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1. Introduction

1.1 Conventions and abbreviations

In this document, the GSM engines are referred to as following term:
ME (Mobile Equipment);
MS (Mobile Station);
TA (Terminal Adapter);
DCE (Data Communication Equipment) or facsimile DCE (FAX modem, FAX board);

In application, controlling device controls the GSM engine by sending AT Command via its serial interface.The controlling device at the other end of the serial line is referred to as following term:
TE (Terminal Equipment);
DTE (Data Terminal Equipment) or plainly “the application” which is running on an embedded system.

1.2 AT Command syntax

The “AT” or “at” or “At” or “At” prefix must be set at the beginning of each Command line. To terminate a Command line enter <CR>.Detailed Description of AT Commands
Commands are usually followed by a response that includes. “<CR><LF><response><CR><LF>”
Throughout this document, only the responses are presented,<CR><LF> are omitted intentionally.
The AT Command set implemented by SIM7500&SIM7600 Series is a combination of 3GPP TS 27.005, 3GPP TS 27.007 and ITU-T recommendation V.25ter and the AT commands developed by SIMCom.

2. AT Commands for Status Control

2.1 ATE Enable command echo

This command sets whether or not the TA echoes characters

ATE Enable command echo	
Execution Command ATE[<value>]	Response OK or ERROR

Defined Values

<value>	0 – Echo mode off

	1 – Echo mode on

Example

```
ATE1
OK
```

2.2 ATI Display product identification information

This command is used to request the product information, which consists of manufacturer identification, model identification, revision identification, International Mobile station Equipment Identity (IMEI) and overall capabilities of the product.

ATI Display product identification information	
Execution Command ATI	Response Manufacturer: <manufacturer> Model: <model> Revision: <revision> IMEI: [<sn>] +GCAP: list of <name>s OK

Example

```
ATI
Manufacturer: SIMCOM
INCORPORATED
Model: SIMCOM_SIM7600C
Revision: SIM7600C _V1.0
IMEI: 351602000330570
+GCAP: +CGSM,+FCLASS,+DS
OK
```

2.3 AT+IPR Set local baud rate temporarily

This command sets the baud rate of module’ s serial interface temporarily, after reboot the baud rate is set to value of IPREX.

AT+IPR Set local baud rate temporarily	
Test Command AT+IPR=?	Response +IPR: (list of supported<speed>s) OK
Read Command AT+IPR?	Response +IPR: <speed> OK

Write Command AT+IPR=<speed>	Response OK or ERROR
Execution Command AT+IPR=<speed>	Set the value to boot value: OK

Defined Values

<speed>	Baud rate per second: 0, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800,921600, 3000000,3200000,3686400

2.4 AT&W Save the user setting to ME

This command will save the user settings to ME

AT&W Save the user setting to ME	
Write Command AT&W<value>	Response OK or ERROR
Execution Command AT&W	Set default value: 0 OK or ERROR

Defined Values

<value>	0 – Save

Example

```
AT&W0
OK
```

2.5 AT+CGSN Request product serial number identification

This command requests product serial number identification text, which is intended to permit the user of the Module to identify the individual ME to which it is connected to.

AT+CGSN Request product serial number identification	
Test Command AT+CGSN=?	Response OK

Execution Command AT+CGSN	Response <sn> OK or +CME ERROR: memory failure

Defined Values

<sn>	Serial number identification, which consists of a single line containing the IMEI (International Mobile station Equipment Identity) number of the MT. If in CDMA/EVDO mode, it will show ESN(Electronic Serial Number)

Example

```
AT+CGSN
351602000330570
OK
```

2.6 AT+CFUN Set phone functionality

This command is used to select the level of functionality <fun> in the ME. Level "full functionality" is where the highest level of power is drawn. "Minimum functionality" is where minimum power is drawn. Level of functionality between these may also be specified by manufacturers. When supported by manufacturers,ME resetting with <rst> parameter may be utilized.

Note: AT+CFUN=6 must be used after setting AT+CFUN=7. If module in offline mode, must execute AT+CFUN=6 or restart module to online mode.

