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QUECTEL

GSM

Quectel Cellular Engine

GSM AT Commands Application Notes

GSM_ATC_AN_V1.1

Document Title	GSM AT Commands Application Notes
Version	1.1
Date	2012-06-08
Status	Released
Document Control ID	GSM_ATC_AN_V1.1

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0. Revision history

Revision	Date	Author	Description of change
1.00	2009-12-03	Jean HU	Initial
1.1	2012-06-02	Serena SHEN	Modified default value for **AT+CSMP**

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1. Introduction

This document presents the recommendatory operation process of AT commands and related applications of Quectel's modules.

1.1. Reference

Table 1: Reference

SN	Document name	Remark
[1]	Mxx_ATC.pdf	AT Commands Set
[2]	GSM_TCPIP_AN.pdf	TCPIP Application Notes
[3]	GPRS_Startup_UGD.pdf	GPRS Startup User Guide
[4]	GSM_MUX_AN.pdf	Multiplexer Application Notes
[5]	GSM_HTTP_ATC.pdf	HTTP Service AT Commands
[6]	GSM_FTP_ ATC..pdf	FTP AT Commands
[7]	GSM_MMS_ ATC..pdf	MMS AT Commands
[8]	FAX_Setup_UGD.pdf	Fax Setup User Guide

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2. Module power on/off

2.1. Power on

Following is the correct boot process for GSM module device. (Take M10 module and EVB board as an example).

1) Install module on EVB board.
2) Connect antenna.
3) Insert SIM card.
4) Connect power adapter and serial cable.
5) Switch on power supply (5V-SW), and press down the PWRKEY on EVB board for more than 2 seconds, the module will power on.
6) Please confirm the power indicator led D304 will light lasting, and the network indicator led D303 will twinkle normally (periodical blink).

Warning:
S201 (D/L) on EVB board is the switch for downloading software, S203 (VCHG) is the switch for charging. (They should always be in OFF state when module is working).

2.2. Power off module with AT command

Table 2: Related AT commands

AT command	Description
AT+QPOWD	Power off the module

2.2.1. Normal powering off

AT+QPOWD=*1*	// ***1*** indicates powering off normally
NORMAL POWER DOWN	// Module is powered off normally

2.2.2. Urgent powering off

AT+QPOWD=*0*	// ***0*** indicates powering off urgently
OK	// Module is powered off urgently

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3. UART communication and module initialization

3.1. UART communication

For all GSM module firmware of Quectel, the default baud rate setting is autobauding enabled.

Following is the notes for autobauding.

1) It is necessary for UART communication to make sure TE is in sync with TA's autobauding. Keep inputting **AT<CR><LF>** or **at<CR><LF>** through UART, until the response **OK** is returned, it indicates synchronization is successful.

2) If baud rate is set as autobauding, URCs in boot process will not be reported.

3) It is strongly recommended to set baud rate as customer's common fixed baud rare. The following is an example of setting fixed baud rate to 115200.

```
AT+IPR=115200                   // Set fixed baud rate to 115200
OK


AT&W                            // Save the setting
OK
```

URCs in boot process will be reported in fixed baud rate setting as following:

```
RDY

+CFUN: 1

+CPIN: READY                    // Unsolicited result information

Call Ready                      // Initialization is finished, and "Call Ready" is reported
```

3.2. Recommended module's initialization process

1) UART communication (e.g. Hyper Terminal).

Open Hyper Terminal -> New Hyper Terminal -> Choose connect port -> Configure baud rate setting for UART communication (should be consistent with module's baud rate setting), and the hardware flow control (hardware flow control is set as default in the module).

2) After module is powered on, input **AT<CR><LF>** or **at<CR><LF>** through UART, until

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OK is returned. Make sure the UART communication is fine.

3) It is recommended to make sure that the SIM card has registered to the network before doing other operations. The following is the detail steps.

```
AT+CSQ                          // Query the signal strength of current network
+CSQ: 30,0                      // Signal strength indication 30, channel bit error rate 0

OK


AT+CREG?                        // Query register state of GSM network
+CREG: 0,1                      // <stat>=1 means GSM network is registered

OK


AT+CGREG?                       // Query register state of GPRS network
+CGREG: 0, 1                    // <stat>=1 means GPRS network is registered

OK


AT+COPS?                        // Query the currently selected operator
+COPS: 0,0,"CHINA MOBILE"

OK
```

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4. Query version and status information

Table 3: Version and status related AT commands

AT command	Description
ATI	Query version information
AT&F	Restore to factory settings
AT&W	Save current settings
AT&V	Display current settings
AT+GSN/ AT+CGSN	Query IMEI
AT+QCCID	Query CCID
AT+CIMI	Query IMSI

The following sections give some examples for related AT in details.

