +CME ERROR: <err>

Clarification

the value "SC" of the <fac> parameter correspond to PIN1 code

Supported and default parameter values

<fac>: "AO", "OI", "OX", "AI", "IR", "AB", "P2", "SC" (see [27.007])

<oldpwd>: see [27.007]

<newpwd>: see [27.007]

<pwdlength>: see [27.007]

7.4.4.6   Calling line identification presentation +CLIP

Command	Possible response(s)
+CLIP=[<n>]	
+CLIP?	+CLIP: <n>, <m>
+CLIP=?	+CLIP: (list of supported <n>s)

Supported parameter values

<n>: see [27.007] (See Data impacted by &F for default value)

   0: disable

   1: enable

<m>: see [27.007]

7.4.4.7 *Calling line identification restriction +CLIR*

Command	Possible response(s)
+CLIR=[<n>]	
+CLIR?	+CLIR: <n>, <m>
+CLIR=?	+CLIR: (list of supported <n>s)

Supported parameter values

<n> (parameter sets the adjustment for outgoing calls):

0：representation indicator is used according to the subscription of the CLIR service

1：LIR invocation

2：LIR suppression

see [27.007] (See Data impacted by &F for default value)

<m> (parameter shows the subscriber CLIR service status in the network):

0：LIR not provisioned

1：R provisioned in permanent mode

2：unknown (e.g. no network, etc.)

3：LIR temporary mode presentation restricted

4：LIR temporary mode presentation allowed

see [27.007]

7.4.4.8 *Connected line identification presentation +COLP*

Command	Possible response(s)
+COLP=[<n>]	
+COLP?	+COLP: <n>, <m>
+COLP=?	+COLP: (list of supported <n>s)

Supported and default parameter values

<n>: see [27.007] (See Data impacted by &F for default value)

<m>: see [27.007]

7.4.4.9 *Call forwarding number and conditions +CCFC*

Command	Possible response(s)
+CCFC=<reason>,<mode>[,<number>[,<type>[,<class>[,<subaddr>[,<satype>[,<time>]]]]]]	+CME ERROR: <err> when <mode>=2 and command successful: +CCFC: <status>,<class1>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]][<CR><LF>+CCFC: <status>,<class2>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]][…]
+CCFC=?	+CCFC: (list of supported <reason>s)

Supported parameter values

<reason>: see [27.007]

<mode>: see [27.007]

<number>: see [27.007]

<type>: see [27.007]

<classx>: 1,2,4,7 (see [27.007])

<time>: see [27.007]

<status>: see [27.007]

7.4.4.10 Call waiting +CCWA

Command	Possible response(s)
+CCWA=[<n>[,<mode>[,<class>]]]	+CME ERROR: <err> when <mode>=2 and command successful +CCWA: <status>,<class1>[<CR><LF>+CCWA: <status>,<class2> […]]
+CCWA?	+CCWA: <n>
+CCWA=?	+CCWA: (list of supported <n>s)

Supported parameter values

<n>: see [27.007]

0: disable

1: enable

<mode>: see [27.007]

0: disable

1: enable

2: query status

<classx>: 1, 2, 4, 7 (see [27.007])

7.4.4.11 Call related supplementary services +CHLD

Command	Possible response(s)
+CHLD=[<n>]	+CME ERROR: <err>
+CHLD=?	[+CHLD: (list of supported <n>s)

Supported and default parameter values

<n>

0：Release all held calls or set User Determined User Busy (UDUB) for a waiting call:
  • If a call is waiting, release the waiting call. The calling party will receive a

  "BUSY" indication (Supplementary Service User Determined User Busy"UDUB")

  • Otherwise, terminate all held calls (if any).

1：Terminate all active calls (if any) and accept "the other call" as the active call:
  • If a call is waiting, the waiting call will be accepted.

  • Otherwise, if a held call is present, the held call becomes active.

1X：Terminate a specific call X (X= 1-7). The call may be active, held or waiting.
  The remote party of the terminated call will receive a "NO CARRIER" indication.

  Parameter X is the call number <idx> of the targeted call in the list of current calls available with AT

command AT+CLCC.

2：Place all active calls on hold (if any) and accept "the other call" as the active call:

• If a call is waiting, the waiting call will be accepted.

• Otherwise, if a held call is present, the held call becomes active.

2X：Place all active calls except call X (X= 1-7) on hold. Parameter X is the call number <idx> of the

targeted call in the list of current calls available with AT command AT+CLCC.

3：Add a held call to the active calls in order to set up a conference (multiparty) call.
see [27.007]

7.4.4.12 Advice of Charge +CAOC

Command	Possible response(s)
+CAOC[=<mode>]	[+CAOC: <ccm>] +CME ERROR: <err>
+CAOC?	+CAOC: <mode>
+CAOC=?	[+CAOC: (list of supported <mode>s]

Supported parameter values

<mode>

0：query CCM value

1：deactivate the unsolicited reporting of CCM value

2：activate the unsolicited reporting of CCM value

See "Other stored data in ATP section" for default value.

<ccm>:

string type; three bytes of the current call meter value in hexadecimal format (e.g. "00001E" indicates

decimal value 30); value is in home units and bytes are similarly coded as ACMmax value in the SIM

see [27.007]

7.4.4.13 Unstructured supplementary service data +CUSD

Command	Possible response(s)
+CUSD=[<n>[,<str>[,<dcs>]]]	+CME ERROR: <err>
+CUSD?	+CUSD: <n>
+CUSD=?	+CUSD: (list of supported <n>s)

Supported and default parameter values

<n>: see [27.007]

<str>: see [27.007]

<dcs>: 0, 2 (see [27.007])

7.4.4.14 *Supplementary service notifications +CSSN*

Command	Possible response(s)
+CSSN=[<n>[,<m>]]	
+CSSN?	+CSSN: <n>,<m>
+CSSN=?	+CSSN: (list of supported <n>s),(list of supported <m>s)

Supported and default parameter values

<n>: 0, 1 (see [27.007]; See Data impacted by &F for default value)

  0: disable

  1: enable

<m>: 0, 1 (see [27.007]; See Data impacted by &F for default value)

  0: disable

  1: enable

7.4.4.15 *List current calls +CLCC*

Command	Possible response(s)
+CLCC	[+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>[<CR><LF>+CCLC: <id2>,<dir>,<stat>,<mode>,<mpty> [...]]] +CME ERROR: <err>
+CLCC=?	