AT+CFUN Set phone functionality	
Test Command AT+CFUN=?	Response +CFUN: (list of supported <fun>s),(list of supported <rst>s) OK or ERROR or +CME ERROR: <err>
Read Command AT+CFUN?	Response +CFUN: <fun> OK or ERROR

	or +CME ERROR: <err>
Write Command AT+CFUN=<fun>[,<rst>	Response OK or ERROR or +CME ERROR: <err>

Defined Values

<fun>	0 – minimum functionality 1 – full functionality, online mode 4 – disable phone both transmit and receive RF circuits 5 – Factory Test Mode 6 – Reset 7 – Offline Mode
<rst>	0 – do not reset the ME before setting it to <fun> power level 1 – reset the ME before setting it to <fun> power level. This value only takes effect when <fun> equals 1.

Example

```
AT+CFUN?
+CFUN: 1
OK
AT+CFUN=0
OK
```

2.7 AT+CCID Read CCID from SIM card

This command is used to Read the CCID from SIM card

AT+CCID Read CCID from SIM card	
Test Command AT+CICCID=?	Response OK
Execution Command AT+CCID	Response +CCID: <CCID> OK or ERROR

	or +CME ERROR: <err>

Defined Values

<CCID>	Integrate circuit card identity, a standard CCID is a 20-digit serial number of the SIM card,it presents the publish state, network code, publish area, publish date, publish manufacture and press serial number of the SIM card.

Example

```
AT+CCID
+CCID: 898600700907A6019125
OK
```

2.8 AT+CSQ Query signal quality

This command is used to return received signal strength indication <rssi> and channel bit error rate <ber> from the ME. Test command returns values supported by the TA as compound values.

AT+CSQ Query signal quality	
Test Command AT+CSQ=?	Response +CSQ: (list of supported <rssi>s),(list of supported <ber>s) OK
Execution Command AT+CSQ	Response +CSQ: <rssi>,<ber> OK or ERROR

Defined Values

<rssi>	0 – -113 dBm or less 1 – -111 dBm 2...30 – -109... -53 dBm 31 – -51 dBm or greater 99 – not known or not detectable 100 – -116 dBm or less 101 – -115 dBm 102…191 – -114... -26dBm 191 – -25 dBm or greater 199 – not known or not detectable

	100…199 – expand to TDSCDMA, indicate RSCP received
<ber>	(in percent) 0 – <0.01% 1 – 0.01% --- 0.1% 2 – 0.1% --- 0.5% 3 – 0.5% --- 1.0% 4 – 1.0% --- 2.0% 5 – 2.0% --- 4.0% 6 – 4.0% --- 8.0% 7 – >=8.0% 99 – not known or not detectable

Example

```
AT+CSQ
+CSQ: 22,0
OK
```

2.9 AT+CMEE Report mobile equipment error

This command is used to disable or enable the use of result code "+CME ERROR: <err>" or "+CMS ERROR: <err>" as an indication of an error relating to the functionality of ME; when enabled, the format of <err> can be set to numeric or verbose string.

AT+CMEE Report mobile equipment error	
Test Command AT+CMEE=?	Response +CMEE: (list of supported <n>s) OK
Read Command AT+CMEE?	Response +CMEE: <n> OK
Write Command AT+CMEE=<n>	Response OK or ERROR
Execution Command AT+CMEE	Response Set default value: OK

Defined Values

<n>	0 – Disable result code, i.e. only "ERROR" will be displayed. 1 – Enable error result code with numeric values. 2 – Enable error result code with string values.

Example

```
AT+CMEE?
+CMEE: 2
OK
AT+CPIN=” 1234” ,” 1234”
+CME ERROR: incorrect password
AT+CMEE=0
OK
AT+CPIN=” 1234” ,” 1234”
ERROR
AT+CMEE=1
OK
AT+CPIN=” 1234” ,” 1234”
+CME ERROR: 16
```

3. Detailed Description of AT Commands for Call Control

3.1 ATD Mobile Originated Call to Dial A Number

This command can be used to set up outgoing data calls. It also serves to control supplementary services.

ATD Mobile Originated Call to Dial A Number	
Execution Command ATD<n>[<mgsm][;]	Response a) If originate a voice call successfaully: OK VOICE CALL: BEGIN b) If Originate a data call successfully: CONNECT [<text>] c) Originate a call unsuccessfully during command execution: ERROR d)Originate a call unsuccessfully for failed connection recovery: NO CARRIER e)Originate a call unsuccessfully for error related to the MT: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	Timeout set with ATS7 (data call)

Example

```
ATD10086;
OK
VOICE CALL: BEGIN
```

3.2 ATA Call answer

This command is used to make remote station to go off-hook, e.g. answer an incoming call. If there is no an incoming call and entering this command to TA, it will be return “NO CARRIER” to TA.