4.1. Query version information

```
ATI                          // Query version information
Quectel_Ltd                  // Quectel made
Quectel_M10                  // M10 GSM module
Revision:M10R04A01M32_SST    // Firmware version: M10R04A01M32_SST

OK
```

4.2. Display current configuration

```
AT&V                         // Query the current configuration
ACTIVE PROFILE

E: 0

Q: 0

V: 1
….                           // Omit some configuration
+QECHO(NORMAL_AUDIO): 221,1024,16388,849,0

+QECHO(Earphone_AUDIO): 221,1024,0,849,1

+QECHO(LoudSpk_AUDIO): 224,1024,5128,374,2
```

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+QSIDET(NORMAL_AUDIO): 80

+QSIDET(HEADSET_AUDIO): 144

+QCLIP: 0

+CSNS: 0

OK // End of configuration output, "**OK**" is returned.

4.3. Query IMEI

AT+GSN // Query IMEI
359231030000010 // IMEI is "**359231030000010**"

OK

AT+CGSN // Query IMEI
359231030000010

OK

4.4. Query CCID

AT+QCCID // Query CCID
898600220909A0206023 // CCID is "**898600220909A0206023**"

OK

4.5. Query IMSI

AT+CIMI // Query IMSI
460023210226023 // IMSI is "**460023210226023**"

OK

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4.6. Restore factory settings / Save settings

AT&F	// Restore factory settings
OK	
AT&W	// Save settings
OK	

Note:

AT&F can restore the settings of AT commands to factory settings (excluding the settings of +IPR). AT&W can save the settings of AT commands. The effected AT commands can be listed with AT&V.

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5. SIM card security settings

Table 4: SIM card security settings related AT commands

AT command	Description
AT+CLCK	Lock function
AT+CPIN	Query the status of PIN or enter PIN
AT+CPWD	Change password

The following sections give the examples for related AT commands.

5.1. PIN code setting in boot process

AT+CLCK="SC",*0*,"1234" // **<mode>=*0* ,** cancel lock function for PIN code
OK

AT+CLCK="SC",*2* // **<mode>=*2*** means to Query the state of PIN lock
+CLCK: *0* // **<mode>=*0*** means the state of PIN lock is off

OK

AT+CLCK="SC",*1*,"1234" // **<mode>=*1*** means Open lock function for PIN code
OK // Open PIN lock successfully

AT+CPIN? // Query the status of PIN
+CPIN: SIM PIN // Need to input PIN code

OK

AT+CPIN=*1234* // Input PIN code "***1234***"
+CPIN: READY // PIN authentication is successful

OK

Warning:
PIN code cannot be mismatched for 3 times, otherwise it will enter PUK state.

+CPIN: SIM PIN

```
AT+CPIN=1111                          // Input wrong PIN code
+CME ERROR: 16


AT+CPIN=1111
+CME ERROR: 16


AT+CPIN=1111                          // Input wrong PIN code for 3 times
+CPIN: SIM PUK                        // SIM card enter PUK state

+CME ERROR: 12


AT+CPIN="26601934","1234"             // Unlock PUK, "26601934" is PUK code, "1234" is
                                         new PIN code
+CPIN: READY

OK
```

5.2. Change password for function lock

Example: Change PIN code

```
AT+CPWD="SC","1234","4321"            // Change SIM card's PIN code from "1234" to
                                         "4321"
OK
```

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6. Network querying and setting

Table 5: Network querying and setting AT Commands

AT command	Description
AT+CSQ	Signal quality report
AT+CREG	GSM network registration status
AT+CGREG	GPRS network registration status
AT+COPS	Operator selection
AT+CPOL	Preferred operator list
AT+COPN	Read operator name
AT+QBAND	Select the network bands

The following sections give the examples for related AT command.

