M1806-NC5 AT Command Manual

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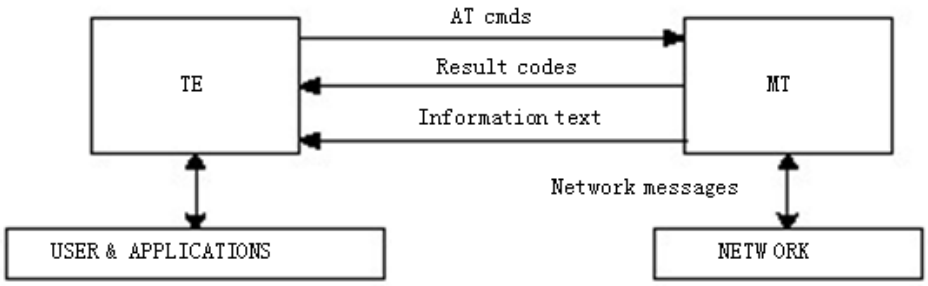
Chapter 1. Summary

AT command interface, as shown in Figure 1-1:



1.1 AT Command Syntax

1. Optional parameter and required parameters must be arranged in accordance with the provisions of the order , the parameters must be separated by a comma . An example of this “AT+ CPWD = <fac>,<oldpwd>,<newpwd>” which is used to set a new password for facility， lock .

2. If the parameter is a string (such as <number>), the string must be placed in double quotes . For example , the string “1234” or “cmnet” . On the contrary, the symbols in double quotes can be seen as a string .

3. Optional parameters or the optional part of the results return from TA should be in the square brackets .

4. When you don’t use double quotes, the spaces between the characters in the string are negligible .

5. In actual use, do not need to enter < >, [].

6. All AT commands are not case sensitive , “AT”or “at”is OK。

1.2 AT Command Interface

Each interface requires functional cohesion .

Because of the AT command transmit the data packets through communication port , so the size of the package is limited . For sending AT commands , in addition to the characters “AT”, MT can receiving 1600 characters in length at most , including the null character at the end of the

commands . MT active reported response messages or URC , the maximum length is also limited to 1600 characters .

Each command line can contain only one AT command . For the URC or response which MT initiative report to TE,Each line also allows only one AT command.AT command end with a carriage return,and response and reporting end with linefeed.

In order to increase the readability and normative of the command and response format,In addition to the original standard protocol interface,all the other new interface parameters cannot contain spaces.

If TE want to execute the second AT command ,it must be first wait for the response of the AT command from MT. Or the second AT command will not be executed.

In order to ensure the other affairs without interference, it suggest that report response results in asynchronous mode for the AT command which need long time to response.If MT takes a long time to respond to the TE, there may be a result of the response is interrupted by a URC.This interrupt contains two cases,one is that the URC report during the response process after the AT command executed,the response result will be report after the URC report. Another is that the URC report during the response process after the AT command executed , the AT command still to be executed and the response will be report with the URC report lead to two kinds of reports confusion.For the special URC such as RING will use as a command terminator in some special cases, for example, the hang up command will be aborted if it has RING report in the process of hang up command .

The definition of string: up by double quotes, without quotes or comma byte stream.

AT command string con not appear the combination of comma and quotes.The current version, does not support the escape character.For the UCS2 encoding format of the data, the encoding value reported in character format.

The possible response from MT to TE consist of information text and result code,of which the information text is optional and the result code is Compulsory.Possible response format control by ATV command.

1.3 AT Command Interface Standards

1. The standard of add new interface

Parameters can added directly behind the original parameters of AT command , so in the late stage of product development if it is found that the interface can not adapt to the new demand , it is only allowed add new parameters behind the original interface . Additional parameters should not affect the original function.

2. The design principle of this product does not support function

If the AT command from MT con not recognize the current interface , the result of command

not support will be reported. If the parameters more than the original parameters , two report may be reported,the one is result code of too many parameters , another approach is fault-tolerant processing which not to judge the extra parameter.

Chapter 2. General Commands

2.1 ATE Set Command Echo Mode

Description

The command controls if the module echoes characters received from TE during AT command state . Attention: dial-up network or the automatic processing software will automatically send the ATE0 to close the echoes.

