

**Neoway Tech**

**Neo\_M5X0**

**AT Command**

**Version 1.3**

**Let's enjoy the wireless life!**

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This manual applies to M580/M580i/M580z.

This manual is for system engineer, research engineer and test engineer.

As the upgrading of the product version or some other reasons, we'll do some necessity updating to the content of this specification without advance notice.

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# 1 General commands

## 1.1 Request product serial number identification: +CGSN

### 1.1.1 Description

This command gets the product serial number, known as IMEI (International Mobile Equipment identity).

### 1.1.2 Syntax

Command syntax: AT+CGSN

| COMMAND                   | RESPONSES                               | REMARKS |
|---------------------------|-----------------------------------------|---------|
| AT+CGSN                   | <IMEI><br>OK<br>Or<br>CME ERROR:<error> |         |
| Test command<br>AT+CGSN=? | OK                                      |         |

## 1.2 Request international mobile subscriber identification: +CIMI

### 1.2.1 Description

This command allows to request the international mobile subscriber identity IMSI (International Mobile Subscriber Identity). This identity contains 15 figures, starting with three-digit MNN and double-digit MNC, to authenticate SIM-card code.

### 1.2.2 Syntax

Command syntax: AT+CIMI

| COMMAND                   | RESPONSES                                | REMARKS |
|---------------------------|------------------------------------------|---------|
| AT+CIMI                   | <IMSI><br>OK<br>Or<br>CME ERROR: <error> |         |
| Test command<br>AT+CIMI=? | OK                                       |         |

## 1.3 Card identification: +CCID

### 1.3.1 Description

This command returns the ICCID of SIM-card.

### 1.3.2 Syntax

Command syntax: AT+CCID

| COMMAND                   | RESPONSE                                                   | REMARK |
|---------------------------|------------------------------------------------------------|--------|
| AT+CCID<br><br>AT+CCID?   | <ICCID><br>OK<br>Or<br>CME ERROR:<error><br>Same as above. |        |
| Test command<br>AT+CCID=? | OK                                                         |        |

## 1.4 Get the version number: +GETVERS

### 1.4.1 Description

This command is used to get the current software version number.

### 1.4.2 Syntax

Command syntax: AT+GETVERS

| COMMAND    | RESPONSE                                   | REMARKS |
|------------|--------------------------------------------|---------|
| AT+GETVERS | <version><br>OK<br>Or<br>CME ERROR:<error> |         |

## 1.5 Repeat last command: A/

### 1.5.1 Description

This command allows to repeat the previously executed command again. Only the A/ command can not be repeated.

## 1.5.2 Syntax

Command syntax: A/

| COMMAND | RESPONSE | REMARKS |
|---------|----------|---------|
| A/      |          |         |

## 1.6 Local number: +CNUM

### 1.6.1 Description

This command allows to inquire ISDN.

If the terminal has different types of international numbers, each type of the number will display on different line.

Note: Local number need to write into SIM-card by command: AT+CPBS= 'ON'; AT+CPBW, then read by command: AT+CNUM.

### 1.6.2 Syntax

Command syntax: AT+CNUM

| COMMAND                   | RESPONSE                                                                     | REMARKS |
|---------------------------|------------------------------------------------------------------------------|---------|
| AT+CNUM                   | +CNUM: [<Alpha 1>],<br><number 1>, <type 1><br>OK<br>Or<br>CME ERROR:<error> |         |
| Test command<br>AT+CNUM=? | OK                                                                           |         |

### 1.6.3 Defined values

<alphax>: optional, character string related to <numberx>, available character set under +CSCS command.

<numberx>: character string telephonenumber, its type is determined by <typex>.

<typex>: number type (129 or 145).

## 2 Mobile equipment control and status commands

### 2.1 Module activity status: +CPAS

#### 2.1.1 Description

This execution command returns the activity status of the module.

## 2.1.2 Syntax

Command syntax: AT+CPAS

| COMMAND                   | RESPONSE                                     | REMARKS |
|---------------------------|----------------------------------------------|---------|
| AT+CPAS                   | +CPAS:<pas><br>OK<br>Or<br>CME ERROR:<error> |         |
| Test command<br>AT+CPAS=? | OK                                           |         |

## 2.1.3 Defined values

<pas> may be:

- 0: ready (the module can implement AT commands)
- 2: unknown (condition can not be identified)
- 3: ringing ( module can perform AT command, but having an incoming call)
- 4: call in process (module can perform AT command, the call is in processing)

## 2.2 Request network registration status: +CREG

### 2.2.1 Description

This command allows to request the current network registration status of the module.

### 2.2.2 Syntax

Command syntax: AT+CREG=<mode>

Back code syntax: +CREG: <mode>, <star>

| COMMAND   | RESPONSES                      | REMARKS                                                      |
|-----------|--------------------------------|--------------------------------------------------------------|
| AT+CREG=1 | OK<br>or<br>CME ERROR: <error> | Register settings allow the network to provide result code.  |
| AT+CREG?  | +CREG: 0, 1<br>OK              | Display the module has been registered on the local network. |
| AT+CREG=? | +CREG: (0-2)<br>OK             |                                                              |

### 2.2.3 Defined values



<mode>:

- 0: not allow the network registration to provide result code (default settings)
- 1: allow the network registration to provide result code
- 2: allow the network registration to provide local information (CELLID, LOCALID)

<stat>:

- 0: not registered, the terminal is not searching new operators
- 1: has been registered local network
- 2: the registration is refused
- 3: not registered, the terminal is searching base stations
- 4: unknown code
- 5: has been registered, at roaming status

## 2.3 Power off command: +CPWROFF

### 2.3.1 Description

This command allows to switch off the module.

### 2.3.2 Syntax

Command syntax: AT+CPWROFF

| Command                       | response                      | REMARKS |
|-------------------------------|-------------------------------|---------|
| AT+ CPWROFF                   | OK<br>or<br>CME ERROR:<error> |         |
| Test command:<br>AT+CPWROFF=? | OK                            |         |

## 2.4 Set module functionality: +CFUN

### 2.4.1 Description

This command selects the level of functionality <fun> in the module. Only some values of <fun> are allowed (see Defined values).

