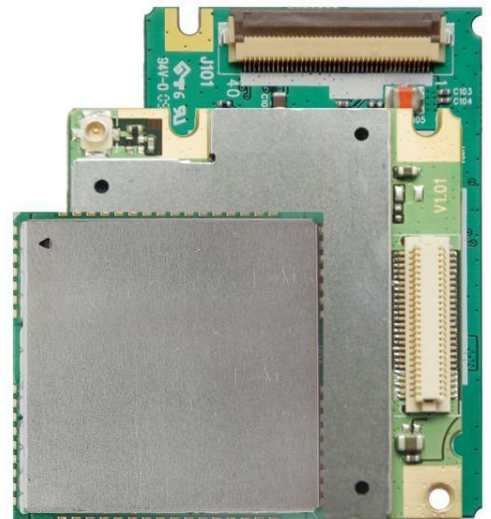




## Quectel Cellular Engine

### **GSM STK AT Commands**

GSM\_STK\_ATC\_V1.1



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## 0. Revision history

Revision	Date	Author	Description of change
1.0	2011-3-14	Joanna LI	Initial
1.1	2015-05-011	Thomas ZHANG	Added applicable modules

## 1. Introduction

Quectel Module provides AT commands to support STK. This document is a reference guide to all the AT commands and responses defined for STK.

The SIM Application Toolkit (SAT/STK) provides mechanisms which allow applications, existing in the SIM, to interact and operate with any ME which supports the specific mechanism(s) required by the application. Please go to GSM 11.14 for more details about STK. Quectel provides AT commands to support profile download (+STKPD), envelope (+STKENV), terminal response (+STKTR), get STK indication (+QSTK) and trigger STK call (+STKCALL), SMS (+STKSMS), SS (+STKSS), USSD (+STKUSSD) and DTMF (+STKDTMF).

This document is applicable to all Quectel GSM modules except for GCxx modules.

### 1.1. Reference

**Table 1: Reference**

SN	Document name	Remark
[1]	M10_ATC.pdf	The introduction of AT commands for M10
[2]	GSM 11.14	Specification of the SIM Application Toolkit for the SIM-ME interface
[3]	GSM 11.11	Specification of the SIM-ME interface

### 1.2. Terms and abbreviations

**Table 2: Terms and abbreviations**

Abbreviation	Description
<b>SAT/STK</b>	SIM Application Toolkit
<b>SIM</b>	Subscriber Identity Module
<b>ME</b>	Mobile Equipment
<b>SMS</b>	Short Message Service
<b>SS</b>	Supplementary Service
<b>USSD</b>	Unstructured Supplementary Service Data
<b>BER</b>	Basic Encoding Rules of ASN.1
<b>TLV</b>	Tag, Length, Value
<b>&amp;h</b>	Hexadecimal format
<b>&amp;d</b>	Decimal format

## 2. AT Commands for STK

### 2.1. Overview of AT Commands for STK support

Command	Description
<a href="#">AT+QSTK</a>	TURN ON/OFF STK FUNCTION
<a href="#">AT+STKPD</a>	STK PROFILE DOWNLOAD
<a href="#">AT+STKENV</a>	STK ENVELOPE COMMAND
<a href="#">AT+STKTR</a>	STK TERMINAL RESPONSE
<a href="#">AT+STKCALL</a>	TRIGGER STK CALL
<a href="#">AT+STKSMS</a>	TRIGGER STK SMS
<a href="#">AT+STKSS</a>	TRIGGER STK SS
<a href="#">AT+STKUSSD</a>	TRIGGER STK USSD
<a href="#">AT+STKDTMF</a>	TRIGGER STK DTMF

### 2.2. Details for AT Commands for STK support

#### 2.2.1. AT+QSTK STK Turn on/off STK function

AT+QSTK Turn on/off STK function	
Test Command <b>AT+QSTK=?</b>	Response <b>+QSTK: (0-1)</b>  <b>OK</b>
Read Command <b>AT+QSTK?</b>	Response <b>+QSTK :&lt;n&gt;</b>  <b>OK</b> Parameters See Write Command
Write Command <b>AT+QSTK=&lt;n&gt;</b>	Response If format is right, response <b>OK</b>  Otherwise response <b>+CME ERROR: &lt;err&gt;</b>  Parameter <b>&lt;n&gt;</b> Whether turn on the STK function