6.1. Network state information

AT+CSQ // Query the signal strength of current network
+CSQ: *30,0* // Signal strength indication is ***30,*** channel bit error rate is ***0***

OK

AT+CREG? // Query GSM network registration status
+CREG: 0,*1* // **<stat>=*1*** means GSM network is registered

OK

AT+CGREG? // Query GPRS network registration status
+CGREG: 0, *1* // **<stat>=*1*** means GPRS network is registered

OK

AT+COPS? // Query the currently selected operator
+COPS: 0,0,"CHINA MOBILE"

OK

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6.2. URC to report status of network registration

AT+CREG=*2* // **<n>=*2*,** enable URC to report GSM network registration status

OK

AT+CGREG=2 // **<n>=*2*,** enable URC to report GPRS network registration status

OK

+CREG: *1*,"1806","2012" // **<n>=*1*,** registered to GSM network

+CGREG: *1*, "1806", "2012" // **<n>=*1*,** registered to GPRS network

6.3. Select the network bands

AT+QBAND=? // Query network bands supported

+QBAND:(EGSM_MODE,DCS_MODE,PCS_MODE,EGSM_DCS_MODE,GSM850_PCS_MODE,GSM850_EGSM_DCS_PCS_MODE)

OK

AT+QBAND? // Query current selected band mode

+QBAND: "GSM850_EGSM_DCS_PCS_MODE"

OK

AT+QBAND="*DCS_MODE*" // Select the new band mode as "***DCS_MODE***"

OK

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7. Call

Table 6: Call AT commands

AT command	Description
ATD	Mobile originated call
ATDL	Redial last number used
ATA	Answer a call
ATH	Disconnect existing connection
ATS0	Set number of rings before automatically answering the call
AT+COLP	Connected line identification presentation
AT+CLIP	Calling line identification presentation
AT+CCWA	Call waiting control
AT+CCFC	Call forwarding number and conditions control
AT+CLCC	List current calls of ME
AT+CPAS	Mobile equipment activity status
AT+CEER	Extended error report
AT+CHLD	Call hold and multiparty
AT+VTS	DTMF tone generation
AT+CKPD	Keypad control

The following sections give the examples for related AT commands in details.

7.1. Make a call

7.1.1. Make a voice call

```
ATD10086;                    // Make a voice call
OK                           // "OK" is returned, operation succeeds
```

7.1.2. Set URC control of call connected

```
AT+COLP=1                    // <n>=1, enable URC report when call connected success
OK


ATD10086;                    // Make a call
+COLP: "10086",129,"",0      // When call connected, URC is reported

OK
```

7.2. Answer an incoming call

7.2.1. Answer an incoming call

RING // New incoming call, URC "**RING**" is reported

RING
ATA // Accept the incoming call
OK

7.2.2. Set URC control of incoming call

AT+CLIP=1 // **<n>=*1*,** enable URC report when call is incoming
OK

RING // There is an incoming call, "**RING**" is reported

+CLIP: "13764920730",129,"",,"",0 // URC is reported

7.3. Auto answer

ATS0=*2* // **<n>=*2***, set auto answer function that after "**RING**" is reported twice, call will be accepted automatically (default is **0**)
OK

RING // An incoming call

RING // After "**RING**" is reported twice, call is accepted automatically

AT+CLCC
+CLCC: 1,1,*0*,0,0,"13764920730",129,"" // **<stat>=*0*,** the incoming call is active

OK

7.4. DTMF

DTMF is used for dialing extent number or some auto service system. After call is connected, it is necessary to use DTMF to send number to network. Following is an example to dial the phone

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number 02151082965-816.

ATD02151082965; // Dial the phone number ***02151082965***
OK

AT+CLCC
+CLCC: 1,0,0,0,0," 02151082965",129,""

OK // The mobile originated call is active.

AT+VTS="8,1,6" // Dial the extent number **816** by sending DTMF.
OK

Note: After call is connected, need sending DTMF to dial extent phone number.