Supported parameter values

<idx>: see [27.007],

  integer type; call identification number as described in GSM 02.30 [19] subclause 4.5.5.1; this number can

  be used in +CHLD command operations.

<dir>: see [27.007]

  0：mobile originated (MO) call;

  1：mobile terminated (MT) call

<stat>: see [27.007]

  0：active

  1：held

  2：dialing (MO call)

  3：alerting (MO call)

  4：incoming (MT call)

  5：waiting (MT call)

<mode>: see [27.007]

  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

<mpty>: see [27.007]

0：call is not one of multiparty (conference) call parties

1：call is one of multiparty (conference) call parties

7.4.4.16 Preferred operator list +CPOL

Command	Possible response(s)
+CPOL=[<index>][,<format>[,<oper>]]	+CME ERROR: <err>
+CPOL?	+CPOL: <index1>, <format>, <oper1> [<CR><LF>+CPOL: <index2>,<format>,<oper2>[…]] +CME ERROR: <err>
+CPOL=?	+CPOL: (list of supported <index>s), (list of supported <format>s) +CME ERROR: <err>

Supported parameter values

<index>

integer type; the order number of operator in the SIM preferred operator list
see [27.007]

<format>

0：long format alphanumeric <oper>

1：short format alphanumeric <oper>

2：numeric <oper>

see [27.007]

<opern>

string type; <format> indicates if the format is alphanumeric or numeric (see +COPS)
see [27.007]

7.4.4.17 Read operator names +COPN

Command	Possible response(s)
+COPN	+COPN: <numeric1>, <alpha1> [<CR><LF>+COPN : <numeric2>,<alpha2>[…]] +CME ERROR: <err>
+COPN=?	

Supported parameter values

<numericn>

Operator in numeric form; GSM location area identification number.
see [27.007]

<alphan>

Operator in long alphanumeric format; can contain up to 16 characters.

see [27.007]

7.4.5 Network service related result code commands

7.4.5.1   *Service reporting +CREG*

Result code
+CREG: <stat>[,<lac>,<ci>]

Supported parameter values

<stat>: 0, 1, 2, 3, 4, 5

<lac>,<ci> are extracted from network registration result

7.4.5.2   *Calling line identification presentation +CLIP*

Result code
+CLIP: <number>, <type>[,<subaddr>,<satype>[,,<CLI validity>]]

Supported parameter values

<number>: see [27.007]

<type>: see [27.007]

<subaddr>: see [27.007]

<satype>: see [27.007]

<CLI validity> : see [27.007]

7.4.5.3   *Connected line identification presentation +COLP*

Result code
+COLP: <number>, <type>[,<subaddr>,<satype>]

Supported parameter values

<number>: see [27.007]

<type>: see [27.007]

<subaddr>: see [27.007]

<satype>: see [27.007]

7.4.5.4   *Call waiting +CCWA*

Result code

+CCWA: <number>,<type>,<class>,[,<CLI validity>]

Supported parameter values

<number>: see [27.007]

<type>: see [27.007]

<class>: see [27.007]

<CLI validity>: see [27.007]

7.4.5.5   *Unstructured supplementary service data +CUSD*

Result code
+CUSD: <m>[,<str>,<dcs>]

Supported parameter values

<m>: 0, 1, 2(see [27.007])

<str>: see [27.007]

<dcs>: see [27.007]

7.4.5.6   *Supplementary service notification +CSSI*

Result code
+CSSI: <code1>

Supported parameter values

<code1>: 0, 1, 2, 3, 5, 6, 7 (see [27.007])

7.4.5.7   *Supplementary service notification +CSSU*

Result code
+CSSU: <code2>

Supported parameter values

<code2>: 0, 2, 3, 4, 5 (see [27.007])

7.4.5.8   *Current Call Meter notification +CCCM*

Result code
+CCCM: <value>

Clarification

This unsolicited result code is sent whenever the CCM value changes, but not more than once every 10s.

This URC is activated when CAOC is in mode 2.

Supported parameter values

<value >: 0.. 0xFFFFFF

7.4.6 Control and status command

7.4.6.1 *Phone activity status +CPAS*

Command	Possible response(s)
+CPAS	+CPAS: <pas>
	+CME ERROR: <err>
+CPAS=?	+CPAS: (list of supported <pas>s)
	+CME ERROR: <err>

Supported parameter values

<pas>

0: ready (ME allows commands from TA/TE)

2: unknown (ME is not guaranteed to respond to instructions)

3: ringing (ME is ready for commands from TA/TE, but the ringer is active)

4: call in progress (ME is ready for commands from TA/TE, but a call is in progress)

7.4.6.2 *Enter PIN +CPIN*

Command	Possible response(s)
+CPIN=<pin>[,<newpin>]	+CME ERROR: <err>
+CPIN?	+CPIN: <code>
	+CME ERROR: <err>
+CPIN=?	