Note: if the syntaxes +CFUN=0,+CFUN=15 or +CFUN=16 are used, the rest of the command line, placed after that, will be ignored.

### 2.4.2 Syntax

Command syntax: AT+CFUN=<fun>

| COMMAND       | RESPONSE | REMARKS |
|---------------|----------|---------|
| AT+CFUN=<fun> | OK       |         |

|           |                                                                                |  |
|-----------|--------------------------------------------------------------------------------|--|
|           | Or<br>CME ERROR:<error>                                                        |  |
| AT+CFUN?  | +CFUN:<br><power_mode>,<STK_mode>                                              |  |
| AT+CFUN=? | +CFUN: (list of supposed<br><fun>'s)<br>e.g. +CFUN: (0,1,6,7,8,15,16,17)<br>OK |  |

### 2.4.3 Defined values

<fun> selected functionality which may be:

- 0: minimum functionality meaning switch off of the MS
- 1: full functionality
- 4: disable the module both transmit and receive RF circuits (airplane mode)
- 6: enables the SIM-toolkit interface and fetching of proactive commands by SIM-APPL from the SIM-card
- 7: disables the SIM-toolkit interface and fetching of proactive commands by SIM-APPL from the SIM-card
- 8: disable fetching of proactive commands by SIM-APPL from the SIM-card
- 15: silent reset ( reset MS without resetting the SIM)
- 16: reset (reset MS with resetting the SIM)

<power\_mode> may be:

- 1: switch on MS
- 2: invalid mode
- 17: airplane mode

<STK\_mode> may be:

- 0: inactive state
- 6: enables the SIM-toolkit interface and fetching of proactive commands by SIM-APPL from the SIM-card
- 7: disables the SIM-toolkit interface and fetching of proactive commands by SIM-APPL from the SIM-card
- 8: disable fetching of proactive commands by SIM-APPL from the SIM-card

## 2.5 Module enter power save mode: +ENPWRSAVE

### 2.5.1 Description

This command allows to set the module enter power save mode.

### 2.5.2 Syntax

Command syntax: AT+ENPWRSAVE=<n>

| COMMAND        | RESPONSES                      | REMARKS |
|----------------|--------------------------------|---------|
| AT+ENPWRSAVE=1 | OK<br>or<br>CME ERROR: <error> |         |
| AT+ENPWRSAVE?  | +ENPWRSAVE: 1<br>OK            |         |
| AT+ENPWRSAVE=? | +ENPWRSAVE:0-1<br>OK           |         |

### 2.5.3 Defined values

<n>:

0: not allow to enter power save mode

1: allow to enter power save mode

Note: 1) the values of <n> are not save when power off

2) after enabling power save mode, the external should drive the DTR signal to low Level and all circuits inside the module are allowed to enter power save mode. At this time, the module can be entered into power save mode.

## 2.6 CTS/RTS hardware flow control: +FLOWCTRL

### 2.6.1 Description

This command allows to enable the CTS/RTS hardware flow control of the module.

### 2.6.2 Syntax

Command syntax: AT+FLOWCTRL=<n>

| COMMAND       | RESPONSES                      | REMARKS |
|---------------|--------------------------------|---------|
| AT+FLOWCTRL=1 | OK<br>or<br>CME ERROR: <error> |         |
| AT+FLOWCTRL?  | +FLOWCTRL: 1<br>OK             |         |
| AT+FLOWCTRL=? | +FLOWCTRL: 0-1<br>OK           |         |

### 2.6.3 Defined values

<n>:

0: disable CTS/RTS hardware flow control signal

1: enable CTS/RTS hardware flow control signal

Note: this command will not take effect immediately without resetting module.

## 2.7 Clock: +CCLK

### 2.7.1 Description

This command sets and inquires the real-time clock of the module.

### 2.7.2 Syntax

Command syntax: AT+CCLK=<time>

| COMMAND                      | RESPONSE                          | REMARKS |
|------------------------------|-----------------------------------|---------|
| AT+CCLK=' 08/07/01,14:54:10' | OK<br>Or<br>CME ERROR:<error>     |         |
| AT+CCLK?                     | +CCLK: ' 08/07/01,14:54:10'<br>OK |         |
| Test command<br>AT+CCLK=?    | OK                                |         |

### 2.7.3 Defined values

<time>: string type value; format is "yy/MM/dd,hh:mm:ss+TZ", wherein characters indicate year, month, day, hour, minute and second.

TZ: time zone information represented by two digits. The time zone information is optional; if it is entered it is always accepted, but the display of TZ for query contains this information (in upgraded form) only if the network supports the time zone information.

## 2.8 Set Baud rate of the module: +IPR

### 2.8.1 Description

This command allows to set baud rate of the module and can automatically save the current settings of baud rate.

### 2.8.2 Syntax

Command syntax: AT+IPR=<baud rate>

| COMMAND            | RESPONSES                      | REMARKS |
|--------------------|--------------------------------|---------|
| AT+IPR=<baud rate> | OK<br>or<br>CME ERROR: <error> |         |
| AT+IPR?            | +IPR: <baud rate><br>OK        |         |

|          |                                                                                             |  |
|----------|---------------------------------------------------------------------------------------------|--|
| AT+IPR=? | +IPR:<br>2400,4800,9600,14400,19200,28800,38400<br>,57600,115200,230400,460800,921600<br>OK |  |
|----------|---------------------------------------------------------------------------------------------|--|

## 2.9 Input PIN code: +CPIN

### 2.9.1 Description

This command set to inquire PIN status and input PIN code.

This command sends to the module a password which is necessary before it can be operated. If there no PIN request is pending, no action is taken towards the module and a corresponding error code is returned.

If the PIN required is PUK or PUN2, the second PIN is required. This second pin, <newpin>, is used to replace the old PIN.

### 2.9.2 Syntax

Command syntax: AT+CPIN=<pin>[,<newpin>]

| COMMAND                                   | RESPONSE           | REMARKS |
|-------------------------------------------|--------------------|---------|
| AT+COPS=0<br>AT+CPIN= "0933"<br>AT+COPS=0 | ERROR<br>OK<br>OK  |         |
| AT+CPIN?                                  | +CPIN:<code><br>OK |         |
| Test command<br>AT+CPIN=?                 | OK                 |         |

### 2.9.3 Defined values

<pin>, <newpin> are string type values.