ATA Call answer	
Execution Command	Response
ATA	a) If originate a voice call successfaully: OK VOICE CALL: BEGIN b) For data call, and TA switches to data mode: CONNECT c) No connection or no incoming call: NO CARRIER

Example

```
ATA
VOICE CALL: BEGIN
OK
```

3.3 ATH Disconnect existing call

This command is used to disconnect existing call. Before using ATH command to hang up a voice call, it must set AT+CVHU=0. Otherwise, ATH command will be ignored and “OK” response is given only. This command is also used to disconnect PS data call, and in this case it doesn’ t depend on the value of AT+CVHU.

ATH Disconnect existing call	
Execution Command ATH	Response a) If AT+CVHU=0: VOICE CALL: END: <time> OK or OK

Defined Values

<time>	Voice call connection time: Format – HHMMSS (HH: hour, MM: minute, SS: second)

Example

```
AT+CVHU=0
OK
ATH
VOICE CALL: END: 000017
OK
```

3.4 AT+CHUP Hang up call

This command is used to cancel voice calls. If there is no call, it will do nothing but OK response is given. After running AT+CHUP, multiple "VOICE CALL END: " may be reported which relies on how many calls exist before calling this command.

AT+CHUP Hang up cal	
Test Command AT+CHUP=?	Response OK
Execution Command AT+CHUP	Response VOICE CALL: END: <time> [… VOICE CALL: END: <time>] OK No call: OK
Maximum Response Time	120000ms

Defined Values

<time>	Voice call connection time. Format - HHMMSS (HH: hour, MM: minute, SS: second)

Example

```
AT+CHUP
VOICE CALL:END: 000017
OK
```

4． AT Commands for SMS

4.1 AT+CPMS Preferred message storage

This command is used to select memory storages <mem1>, <mem2> and <mem3> to be

used for reading, writing, etc.

AT+CPMS Preferred message storage	
Test Command AT+CPMS=?	Response a) +CPMS: (list of supported <mem1>s),(list of supported <mem2>s),(list of supported <mem3>s) OK b) If failed: ERROR
Read Command AT+CPMS?	<mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3> OK
Write Command AT+CPMS=<mem1>[,<mem2>[,<mem3>]]	Response a) +CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3> OK b) If failed: ERROR

Defined Values

<mem1>	String type, memory from which messages are read and deleted (commands List Messages AT+CMGL, Read Message AT+CMGR and Delete Message AT+CMGD). "ME" and "MT" - FLASH message storage "SM" - SIM message storage "SR" - Status report storage (not used in CDMA/EVDO mode)
<mem2>	String type, memory to which writing and sending operations are made (commands Send Message from Storage AT+CMSS and Write Message to Memory AT+CMGW). "ME" and "MT" - FLASH message storage "SM" - SIM message storage
<mem3>	String type, memory to which received SMS is preferred to be stored (unless forwarded directly to TE; refer command New Message Indications AT+CNMI). "ME" - FLASH message storage

	“SM” - SIM message storage GSM phase 2+.
<usedX>	Integer type, number of messages currently in <memX>.
<totalX>	Integer type, total number of message locations in <memX>.

Example

```
AT+CPMS=?
+CPMS: (“ME”,”MT”,”SM”,”SR”),(“ME”,”MT”,”SM”),(“ME”,”SM”)
OK
AT+CPMS?
+CPMS: “ME”,0,23,”ME”,0,23,”ME”,0,23
OK
AT+CPMS=”SM”,”SM”,”SM”
+CPMS: 3,50,3,50,3,50
OK
```

4.2 AT+CSCA SMS service centre address

This command is used to update the SMSC address, through which mobile originated SMS are transmitted.

Note: This command not support in CDMA/EVDO mode

AT+CSCA SMS service centre address	
Test Command AT+CSCA=?	Response a) OK b) If failed: ERROR
Read Command AT+CSCA?	Response +CSCA: <sca>,<tosca> OK
Write Command AT+CSCA=<sca>[,<tosca>]	Response a) OK b) If failed: ERROR

Defined Values

<sca>	Service Center Address, value field in string format, BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer to command AT+CSCS), type of address

	given by <tosca>.
<tosca>	SC address Type-of-Address octet in integer format, when first character of <sca> is + (IRA 43) default is 145, otherwise default is 129.