	<u>0</u> Turn off <u>1</u> Turn on
Reference	Note: <ul style="list-style-type: none"> <li>Must restart the module and make sure SIM card is unlocked to use STK commands.</li> </ul>

**Example:**

**AT+QSTK=1**

**OK**

Restart the module, enter PIN code if SIM card is locked. Then the following indication will come up, including the main menu list:

+STKPCI: 0, "D07A8103012500820281828507804E16754C98CE8F0A018070ED70B963A883508F0A028065B095FB8D227ECF8F0A0380554665C552A9624B8F0A0480624B673A74068D228F0A058081EA52A9670D52A18F0A06806D41884C77ED4FE18F06078070AB94C38F0A0880624B673A97F34E508F0A09807CBE5F694E0A6D77"

**Parsed Data:**

Please refer to the appendix in this document for details below.

<b>D0</b>	Proactive SIM command tag				
<b>7A</b>	Length	1. If the length is between 0 and 127 (00 to 7F&h), it's coded onto one byte. For example, "7A" = 122&d. 2. If the length is between 128 and 255 (80 to FF&h), it's coded onto two bytes leading with "81". For example, "81BA" = 186&d.			
<b>8103012500</b>	<b>81</b>	<b>03</b>	<b>01</b>	<b>25</b>	<b>00</b>
	<a href="#">Command details tag</a>	Length	command number	Type of command: Set up menu	Command Qualifier
<b>82028182</b>	<b>82</b>	<b>02</b>	<b>81</b>	<b>82</b>	
	<a href="#">Device identity tag</a>	Length	Source: SIM	Destination: ME	
<b>8507804E16754C98CE</b>	<b>85</b>	<b>07</b>	<b>804E16754C98CE</b>		
	<a href="#">Alpha identifier tag</a>	Length	Alpha identifier: 80: UCS2 coding 4E16754C98CE:世界风		
<b>8F0A018070ED70B963A88350</b>	<b>8F</b>	<b>0A</b>	<b>01</b>	<b>8070ED70B963A88350</b>	
	<a href="#">Item tag</a>	Length	ID of item: 1	Text string of item 80: UCS2 coding 70ED70B963A88350: 热点推荐	
<b>8F0A028065B095FB8D227ECF</b>	Item 2: 新闻财经				
<b>8F0A0380554665C552A</b>	Item 3: 商旅助手				

9624B	
8F0A0480624B673A740 68D22	Item 4: 手机理财
8F0A058081EA52A967 0D52A1	Item 5: 自助服务
8F0A06806D41884C77 ED4FE1	Item 6: 流行短信
8F06078070AB94C3	Item 7: 炫铃
8F0A0880624B673A97 F34E50	Item 8: 手机音乐
8F0A09807CBE5F694E 0A6D77	Item 9: 精彩上海

### 2.2.2. AT+STKPD STK profile download

AT+STKPD STK profile download	
Test Command AT+STKPD=?	Response <b>OK</b>
Execution Command AT+STKPD	Response Do the profile downloading. <b>OK</b>
Read Command AT+STKPD?	Response Get the terminal profile setting. <b>+STKPD: &lt;Profile&gt;</b>  <b>OK</b>  Parameter <b>&lt;Profile&gt;</b> HEX string of STK profile.
Reference	Note: <ul style="list-style-type: none"> <li>● Profile downloading provides a mechanism for the ME to tell the SIM what it is capable of.</li> <li>● The structure of profile content is specified in GSM 11.14 subclause 5.2 Structure and coding of TERMINAL PROFILE.</li> </ul>

#### Example:

**AT+STKPD?**

**+STKPD: "FFFFFFF7F1F007FFF00001F230811060700"**

**OK**



### 2.2.3. AT+STKENV STK Envelope command

AT+STKENV STK Envelope command	
Test Command <b>AT+STKENV=?</b>	Response <b>OK</b>
Write Command <b>AT+STKENV=&lt;sat_command&gt;</b>	Response This command is used to send STK Envelope command. <b>OK</b>  Parameters <b>&lt;sat_command&gt;</b> HEX string of STK envelope command
Reference	Note: <ul style="list-style-type: none"> <li>The structure of envelope command is specified in GSM 11.14 clause 7 to clause 11. Below example is to send envelope command for menu selection.</li> </ul>