<code>

-READY: the module is not pending for any password

-SIM PIN: the module is waiting SIM PIN to be given

-SIM PUK: the module is waiting SIM PUK to be given

-SIM PIN2: the module is waiting SIM PIN2 to be given

-SIM PUK2: the module is waiting SIM PUK2 to be given

## 2.10 Facility lock: +CLCK

### 2.10.1 Description

This command is used to lock, unlock and interrogate MT and network equipment.

## 2.10.2 Syntax

Command syntax: AT+CLCK=<fac>,<mode> [,<passwd>[,<class>]

| COMMAND                  | RESPONSE                                                                                                         | REMARKS |
|--------------------------|------------------------------------------------------------------------------------------------------------------|---------|
| AT+CLCK= "SC", 1, "0933" | OK<br>Or<br>CME ERROR:<error>                                                                                    |         |
| AT+CLCK=?                | +CLCK:<br>("SC", "FD", "PS", "PN", "PU",<br>"PP", "PC", "AO", "OI", "OX",<br>"AI", "IR", "AB", "AG", "AC")<br>OK |         |

## 2.10.3 Defined values

<fac>:

"SC" SIM-card, "AO" outgoing calls, "OI" outgoing international calls, "OX" outgoing international calls except to home country, "AI" all incoming calls, "IR" all incoming calls when roaming outside the home country, "AB" all barring services, "AG" all outgoing barring services, "AC" all incoming call service, "FD" SIM fix dialling memory feature, "PS" PH-SIM (lock phone to SIM-card), "PN" network personalisation, "PU" network subset personalisation, "PP" service provider personalisation, "PC" corporate personalisation.

<mode>:

0: unlock

1: lock

2: query status

<passwd>: password or operation code, string type.

<class>:

1: voice

2: data

4: FAX

8: short message service

16: data circuit sync

32: data circuit async

64: dedicated packet access

128: dedicated PAD access

## 2.11 Change password: +CPWD

### 2.11.1 Description

This command sets a new password for the facility lock function.

## 2.11.2 Syntax

Command syntax: AT+CPWD=<fac>, <oldpwd>, <newpwd>

| COMMAND                          | RESPONSE                                                                                                                                            | REMARKS |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| AT+CPWD= "SC", "0933",<br>"0934" | OK<br>Or<br>CME ERROR:<error>                                                                                                                       |         |
| AT+CPWD=?                        | +CPWD:<br>( "SC", S ), ( "P2", 8 ), ( "AO", 4 ),<br>( "OI", 4 ), ( "OX", 4 ), ( "AI", 4 ),<br>( "IR", 4 ), ( "AB", 4 ), ( "AG", 4 ),<br>( "AC", 4 ) |         |

## 2.11.3 Defined values

<fac>:

"SC" SIM-card, "AO" outgoing calls, "OI" outgoing international calls, "OX" outgoing international calls except to home country, "AI" all incoming calls, "IR" all incoming calls when roaming outside the home country, "AB" all barring services, "AG" all outgoing barring services, "AC" all incoming call service, "FD" SIM fix dialling memory feature, "PS" PH-SIM (lock phone to SIM-card), "PN" network personalisation, "PU" network subset personalisation, "PP" service provider personalisation, "PC" corporate personalisation.

<oldpwd>:

Old password or operation code, string type

<newpwd>:

New password or operation code, string type

# 3 Network service commands

## 3.1 Signal quality: +CSQ

### 3.1.1 Description

This execution command returns signal strength indication <rssi> and channel bit error rate <ber> from the module.

### 3.1.2 Syntax

Command syntax: AT+CSQ

| COMMAND | RESPONSE | REMARKS |
|---------|----------|---------|
|---------|----------|---------|

|        |                                                      |  |
|--------|------------------------------------------------------|--|
| AT+CSQ | +CSQ: <rsqi>, <ber><br>OK<br>Or<br>CME ERROR:<error> |  |
| AT+CSQ | +CSQ: ( 0-31, 99), ( 0-7, 99)                        |  |

### 3.1.3 Defined values

<rsqi>:

The following mapping of 'signal' to <rsqi> exists:

|   | signal   | <rsqi>                  |
|---|----------|-------------------------|
| 0 | <4 or 99 | ( <-107 dBm or unknown) |
| 1 | <10      | ( <-93dBm)              |
| 2 | <16      | (<-71dBm)               |
| 3 | <22      | (<-69dBm)               |
| 4 | <28      | (<-57dBm)               |
| 5 | >=28     | (>=-57dBm)              |

<ber>:

|       |                                    |
|-------|------------------------------------|
| 0...7 | normal                             |
| 99    | bit error rate can not be measured |

## 3.2 Operator selection: +COPS

### 3.2.1 Description

This command is to select and register the GSM network operator.

### 3.2.2 Syntax

Command syntax: AT+COPS=[<mode>[,<format>[,<oper>[,<AcT>]]]]

| COMMAND     | RESPONSE                                                                                                                     | REMARKS |
|-------------|------------------------------------------------------------------------------------------------------------------------------|---------|
| AT+COPS=0,0 | OK<br>Or<br>CME ERROR:<error>                                                                                                |         |
| AT+COPS?    | +COPS:<br><mode>[,<format>,<oper>[,<AcT>]]<br>OK                                                                             |         |
| AT+COPS=?   | +COPS: [list of supported ( <stat>),<br>long alphanumeric <oper>, short<br>alphanumeric<br><oper>, numeric <oper>]s[,<AcT>]] |         |



|  |                                                                      |  |
|--|----------------------------------------------------------------------|--|
|  | [,, (list of supported <mode>s),(list of supported <format>s)]<br>OK |  |
|--|----------------------------------------------------------------------|--|

### 3.2.3 Defined values

<mode> is used to select whether the selection is done automatically or is forced by this command to operator <oper> given in the format <format> and may be:

-0: automatic ( <per> is ignored)

-1: manual

-2: deregister from the network

-3: set only <format>

-4: manual/ automatic ( if manual selection fails, automatic mode is entered)

<format>

-0: long alphanumeric <oper> (default value)

-1: short format alphanumeric <oper>

-2: numeric <oper>

<oper> string type given in format <format>; this field may be up to 16 characters long for long alphanumeric format, up to 8 characters for short alphanumeric format and 5 characters long for numeric format (MCC/MNC).