Example

```
AT+CSCA=" +8613012345678"
OK
AT+CSCA?
+CSCA: "+8613012345678" ,145
OK
```

4.3 AT+CMGF Select SMS message format

This command is used to specify the input and output format of the short messages.

AT+CMGF Select SMS message format	
Test Command AT+CMGF=?	Response a) +CMGF: (range of supported <mode>s) OK b) If failed: ERROR
Read Command AT+CMGF?	Response a) +CMGF: <mode> OK b) If failed: ERROR
Write Command AT+CMGF=<mode>	Response a) OK b) If failed: ERROR
Execution Command AT+CMGF	Response a) Set default value (<mode>=0): OK b) If failed: ERROR

Defined Values

<mode>	0 – PDU mode 1 – Text mode

Example

```
AT+CMGF=1
OK
```

4.4 AT+CMGR Read message

This command is used to return message with location value <index> from message storage <mem1> to the TE.

AT+CMGR Read message	
Test Command AT+CMGR=?	Response OK
Write Command AT+CMGR=<index>	a) If text mode (AT+CMGF=1), command successful and SMS-DELIVER: +CMGR: <stat>,<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data> OK b) If text mode (AT+CMGF=1), command successful and SMS-SUBMIT: +CMGR: <stat>,<da>,[<alpha>][,<toda>,<fo>,<pid>,<dcs>,[<vp>],<sca>,<tosca>,<length>]<CR><LF><data> OK c) If text mode (AT+CMGF=1), command successful and SMS-STATUS-REPORT: +CMGR: <stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> OK d) If text mode (AT+CMGF=1), command successful and SMS-COMMAND: +CMGR: <stat>,<fo>,<ct>[,<pid>,[<mn>],[<da>],[<toda>],<length>]<CR><LF><data> OK e) If text mode (AT+CMGF=1), command successful and CBM storage: +CMGR: <stat>,<sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> OK f) If PDU mode (AT+CMGF=0) and Command successful: +CMGR: <stat>,[<alpha>],<length><CR><LF><pdu> OK

	g)If failed: +CMS ERROR: <err>

Defined Values

<stat>	1. Text Mode: "REC UNREAD" - received unread message (i.e. new message) "REC READ" - received read message "STO UNSENT" - stored unsent message "STO SENT" - stored sent message "ALL" - all messages 2. PDU Mode: 0 – received unread message (i.e. new message) 1 – received read message 2 – stored unsent message 3 – stored sent message 4 – all messages
<index>	Integer type; value in the range of location numbers supported by the associated memory and start with zero.
<oa>	Originating-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <tooa>.
<pid>	Protocol Identifier GSM 03.40 TP-Protocol-Identifier in integer format 0…255
<alpha>	String type alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific; used character set should be the one selected with command Select TE Character Set AT+CSCS.
<dcs>	Depending on the command or result code: SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format.
<sca>	RP SC address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <tosca>.
<tosca>	RP SC address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are

	converted to characters of the currently selected TE character set, type of address given by <tosca>.
<scts>	TP-Service-Centre-Time-Stamp in time-string format (refer <dt>).
<da>	Destination-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <toda>.
<tooa>	TP-Originating-Address, Type-of-Address octet in integer format. (default refer <toda>).
<toda>	TP-Destination-Address, Type-of-Address octet in integer format. (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129). The range of value is from 128 to 255.
<length>	Integer type value indicating in the text mode (AT+CMGF=1) the length of the message body <data> in characters; or in PDU mode (AT+CMGF=0), the length of the actual TP data unit in octets. (i.e.the RP layer SMSC address octets are not counted in the length)
<data>	In the case of SMS: TP-User-Data in text mode responses; format: 1. If <dcs> indicates that GSM 7 bit default alphabet is used and <fo> indicates that TP-User-Data-Header-Indication is not set: a. If TE character set other than "HEX": ME/TA converts GSM alphabet into current TE character set. b. If TE character set is "HEX": ME/TA converts each 7-bit character of GSM 7 bit default alphabet into two IRA character long hexadecimal numbers. (e.g. character (GSM 7 bit default alphabet 23) is presented as 17 (IRA 49 and 55)) 2. If <dcs> indicates that 8-bit or UCS2 data coding scheme is used, or <fo> indicates that TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal numbers. (e.g. octet with integer value 42 ispresented to TE as two characters 2A (IRA 50 and 65)) 3. If <dcs> indicates that GSM 7 bit default alphabet is used: a. If TE character set other than "HEX": ME/TA converts GSM alphabet into current TE character set. b. If TE character set is "HEX": ME/TA converts each 7-bit character of the GSM 7 bit default alphabet into two IRA character long hexadecimal numbers. 4. If <dcs> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA

	character long hexadecimal numbers.
<fo>	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. SMS status report is supported under text mode if <fo> is set to 49.
<vp>	Depending on SMS-SUBMIT <fo> setting: TP-Validity-Period either in integer format (default 167) or in time-string format (refer <dt>).
<mr>	Message Reference GSM 03.40 TP-Message-Reference in integer format.
<ra>	Recipient Address GSM 03.40 TP-Recipient-Address Address-Value field in string format;BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set(refer to command AT+CSCS);type of address given by <tora>
<tora>	Type of Recipient Address GSM 04.11 TP-Recipient-Address Type-of-Address octet in integer format (default refer <toda>)
<dt>	Discharge Time GSM 03.40 TP-Discharge-Time in time-string format: “yy/MM/dd,hh:mm:ss+zz “,where characters indicate year (two last digits),month,day,hour,minutes,seconds and time zone.
<st>	Status GSM 03.40 TP-Status in integer format 0…255
<ct>	Command Type GSM 03.40 TP-Command-Type in integer format 0…255
<sn>	Serial Number GSM 03.41 CBM Serial Number in integer forma
<mn>	Message Number GSM 03.40 TP-Message-Number in integer format
<mid>	Message Identifier GSM 03.41 CBM Message Identifier in integer format
<page>	Page Parameter GSM 03.41 CBM Page Parameter bits 4-7 in integer format
<pages>	Page Parameter GSM 03.41 CBM Page Parameter bits 0-3 in integer format
<pdu>	In the case of SMS: SC address followed by TPDU in

	hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal numbers. (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)).

Example

```
AT+CMGR=1
+CMGR: “STO UNSENT” ,” +10011” ,,145,17,0,0,167,” +8613800100500” ,145,11
Hello World
```

4.5 AT+CMGS Send message

This command is used to send message from a TE to the network (SMS-SUBMIT).

AT+CMGS Send message	
Test Command AT+CMGS=?	Response OK
Write Command If text mode (AT+CMGF=1): AT+CMGS=<da>[,<toda>]<CR>Text is entered. <CTRL-Z/ESC> If PDU mode(AT+CMGF=0): AT+CMGS=<length><CR> PDU is entered <CTRL-Z/ESC>	Response a) If sending successfully: +CMGS: <mr>[,<time_stamp>] OK b) If cancel sending: OK c) If sending fails: ERROR d) If sending fails: +CMS ERROR: <err>

Defined Values

<da>	Destination-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <toda>.
<toda>	TP-Destination-Address, Type-of-Address octet in integer format. (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129). The range of value is from 128 to 255.
<length>	integer type value indicating in the text mode (AT+CMGF=1) the length of the message body <data> > (or <cdata>) in characters; or in PDU mode (AT+CMGF=0), the length of the actual TP data unit in octets. (i.e. the RP layer SMSC address octets are not counted in the length)
<mr>	Message Reference

	GSM 03.40 TP-Message-Reference in integer format.

Example

```
AT+CMGS=” 13012832788” <CR>(TEXT MODE)
> ABCD<ctrl-Z/ESC>
+CMGS: 46
OK
```

NOTE: In text mode, the maximum length of an SMS depends on the used coding scheme: It is 160 characters if the 7 bit GSM coding scheme is used.

4.6 AT+CMGD Delete message

This command is used to delete message from preferred message storage <mem1> location <index>. If <delflag> is present and not set to 0 then the ME shall ignore <index> and follow the rules for <delflag> shown below.

AT+CMGD Delete message	
Test Command AT+CMGD=?	Response +CMGD: (list of supported <index>s)[,(list of supported <delflag>s)] OK
Write Command AT+CMGD=<index>[,<delflag>]	Response a) OK b) If failed: ERROR c) If failed: +CMS ERROR: <err>

Defined Values

<index>	Integer type; value in the range of location numbers supported by the associated memory and start with zero.
<delflag>	0 – (or omitted) Delete the message specified in <index>. 1 – Delete all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched. 2 – Delete all read messages from preferred message storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched. 3 – Delete all read messages from preferred message

	storage, sent and unsent mobile originated messages leaving unread messages untouched. 4 – Delete all messages from preferred message storage including unread messages.