#### Example:

Select item 4 (Refer to GSM 11.14 subclause 8.2 Structure of [ENVELOPE \(MENU SELECTION\)](#)):

**AT+STKENV="D30782020181900104"**

**OK**

#### Parsed Data:

<b>D3</b>	Menu Selection tag			
<b>07</b>	Length			
<b>82020181</b>	<b>82</b>	<b>02</b>	<b>01</b>	<b>81</b>
	<a href="#">Device identity tag</a>	Length	Source device identity: Keypad	Destination device identity: SIM
<b>900104</b>	<b>90</b>	<b>01</b>	<b>04</b>	
	<a href="#">Item identifier tag</a>	Length	ID of item chosen: 04	

### 2.2.4. AT+STKTR STK terminal response

AT+STKTR STK terminal response	
Test Command <b>AT+STKTR=?</b>	Response <b>OK</b>
Write Command <b>AT+STKTR=&lt;terminal_response&gt;</b>	Response This command is used to send STK Terminal Response. <b>OK</b>  Parameter

	<terminal_response> HEX string of STK response
Reference	Note: <ul style="list-style-type: none"> <li>● <a href="#">The structure of terminal response</a> is specified in GSM 11.14 clause 6.8.</li> </ul>

### Example 1: Terminal response of Selecting item

```
+STKPCI: 0,"D07081030124008202818285098081EA52A9670D52A18F100180004F0054004
1670D52A1630753578F0A02805BA2670D70ED7EBF8F0C0380005600490050540D72478F0
A0480805476DF670D52A18F0A05808BDD8D3967E58BE28F0A068079EF520667E58BE28F
0A07805DF25B9A4E1A52A1"
AT+STKTR="810301240082028281830100900105"
OK
```

### Parsed data for SELECT ITEM proactive command:

<b>D0</b>	Proactive SIM command tag
<b>70</b>	Length
<b>8103012400</b>	<a href="#">Command details</a> : type of command 24 -- Select Item
<b>82028182</b>	<a href="#">Device identity</a> : source SIM > destination ME
<b>85098081EA52A9670D52A1</b>	<a href="#">Alpha identifier</a> : 自助服务
<b>8F100180004F00540041670D52A163075357</b> <b>8F0A02805BA2670D70ED7EBF</b> <b>8F0C0380005600490050540D7247</b> <b>8F0A0480805476DF670D52A1</b> <b>8F0A05808BDD8D3967E58BE2</b> <b>8F0A068079EF520667E58BE2</b> <b>8F0A07805DF25B9A4E1A52A1</b>	<a href="#">Item</a> 1. OTA 服务指南 Item 2. 客服热线 Item 3. VIP 名片 Item 4. 联盟服务 Item 5. 话费查询 Item 6. 积分查询 Item 7. 已定业务

### Parsed data for TERMINAL RESPONSE of SELECT ITEM:

<b>8103012400</b>	<a href="#">Command details</a> : type of command 24 -- Select Item		
<b>82028281</b>	<a href="#">Device identity</a> : source ME > destination SIM		
<b>830100</b>	<b>83</b>	<b>01</b>	<b>00</b>
	<a href="#">Result tag</a>	Length	General result: 00 command performed successfully
<b>900105</b>	<a href="#">Item identifier</a> : 05		

### Example 2: Terminal response of Getting input – input short message content

```
+STKPCI: 0,"D01E8103012303820281828D0F08300E8F93516551855BB9003A300F910201
8C"
AT+STKTR="8103012303820282818301008D05084F60597D"
OK
```

**Parsed data for GET INPUT proactive command:**

<b>D0</b>	Proactive SIM command tag			
<b>1E</b>	Length			
<b>8103012303</b>	<a href="#">Command details</a> : type of command 23 -- Get input			
<b>82028182</b>	<a href="#">Device identity</a> : source SIM > destination ME			
<b>8D0F08300E8F935 16551855BB9003A 300F9102018C</b>	<b>8D</b>	<b>0F</b>	<b>08</b>	<b>300E8F9351655185 5BB9003A300F</b>
	<a href="#">Text string tag</a>	Length	Data coding scheme: it is coded as for SMS Data coding scheme defined in GSM03.38. 08 - UCS2 04 - 8 bit coding	Text string: 『输入内容:』  It means "input content" in English.
<b>9102018C</b>	<b>91</b>	<b>02</b>	<b>01</b>	<b>8C</b>
	<a href="#">Response length tag</a>	Length	Min length: 1	Max length: 8C&h=140&d