<stat>

-0: unknown network

-1: available network

-2: current network

-3: forbidden network

<AcT> indicates the radio access technology and may be:

-0: GSM

-1: GSM compact

-2: UTRAN

Note 1: in the read syntax the parameter <AcT> is displayed only if UMTS is supported in the terminal.

Note 2: if GSM/UMTS dual mode is selected and manual mode is selected, the <AcT> parameter is used to indicate the access technology for the manual attach procedure.

Note 3: in case of automatic mode, the <AcT> parameter will be ignored.

## 4 Call control commands

### 4.1 Speaker volume level: +CLVL

#### 4.1.1 Description

This command is to set the level of speaker volume.

## 4.1.2 Syntax

Command syntax: AT+CLVL=<level>

| COMMAND    | RESPONSE                      | REMARKS |
|------------|-------------------------------|---------|
| AT+CLVL=30 | OK<br>Or<br>CME ERROR:<error> |         |
| AT+CLVL?   | +CLVL:<level><br>OK           |         |
| AT+CLVL=?  | +CLVL: (1-100)<br>OK          |         |

## 4.1.3 Defined values

<level>: the scope is 1-100 (1 is the minimal volume), the default volume is 50.

## 4.2 Mute control: +CMUT

### 4.2.1 Description

This command is to set mute control to voice calls.

This command is effective both before calls and during calls.

### 4.2.2 Syntax

Command syntax: AT+CMUT=<n>

| COMMAND   | RESPONSE                      | REMARKS |
|-----------|-------------------------------|---------|
| AT+CMUT=0 | OK<br>Or<br>CME ERROR:<error> |         |
| AT+CMUT?  | +CMUT:<n><br>OK               |         |
| AT+CMUT=? | +CMUT: (0, 1)<br>OK           |         |

### 4.2.3 Defined values

<n> get value:

-0: close mute mode (default setting)

-1: open mute mode

## 4.3 Dialling commands: D

### 4.3.1 Description

This command is to start voice, data and fax calling.

### 4.3.2 Syntax

Command syntax: ATD<string>

ATD<mem><n>

ATD<n>

| COMMAND         | RESPONSE                      | REMARKS |
|-----------------|-------------------------------|---------|
| ATD130245400756 | OK<br>or<br>CME ERROR:<error> |         |
| ATD>SM1;        | OK<br>or<br>CME ERROR:<error> |         |
| ATD>1;          | OK<br>or<br>CME ERROR:<error> |         |

### 4.3.3 Defined values

<string>: telephone number of called party.

<mem>: phone book memory

<n>: storage location of the telephone records

## 4.4 Call answer: A

### 4.4.1 Description

This command is to answer calls and establish talk link. The user is informed that an incoming call is waiting, by the information result code RING or +CRING displayed.

### 4.4.2 Syntax

Command syntax: ATA

| COMMAND | RESPONSE | REMARKS |
|---------|----------|---------|
|         | RING     |         |
| ATA     | OK       |         |

## 4.5 Hook control: H

### 4.5.1 Description

This command is used to disconnect all call link.

### 4.5.2 Syntax

Command syntax: ATH/ATHO

| COMMAND | RESPONSE | REMARKS |
|---------|----------|---------|
| ATH     | OK       |         |

## 4.6 Caller ID display: CLIP

### 4.6.1 Description

This command is used to set the caller ID display function.

### 4.6.2 Syntax

Command syntax: AT+CLIP=<n>

| COMMAND   | RESPONSES             | REMARKS    |
|-----------|-----------------------|------------|
| AT+CLIP?  | +CLIP: <n>, <m><br>OK |            |
| AT+CLIP=? | +CLIP: (0,1)<br>OK    | Range of n |
| AT+CLIP=1 | OK                    |            |

### 4.6.3 Defined values

<n> get value:

- 0: close caller ID display function (default setting)
- 1: open caller ID display function

<m> get value:

- 0: the network doesn't support caller ID display
- 1: the network supports caller ID display
- 2: unknown status

## 4.7 DTMF tone duration: +VTD

### 4.7.1 Description

This command is used to set DTMF tone duration. In GSM/UMTS the value of tone duration is preset and can not be altered.

### 4.7.2 Syntax

Command syntax: AT+VTD=<n>

| COMMAND  | RESPONSE                      | REMARKS |
|----------|-------------------------------|---------|
| AT+VTD=2 | OK<br>Or<br>CME ERROR:<error> |         |
| AT+VTD?  | +VTD:<n><br>OK                |         |
| AT+VTD=? | +VTD:( 0-255)<br>OK           |         |

### 4.7.3 Defined values

<n> is an integer in range of 0 to 255, the tone duration is 100ms.

The value 5 is default.

When the value 0 is selected, the tone duration is set to 100ms.

## 4.8 DTMF tone sending: +VTS

### 4.8.1 Description

This command allows the transmission of DTMF signal. In GSM this operates only in voice mode. If the optional parameter <duration> is left out, the tone duration is given by the setting +VTD (see +VTD description).

### 4.8.2 Syntax

Command syntax: AT+VTS=<DTMF>[,<duration>]

| COMMAND  | RESPONSE                                                            | REMARKS |
|----------|---------------------------------------------------------------------|---------|
| AT+VTS=2 | OK<br>or<br>CME ERROR:<error>                                       |         |
| AT+VTS=? | +VTS: (list of <DTMF>s, ),<br>(list of supported <duration>s)<br>OK |         |

### 4.8.3 Defined values

<DTMF>: single ASCII character in the set 0-9, #, \*, A-D.

<duration>: integer in range of 0-255, meaning the duration is 100ms.

## 4.9 Redial last telephone number: DL

### 4.9.1 Description

This command is used to redial the last number used in the ATD command.