7.5. Call waiting

AT+CCWA=1,1 // Enable to display URC for an incoming waiting call
OK

ATD10086; // Make a voice call
OK
+CCWA: "02164011559",129,1
// If there is a new incoming call when the call is progressing, URC of call waiting will be reported

7.6. Call forwarding

AT+CCFC=*2*,*3*,"*02151082965*",129,,,,*5*
// **<reads>=*2*, <mode>=3,** set call forwarding when no reply (If no reply in ***5*** seconds, call will be forwarded to ***02151082965***)
OK

AT+CCFC=*2*,*2* // **<reads>=*2*，<mode>=*2***, query the state of call forwarding when no reply
+CCFC: 1,1,"+862151082965",145,,,5

+CCFC: 1,16,"+862151082965",145,,,5

OK

AT+CCFC=*2,4* // **<reads>=*2*，<mode>=*4,*** delete all call forwarding when no reply
OK

7.7. Call hold and multiparty

ATD10086; // Make the first voice call
OK

ATD10086; // Make the second voice call
OK

AT+CLCC // Query call state
+CLCC: 1,0,1,0,0,"10086",129,""

+CLCC: 2,0,0,0,0,"10086",129,""

OK

AT+CHLD=*2* // **<n>=*2*** means to place active call on hold and activate the other call (waiting call or held call)
OK

AT+CLCC // Query call state, make sure **AT+CHLD** is successful
+CLCC: 1,0,0,0,0,"10086",129,""

+CLCC: 2,0,1,0,0,"10086",129,""

OK

AT+CHLD=*3* //**<n>=*3*** means to add the held call to the active calls
OK

AT+CLCC // Query call state, make sure **AT+CHLD** is successful

```
+CLCC: 1,0,0,0,1,"10086",129,""

+CLCC: 2,0,0,0,1,"10086",129,""

OK
```

7.8. Query call state

```
AT+CPAS                    // Query state of ME
+CPAS: 0                   // <pas>=0 indicates ME is in idle state

OK


ATD10086;                  // Make voice call
OK


AT+CLCC                    // Query call state
+CLCC: 1,0,0,0,0,"10086",129,""

OK


AT+CPAS                    // Query state of ME
+CPAS: 4                   // <pas>=4 indicates ME is progressing a call

OK
```

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8. Audio setting

Table 7: Audio setting AT commands

AT command	Description
AT+QADUCH	Swap the audio channels
AT+CLVL	Loud speaker volume level
AT+CRSL	Ringer sound levels
AT+CALM	Alert sound mode
AT+CMUT	Mute control
AT+QMIC	Change the microphone gain level
AT+QLDTMF	Generate local DTMF tone

About the detail settings of audio ECHO, Gain etc, please refer to document *GSM Module Audio Design User Guide.pdf*.

The following sections give the examples for related AT commands in details.

8.1. Swap the audio channels

```
AT+QAUDCH=1                    // Swap the audio channels, <n>=1 indicates
                                  switching to auxiliary channel (headset channel)
OK
```

8.2. Change ringer sound level when call incoming

```
RING                           // New incoming call, RING indication

RING
AT+CRSL=100                    // Change ringer sound level to 100
OK


AT+CALM=1                      // <n>=1 start alert mute function
OK
```

8.3. Mute when call is progressing

```
AT+CLCC
```

```
+CLCC: 1,0,0,0,0,"15021012496",129,""  // Call is progressing

OK
AT+CMUT=1                             // <n>=1 mute the call, now the peer cannot hear
                                         the sound from the module
OK
```

8.4. Change volume when call is progressing

```
AT+CLCC
+CLCC: 1,0,0,0,0,"15021012496",129,""  // Call is progressing

OK



AT+CLVL=80                            // Set volume to 80
OK
```

8.5. Generate local DTMF tone

```
AT+QLDTMF=100,"3"                     // Generate local DTMF tone. <n>=100 indicates DTMF
                                         tone will play for 10 seconds, "3" is the content to play.
OK



AT+QLDTMF                             // Stop playing DTMF tone
OK
```

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9. SMS

Table 8: SMS AT commands

AT command	Description
AT+CPMS	Preferred SMS message storage
AT+CSMP	Set SMS text mode parameters
AT+CMGF	Select SMS message format
AT+CSCS	Select TE character set
AT+CMGW	Write SMS message to memory
AT+CMGR	Read SMS message
AT+CMGL	List SMS messages from preferred store
AT+CMGS	Send SMS message
AT+CMGD	Delete SMS message
AT+QMGDA	Delete all SMS
AT+CSDH	Show SMS text mode parameters
AT+CSCA	SMS service center address
AT+CNMI	New SMS message indications
AT+CSAS	Save SMS settings
AT+CRES	Restore SMS settings
AT+CSCB	Select cell broadcast SMS messages

The following sections give some examples for SMS AT commands in details.