Syntax

Command	Response
ATE[<value>]	OK or ERROR

Defined values

Parameter	values	Explain
<value>	0	Echo mode off
	1	Echo mode on

NOTE

The default value of <value> is 1

Examples

ATE

OK

2.2 ATI Display Product Identification Information

Description

The command requests the product information, which consists of manufacturer identification, model identification, revision identification, International Mobile station Equipment Identity (IMEI) and overall capabilities of the product.

Syntax

Command	Response
ATI	Manufacturer: <manufacturer> Model: <model> Revision: <revision> IMEI: <sn> +GCAP: list of <name>s EFS_SVN: <efs version> OK

Defined values

Parameter	values	Explain
<manufacturer>		The identification of manufacturer.
<model>		The identification of model.
<revision>		<model>
<sn>		Serial number identification, which consists of a single line containing IMEI (International Mobile station Equipment Identity) number.
<name>	+CGSM	GSM function is supported
	+FCLASS	FAX function is supported
	+DS	Data compression is supported
	+ES	Synchronous data mode is supported.
<efs version>		efs version

Examples

ATI

Manufacturer: Yuga Co.,Ltd.

Model: CLM920_NC5

Revision: CLM920_NC5-V1 [Mar 23 2017 11:48:00]

IMEI: 123456789012347

+GCAP: +CGSM

EFS_SVN: cn_efs_20170323_2k

OK

2.3 AT+CGSN Request Product Serial Number Identification

Description

Execution command returns International Mobile Equipment Identity (IMEI).

Syntax

Command	Response
AT+CGSN	+CGSN: <IMEI> OK
AT+CGSN=?	OK

Defined values

Parameter	values	Explain
<IMEI>		Serial number identification

Examples

AT+CGSN

357941053041368

OK

2.4 AT+IPR Set Local Baud Rate Temporarily

Description

The command sets the baud rate of module's serial interface temporarily, after reboot the baud rate is set to default value.The default value is 115200.

Syntax

Command	Response
	OK

AT+IPR=<rate>	Or ERROR
AT+IPR?	+IPR: <rate> OK
AT+IPR=?	+IPR(<rate>list) OK

Defined values

Parameter	values	Explain
<IMEI>		Serial number identification

Examples

AT+IPR?

+IPR: 115200

OK

AT+IPR=?

+IPR:(),(300,600,1200,2400,4800,9600,19200,38400,57600,115200,230400,921600,2000000,2900000,3000000,3200000,3686400,4000000)

OK

AT+IPR=115200

OK

2.5 AT+CSQ Signal Quality Report

Description

Execution command returns 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.

Syntax

Command	Response

AT+ CSQ	+CSQ:<rssi>,<ber> OK
AT+CSQ=?	+CSQ:(<rssi>list),(<ber>list) OK

Defined values

Parameter	values	Explain
<rssi>	0	- 113 dBm or less
	1	- 111 dBm
	2-30	- 109... 53 dBm
	31	-51 dBm
	99	not known or not detectable
<ber>	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

Examples

AT+CSQ

+CSQ: 19,99

OK

AT+CSQ=?

+CSQ: (0-31,99),(0-7,99)

OK

2.6 AT+CFUN Set Phone Functionality

Description

The command controls the functionality level. It can also be used to reset the UE.

Syntax

Command	Response
AT+CFUN=[<fun>[,<rst>]]	OK
AT+CFUN?	+CFUN:<fun> OK
AT+CFUN=?	+CFUN:(<fun>list),(<rst>list) OK

Defined values

Parameter	values	Explain
<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.

Examples

AT+CFUN?
+CFUN: 1
OK

AT+CFUN=?
+CFUN: (0-1,4-7),(0-1)
OK

AT+CFUN=1,1
OK

2.7 AT+ICCID Read ICCID in SIM Card

Description

The command is used to Read the ICCID in SIM card

Syntax

Command	Response
AT+ICCID	+ICCID: <ICCID> OK
AT+ICCID=?	OK

Defined values

Parameter	values	Explain
< ICCID>		Integrate circuit card identity

Examples

AT+ICCID

+ICCID: 89860115831004984192

OK

AT+ICCID=?

OK

Chapter 3. Call Related Commands

3.1 ATD Dial Command

Description

The dial command can be used to set up outgoing voice and data calls.