### 4.9.2 Syntax

Command syntax: ATDL

| COMMAND | RESPONSE                      | REMARKS |
|---------|-------------------------------|---------|
| ATDL    | OK<br>Or<br>CME ERROR:<error> |         |

## 4.10 Automatic answer: SO

### 4.10.1 Description

This command controls the automatic answering feature of the module. If set to 0, the automatic answering is disabled, otherwise it causes the module to answer when the incoming call indication (ring) has occurred the number of times indicated by the value.

### 4.10.2 Syntax

Command syntax: ATSO=<value>

| COMMAND | RESPONSE                      | REMARKS |
|---------|-------------------------------|---------|
| ATSO=2  | OK<br>or<br>CME ERROR:<error> |         |
| ATSO?   | <value><br>OK                 |         |

### 4.10.3 Defined values

<value> is an integer in range of 0-255.

Default setting: SO=0, meaning automatic answering is disabled.

## 4.11 Audio channel selection: +AUDCHANNEL

### 4.11.1 Description

This command is used to select the audio channel of the module. There are two choices: handle and headphone.

### 4.11.2 Syntax

Command syntax: AT+AUDCHANNEL=<value>

| COMMAND         | RESPONSES                  | REMARKS |
|-----------------|----------------------------|---------|
| AT+AUDCHANNEL=1 | OK                         |         |
| AT+AUDCHANNEL?  | +audchannel: <value><br>OK |         |
| AT+AUDCHANNEL=? | +audchannel: <0-1><br>OK   |         |

### 4.11.3 Defined values

<value>:

0: handle

1: headphone

The default value is 0 and its setting value can not save when power off.

## 5 SMS commands

### 5.1 Select short message service: +CSMS

#### 5.1.1 Description

This command is used to support such short messages: transmitting (SMS-MO), receiving (SMS-MT) and cell broadcast (SMS-CB).

#### 5.1.2 Syntax

Command syntax: AT+CSMS=<service>

| COMMAND   | RESPONSE                                               | REMARKS |
|-----------|--------------------------------------------------------|---------|
| AT+CSMS=1 | +CSMS:<mt>,<mo>,<bm><br>OK<br>or<br>CME ERROR: <error> |         |
| AT+CSMS?  | +CSMS:<br><service>,<mt>,<mo>,<bm><br>OK               |         |
| AT+CSMS=? | +CSMS: (0-1)                                           |         |

|  |    |  |
|--|----|--|
|  | OK |  |
|--|----|--|

### 5.1.3 Defined values

<service>:

0: GFSM03.40 and GSM03.41; the syntax of SMS AT commands is compatible with GSM07.05 Phase 2.

1: GSM03.40 and GSM03.41; the syntax of SMS AT commands is compatible with GSM07.05 Phase 2.

<mt>,<mo>,<bm>:

0: type not supported

1: type supported

## 5.2 Set short message format: +CMGF

### 5.2.1 Description

This command is used to set the input format of short message.

### 5.2.2 Syntax

Command syntax: AT+CMGF=[<mode>]

| COMMAND   | RESPONSE                       | REMARKS |
|-----------|--------------------------------|---------|
| AT+CMGF=1 | OK<br>or<br>CME ERROR: <error> |         |
| AT+CMGF?  | +CMGF:<mode><br>OK             |         |
| AT+CMGF=? | +CMGF: (0-1)<br>OK             |         |

### 5.2.3 Defined values

<mode>:

0: PDU mode.

1: text mode.

## 5.3 Set TE character set: +CSCS

### 5.3.1 Description



This command is used to select TE character set.

### 5.3.2 Syntax

Command syntax: AT+CSCS=<chset>

| COMMAND        | RESPONSE                       | REMARKS |
|----------------|--------------------------------|---------|
| AT+CSCS= "GSM" | OK<br>or<br>CME ERROR: <error> |         |
| AT+CSCS?       | +CSCS:<chest><br>OK            |         |
| AT+CSCS=?      | OK                             |         |

### 5.3.3 Defined values

<chest>:

"GSM": GSM default alphabet (GSM03.38.6.2.1)

"HEX": character string is formed by 0x00~0xFF hexadecimal number, e.g. , "032FE6", equal to three 8bit characters, their decimal value are 3, 47, 230. These characters and MT character set need not exchange.

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

"PCCP437": PC character set Code Page 437

"8859-1": ISO 8859 Latin 1 character set

"USC2": 16-bit universal multiple-octet coded character set ( ISO/IEC10646). UCS2 character set is changed into a hexadecimal number ( 0x0000~0xFFFF). Character string only in relevant sentences can use UCS2 code, other command and response are still IRA alphabet mode.

## 5.4 New message indication: +CNMI

### 5.4.1 Description

This command selects the procedure, how receiving of new SMS from network is indicated to the users.

### 5.4.2 Syntax

Command syntax: AT+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]

| COMMAND           | RESPONSE                                | REMARKS |
|-------------------|-----------------------------------------|---------|
| AT+CNMI=1,1,0,0,0 | OK<br>or<br>CME ERROR: <error>          |         |
| AT+CNMI?          | +CNMI=<mode>,<mt>,<bm>,<ds>,<bfr><br>OK |         |

|           |                                                                                                                                                      |  |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| AT+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)<br>OK |  |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------|--|

### 5.4.3 Defined values

<mode>: set indication mode of sending to subscriber after receiving short message

0: message indication mode cashed in module, if TA has been full, code can be deposited other place or brush off the oldest code and replace it by the latest receiving code.

1: under On-line State, brush off deposited message indication code and reject new indication code. In other conditions, display the code on terminal equipment directly.

2: under On-line State, message indication code is cashed in module. When processing released, output indication code through serial port. Under its state, display indication code on external equipment.

3: display indication code on external equipment directly.

<mt>: set new message indication code mode, default value is 0.

0: not sending new message indication code.

1: new message indication code mode is +CMTI: "MT", <index>, the message content stored and don't display directly.

2: new message indication code mode is +CMT: <oa>, <scts>, <toa>, <lang>, <encod>, <priority> [, <cbn>], <length> <CR> <LF> <data>, message content display directly but not stored.