9.1. SMS message storage

AT+CPMS=? // Query supported SMS storage
+CPMS: ("SM", "ME", "MT"), ("SM", "ME", "MT"), ("SM", "ME", "MT")

OK // "**SM**" indicates that SMS is stored in SIM card storage, "**ME**" indicates module storage, and "**MT**" indicates SIM card storage and module storage (SIM card storage is preferred)

AT+CPMS? // Query the setting of SMS storage
+CPMS: "SM",8,30,"SM",8,30,"SM",8,30

OK // **<mem1>="*SM*"** indicates to read and delete SMS from SIM card storage, **<used1>=*8*** indicates there are 8 SMS to be read and deleted,**<total1>=*30*** indicates the SMS capacity of SIM card is 30

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9.2. Write SMS

9.2.1. Write SMS in text mode

AT+CMGF=*1*	// **<mode>=*1* ,**set text mode
OK	
AT+CSCS="*GSM*"	// **<chset>="*GSM*" ,** set character set to "**GSM**"
OK	
AT+CMGW	// Write SMS
> *Hello, Quectel!*	// Input the content of SMS, "***Hello, Quectel!***", use **<Ctrl+Z>**/**Esc** to write SMS or exit.
+CMGW: *18*	// Written SMS is stored in the storage and the index is ***18***
OK	

9.2.2. Write SMS in PDU mode

AT+CMGF=*0*	// **<mode>=*0,*** set PDU mode
OK	
AT+CMGW=43	// Write SMS (PDU code)
>0011000D91683118876788F30018011C00480065006C006C006F002C00510075006500630074006500630021	// Input the content of SMS: "***Hello, Quectel!***"
+CMGW: *2*	// Written SMS is stored in the storage and the index is ***2***
OK	

9.3. Send SMS

9.3.1. Send SMS in text mode

AT+CMGF=*1*	// **<mode>=*1* ,** set text mode
OK	
AT+CSCS="*GSM*"	// **<chset>="*GSM*",** set character set to "**GSM**"
OK	

AT+CMGS="15021012496" // Send text SMS
> *Hello,Quectel!* // Input the content of SMS
+CMGS: 26

OK

9.3.2. Send SMS in PDU mode

AT+CMGF=*0* // **<mode>=*0*,** set PDU mode
OK

AT+CMGS=43 // Send PDU SMS
>*0011000D91685120012194F60008011C00480065006C006C006F002C005100750065006300740065006C0021* //The destination number is **8615021012496**, the content of SMS is "**Hello,Quectel!**"
+CMGS: 254

OK

9.4. Read SMS

9.4.1. Read saved SMS

AT+CMGF=*1* // **<mode>=*1* ,** set text mode
OK

AT+CSCS="*GSM*" // **<chset>="*GSM*",** set character set to "**GSM**"
OK

AT+CMGW // Write SMS
> *Hello,Quectel!* // Input message
+CMGW: *3* // The index of written SMS in the storage is ***3***

OK

AT+CMGR=*3* // Read the SMS whose index in the storage is ***3***

```
+CMGR: "STO UNSENT","",""
Hello,Quectel!

OK
```

9.4.2. Read new arrived SMS

```
+CMTI: "SM",4          // New SMS arrived, the index of the new SMS in SIM card storage is 4


AT+CMGR=4              // Read the SMS whose index in the storage is 4
+CMGR: "REC UNREAD","+8615021012496","","2009/10/15 16:32:51+32"
Hello,Quectel!

OK                     // Then number of the sender is +8615021012496
```

9.4.3. Read all SMS in specified type

```
AT+CMGL="REC READ"     // "REC READ" means to read all read SMS. In PDU
                          mode, please use 1 to replace "REC READ" to read all read
                          SMS.
+CMGL: 4,"REC READ","+8615021012496","","2009/10/15 11:10:56+32"
Hello,Quectel!

OK


AT+CMGL="ALL"          // "ALL" means to read all SMS. In PDU mode, please replace
                          "ALL" with 4 to read all SMS.
+CMGL: 1,"STO UNSENT","","",
Hello,Quectel!

+CMGL: 2,"REC READ","+8615021012496","","2009/11/23 19:48:44+32"
Hello,Quectel!

+CMGL: 3,"REC UNREAD","+8615021012496","","2009/11/23 19:49:03+32"
Hello,Quectel!


OK
```