**Parsed data for TERMINAL RESPONSE of GET INPUT:**

<b>8103012303</b>	<a href="#">Command details</a> : type of command 23 -- GET INPUT
<b>82028281</b>	<a href="#">Device identity</a> : source ME > destination SIM
<b>830100</b>	<a href="#">Result</a> : 00 command performed successfully
<b>8D05084F60597D</b>	<a href="#">Text string</a> : UCS2 "你好"

**Example 3: Terminal response of Getting input – input target number of short message**

```
+STKPCI: 0,"D01A8103012300820281828D0B088F93516553F77801FF1A91020114"  
AT+STKTR="8103012300820282818301008D0C043133373634343132313531"  
OK
```

**Parsed data:**

+STKPCI: text string: “输入号码: ”, it means “Input number” in English.

Terminal response: input number “13764412151”, 8 bit coding schema.

Note: The terminal response is similar as above example 2: using UCS2 coding to input message content in example 2, while using 8-bit coding to input number here.

**Example 4: Go backward to the item at higher level**

```
AT+STKTR="810301240082028281830111"  
OK
```

**Example 5: Return to the main menu directly**

```
AT+STKTR="810301230082028281830110"  
OK
```

### Parsed data of example 4 and 5:

<b>830111</b>	<b>Result:</b> 11 - Backward move in the proactive SIM session requested by the user
<b>830110</b>	<b>Result:</b> 10 - Proactive SIM session terminated by the user

Note: In example 4 and 5, type of command in terminal response should be the same as that in +STKPCI last time.

### 2.2.5. AT+STKCALL Trigger STK Call

<b>AT+STKCALL Trigger STK Call</b>	
Test Command <b>AT+STKCALL=?</b>	Response <b>OK</b>
Write Command <b>AT+STKCALL=&lt;n&gt;</b>	Response If format is right, response <b>OK</b>  Otherwise, response <b>ERROR</b>  Parameters <b>&lt;n&gt;</b> 0 Trigger modem to send STK CALL SETUP 4 Trigger modem to send STK CALL SETUP but icon cannot be displayed 16 Proactive session terminated by user 18 No response from user 32 ME currently unable to process this command 34 User reject setup call 50 Command data not understood by ME
<b>Reference</b>	<b>Note:</b> ● Type of command value for Setting up call is “10”.

### 2.2.6. AT+STKSMS Trigger STK SMS

<b>AT+STKSMS Trigger STK SMS</b>	
Test Command <b>AT+STKSMS=?</b>	Response <b>OK</b>
Write Command <b>AT+STKSMS=&lt;n&gt;</b>	Response If format is right, response <b>OK</b>  Otherwise, response <b>ERROR</b>

	Parameters <n> 0 Trigger modem to send STK SMS 4 Trigger modem to send STK SMS but icon cannot be displayed
Reference	Note: ● Type of command value for sending short message is "13".

#### Example: Send short message

+STKPCI: 1,"D0198103011300820281838B0E010005A10180F600040459454358"

AT+STKSMS=0

OK

#### Parsed data for Send Short Message proactive command:

<b>D0</b>	Proactive SIM command tag		
<b>19</b>	Length		
<b>8103011300</b>	<a href="#">Command details</a> : type of command 13 - send short message		
<b>82028183</b>	<a href="#">Device identity</a> : source SIM > destination Network		
<b>8B0E010005A10180F600040459454358</b>	<b>8B</b>	<b>0E</b>	<b>010005A10180F600040459454358</b>
<b>8</b>	<a href="#">SMS TPDU tag</a>	Length	SMS TPDU: TA(Target Address): 10086 UD(User Data): "YECX" (china mobile provides this code to check balance)

#### 2.2.7. AT+STKSS Trigger STK SS

AT+STKSS Trigger STK SS	
Test Command <b>AT+STKSS=?</b>	Response <b>OK</b>
Write Command <b>AT+STKSS=&lt;n&gt;</b>	Response If format is right, response <b>OK</b>  Otherwise, response <b>ERROR</b>  Parameters <n> 0 Trigger modem to send STK SS 4 Trigger modem to send STK SS but icon cannot be displayed 50 Command data not understood by ME
Reference	Note: ● Type of command value for sending SS is "11".