Syntax

Command	Response
ATD[digits][I/i][;	OK

Defined values

Parameter	values	Explain
[digits]	0-9, *, #, +	Ready (ME allows commands from TA/TE)
[I/i]	I	Activates CLIR
	i	Deactivates CLIR
[;]		The termination character ";" is mandatory to set up voice calls.

Examples

ATD10010;
OK
^ORIG:0,0
^CONN:0,0

3.2 ATA Call Answer

Description

Connects the module to an incoming voice or data call indicated by a “RING” URC.

Syntax

Command	Response
ATA	OK

Examples

RING
RING
ATA
OK
^CONN:3,0

3.3 ATH Disconnect Existing Call

Description

The command is used to disconnect existing voice 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.

Syntax

Command	Response
ATH	OK

Examples

ATD18521XXXXXX;
OK

^ORIG:1,0
^CONN:1,0
ATH
OK
AT+CVHU?
+CVHU: 1
OK
AT+CVHU=0
OK
ATH
OK
^CEND:1,19,29

Chapter 4. Short Message Related Commands

4.1 AT+CMGF Select Short Message Format

Description

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

Syntax

Command	Response
AT+CMGF[=<mode>]	OK
AT+CMGF?	+CMGF: <mode> OK
AT+CMGF=?	+CMGF: (<mode>list) OK

Defined values

Parameter	values	Explain
<mode>	0	PDU mode
	1	Text mode

Example

AT+CMGF=?
+CMGF: (0-1)
OK
AT+CMGF=1
OK
AT+CMGS="138XXXXXXXX"
> 1111111111
+CMGS: 109
OK

4.2 AT+CSCA SMS Service Center Address

Description

This command write command updates the SMSC address when mobile originated SMS are transmitted. In text mode, the setting is used by write commands. In PDU mode, setting is used by

the same commands, but only when the length of the SMSC address is coded into the<pdu> parameter which equals to zero

Syntax

Command	Response
AT+CSCA=<sca>[,<tosca>]	OK
AT+CSCA?	+CSCA:<sca>,<tosca> OK
AT+CSCA=?	OK

Defined values

Parameter	values	Explain
<sca>		Service center address.
<tosca>		Type of service center address.

Example

AT+CSCA="+8613010314500"
OK
AT+CSCA?
+CSCA: "+8613010314500",145
OK

4.3 AT+CMGS Send Message

Description

AT+CMGS write command sends a short message from TE to network (SMS- After invoking the write command, wait for the prompt “>” and then start to write the message. Then enter <CTRL-Z> to indicate the ending of PDU and begin to send the message. Sending can be cancelled by giving <ESC> character. Abortion is acknowledged with “OK”, though the message will not be sent. The message reference <mr> is returned to the TE on successful message delivery. The value can be used to identify message upon unsolicited delivery status report result code.

Syntax

Command	Response
AT+CMGS=<da>[,<toda>] text to send <ctrl-Z/ESC> (TEXT mode)	+CMGS: <mr> OK
AT+CMGS=<length> PDU to send <ctrl-Z/ESC> (PDU mode)	+CMGS: <mr> OK

Defined values

Parameter	values	Explain
<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).
<length>		Message length.
<mr>		Message reference.

Example

AT+CMGF=1 //text mode
OK
AT+CMGS=”138XXXXXXXX”<CR>
>ABCD123456<Ctrl+Z>
+CMGS : 97
OK

AT+CMGF=0 //PDU mode
OK
AT+CMGS=19
>0031000D91683158714209F80000A704D4F29C0E<Ctrl+Z>
+CMGS: 98
OK

4.4 AT+CMGR Read Message

Description

The command returns message with location value <index> from message storage<mem1> to the TE.

Syntax

Command		Response
AT+CMGR=<index>	text	+CMGR:<stat>,<number>,[<reserved>],<time> <data> OK
	PDU	+CMGR:<stat>,[<alpha>],<length> <pdu> OK
AT+CMGR=?		OK

Defined value

Parameter	values		Explain
<index>			Value in the range of location numbers supported by the associated memory and start with zero.
<stat>	text	“REC UNREAD”	Received unread messages
		“REC READ”	Received read messages
		“STO UNSENT”	Stored unsent messages
		“STO SENT”	Stored sent messages
		“ALL”	All messages
	PDU	0	Received unread messages
		1	Received read messages
		2	Stored unsent messages
		3	Stored sent messages
		4	All messages
<number>			Sender number

<reserved>			null
<time>			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.
<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.
<length>			Message length.