<bm>: set new cell broadcast indication code mode, default value is 1.

0: not sending new cell broadcast indication information, not stored.

1: new cell broadcast indication code is +CBMI: "BC", <index>, cell broadcast is stored.

2: new cell broadcast indication code mode is +CBM: <oa>, [<alphab>], <scts>, [<toa>], <length> <CR> <LF> <data>, cell broadcast content display directly but not stored.

<ds>: message sending condition report, default value is 1.

0: no message sending condition report

1: message sending condition report code mode is +CDS: <fo>, <mr>, [<ra>], [<tora>], <scts>, <dt>, <st> (text mode), cell broadcast content display directly but not stored.

<bfr>: default value is 0.

0: When <mode>=1 or 3, the code this command difinited which is stored in TA will be send to TE, the module will return to OK before processing the code.

1: when <mode>=1 or 3, the code this command difinited which is stored in TA will be cleared.

## 5.5 Read message: +CMGR

### 5.5.1 Description

This command is to read the current short messages in memory.

According to command **AT+CPMS** set current memory, then use this command to read short messages.

## 5.5.2 Syntax

Command syntax: AT+CMGR=<index>

| COMMAND                   | RESPONSE                                                                                                                                                                                                                                                                                                                                                                                                                                   | REMARKS |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| AT+CMGR=3                 | +CMGR: 0,,154<br>0891683108705505F00405A 10<br>180F60<br>008807062903430238A5C0A656C768<br>451687403901A5BA262<br>37FF1A537365E58D7779EF52065546<br>57CE201C59658FD0793C54C130015<br>9658FD06F1451FA5B63201D727960<br>E051516362FF014E3A59658FD052AO<br>6CB9FF010068007400740070006A00<br>2F002F006A0066002E006300680069<br>006E0061006D006F00620069006C00<br>65002E0063006F006D30024E2D56F<br>D79FB52A8<br>OK<br>or<br>CME ERROR: <error> |         |
| Test command<br>AT+CMGR=? | OK                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |

## 5.5.3 Defined values

<index>:

In range: 0~400.

## 5.6 List message: +CMGL

### 5.6.1 Description

This command is used to read a certain type of short messages in the storage. The message will be read in the current storage selected by +CPMS command.

### 5.6.2 Syntax

Command syntax: AT+CMGL[=<stat>]

| COMMAND | RESPONSE | REMARKS |
|---------|----------|---------|
|---------|----------|---------|

|               |                                                                                                                                                                                                                                                                                                                                                                                        |  |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| AT+CMGL="ALL" | +CMGL:1,"RECREAD","10086","", "08/07/26,09:43:03+50"<br>5C0A656C768451687403901A5BA262<br>37FF1A537365E58D7779EF52065546<br>57CE201C59658FD0793C54C130015<br>9658FD06F1451FA5B63201D727960<br>E051516362FF014E3A59658FD052A0<br>6CB9FF010068007400740070003A00<br>2F002F006A0066002E006300680069<br>006E0061006D006F00620069006C00<br>65002E0063006F006D30024E2D56F<br>D79FB52A8<br>OK |  |
| AT+CMGL=?     | +CMGL: ("REC UNREAD","REC READ","STO UNSENT","STO SENT","ALL")<br>OK                                                                                                                                                                                                                                                                                                                   |  |

### 5.6.3 Defined values

<stat>:

REC UNREAD: received unread SMS

REC READ: received read SMS

STO UNSENT: stored unsent SMS

STO SENT: stored sent SMS

ALL: all SMS

## 5.7 Send message: +CMGS

### 5.7.1 Description

This command is used to send short message to network. After success sending, the network returns a reference value <mr> to the module.

### 5.7.2 Syntax

Command syntax (text mode): AT+CMGS=<da><CR><text><ctrl-Z/ESC>

Command syntax (PDU mode): AT +CMGS=<length><CR><pdu><ctrl-Z/ESC>

| COMMAND                                                                           | RESPONSE                                      | REMARKS |
|-----------------------------------------------------------------------------------|-----------------------------------------------|---------|
| Test mode (+CMGF=1)<br>AT+CMGS="0171112233<br>"<CR> "This is the<br>text"<ctrl-Z> | +CMGS: <mr><br>OK<br>or<br>CMS ERROR: <error> |         |

|                                                                   |                                               |  |
|-------------------------------------------------------------------|-----------------------------------------------|--|
| PDU mode (+CMGF=0):<br>AT+CMGS=<length><CR><br>><pdu><Ctrl-Z/ESC> | +CMGS: <mr><br>OK<br>or<br>CMS ERROR: <error> |  |
| Test command<br>AT+CMGS=?                                         | OK                                            |  |

### 5.7.3 Defined values

<da>: target number in text mode

<text>: message content in text mode

<length>: the length of message content digits in PDU mode

<mr>: storage location

<CR>: separate the parameter part from the text part of the edited SMS in text mode

<ctrl-Z>: indicate that the SMS shall be sent

<ESC>: indicate aborting of the edited SMS

## 5.8 Write message: +CMGW

### 5.8.1 Description

This command is used to write message into memory storage, memory location <index> of the stored message is returned.

Note: index 1 to n is used for 'ME' and n+1 to n+m for 'SM'.

### 5.8.2 Syntax

Command syntax (text mode): AT+CMGW=<da><CR><text><ctrl-Z/ESC>

Command syntax (PDU mode): AT +CMGS=<length><CR><pdu><ctrl-Z/ESC>

| COMMAND                                                                             | RESPONSES                                     | REMARKS |
|-------------------------------------------------------------------------------------|-----------------------------------------------|---------|
| If text mode (+CMGF=1)<br>AT+CMGW="091137880"<br><CR> "This is the<br>text"<Ctrl-Z> | +CMGW:<index><br>OK<br>or<br>+CMS ERROR:<err> |         |
| If PDU mode (+CMGF=0)<br>AT+CMGW=52,<CR><P<br>DU><Ctrl- Z>                          | +CMGW:<index><br>OK<br>or<br>+CMS ERROR:<err> |         |
| Test command<br>AT+CMGW=?                                                           | OK                                            |         |

### 5.8.3 Defined values

<da>: target number in text mode

<text>: message content in text mode

<length>: the length of message content digits in PDU mode

<mr>: storage location

<CR>: separate the parameter part from the text part of the edited SMS in text mode

<ctrl-Z>: indicate that the SMS shall be sent

<ESC>: indicate aborting of the edited SMS

## 5.9 Send message from storage: +CMSS

### 5.9.1 Description

This command sends messages with location value <index> from the memory storage (SMS-SUBMIT). Reference value <mr> is returned to the terminal on successful message delivery.