Clarification

PH-NET PIN correspond to NCK code

PH-NETSUB PIN correspond to NSCK code

PH-SP PIN correspond to SPCK code

PH-CORP PIN correspond to CCK code

Supported parameter values

<pin>, <newpin> string type values

see [27.007]

<code> values reserved by this TS:

READY: ME is not pending for any password

SIM PIN: ME is waiting SIM PIN to be given

SIM PUK: ME is waiting SIM PUK to be given

PH-SIM PIN: ME is waiting phone-to-SIM card password to be given

PH-FSIM PIN: ME is waiting phone-to-very first SIM card password to be given

PH-FSIM PUK: ME is waiting phone-to-very first SIM card unblocking password to be given

SIM PIN2: ME is waiting SIM PIN2 to be given (this <code> is recommended to be returned only when the last executed command resulted in PIN2 authentication failure (i.e. +CME ERROR: 17); if PIN2 is not entered right after the failure, it is recommended that ME does not block its operation)

SIM PUK2: ME is waiting SIM PUK2 to be given (this <code> is recommended to be returned only when the last executed command resulted in PUK2 authentication failure (i.e. +CME ERROR: 18); if PUK2 and new PIN2 are not entered right after the failure, it is recommended that ME does not block its operation)

PH-NET PIN: ME is waiting network personalisation password to be given

PH-NET PUK: ME is waiting network personalisation unblocking password to be given

PH-NETSUB PIN: ME is waiting network subset personalisation password to be given

PH-NETSUB PUK: ME is waiting network subset personalisation unblocking password to be given

PH-SP PIN: ME is waiting service provider personalisation password to be given

PH-SP PUK: ME is waiting service provider personalisation unblocking password to be given

PH-CORP PIN: ME is waiting corporate personalisation password to be given

PH-CORP PUK: ME is waiting corporate personalisation unblocking password to be given

Error result code

When the pin code is required, the error result code is a CMS ERROR for the AT commands belong to the [07.05] and a CME ERROR for all the other AT commands

7.4.6.3 Battery charge +CBC

Command	Possible response(s)
+CBC	+CBC: <bcs>,<bcl>
	+CME ERROR: <err>
+CBC=?	+CBC: (list of supported <bcs>s),(list of supported <bcl>s)

Supported parameter values

<bcs>

0: ME is powered by the battery

1: ME has a battery connected, but is not powered by it

2: ME does not have a battery connected

3: Recognized power fault, calls inhibited

<bcl>

0: battery is exhausted, or ME does not have a battery connected

1...100: battery has 1-100 percent of capacity remaining

7.4.6.4 Signal quality +CSQ

Command	Possible response(s)
+CSQ	+CSQ: <rssi>,<ber>

	+CME ERROR: <err>
+CSQ=?	+CSQ: (list of supported <rssi>s),(list of supported <ber>s)

Supported parameter values

<rssi>: 0..31

   0: -113 dBm or less

   1: -111 dBm

   2...30: -109... -53 dBm

   31: -51 dBm or greater

<ber>: 99, not known or not detectable

* It's about 20 seconds from turn on power until system is ready. It's better to use AT command after 20 seconds.

* Or set +CREG=1, when the system is ready, it will response +CREG:1 automatically.

7.4.6.5 Mobile Equipment control mode +CMEC

Command	Possible response(s)
+CMEC=[<keyp>[,<disp>[,<ind>]]]	+CME ERROR: <err>
+CMEC?	+CMEC: <keyp>,<disp>,<ind>
+CMEC=?	+CMEC: (list of supported <keyp>s),(list of supported <disp>s),(list of supported <ind>s)

Supported parameter values

<keyp>: 0

<disp>: 0

<ind>: 0

7.4.6.6 Indicator control +CIND

Command	Possible response(s)
+CIND=[<ind>[,<ind>[,…]]]	+CME ERROR: <err>
+CIND?	+CIND: <ind>[,<ind>[,...]] +CME ERROR: <err>
+CIND=?	+CIND: (<descr>,(list of supported <ind>s)) [,(<descr>,(list of supported <ind>s))[,...]] +CME ERROR: <err>

Supported parameter values

<descr>: "battchg"

<ind>: 0..5 (see [27.007])

<descr>: "signal"

<ind>: 0..4 (see [27.007])

<descr>: "service"

<ind>: 0,1 (see [27.007] _ Network available or not)

<descr>: "message"

<ind>: 0,1 (see [27.007])

<descr>: "call"

<ind>: 0,1 (see [27.007])

<descr>: "roam"

<ind>: 0,1 (see [27.007])

<descr>: "smsfull"

<ind>: 0,1 (see [27.007])

7.4.6.7   Mobile Equipment event reporting +CMER

Command	Possible response(s)
+CMER=[<mode>[,<keyp>[,<disp>[,<ind>[,<bfr>]]]]]	+CME ERROR: <err>
+CMER?	+CMER: <mode>,<keyp>,<disp>,<ind>,<bfr>
+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)

Supported and default parameter values

<mode>: 0,1. See Data impacted by &F for default value.

<keyp>: 0

<disp>: 0

<ind>: 0..2. See Data impacted by &F for default value.

<bfr>: 0

7.4.6.8   Select phonebook memory storage +CPBS

Command	Possible response(s)
+CPBS=<storage>	+CME ERROR: <err>
+CPBS?	+CPBS: <storage>[,<used>,<total>] +CME ERROR: <err>
+CPBS=?	+CPBS: (list of supported <storage>s)

Supported and default parameter values

<storage>: "DC", "EN", "FD", "MC", "ON", "RC", "SM" . See Data impacted by &F for default value.

"DC": ME dialled calls list (+CPBW may not be applicable for this storage)

"EN": SIM (or ME) emergency number (+CPBW is not be applicable for this storage)

"FD": SIM fix dialling-phonebook

"MC": ME missed (unanswered received) calls list (+CPBW may not be applicable for this storage)

"ON": SIM (or ME) own numbers (MSISDNs) list (reading of this storage may be available through +CNUM Also)

"RC": ME received calls list (+CPBW may not be applicable for this storage)

"SM": SIM phonebook

<used> and <total> are read from <storage>.