### 2.2.8. AT+STKUSSD Trigger STK USSD

<b>AT+STKUSSD Trigger STK USSD</b>	
Test Command <b>AT+STKUSSD=?</b>	Response <b>OK</b>
Write Command <b>AT+STKUSSD=&lt;n&gt;</b>	Response If format is right, response <b>OK</b>  Otherwise, response <b>ERROR</b>  Parameters <b>&lt;n&gt;</b> 0      Trigger modem to send STK USSD 4      Trigger modem to send STK USSD but icon cannot be displayed 50     Command data not understood by ME
Reference	Note: ● Type of command value for Sending USSD is “12”.

### 2.2.9. AT+STKDTMF Trigger STK DTMF

<b>AT+QSTKDTMF Trigger STK DTMF</b>	
Test Command <b>AT+STKDTMF=?</b>	Response <b>OK</b>
Write Command <b>AT+STKDTMF=&lt;n&gt;</b>	Response If format is right, response <b>OK</b>  Otherwise, response <b>ERROR</b>  Parameters <b>&lt;n&gt;</b> 0      Trigger modem to send STK DTMF 4      Trigger modem to send STK DTMF but icon cannot be displayed 32     ME currently unable to process command
Reference	Note: ● Type of command value for sending DTMF is “14”.

### 3. +STKPCI STK Proactive Command Indication

This unsolicited result code is used to indicate Proactive Command Indication.

**Format:**

**+STKPCI: <pci\_type> [,<proactive\_command>]**

**<pci\_type>**

- 0 The SAT command is handled by TE.
- 1 The SAT command is handled by ME.
- 2 No other command (end of session)

**<proactive\_command>**

HEX string of STK proactive command, sent when <pci\_type> = 0 or 1

## 4. Examples

### 4.1. SET UP MENU Proactive Command

**Description:** An example of SET UP MENU proactive command.

#### 4.1.1. Raw data

```
+STKPCI:0, "D081C0810301250082028182850B80906050B3670D52D953408F0C02804F86
96FB63A5901A92348F0C0380906050B38CA18A0A901F8F0C04805A1B6A02842C82B17B5
28F0A0580571692344E0B8F098F100780003600380038884C52D5523855468F0C0880958B90
4B90544EBA99288F0E09800036003600365A1B6A027DB28F100A8090FD670375375973804
A59295BA48F100B8054C862C9540D4EBA804A59295BA48F0E0C800038003000374F344F6
0884C8F0E0D80906050B35BA2670D5C087DDA"
<AT>AT+STKTR="8103012500820281830100"
```

#### 4.1.2. Parsed data

##### 4.1.2.1. Proactive command SET UP MENU

```
+STKPCI: 0,"D0: proactive SIM command Tag
  81C0: length
  8103012500: command details
    81: command details tag
    03: length
    01: command number
    25: type of command: set up menu
    00: command qualifier
  82028182: device id
    82: device id tag
    02: length
    81: source id: SIM
    82: destination id: ME
  850B80906050B3670D52D95340: alpha id
    85: alpha id tag
    0B: length
    80906050B3670D52D95340: alpha id: 遠傳服務區
  8F0C02804F8696FB63A5901A9234: Item
    8F: item tag
    0C: length
    02: item id
```



**804F8696FB63A5901A9234:** 來電接通鈴

**8F0C0380906050B38CA18A0A901F:** 遠傳財訊速

**8F0C04805A1B6A02842C82B17B52:** 娛樂萬花筒

**8F0A0580571692344E0B8F09:** 圖鈴下載

**8F100780003600380038884C52D552385546:** 688行動券商

**8F0C0880958B904B90544EBA9928:** 開運達人館

**8F0E09800036003600365A1B6A027DB2:** 666娛樂網

**8F100A8090FD670375375973804A59295BA4:** 都會男女聊天室

**8F100B8054C862C9540D4EBA804A59295BA4:** 哈拉名人聊天室

**8F0E0C800038003000374F344F60884C:** 807伴你行

**8F0E0D80906050B35BA2670D5C087DDA":** 遠傳客服專線

#### 4.1.2.2. Terminal response of SET UP MENU

<AT> AT+STKTR=

"8103012500: [command details](#) (just same as the one in the proactive SIM)

81: command details tag

03: length

01: command number

25: type of command: set up menu

00: command qualifier

82028281: [device id](#) (source id: ME, destination id: SIM)

82: device id tag

02: length

82: source id: ME

81: destination id: SIM

830100": [result](#)

83: result tag

01: length

00: Command perform successfully

## 4.2. Menu Selection and Set Up Call

**Description:** An example of selecting item 1 and being notified by MENU SELECTION envelope command after SET UP MENU proactive command.