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9.5. Delete SMS

9.5.1. Delete specified SMS

AT+CMGD=*1* // Delete the SMS whose index in the storage is ***1***
OK

9.5.2. Delete all SMS in specified type

AT+QMGDA="*DEL ALL*" // Delete all SMS. In PDU mode, please use ***6*** to replace "***DEL ALL*** " to read all read SMS.
OK

9.6. SMS settings

9.6.1. Query and set the number of SMS center

AT+CSCA? // Query the number of SMS center
+CSCA: "*+8613800210500*",145 // The number of SMS center is "***+8613800210500***"

OK

AT+CSCA="+8613800210500" // Set the number of SMS center as "***+8613800210500***"
OK

Note:
It is strongly recommended not to change the number of SMS center in normal use, in case it may cause sending SMS to be failed with the SIM card.

9.6.2. SMS report setting

AT+CSMP=*49*,167,0,0 // SMS status report is supported under text mode if the first parameter <fo> is set to ***49***.
OK

AT+CNMI=2,1,0,*1*,0 // Set **<ds>=*1***, SMS notification will be reported
OK

```
AT+CMGS="15021012496"       // Send SMS
> Hello,Quectel!
+CMGS: 25

OK

+CDS: 6,25,"15021012496",129,"2009/10/15 17:04:11+32","2009/10/15 17:04:12+32",
                            // Receive SMS report
```

9.7. Broadcast SMS

```
AT+CSCB=0,"50","1"          // Select specified broadcast SMS
OK
```

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10. Phonebook

Table 9: Phonebook AT commands

AT command	Description
AT+CPBS	Select phonebook storage
AT+CPBW	Write phonebook entry
AT+CPBR	Read current phonebook entries
AT+CPBF	Find phonebook entries
AT+CNUM	Subscriber number

The following sections give some examples for Phonebook AT commands in details.

10.1. Phonebook settings

```
AT+CPBS="SM"                    // Set storage type of phonebook to "SM"
OK                              // It means to operate the phonebook in SIM card


AT+CSCS="GSM"                   // Set character set to "GSM"
OK
```

10.2. Write phonebook entry

```
AT+CPBW=1,"15021012496",129,"Quectel"   // Write phone entry whose index is 1
OK
```

10.3. Read phonebook entry

```
AT+CPBR=1                       // Read phonebook entry whose index is 1
+CPBR: 1,"15021012496",129,"Quectel"

OK
```

10.4. Delete phonebook entry

```
AT+CPBW=1                       // Delete phonebook entry whose index is 1
OK
```

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10.5. Find phonebook entry

```
AT+CPBF="Quectel"                    // Find all entries whose names containing "Quectel" in current
                                        phonebook
+CPBF: 1,"15021012496",129,"Quectel"

OK
```

10.6. Query/set subscriber number

```
AT+CPBS="ON"                         // Select phonebook of "ON" type
OK


AT+CPBW=1,"13761832100",129,"Own number1"
OK                                   // Write subscriber number 1


AT+CPBW=2,"15021012496",129,"Own number2"
OK                                   // Write subscriber number 2


AT+CNUM                              // Query subscriber number
+CNUM: "Own number1","13761832100",129,7,4

+CNUM: "Own number2","15021012496",129,7,4

OK
```

10.7. Dial phonebook

Dial phonebook with ATD command as following:

```
ATD>1;                               // Dial the number whose index is 1 in current phonebook
OK
```

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11. GPRS

Table 10: GPRS AT commands

AT command	Description
AT+CGATT	Attach to/detach from GPRS service
AT+CGDCONT	Define PDP context
AT+CGACT	Activate or deactivate PDP context
AT+CGQMIN	Quality of service profile (minimum acceptable)
AT+CGQREQ	Quality of service profile (requested)
AT+CGDATA	Enter data state
AT+CGPADDR	Show PDP address
AT+CGCLASS	GPRS mobile station class
AT+CGEREP	Control GPRS unsolicited GPRS event reporting
AT+CGREG	GPRS network registration status
AT+CGSMS	Select service for MO SMS messages

Following sections are examples for GPRS AT commands in details.