Example

AT+CNMI=1,1
OK
+CMTI: "SM",22
AT+CMGR=22
+CMGR: 0,,27
0891683110304105F0240D916831X8XXXXXXFX000061103161231123 07B55AAD56ABD500
OK
+CMTI: "SM",23
AT+CMGR=23
+CMGR: "REC UNREAD","+86138XXXXXXXX",,"16/01/13,16:34:08+32"
55555
OK

4.5 AT+CMGD Delete Message

Description

The command is used to delete message from preferred message storage <mem1> location

<index>.

Syntax

Command	Response
AT+CMGD=<index>[,<delflag>]	OK
AT+ CMGD=?	OK

Defined value

Parameter	values	Explain
<index>	0-255	Value in the range of location numbers supported by the associated memory and start with zero.
<delflag>	0	Delete the message specified in <index>.(or omitted)
	1	Delete all read messages from preferred message storage.
	2	Delete all read messages from preferred message storage
	3	Delete all read messages from preferred message storage, sent and unsent mobile originated messages
	4	Delete all messages from preferred message storage including unread messages.

Example

AT+CMGD=0,4 //Delete all messages
OK
AT+CMGL
OK
AT+CMGL="ALL"
OK

Chapter 5. Network Service Commands

5.1 AT+COPS Operator Selection

Description

Write command forces an attempt to select and register the GSM/UMTS network operator.

Read command returns the current mode and the currently selected operator.

Test command returns a list of quadruplets, each representing an operator present in the network.

Syntax

Command	Response
AT+COPS=[<mode>[,<format>[,<oper>]]]	OK
AT+COPS?	+COPS:<mode>[,<format>,<oper>,<sys>] OK
AT+COPS=?	+COPS:[(<stat>,long<oper>,short<oper>,numeric<oper>)s][,,(<mode>list),(<format>list)] OK

Defined values

Parameter	values	Explain
<mode>	0-4	0 --- Automatic mode; <oper> field is ignored 1 --- Manual operator selection. <oper> field must be present. 2 --- Force deregister 3 --- Set only <format> 4 --- Manual/automatic
<format>	0-2	0 ---Long format alphanumeric <oper> 1 --- Short format alphanumeric <oper> 2 --- Numeric <oper>
<oper>		String type; <format> indicates if the format is alphanumeric or numeric
<sys>	0,2,7,8	0 --- GSM 2 --- 3G 7 --- LTE 8 --- CDMA/EVDO/CDMA+EVDO
<stat>	0-3	0 --- unknown 1 --- available 2 --- current 3 --- forbidden

Example

AT+COPS?

+COPS: 0,0,"CHN-UNICOM",7

OK

5.2 AT^MODECONFIG Network Mode Selection

Description

The set command select system mode for MT ,don't need SIM card, and immediately available.

Read command returns the current system mode.

Syntax

Command	Response
AT^MODECONFIG=<mode>	OK
AT^MODECONFIG?	^MODECONFIG:<mode> OK

Defined value

Parameter	values	Explain
<mode>	2,9,10,13,14,15,19,22,38,39,40,41,46,51,54,60,61,65,70	2 --- Automatic 9 --- CDMA 10 --- HDR only 13 --- GSM only 14 --- WCDMA only 15 --- TD-SCDMA only 19 --- GSM and WCDMA 22 --- 1x+EVDO 38 --- LTE only 39 --- GSM, WCDMA or LTE 40 --- HDR+LTE 41 --- CDMA+HDR+LTE

		46 --- CDMA+LTE 51 --- GSM and LTE 54 --- WCDMA and LTE 60 --- TD-SCDMA or GSM 61 --- TD-SCDMA, GSM or LTE 65 --- TD-SCDMA and LTE 70 --- WCDMA+TDSCDMA

Example

AT^MODECONFIG=2

OK

AT^MODECONFIG?

^MODEOCNFIG: 2

OK

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