### 4.2.1. Row Data

[STK] option: 1, menu item: [0x02] 來電接通鈴

<AT> AT+STKENV="D30782020181900102"

+STKPCI:1,"D02581030110008202818305158000390030003064A5865F4E2D002E002E0020002E86038109F0"

<AT> **AT+STKCALL=0**

## 4.2.2. Parsed Data

### 4.2.2.1. MENU SELECTION envelope: select item 2 - 來電接通鈴

<AT> AT+STKENV=""

**D3:** [menu selection tag](#)

**07:** length

**82020181:** [device id](#)

**82:** device id tag

**02:** length

**0181:** source: Keypad, destination: SIM

**900102":** [Item id](#)

**90:** item id tag

**01:** length

**02":** item id: 2

### 4.2.2.2. SET UP CALL proactive command

+STKPCI:1,"D0: proactive SIM command Tag

**25:** length

**8103011000:** [command details](#)

**81:** command detail tag

**03:** length

**01:** command number

**1000:** type of command: SET UP CALL, only if not currently busy on another call

**82028183:** [device id](#)

**82:** device id tag

**02:** length

**8183:** source: SIM, destination: network

**05158000390030003064A5865F4E2D002E002E0020002E:** [alpha id](#)

**05:** alpha id tag

**15:** length

**8000390030003064A5865F4E2D002E002E0020002E:** 900撥號中..

**86038109F0":** [address](#)

**86:** address tag

**03:** length

**81:** TON: Unknown NPI: ISDN/telephony numbering plan

**09F0":** Dialing number string: 900

## 4.3. Menu Selection, Get input and Send Short Message

**Description:** An example of selecting item 2 and being notified by MENU SELECTION

envelope command after SET UP MENU proactive command.

#### 4.3.1. Row Data

[STK] option: 1, menu item: [0x03] 遠傳財訊速

1. <AT> **AT+STKENV="D30782020181900103"**
2. **+STKPCI:0,"D052810301240082028182050B80906050B38CA18A0A901F8F0A018053F0706380A15E028F0A0280570B969B80A15E028F0A038059165E63532F73878F0A0480671F8CA8630765788F0A05804ECA65E565B0805E"**

[STK] option: 1, menu item: [0x01] 台灣股市

3. <AT> **AT+STKTR="810301240082028281830100900101"**
4. **+STKPCI:0,"D03881030124008202818205098053F0706380A15E028F0A018052A06B0A630765788F0A02804E0A6AC3630765788F0A0380500B80A1884C60C5"**

[STK] option: 1, menu item: [0x03] 個股行情

5. <AT> **AT+STKTR="810301240082028281830100900103"**
6. **+STKPCI: 0,"D01E8103012300820281828D0F088F38516580A179680031865F78BC91020004"**
7. <AT> **AT+STKTR="8103012300820282818301008D050432343534"**
8. **+STKPCI: 0,"D01E8103012300820281828D0F088F38516580A179680032865F78BC91020004"**
9. <AT> **AT+STKTR="8103012300820282818301008D0104"**
10. **+STKPCI:1,"D043810301130082028183051180865574064E2D002C00208ACB7A0D50190607918896130000998B1C11001481102108906300009900000004A70A2A3132382A3234353423"**
11. <AT> **AT+STKSMS=0**