11.1. Activate GPRS context

AT+CGATT? // Query whether GPRS network is attached or not
+CGATT: ***1*** // **<state>=*1*** indicates GPRS is attached

OK

AT+CGDCONT=*1*,"*IP*","*CMNET*" // Define the content of the PDP context ***1***
OK

AT+CGACT=1,*1* // Activate GPRS context **1**
OK

AT+CGPADDR =*1* // Query PDP address of context ***1***
+CGPADDR: *1*,"*10.78.195.244*" // PDP address of context 1 is "***10.78.195.244***"

OK

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11.2. Deactivate GPRS context

AT+CGACT=0,*1*	// Deactivate GPRS context ***1***
NO CARRIER	// Deactivate successfully

11.3. Dial-up internet

Detail steps and applications, please refer to: *GPRS_Startup_UGD.pdf*.

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12. CSD

Table 11: CSD AT commands

AT command	Description
ATD	Mobile originated call to dial a number
AT+CSNS	Single numbering scheme
+++	Switch from data mode to command mode
ATO	Switch from command mode to data mode

The following sections give some examples for CSD AT commands in details.

12.1. Set up CSD connection

Here is an example that module A make a CSD call to module B. After connection is set up, module A hang up the call.

Module A:

ATD15052251387	// StepA1: Make a CSD Call
CONNECT 9600	// Response for StepB1: CSD connection is set up
QUECTEL TEST001	// StepA2: Send data to module B, the data is "***QUECTEL TEST002***" Response for StepB2: Receive data from module B "***QUECTEL TEST001***"
OK	// StepA3: Input +++, switch from data mode to command mode
ATO	// StepA4: Input **ATO**, enter data mode
CONNECT 9600	
QUECTEL TEST003	// Response for StepB3: Receive data from module B "***QUECTEL TEST003***"
OK	// StepA5: Input +++, switch from data mode to command mode
ATH	// StepA6: Hang up CSD connection
OK	

Module B:

AT+CSNS=4	// Set data transfer mode for CSD
OK	

RING	// Response for StepA1: New incoming CSD call
ATA	// StepB1: Answer CSD call
CONNECT 9600	// Response for StepB1: CSD connection is set up
QUECTEL TEST002	// Response for StepA2: Receive data from module A "***QUECTEL TEST002***"
	StepB2: Send data to module B "***QUECTEL TEST001***"
	StepB3: Send data to module B "***QUECTEL TEST003***"
NO CARRIER	// Response for StepA6: Hang up CSD connection

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13. TCPIP

Table 12: TCPIP AT commands

AT command	Description
AT+QIFGCNT	Select a context as foreground context
AT+QIMODE	Set TCPIP transferring mode
AT+QIMUX	Control whether to display local IP address
AT+QISACK	Query the data information for sending
AT+QISERVER	Configure as a server
AT+QIOPEN	Start up TCP or UDP connection
AT+QICLOSE	Close TCP or UDP connection
AT+QISTAT	Query current connection status
AT+QIDEACT	Deactivate GPRS/CSD PDP context
AT+QISEND	Send data through TCP or UDP connection
AT+QIREGAPP	Start TCPIP task and set APN, user name, password
AT+QIACT	Bring up wireless connection with GPRS or CSD
AT+QILOCIP	Get local IP address
AT+QILPORT	Set local port
AT+QIDNSCFG	Configure domain name server
AT+QIDNSGIP	Query the IP address of given domain name
AT+QIDNSIP	Connect with IP address or domain name server
AT+QIHEAD	Add an IP header when receiving data
AT+QISHOWRA	Set whether to display the address of sender
AT+QIAUTOS	Set auto sending timer
AT+QIPROMPT	Set prompt of '>' when sending data
AT+QICSGP	Select CSD or GPRS as the bearer
AT+QISRVC	Choose connection
AT+QISCON	Save TCPIP application context
AT+QITCFG	Configure transparent transferring mode
AT+QISHOWPT	Control whether to show the protocol type
AT+QISHOWLA	Control whether to display local IP address

About detailed steps and information, please refer to document: *GSM_TCPIP_AN.pdf*.

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14. MUX

Table 13: MUX AT commands

AT command	Description
AT+CMUX	Set MUX mode

About detail steps and information, please refer to document *GSM_MUX_AN.pdf*.

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15. HTTP

Table 14: HTTP AT commands

AT command	Description
AT+QHTTPURL	Set HTTP server URL
AT+QHTTPGET	Send HTTP GET request
AT+QHTTPREAD	Read HTTP server response
AT+QHTTPPOST	Send HTTP POST request

About detailed steps and information, please refer to document *GSM_HTTP_ATC.pdf*.