### 5.9.2 Syntax

Command syntax: AT+CMSS=<index>

| COMMAND                   | RESPONSE                                  | REMARKS                       |
|---------------------------|-------------------------------------------|-------------------------------|
| AT+CMSS=2                 | +CMSS:<mr><br>OK<br>Or<br>CME ERROR:<err> | Send messages stored in memo2 |
| Test command<br>AT+CMSS=? | OK                                        |                               |

## 5.10 Delete message: +CMGD

### 5.10.1 Description

This command is used to delete message from the current memory storage.

### 5.10.2 Syntax

Command syntax: AT+CMGD=<index>[,<delflag>]

| COMMAND   | RESPONSE                      | REMARKS                  |
|-----------|-------------------------------|--------------------------|
| AT+CMGD=3 | OK<br>Or<br>CME ERROR:<error> | Delete the third message |

### 5.10.3 Defined values

<index>: record number of stored message.

<delflag>: delete flag.

0: delete message which is indicated record number

1: delete all read message

2: delete all read and sent message

3: delete all read, sent and unsent message

4: delete all message

Remark: If this command catches <delflag> parameter, parameter <index> is insignificant, subject to parameter <delflag>.

## 5.11 Service center address: +CSCA

### 5.11.1 Description

This command is used to set the service center address.

### 5.11.2 Syntax

Command syntax: AT+CSCA=<sca>[,<tosca>]

| COMMAND                        | RESPONSE                      | REMARKS |
|--------------------------------|-------------------------------|---------|
| AT+CSCA= "0170111000",129      | OK<br>or<br>CME ERROR:<error> |         |
| Read command<br>AT+CSCA?       | +CSCA:<sca>,<tosca><br>OK     |         |
| Operating command<br>AT+CSCA=? | OK                            |         |

### 5.11.3 Defined values

<sca>: message center address

<tosca>: message center address mode

## 6 GPRS commands

### 6.1 Set PDP format: +CGDCONT

#### 6.1.1 Description

This command is used to set GPRS in PDP mode.

## 6.1.2 Syntax

Command syntax: AT+CGDCONT=<cid>,<type>,<APN>

| COMMAND                       | RESPONSE | REMARKS |
|-------------------------------|----------|---------|
| AT+CGDCONT=1,"IP",<br>"CMNET" |          |         |

## 6.1.3 Defined values

<cid>: to indicate PDP number, minimal value is 1.

<type>: PDP packet type, IP: use TCP/IP package.

<APN>: visit network nodes tag.

## 6.2 Send USSD: +CUSD

### 6.2.1 Description

USSD is Unstructured Supplementary Service Data.

### 6.2.2 Syntax

Command syntax: AT+CUSD=<n>,<str>,<dc>

| COMMAND              | RESPONSE                                                                                                                                                                                                                                                                                                                                             | REMARKS |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| AT+CUSD=1,"*100#",15 | +CUSD:1,"<br>5FEB4FE10031003000306B2<br>28FCE60A8000A00310056004<br>9005059278D609001000A0032<br>670959567ADE731C002D6D<br>7776D782395BFB5B9D000A00<br>339ED1624B515A6E17900F<br>004600420049000A003465E995F<br>45FEB62A5000A00355A3<br>14E50604B5427000A003680A17<br>9685F697968000A0037795<br>D798F4E0B8F7D000A00388D<br>448D398BF4660E ",72<br>OK |         |
| AT+CUSD=1,"1",15     | OK<br>+CUSD:<br>1,"6210529F63A8835000354F4D4<br>EB253CB514D8D399886<br>cFF0C53736709673A4F1A8D6                                                                                                                                                                                                                                                      |         |



|           |                                                                                                                                                                                                                                                   |  |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|           | 253D60031003051438BDD8<br>D39FF0C8BE689C16D3B52A88<br>BE660C5000A00317ACB53<br>7363A88350000A00326D3B52A<br>88BE660C5000A003351734<br>E8E005600490050000A00344E2<br>D595667E58BE2000A0035<br>4E0A67086D3B52A8516C544A00<br>0A003800388FD456DE",72 |  |
| AT+CUSD?  | +CUSD: 0<br>OK                                                                                                                                                                                                                                    |  |
| AT+CUSD=? | +CUSD: (0-2)<br>OK                                                                                                                                                                                                                                |  |

### 6.2.3 Defined values

<n>:

-0: not display back code

-1: display back code

-2: cancel request

<str>: string type: USSD string, please use ASCII code.

<dcs>: integer type, recommend 15.

## 7 Phonebook commands

### 7.1 Select phonebook memory storage: +CPBS

#### 7.1.1 Description

This command is used to select phonebook memory storage.

#### 7.1.2 Syntax

Command syntax: AT+CPBS=<storage>

| COMMAND      | RESPONSE                               | REMARKS                                                        |
|--------------|----------------------------------------|----------------------------------------------------------------|
| AT+CPBS="SM" | OK<br>or<br>CME ERROR: <error>         | Select the phonebook memory storage 'SM'                       |
| AT+CPBS?     | +CPBS:<storage>[,<used>,<total>]<br>OK | Inquire the total capacity of current phonebook memory storage |
| AT+CPBS=?    | +CPBS:("SM","FD","LD","ON","BL")<br>OK | Inquire all supportable phonebook memory                       |

### 7.1.3 Defined values

<storage>:

'SM': SIM-card phonebook

'FD': SIM-card fix-dialing phonebook

'LD': SIM-card last-dialing phonebook

'ON': own number phonebook

'BL': blacklist phonebook

<used>: used capacity in selected memory

<total>: total capacity in selected memory

## 7.2 Read phonebook entries: +CPBR

### 7.2.1 Description

This command is used to read phonebook entries.