Example (Open/Change to "FD" mode with PIN2& change a new PIN2)

Command	Possible response(s)

+CLCK="FD",1,"1111"	OK (Open the "FD" mode/OLD PIN2 is 1111)
+CPIN?	+CPIN: READY
+CPBS=?	+CPBS: ("DC","EN","FD","MC","ON","RC","SM")
+CPBS?	+CPBS: "SM",4,250 OK
+CPBS="FD"	ERROR
+CPIN?	+CPIN: SIM PIN2 OK
+CPIN="1111"	OK (OLD PIN2 is 1111)
+CPBS="FD"	OK
+CPWD="P2","OLD PIN2", "NEW PIN2"	OK

7.4.6.9   Find phonebook entries +CPBF

Command	Possible response(s)
+CPBF=<findtext>	[+CPBF: <index1>,<number>,<type>,<text>[[...] <CR><LF>+CPBF: <index2>,<number>,<type>,<text>]] +CME ERROR: <err>
+CPBF=?	+CPBF: (list of supported <index>s),[<nlength>],[<tlength>] +CME ERROR: <err>

Supported parameter values

<index1>, <index2>: integer type values in the range of location numbers of phonebook memory

<number>: string type phone number of format <type>

<type>: type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7)

<findtext>, <text>: string type field of maximum length <tlength>; character set as specified by command

Select TE Character Set +CSCS

<nlength>: integer type value indicating the maximum length of field <number>

<tlength>: integer type value indicating the maximum length of field <text>

7.4.6.10   Read phonebook entries +CPBR

Command	Possible response(s)
+CPBR=<index1> [,<index2>]	[+CPBR: <index1>,<number>,<type>,<text>[[...] <CR><LF>+CBPF: <index2>,<number>,<type>,<text>]] +CME ERROR: <err>
+CPBR=?	+CPBR: [<nlength>],[<tlength>] +CME ERROR: <err>

Supported parameter values

<index1>, <index2>, <index>: integer type values in the range of location numbers of phonebook memory

<number>: string type phone number of format <type>

<type>: type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7)

<text>: string type field of maximum length <tlength>; character set as specified by command Select TE

Character Set +CSCS

<nlength>: integer type value indicating the maximum length of field <number>

<tlength>: integer type value indicating the maximum length of field <text>

7.4.6.11 Write phonebook entry +CPBW

Command	Possible response(s)
+CPBW=[<index>][,<number> [,<type>[,<text>]]]	+CME ERROR: <err>
+CPBW=?	+CPBW: (list of supported <index>s),[<nlength>], (list of supported <type>s),[<tlength>] +CME ERROR: <err>

Supported parameter values

<index>: 1..999 in the range of the <storage>.

<number>: string type phone number of format <type>

<type>: type of address octet in integer format, default 145 when dialing string includes international access

code character "+", otherwise 129

<text>: string type field of maximum length <tlength>; character set as specified by command Select TE

Character Set +CSCS

All other values are either given by the storage or the user.

7.4.6.12 Clock +CCLK

Command	Possible response(s)
+CCLK=<time>	+CME ERROR: <err>
+CCLK?	+CCLK: <time> +CME ERROR: <err>
+CCLK=?	

Supported parameter values

<time>

Format is "yy/mm/dd,hh:mm:ss", where the characters indicate the two last digits of the year,

followed by month,day, hour, minutes, seconds; for example 6th of May 2004, 22:10:00 hours

equals to "04/05/06,22:10:00" Factory default is "02/01/01,00:00:00"

see [27.007]

7.4.6.13 Alert sound mode +CALM

Command	Possible response(s)
+CALM=<mode>	+CME ERROR: <err>
+CALM?	+CALM: <mode> +CME ERROR: <err>
+CALM=?	+CALM: (list of supported <mode>s) +CME ERROR: <err>

Clarification:

In the case of <mode> = 1, all sounds from ME are prevented except the sound of an incoming call

(sound of incoming call treated by AT+CRSL command).

Supported parameter values

<mode>

0: normal mode

1: silent mode (all sounds from ME are prevented)

2...: manufacturer specific

see [27.007]

7.4.6.14 Ringer sound level +CRSL

Command	Possible response(s)
+CRSL=<level>	+CME ERROR: <err>
+CRSL?	+CRSL: <level>
	+CME ERROR: <err>
+CRSL=?	+CRSL: (list of supported <level>s)
	+CME ERROR: <err>

Supported parameter values

<level>: 0, 1, 2, 3

See "Other stored data in other section" for default value.

7.4.6.15 Vibrator mode +CVIB

Command	Possible response(s)
+CVIB=<mode>	+CME ERROR: <err>
+CVIB?	+CVIB: <mode>
	+CME ERROR: <err>
+CVIB=?	+CVIB: (list of supported <mode>s)
	+CME ERROR: <err>

Supported parameter values

<mode>:

0: disable

1: enable

See "Other stored data in other section" for default value.

7.4.6.16 Loudspeaker volume level +CLVL

Command	Possible response(s)
+CLVL=<level>	+CME ERROR: <err>
+CLVL?	+CLVL: <level>
	+CME ERROR: <err>
+CLVL=?	+CLVL: (list of supported <level>s)
	+CME ERROR: <err>

Supported parameter values

<level>: 1, 2, 3…, 10

See "Other stored data in other section" for default value.

7.4.6.17 Accumulated call meter +CACM

Command	Possible response(s)
+CACM=[<passwd>]	+CME ERROR: <err>
+CACM?	+CACM: <acm>
	+CME ERROR: <err>
+CACM=?	

Supported parameter values

<passwd> see [27.007]

  string type; SIM PIN2

<Acm> see [27.007]

  SIM PIN2

7.4.6.18 Accumulated call meter maximum +CAMM

Command	Possible response(s)
+CAMM=[<acmmax>[,<passwd>]]	+CME ERROR: <err>
+CAMM?	+CAMM: <acmmax>
	+CME ERROR: <err>
+CAMM=?	