Example

```
AT+CMGD=1
OK
```

NOTE: If set <delflag>=1, 2, 3 or 4, <index> is omitted, such as AT+CMGD=,1.

5. AT Commands for TTS

5.1 Overview of AT Commands for TTS

Command	Description
AT+CDTAM	TTS play path, local or remote
AT+CTTS	TTS operation, play or stop
AT+CTTSPARAM	Set TTS Parameters

5.2 AT+CDTAM TTS play path, local or remote

AT+CDTAM TTS play path, local or remote	
Test Command AT+CDTAM=?	Response +CDTAM: (0-1) OK
Read Command AT+CDTAM?	Response +CDTAM: <status> OK
Write Command AT+CDTAM=<mode>	Response +CDTAM: OK or ERROR
Parameter Saving Mode	-
Maximum Response Time	-

Defined Values

<status>	Indicate play path, play TTS to local or play to remote. 0 – Local path 1 – Remote path
<mode>	Set TTS play path, local or remote. Default value is 0. 0 – Local path 1 – Remote path

Example

```
AT+CDTAM=1
+CDTAM:
OK
```

5.3 AT+CTTS TTS operation, play or stop

AT+CTTS TTS operation, play or stop	
Test Command AT+CTTS=?	Response OK
Read Command AT+CTTS?	Response +CTTS: <status> OK
Write Command AT+CTTS=<mode>[,<text>]	Response If <mode>is 0, then <text> is not required. When TTS is playing, return: +CTTS: 0 OK If <mode>is 0, then <text> is not required. When TTS is not playing, return: OK If <mode>is 1 or 2, then <text> is must be required. return: OK +CTTS: 0 or ERROR
Write Command AT+CTTS=<mode>[,<text>][,<filename>]	Response If <mode> is 3 or 4, then <text> and <filename> are must be required. return: OK

	+CTTS: 0 or ERROR
Parameter Saving Mode	-
Maximum Response Time	-

Defined Values

<status>	Indicate playing thread status. Default value is 0 0 – NO_WORKING 1 – PLAY_WAV_WORKING 2 – AMR_WORKING 3 – MP3_WORKING 4 – AAC_WORKING 5 – WAV_WORKING 6 – TTS_WORKING 8 – CREC_WORKING
<mode>	Stop or play TTS. 0 – Stop TTS 1 – <text> is in UCS2 coding format, Start to synth and play 2 – <text> is in ASCII coding format for English,Chinese text is in GBK coding format. Start to synth and play 3 – <text> is in ASCII coding format for English,Chinese text is in GBK coding format. Start to synth and play, and save pcm data as wav file. 4 – <text> is in UCSII coding format. Start to synth and play, and save pcm data as wav file.
<filename>	Location and filename for wav file

NOTE:

※ <text>, which is synthetized to speed to be played, maximum data length is 512 bytes. (including
"")
<filename>,The file should be put into the "E:/filename.wav" . Maximum filename length is 240 bytes. (including "")

※ When <text> is in UCS2 coding format, maximum data length is 510 bytes. (including "),because every four characters correspond to one Chinese character.

Example

```
AT+CTTS=1,"6B228FCE4F7F75288BED97F3540862107CFB7EDF"
OK
```

```
+CTTS: 0
AT+CTTS=3," 欢迎使用语音合成系统","E:/tts.wav"
OK
+CTTS: 0
AT+CTTS=0
OK
+CTTS: 0
```

5.4 AT+CTTSPARAM Set TTS Parameters

AT+CTTSPARAM Set TTS Parameters	
Test Command AT+CTTSPARAM=?	Response +CTTSPARAM: (0-2),(0-3),(0-3),(0-2),(0-2) OK
Read Command AT+CTTSPARAM?	Response +CTTS: <volume>,<sysvolume>,<digitmode>,<pitch>,<speed> OK
Write Command AT+CTTSPARAM=<volume>[,<sysvolume>[,<digitmode>[,<pitch>[,<speed>]]]	Response OK or ERROR
Parameter Saving Mode	-
Maximum Response Time	-