### 7.2.2 Syntax

Command syntax: AT+CPBR=<index1>[,<index2>]

Response syntax: [+CPBR: <index1>,<number>,<type>,<text>

<CR>+CPBR: <index2>,<number>,<type>,<text>]

| COMMAND     | RESPONSE                                                                                                                                                  | REMARKS                                                                          |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| AT+CPBR=1,3 | +CPBR:<br>1,"091137880",129,"Comneon"<br>+CPBR:<br>2,"09113788223",129,"MMI"<br>+CPBR:<br>3""09113788328",129,"Test-ro"<br>OK<br>or<br>CME ERROR: <error> | Read 1/2/3 phonebook memory                                                      |
| AT+ CPBR=?  | +CPBR: (list of supported <index>s),[nlength],[tlength]<br>OK                                                                                             | Read the capacity of the current memory and the limited length of number or name |

### 7.2.3 Defined values

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

<number>: string type phone number

<type>: type of number in integer format

<text>: string type name

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

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

## 7.3 Find phonebook entries: +CPBF

### 7.3.1 Description

This command is used to find phonebook entries.

### 7.3.2 Syntax

Command syntax: AT+CPBF=<findtext>

Response syntax: +CPBF: <index1>,<number>,<type>,<text>

| COMMAND           | RESPONSE                                                                | REMARKS                                       |
|-------------------|-------------------------------------------------------------------------|-----------------------------------------------|
| AT+CPBF="Comneon" | +CPBR:<br>1,"091137880",129,"Comneon"<br>OK<br>or<br>CME ERROR: <error> | Read the phonebook memory who named 'comneon' |
| AT+ CPBF=?        | +CPBR: [nlength],[tlength]<br>OK                                        |                                               |

### 7.3.3 Defined values

<findtext>: string type indicating name

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

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

## 7.4 Write phonebook entries: +CPBW

### 7.4.1 Description

This command is used to write phonebook entries.

### 7.4.2 Syntax

Command syntax: AT+CPBW=<index>,<number>,<type>,<text>

| COMMAND                                 | RESPONSE                       | REMARKS                                        |
|-----------------------------------------|--------------------------------|------------------------------------------------|
| AT+CPBW=1,"091137880",<br>129,"Comneon" | OK<br>or<br>CME ERROR: <error> | Write the phonebook memory who named 'comneon' |
| AT+ CPBW=?                              | +CPBR: (list of supported      |                                                |

|  |                                                                        |  |
|--|------------------------------------------------------------------------|--|
|  | <index>s),[<nlength>],(list of supported<br><type>s),[<tlength>]<br>OK |  |
|--|------------------------------------------------------------------------|--|

### 7.4.3 Defined values

<index>: integer type values in range of location numbers of phonebook memory

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

<type>: type of address in integer format

<text>: string type name

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

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

## 7.5 Get local number: +CNUM

### 7.5.1 Description

This command is used to get the local number.

### 7.5.2 Syntax

Command syntax: AT+CNUM

| COMMAND                          | RESPONSE                           | REMARKS                            |
|----------------------------------|------------------------------------|------------------------------------|
| AT+CPBS="ON"                     | OK<br>or<br>CME ERROR: <error>     | Set phonebook memory 'ON'          |
| AT+CPBW=1,"1111111111",129,"CCH" | OK<br>or<br>CME ERROR: <error>     | Write call record into 'ON' memory |
| AT+CNUM                          | +CNUM:"CCH","1111111111",129<br>OK | Inquire local number               |

## 8 Supplementary services commands

### 8.1 Call forwarding: +CCFC

#### 8.1.1 Description

This command is used to set the term and number of call forwarding.

## 8.1.2 Syntax

Command syntax: AT+CCFC=<reason>,<mode>,<number>

| COMMAND              | RESPONSE           | REMARKS                                         |
|----------------------|--------------------|-------------------------------------------------|
| AT+CCFC=0,1,"123456" | OK                 | Set unconditional forwarding to number '123456' |
| AT+CCFC=?            | +CCFC: (0-5)<br>OK |                                                 |

## 8.1.3 Defined values

<reason>:

- 0: unconditional (CFU)
- 1: busy (CFB)
- 2: no answer (CFNA)
- 3: not reachable
- 4: all call forwarding
- 5: all conditional call forwarding

<mode>:

- 0: forbidden
- 1: enable
- 2: query status
- 3: registration
- 4: erasure

<number>: phone number

## 8.2 Call waiting: +CCWA

### 8.2.1 Description

This command is used to control call waiting.

### 8.2.2 Syntax

Command syntax: AT+CCWA=<n>,<mode>

| COMMAND     | RESPONSE           | REMARKS                                          |
|-------------|--------------------|--------------------------------------------------|
| AT+CCWA=1,1 | OK                 | Set call waiting and display response code +CCWA |
| AT+CCWA?    | +CCWA: 0<br>OK     | The current value of n is 0                      |
| AT+CCWA=?   | +CCWA: (0-1)<br>OK | The value range of n                             |

### 8.2.3 Defined values

<n>: when the third party calls, whether display response code +CCWA

-0: not display

-1: display

<mode>: enable or disable call waiting

-0: forbidden

-1: enable

-2: query status

## 8.3 Call holding and multi-call: +CHLD

### 8.3.1 Description

This command is used to set call holding and multi-call.

### 8.3.2 Syntax

Command syntax: AT+CHLD=<n>

| COMMAND   | RESPONSE                                     | REMARKS |
|-----------|----------------------------------------------|---------|
| AT+CHLD=? | +CHLD:<br>(0,1,1x,2,2x,3,4,4*,5,6,7,8)<br>OK |         |
| AT+CHLD=0 | OK                                           |         |

### 8.3.3 Defined values

<n>:

-0: release all holding calls or set the first waiting call to UDUB (User Determined User Busy)

-1: release all active call and receive a holding or waiting call

-2: hold all active calls and receive a holding or waiting call

-3: add a holding call into multi-call

Note: when releasing calls, the syntax AT+CHLD=1 only release the current active call, but syntax ATH release all calls.