Supported parameter values

<acmmax>

  Three bytes of the max. ACM value in hexadecimal format (e.g. "00001E" indicates decimal

  value 30) 000000 disable ACMmax feature 000001-FFFFFF.

see [27.007]

<passwd>

  string type; SIM PIN

 see [27.007]

7.4.6.19 Price per unit and currency table +CPUC

Command	Possible response(s)
+CPUC=<currency>,<ppu>[,<passwd>]	+CME ERROR: <err>
+CPUC?	+CPUC: <currency>,<ppu>
	+CME ERROR: <err>
+CPUC=?	

Supported parameter values

<currency>: string of 3 characters, see [27.007]

<ppu>: see [27.007]

<passwd>: see [27.007]

7.4.6.20 Call Meter maximum event +CCWE

Command	Possible response(s)
+CCWE=<mode>	+CME ERROR: <err>
+CCWE?	+CCWE: <mode>
	+CME ERROR: <err>
+CCWE=?	+CCWE: (list of supported <mode>s)
	+CME ERROR: <err>

Supported parameter values

<mode>

  0: Disable the call meter warning event

  1: Enable the call meter warning event

See "Other stored data in ATP section" for default value.

7.4.6.21 Set Language +CLAN

Command	Possible response(s)
+CLAN=<code>	+CME ERROR: <err>
+CLAN?	+CLAN: <code>
	+CME ERROR: <err>
+CLAN=?	+CLAN:(list of supported <code>s)
	+CME ERROR: <err>

Supported parameter values

  <code>: (not all language codes are present in this list)"AUTO" Read language from SIM. "Auto" is

      not returned by the read-command.

  "en" English

See "Other stored data in other section" for default value.

7.4.6.22 Set Greeting Text +CSGT

Command	Possible response(s)
+CSGT=<mode>[,<text>]	+CME ERROR: <err>
+CSGT?	+CSGT: <text>, <mode>
	+CME ERROR: <err>
+CSGT=?	+CSGT:(list of supported <mode>s),
	<ltext>
	+ CME ERROR: <err>

Clarification

  This command handles the greeting text in the SIM cards if it exists else the greeting text is handled in
  EEPROM.

Supported parameter values

<text>

  string type; A free text that shall be displayed. The text can not include <CR>

see [27.007]

See "Other stored data in other section" for default value.

<mode>

　0: Turn off greeting text.

　1: Turn on greeting text

7.4.6.23 Set Voice Mail Number +CSVM

Command	Possible response(s)
+CSVM=<mode>[,<number>[,<type>]]	+CME ERROR: <err>
+CSVM?	+CSVM:<mode>,<number>,<type> +CME ERROR: <err>
+CSVM=?	+CSVM: (list of supported mode>s), (list of supported <type>s) +CME ERROR: <err>

Clarification

<mode>

　0: removes the information about the voice number instead of setting the number as disabled.

　The command type SET allow to modify the existing Voice Mail Number or to create a Voice Mail number

　if no existing Voice Mail number.

Supported parameter values

<mode>: 0, 1

<number>: see [27.007]

<type>: 129, 145

* The mode and number can't changed by user

7.4.6.24 Ring Melody Playback +CRMP

Command	Possible response(s)
+CRMP=<call type>[,<volume>[,<type>,<index>]]	+CME ERROR: <err>
+CRMP=?	+CRMP: (list of supported <call type>s),(list of supported <volume>s),(<type0>),(list of supported <index>s)[<CR><LF> +CRMP: (list of supported <call type>s),(list of supported <volume>s),(<type1>),(list of supported <index>s) +CME ERROR: <err>

Clarification

　By playing the melody, if the melody is vibrator (default melody or given as parameter), the mobile does

　not vibrate.

　If a melody is played, it's just played for 10 sec., then stopped.

Supported parameter values

<call type>: handle in order to be compliant but　have no effect. Value: 0.

<volume>: 1, 2, 3

<type>: 0 Manufacturer defined

<index>: 1, 2, 3…, 10, 11 (11 corresponds to vibrator)

7.4.6.25 *Mute control +CMUT*

Command	Possible response(s)
+CMUT=<n>	+CME ERROR: <err>
+CMUT?	+CMUT: <n>
	+CME ERROR: <err>
+CMUT=?	+CMUT: (list of supported <n>s)

Supported parameter values

<n>

0: mute off

1: mute on

see [27.007]

7.4.6.26 *List all available AT commands +CLAC*

Command	Possible response(s)
+CLAC	<AT Command1>[<CR><LF><AT Command2>[…]]
	+CME ERROR: <err>
+CLAC=?	+CME ERROR: <err>

Supported parameter values

<AT command>

Defines the AT command including the prefix AT. Text shall not contain the sequence 0<CR> or

OK<CR>.

see [27.007]

7.4.7 Control and status Result code commands

7.4.7.1 *Indicator event report +CIEV*

Result code
+CIEV: <ind>,<value>

Supported parameter values

<ind>: 0,1

<value>: 0..5 for <ind>=0

0..4 for <ind>=1

7.4.7.2 *Call Meter warning value +CCWV*

Result code
+CCWV

Clarification

This warning will be triggered shortly before the ACM (Accumulated Call Meter) maximum value is reached, an unsolicited result code +CCWV will be sent, if enabled by +CCWE command. The warning is issued approximately when 30 seconds call time remains. It is also issued when starting a call if less than 30 seconds call time remains.

7.4.8 Mobile Equipment errors commands

7.4.8.1 *Report Mobile Equipment error +CMEE*

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

Supported and default parameter values

<n>

0: disable +CME ERROR: <err> result code and use ERROR instead

1: enable +CME ERROR: <err> result code and use numeric <err> values (refer next subclause)

2: enable +CME ERROR: <err> result code and use verbose <err> values (refer next subclause)

See Data impacted by &F for default value.

7.4.9 Mobile Equipment error result code

7.4.9.1 *Error result code +CME ERROR*

Result code
+CME ERROR: <err>

Supported parameter values

<err>: 99 resource limitation (for +CCWA command only)

other values see [27.007] for numeric values, verbose values are the text associated with numeric values

defined in [27.007] adding quotes. (ex "phone failure" for numeric 0).