#### 4.3.2. Parsed Data

##### 4.3.2.1. MENU SELECTION envelope: select item 3 - 遠傳財訊速

<AT> **AT+STKENV="**

**D3:** menu selection tag

**07:** length

**82020181:** [device id](#)

**82:** device id tag

**02:** length

**0181:** source: Keypad, destination: SIM

**900103":** [item id](#)

**90:** item id tag

**01:** length

**03:** item id

##### 4.3.2.2. SELECT ITEM proactive command

**+STKPCI:0,"D0:** Proactive SIM command tag

52: length  
**8103012400:** [command details](#)  
 81: command details tag  
 03: length  
 01: command number  
 2400: SELECT ITEM, no help information available, no selection preference, presentation type is not specified  
**82028182:** [device id](#)  
 82: device id tag  
 02: length  
 8182: source: SIM, destination: ME  
**050B80906050B38CA18A0A901F:** [alpha id](#)  
 05: alpha id tag  
 0B: length  
 80906050B38CA18A0A901F: 遠傳財訊速  
**8F0A018053F0706380A15E02:** [Item](#)  
 8F: item tag  
 0A: length  
 01: item id: 1  
 8053F0706380A15E02: 台灣股市  
 8F0A0280570B969B80A15E02: item 2: 國際股市  
 8F0A038059165E63532F7387: item 3: 外幣匯率  
 8F0A0480671F8CA863076578: item 4: 期貨指數  
 8F0A05804ECA65E565B0805E": item 5: 今日新聞

#### 4.3.2.3. Terminal response of SELECT ITEM: select item 1 -台灣股市

<AT> AT+STKTR="

**8103012400:** [command details](#)  
 81: command details tag  
 03: length  
 01: command number  
 2400: SELECT ITEM, no help information available, no selection preference, presentation type is not specified  
**82028281:** [device id](#)  
 82: device id tag  
 02: length  
 8281: source: ME, destination: SIM  
**830100:** [result](#)  
 83: result tag  
 01: length  
 00: command performed successfully  
**900101":** [item id](#)  
 90: item id tag  
 01: length

01: item id

#### 4.3.2.4. SELECT ITEM proactive command

+STKPCI:0,"D0: proactive SIM command tag

38: length

8103012400: [command details](#)

81: command details tag

03: length

01: command number

2400: SELECT ITEM, no help information available, no selection preference, presentation type is not specified

82028182: [device id](#)

82: device id tag

02: length

8182: source: SIM, destination: ME

05098053F0706380A15E02: [alpha id](#)

05: alpha id tag

09: length

8053F0706380A15E02: 台灣股市

8F0A018052A06B0A63076578: [item](#)

8F: item tag

0A: length

01: item 1

8052A06B0A63076578: 加權指數

8F0A02804E0A6AC363076578: item 2: 上櫃指數

8F0A0380500B80A1884C60C5": item 3: 個股行情

#### 4.3.2.5. Terminal response of SELECT ITEM: select item 3 -個股行情

<AT> AT+STKTR="

8103012400: [command details](#)

81: command details tag

03: length

01: command number

2400: SELECT ITEM, no help information available, no selection preference, presentation type is not specified

82028281: [device id](#)

82: device id tag

02: length

8281: source: ME, destination: SIM

830100: [result](#)

83: result tag

01: length

00: command performed successfully

900103": [item id](#)

**90:** item id tag  
**01:** length  
**03:** item id

#### 4.3.2.6. GET INPUT proactive command

**+STKPCI: 0, "D0:** proactive SIM command tag

**1E:** length

**8103012300:** [command details](#)

**81:** command details tag

**03:** length

**01:** command number

**2300:** GET INPUT, no help information, user input to be unpacked format, ME may echo user input on the display, SMS default alphabet, digits (0 to 9, \*, # and +) only

**82028182:** [device id](#)

**82:** device id tag

**02:** length

**8182:** source: SIM, destination: ME

**8D0F088F38516580A179680031865F78BC:** [test string](#)

**8D:** text string tag

**0F:** length

**08:** data coding scheme: UCS2

**8F38516580A179680031865F78BC:** 輸入股票 1 號碼

**91020004":** [response length](#)

**91:** response length tag

**02:** length

**00:** min length = 0

**04:** max length = 4

#### 4.3.2.7. Terminal response of GET INPUT: 輸入股票 1 號碼

<AT> AT+STKTR="

**8103012300:** [command details](#)

**81:** command details tag

**03:** length

**01:** command number

**2300:** GET INPUT, no help information, user input to be unpacked format, ME may echo user input on the display, SMS default alphabet, digits (0 to 9, \*, # and +) only

**82028281:** [device id](#)

**82:** device id tag

**02:** length

**8281:** source: ME, destination: SIM

**830100:** [result](#)

**83:** result tag  
**01:** length  
**00:** command performed successfully  
**8D050432343534":** [text string](#)  
**8D:** text string tag  
**05:** length  
**04:** data coding scheme: GSM default alphabet 8 bits  
**32343534:** 2454