Defined Values

<volume>	TTS Speech Volume, default: 2. 0 – The mix volume 1 – The normal volume 2 – The max volume
<sysvolume>	The module system volume, default: 3. 0 – The mix system volume 1 – The small system volume 2 – The normal system volume 3 – The max system volume
<digitmode>	The digit read mode, default: 0 0 – Auto read digit based on number rule first. 1 – Auto read digit bases on telegram rule first. 2 – Read digit based on telegram rule. 3 – Read digit based on number rule.
<pitch>	The voice tone, default: 1

	0 – The mix voice tone. 1 – The normal voice tone. 2 – The max voice tone.
<speed>	The voice speed, default: 1 0 – The mix speed 1 – The normal speed 2 – The max speed

NOTE:<sysvolume>, It takes no effect to set <sysvolume>,reserved at present

Example

```
AT+CTTSPARAM=1,3,0,1,1
OK
```

6. Summary of CME ERROR codes

This result code is similar to the regular ERROR result code. The format of <err> can be ethier numeric or verbose string, by setting AT+CMEE command.

<err> of numeric format	<err> of verbose format
0	Phone failure
1	no connection to phone
2	phone adaptor link reserved
3	operation not allowed
4	operation not supported
5	PH-SIM PIN required
6	PH-FSIM PIN required
7	PH-FSIM PUK required
10	SIM not inserted
11	SIM PIN required
12	SIM PUK required
13	SIM failure
14	SIM busy
15	SIM wrong
16	incorrect password
17	SIM PIN2 required
18	SIM PUK2 required
20	memory full
21	invalid index
22	not found
23	memory failure
24	text string too long
25	invalid characters in text string

26	dial string too long
27	invalid characters in dial string
30	no network service
31	network timeout
32	network not allowed – emergency calls only
40	network personalization PIN required
41	network personalization PUK required
42	network subset personalization PIN required
43	network subset personalization PUK required
44	service provider personalization PIN required
45	service provider personalization PUK required
46	corporate personalization PIN required
47	corporate personalization PUK required
100	Unknown
103	Illegal message
106	Illegal ME
107	GPRS services not allowed
111	PLMN not allowed
112	Location area not allowed
113	Roaming not allowed in this location area
132	service option not supported
133	requested service option not subscribed
134	service option temporarily out of order
148	unspecified GPRS error
149	PDP authentication failure
150	invalid mobile class
257	network rejected request
258	retry operation
259	invalid deflected to number
260	deflected to own number
261	unknown subscriber
262	service not available
263	unknown class specified
264	unknown network message
273	minimum TFTS per PDP address violated
274	TFT precedence index not unique
275	Invalid parameter combination
“CME ERROR” codes of FTP	
201	Unknown error for FTP
202	FTP task is busy
203	Failed to resolve server address
204	FTP timeout

205	Failed to read file
206	Failed to write file
207	It’ s not allowed in current state
208	Failed to login
209	Failed to logout
210	Failed to transfer data
211	FTP command rejected by server
212	Memory error
213	Invalid parameter
214	Network error

Example

```
AT+CPIN=” 1234” ,” 1234”
+CME ERROR: incorrect password
```

7. Summary of CMS ERROR codes

Final result code +CMS ERROR: <err> indicates an error related to mobile equipment or network. The operation is simialer to ERROR result code. None of the following commands in the same command line is executed. Neither ERROR nor OK result code shall be returned. ERROR is returned normally when error is related to syntax or invalid parameters. The format of <err> can be either numeric or verbose. This is set with command AT+CMEE.

<err> of numeric format	<err> of verbose format
300	ME failure
301	SMS service of ME reserved
302	Operation not allowed
303	Operation not supported
304	Invalid PDU mode parameter
305	Invalid text mode parameter
310	SIM not inserted
311	SIM PIN required
312	PH-SIM PIN required
313	SIM failure
314	SIM busy
315	SIM wrong
316	SIM PUK required
317	SIM PIN2 required
318	SIM PUK2 required
320	Memory failure
321	Invalid memory index
322	Memory full

330	SMSC address unknown
331	No network service
332	Network timeout
340	NO +CNMAACK EXPECTED
341	Buffer overflow
342	SMS size more than expected
500	Unknown error

Example

```
AT+CMGS=02112345678
+CMS ERROR: 304
```

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