7.4.10 GPRS commands

7.4.10.1 *Define PDP Context +CGDCONT*

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

Clarification

PDP address provided in +CGDCONT is saved in EEPROM.

A PDP_adress with value "0.0.0.0" is considered as a request for a dynamic address. Non-zero values are considered as static.

If present, the address parameter is only used for commands +CGACT/+CGDATA else we use address provided by configuration of PC modem.

Supported parameter values

<cid>: 1..3

<PDP_type>: "IP","PPP"

<PDP_address>: "<n>.<n>.<n>.<n>" where <n>=0..255

<d_comp>: 0

<h_comp>: 0

<APN>: see [27.007]. See Other stored data for default value.

7.4.10.2 *Quality of Service Profile (Requested) +CGQREQ*

Command	Possible response(s)
+CGQREQ=[<cid> [,<precedence > [,<delay> [,<reliability.> [,<peak> [,<mean>]]]]]]	
+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) […]]

Supported and default parameter values

<cid>: 1..3

<precedence>: 0..3

<delay>: 0..4

<reliability>: 0..3..5

<peak>: 0..9

<mean>: 0..18, 31

See Other stored data for default values.

7.4.10.3 *Quality of Service Profile (Minimum acceptable) +CGQMIN*

Command	Possible response(s)
+CGQMIN=[<cid> [,<precedence > [,<delay> [,<reliability.> [,<peak> [,<mean>]]]]]]	
+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) […]]

Supported parameter values

<cid>: 1..3

<precedence>: 0..3

<delay>: 0..4

<reliability>: 0..3..5

<peak>: 0..9

<mean>: 0..18, 31

7.4.10.4 GPRS attach or detach +CGATT

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

Supported parameter values

<state> Indicates the state of GPRS attachment.

    0: detached

    1: attached

Clarification:

This command may take a long time to operate and is not abortable.

7.4.10.5 PDP context activate or deactivate +CGACT

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

Supported parameter values

<state>: 0, 1

<cid>: 1..3

7.4.10.6 Show PDP address +CGPADDR

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

Supported parameter values

<PDP_address>: "<n>.<n>.<n>.<n>" where <n>=0..255

<cid>: 1..3

7.4.10.7 Enter data state +CGDATA

Command	Possible response(s)

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

Supported parameter values

<L2P>: none

<cid>: none

7.4.10.8 GPRS mobile station class +CGCLASS

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

Supported parameter values

<class >: "B"   ** ONLY SUPPORT "B"

7.4.10.9 GPRS network registration status +CGREG

Command	Possible response(s)
+CGREG=[<n>]	
+CGREG?	+CGREG: <n>,<stat>[,<lac>,<ci>] +CME ERROR: <err>
+CGREG=?	+CGREG: (list of supported <n>s)

Supported and default parameter values

<n>

0: disable network registration unsolicited result code

1: enable network registration unsolicited result code +CGREG: <stat>

2: enable network registration and location information unsolicited result code +CGREG:

<stat>[,<lac>,<ci>]

See Data impacted by &F for default value.

<stat>

0: not registered, ME is not currently searching a new operator to register to

1: registered, home network

2: not registered, but ME is currently searching a new operator to register to

3: registration denied

4: unknown

5: registered, roaming

<lac>

string type; two byte location area code in hexadecimal format

<ci>

string type; two byte cell ID in hexadecimal format

see [27.007]

7.4.10.10 Select service for MO SMS messages +CGSMS

Command	Possible response(s)
+CGSMS= [<service>]	
+CGSMS?	+CGSMS: <service>
+CGSMS=?	+CGSMS: (list of currently available <service>s)

Supported and default parameter values

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

0: GPRS

1: circuit switched

2: GPRS preferred (use circuit switched if GPRS not available)

3: circuit switched preferred (use GPRS if circuit switched not available)

7.4.10.11 Request GPRS service D*

Command	Possible response(s)
D*99[*[<called_address>] [*[<L2P>][*[<cid>]]]]# or D*98[*<cid>]#	

Supported and default parameter values

<called_address>:   empty

<L2P>: 1

<cid>: 1..3 . see Other stored data for default value.

7.4.11 Commands from TIA IS-101

7.4.11.1 DTMF and tone generation +VTS

Command	Possible response(s)
+VTS="<DTMF>";	OK
+VTS=?	+VTS: (list of supported <tone1>s), (list of supported <tone2>s), (list of supported <duration>s)

Clarification

In spite of the FCLASS equal to 8 is not supported, this command works in speech call connected case.

Supported parameter values

<DTMF>: see [27.007]

* Need add a ” before and after the DTMF number and a semicolon at the end.

7.4.11.2   Tone duration +VTD

Command	Possible response(s)
+VTD=<n>	
+VTD?	+VTD: <n>
+VTD=?	+VTD: (list of supported <n>s)

Supported parameter values

<n>: 0 (see [27.007])

7.5   [TIA578A] commands

7.5.1   General commands

7.5.1.1   Manufacturer identification +FMI

Command	Possible response(s)
+FMI	<manufacturer> +CME ERROR: <err>
+FMI=?	

See Manufacturer identification +CGMI

7.5.1.2   Model identification +FMM

Command	Possible response(s)
+FMM	<model> +CME ERROR: <err>
+FMM=?	

See Model identification +CGMM

7.5.1.3   Revision identification +FMR

Command	Possible response(s)
+FMR	<revision> +CME ERROR: <err>
+FMR=?	

See Revision identification +CGMR

7.5.2 Capabilities identification and control

7.5.2.1 Service Class +FCLASS

Command	Possible response(s)
+FCLASS=<class>	
+FCLASS?	+FCLASS: <class>
+FCLASS=?	+FCLASS: (list of supported <class>s)

Supported and default parameter values

<class> : 0, 1. See Data stored by &W for default value.