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16. FTP

Table 15: FTP AT commands

AT command	Description
AT+QFTPOPEN	Open an FTP service to the given FTP server
AT+QFTPCLOSE	Close the FTP service
AT+QFTPPUT	Upload a file to the FTP server
AT+QFTPGET	Download a file from the FTP server
AT+QFTPPATH	Set the path in the FTP server to upload or download file
AT+QFTPUSER	Set the user name of the account to open FTP service
AT+QFTPPASS	Set the password of the account to open FTP service
AT+QFTPCFG	Set some configurable parameters for the FTP service
AT+QFTPSTAT	Query status of FTP service

About detailed steps and information, please refer to document *GSM_FTP_ATC.pdf*.

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17. MMS

Table 16: MMS AT commands

AT command	Description
AT+QMMURL	Set the URL of the MMSC
AT+QMMPROXY	Set the MMS proxy
AT+QMMCFG	Set the parameter for sending MMS
AT+QFLDS	Get UFS information
AT+QFUPL	List UFS files
AT+QFDEL	Upload file to UFS
AT+QMMSCS	Download file from UFS
AT+QMMSW	Delete file in UFS
AT+QMMSEND	Set character sets and input mode
AT+QMMRM	Write MMS
AT+QMMRR	Send MMS
AT+QMMRECV	Manage the received MMS
AT+QMMPRI	Read a received MMS

About detailed steps and information, please refer to document *GSM_MMS_ATC.pdf*.

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18. FAX

Table 17: FAX AT commands

AT command	Description
AT+FCLASS	Set FAX mode
AT+CSNS	Set data transferring mode

About detailed steps and information, please refer to document *FAX Setup.pdf*.

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19. Alarm and others

Table 18: Alarm and others AT commands

AT command	Description
AT+QALARM	Set alarm
AT+CCLK	Set clock
AT+CFUN	Set phone functionality
AT+QENG	Report cell description in engineer mode
ATV	TA response format
ATE	Set command echo mode
A/	Re-issue last AT command given
AT+CMEE	Report mobile equipment error

The following sections give some examples for the related AT commands in details.

19.1. Query/set clock

```
AT+CCLK?                                    // Query current clock
+CCLK: "08/01/01,06:06:24+00"

OK


AT+CCLK="09/09/09,12:00:00+00"              // Set clock
OK
```

19.2. Set alarm

Example 1: Normal alarm

```
AT+CCLK?                                    // Query current clock
+CCLK: "08/01/02,00:04:29+00"

OK


AT+QALARM=1, "08/01/02,00:06:00+00",0,0     // <power>=0, set as normal alarm
OK

ALARM RING                                  // Alarm expires
```

Example 2: Boot alarm

AT+QALARM=1, "08/01/02,00:06:00+00",0,*2* // Set boot alarm, **<power>=*2*** indicates boot alarm

OK

AT+QPOWD=1 // Power off with AT command (can also power off with power key）

NORMAL POWER DOWN

RDY // Alarm expires, system will auto boot and enter Alarm mode

ALARM MODE

+CFUN: 0

NORMAL POWER DOWN // System will auto power off after entering alarm mode for 90 seconds

19.3. Set phone functionality

AT+CFUN=1 // Set phone functionality as full function

OK

19.4. Query parameters of network

AT+QENG=*1* // **<mode>=*1***, start monitoring parameters of network, no unsolicited information reported

OK

AT+QENG? // Query service cell description etc.

+QENG: 1,0

+QENG: 0,460,00,1806,2602,64,46,-54,189,189,5,8,x,x,x,x,x,x,x

OK

AT+QENG=*2* // **<mode>=*2***, start monitoring parameters of network, and cell description will be reported as unsolicited information

OK

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+QENG: 0,460,00,1806,2602,64,46,-54,190,190,5,8,x,x,x,x,x,x,x
// URC reported

AT+QENG=*0* // **<mode>=*0*,** stop monitoring parameters of network,
OK

19.5. Settting of power saving mode

AT+QSCLK? // Query the setting of power saving mode. (Power saving is disabled as default)
+QSCLK: 0

OK

AT+QSCLK=1 // **<n>=*1*** , allow to enter power saving mode
OK

AT+QSCLK=0 // **<n>=*0*** , forbid to enter power saving mode
OK

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