7.5.2.2 HDLC transmit +FTH

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

Supported and default parameter values

<mode>: 3

7.5.2.3 HDLC receive +FRH

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

Supported and default parameter values

<mode>: 3

7.5.2.4 Facsimile transmit +FTM

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

Supported and default parameter values

<mode>: 2400, 4800, 7200, 9600

7.5.2.5   *Facsimile receive +FRM*

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

Supported and default parameter values

<mode>: 2400, 4800, 7200, 9600

7.6 Proprietary commands

7.6.1 Capabilities identification and control

7.6.1.1   *Service Class #CLS*

Command	Possible response(s)
#CLS =<class>	
#CLS?	#CLS <class>
#CLS=?	#CLS: (list of currently available <class>s)

Supported and default parameter values

<class>: 0, 1

7.6.2 Result Code Commands

7.6.2.1   **PSSSURC*

Result code
*PSSSURC:<service_code>[,<basic_service_code>,<status>,<no_reply_cond_timer>, <ccbs_index>,<phone_number_ton_npi>,<phone_number_config>,<phone_number>, <sub_address_type>,<sub_address_authority_and_format_identifie>,<sub_address_data> [,<clir_option>]]

Supported and default parameter values

All parameters take the decimal value describe in ISD [UPVI] and [APPI]

7.6.2.2   *PSSERR

Result code
*PSSSERR:<cause_select>,<cause>

Supported and default parameter values

    <cause_select> and <cause>: Only decimal value described in ISD [UPVI]

        and [APPI]

8 Non volatile memory needs

8.1 Behavior description

There are 7 non-volatile memory sections (profile), the behavior of the modem on those sections is described in the next figure. Note that each component of one of the different current profile can be modified by one of its associated command.
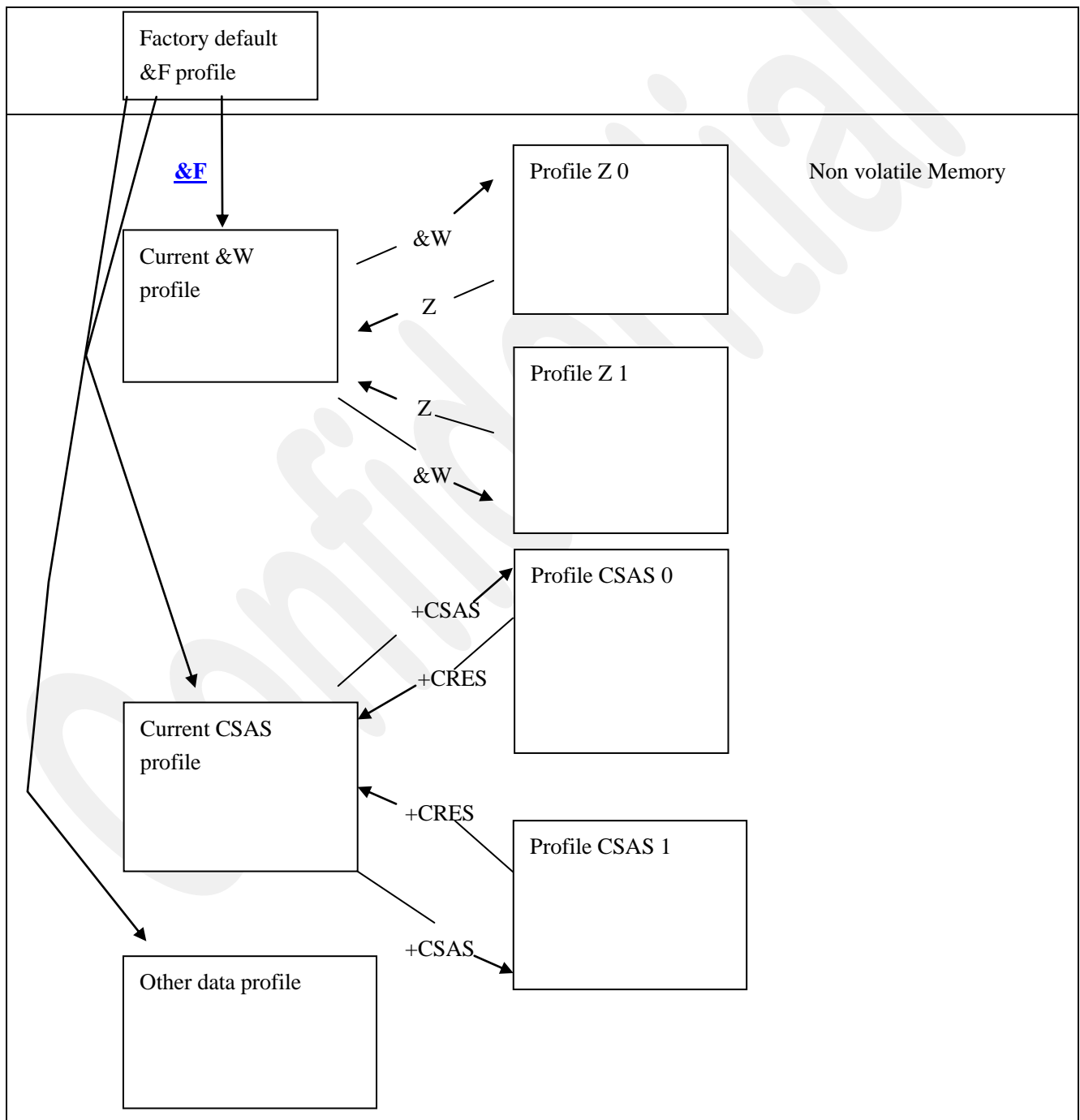

Figure 3

8.2 Data stored by &W

Parameter name	Parameter of command:	Non volatile memory field name	Default value hexa	Displayed by &V
<echo>	E	v_Echo	1	Y
<result>	Q	v_SuppressResult	0	Y
<format>	V	v_Verbose	1	Y
<result>	X	v_ExtendedResultCode	4	Y
<behavior>	&C	v_DcdControl	1	Y
<behavior>	&D	v_DTRBehaviour	2	Y
<override>	&S	V_DSRcontrol	1	Y
<TA_by_TE>	+IFC	v_FlowControlDCEbyDTE	0	Y
<TE_by_TA>		v_FlowControlDTEbyDCE	1	Y
<mode>	&K	v_FlowControl	0	Y
<class>	+FCLASS	v_Fclass	0	Y
<num>	S0	v_S0	0	Y
<num>	S1	v_S1	0	N
<char>	S3	v_S3	D	Y
<char>	S4	v_S4	A	Y
<char>	S5	v_S5	8	Y
<time>	S7	v_S7	32	Y
<time>	S8	v_S8	2	Y
<time>	S10	v_S10	E	Y

8.3 Data reset by Z

Parameter name	Parameter of command:	Non volatile memory field name	Default value hexa
<echo>	E	v_Echo	1
<result>	Q	v_SuppressResult	0
<format>	V	v_Verbose	1
<result>	X	v_ExtendedResultCode	4
<behavior>	&D	v_DcdControl	2
<behavior>	&C	v_DTRBehaviour	1
<override>	&S	V _DSRcontrol	1
<TA_by_TE>	+IFC	v_FlowControlDCEbyDTE	0
<TE_by_TA>		v_FlowControlDTEbyDCE	1
<mode>	&K	v_FlowControl	0
<class>	+FCLASS	v_Fclass	0
<num>	S0	v_S0	0
<num>	S1	v_S1	0
<char>	S3	v_S3	D
<char>	S4	v_S4	A
<char>	S5	v_S5	8
<time>	S7	v_S7	32
<time>	S8	v_S8	2

<time>	S10	v_S10		E

8.4 Data impacted by &F

Parameter name	Parameter of command:	Non volatile memory field name	Length	Default value hexa
<echo>	E	v_Echo	1 bit	1
<result>	Q	v_SuppressResult	1 bit	0
<format>	V	v_Verbose	1 bit	1
<result>	X	v_ExtendedResultCode	3bits	4
<TA_by_TE>	+IFC	v_FlowControlDCEbyDTE	2 bits	0
<TE_by_TA>	&K	v_FlowControlDTEbyDCE	2 bits	1
<mode>		v_FlowControl	3 bits	0
<num>	S0	v_S0	1 byte	0
<num>	S1	v_S1	1 byte	0
<char>	S3	v_S3	1 byte	13
<char>	S4	v_S4	1 byte	10
<char>	S5	v_S5	1 byte	8
<time>	S7	v_S7	1 byte	50
<time>	S8	v_S8	1 byte	2
<time>	S10	v_S10	1 byte	14
<ver>	+CRLP	v_CrlpVer	1 byte	0
<T4>		v_CrlpT4	1 byte	7
<iws>		v_CrlpIws	1 byte	61
<mws>		v_CrlpMws	1 byte	61
<T1>		v_CrlpT1	1 byte	48
<N2>		v_CrlpN2	1 byte	6
<cause_select>	+CEER	v_CauseSelect	1 byte	0
<cause>		v_Cause	1 byte	0
<storage>	+CPBS	a_atp_Storage	3 bytes	53h,4dh,0
<fo>	+CSMP	v_hee_Smsfo	1 byte	16
<vp>		v_hee_SmsVp.s_RelTime	24 bytes	(167)
		- v_NbMinutes	1 byte	0
		- v_NbHours	1 byte	24
		- v_NbDays	1 byte	0
		- v_NbWeeks	1 byte	0
		- v_Gap_RelativeTime	20 bytes	0,...,0
<pid>		v_hee_SmsPid	1 byte	0
<dcs>		v_hee_SmsDcs	1 byte	0
<mode>	+CR	v_CrState	1 byte	0
<type>	+CSTA	v_TypeOfAddress	1 byte	81
<speed>	+CBST	v_UserBearerRate	4bits	5
		v_InfoTrans	3bits	2
<name>		v_SyncAsync	1 bit	1
		v_TransferMode	1 bit	0
<ce>		v_ConnElm	2bits	1
<mode>	+CRC	v_Crc	1 bit	0
<mode>	+CMOD	v_CallMode	2bits	0

<n>	+CMEE	v_CMEE	2bits	0
<n>	+CREG	v_CREGn	2bits	0
<n>	GPRS network registration status +CGREG	v_CGREGn	2 bits	0
<service>	+CSMS	v_CSMSService	1 bit	0
<ind>	+CMER	v_CMER_IndicatorReport	2 bits	0
<mode>		v_CMER_Mode	3 bits	0
<mode>	+COPS	v_RegisterInAutomaticMode	1 bit	0
<mode>	+CMGF	v_CMGFMode	1 bit	0
<show>	+CSDH	v_CSDH	1 bit	0
<chset>	+CSCS	v_CharSet	2 bits	0
<mode>	+CVHU	v_CVHUMode	2 bits	0
<n>	+CLIR	v_CLIR_n	1	0
<n>	+CLIP	v_CLIP_n	1	0
<n>	+COLP	v_COLP_n	1	0
<n>	+CSSN	v_CSSN_n	1	0
<m>		v_CSSN_m	1	0

8.5 Data stored by +CSAS

Parameter name	Parameter of command:	Non volatile memory field name	Length	Default value hexa
<sca> and <tosca>	+CSCA	a_atp_ScAddress	12 bytes	FF..FF
<fo>	+CSMP	v_hee_Smsfo	1 byte	11
<vp>		v_hee_SmsVp.s_RelTime	structure	
		- v_NbMinutes	1 byte	0
		- v_NbHours	1 byte	18
		- v_NbDays	1 byte	0
		- v_NbWeeks	1 byte	0
		- v_Gap_RelativeTime	20 bytes	0..0
<pid>		v_hee_SmsPid	1 byte	0
<dcs>		v_hee_SmsDcs	1 byte	0