#### 4.3.2.8. GET INPUT proactive command

**+STKPCI: 0, "D0:** proactive SIM command tag  
**1E:** length  
**8103012300:** [command details](#)  
**81:** command details tag  
**03:** length  
**01:** command number  
**2300:** GET INPUT, no help information, user input to be unpacked format, ME may echo user input on the display, SMS default alphabet, digits (0 to 9, \*, # and +) only  
**82028182:** [device id](#)  
**82:** device id tag  
**02:** length  
**8182:** source: SIM, destination: ME  
**8D0F088F38516580A179680032865F78BC:** [text string](#)  
**8D:** text string tag  
**0F:** length  
**08:** data coding scheme: UCS2  
**8F38516580A179680032865F78BC:** 輸入股票 2 號碼  
**91020004":** [response length](#)  
**91:** response length tag  
**02:** length  
**00:** min length = 0  
**04:** max length = 4

#### 4.3.2.9. Terminal response of GET INPUT: 輸入股票 2 號碼

**<AT> AT+STKTR="**  
**8103012300:** [command details](#)  
**81:** command details tag  
**03:** length  
**01:** command number  
**2300:** GET INPUT, no help information, user input to be unpacked format, ME may echo user input on the display, SMS default alphabet, digits (0 to 9, \*, # and +) only

**82028281:** [device id](#)  
**82:** device id tag  
**02:** length  
**8281:** source: ME, destination: SIM  
**830100:** [result](#)  
**83:** result tag  
**01:** length  
**00:** command performed successfully  
**8D0104":** [text string](#)  
**8D:** text string tag  
**01:** length  
**04:** data coding scheme: GSM default alphabet 8 bits

#### 4.3.2.10. SEND SHORT MESSAGE proactive command

**+STKPCI: 1, "D0:** proactive SIM command tag  
**43:** length  
**8103011300:** [command details](#)  
**81:** command details tag  
**03:** length  
**01:** command number  
**1300:** SEND SHORT MESSAGE, packing not required  
**82028183:** [device id](#)  
**82:** device id tag  
**02:** length  
**8183:** source: SIM destination: Network  
**05118086574064E2D002C00208ACB7A0D5019:** [alpha id](#)  
**05:** alpha id tag  
**11:** length  
**8086574064E2D002C00208ACB7A0D5019:** 處理中, 請稍候  
**060791889613000099:** [address](#)  
**06:** address tag  
**07:** length  
**91:** TON: international number, NPI: ISDN/telephony numbering plan  
**889613000099:** dialing number string  
**8B1C11001481102108906300009900000004A70A2A3132382A3234353423":**  
[SMS TPDU](#)  
**8B:** SMS TPDU tag  
**1C:** length  
**11001481102108906300009900000004A70A2A3132382A3234353423:** SMS  
 TPDU



## 4.4. Menu Selection, Send USSD and SD

**Description:** An example of user selecting item 2 and being notified by MENU SELECTION envelope command after SET UP MENU proactive command.

### 4.4.1. Row Data

[STK] option: 1, menu item: [0x05] 圖鈴下載

<AT> AT+STKENV="D30782020181900105"

+STKPCI: 1,"D024810301120082028183051180865574064E2D002C00208ACB7A0D50198A0640AA182D3702"

<AT> AT+STKUSSD=0

+STKPCI: 1,"D022810301110082028183051180865574064E2D002C00208ACB7A0D50198904811A94FB"

<AT> AT+STKSS=0

### 4.4.2. Parsed Data

#### 4.4.2.1. MENU SELECTION envelope: select item 5 -圖鈴下載

<AT> AT+STKENV="

D3: menu selection tag

07: length

82020181: [device id](#)

82: device id tag

02: length

0181: source: Keypad, destination: SIM

900105": [item id](#)

90: item id tag

01: length

05: item id

#### 4.4.2.2. SEND USSD proactive command

+STKPCI: 1,"D0: proactive SIM command tag

24: length

8103011200: [command details](#)

81: command details tag

03: length

01: command number

1200: SEND USSD

82028183: [device id](#)

82: device id tag

02: length

8183: source: SIM destination: Network

**051180865574064E2D002C00208ACB7A0D5019:** [alpha id](#)  
**05:** alpha id tag  
**11:** length  
**80865574064E2D002C00208ACB7A0D5019:** 處理中, 請稍候  
**8A0640AA182D3702":** [USSD string](#)  
**8A:** USSD string tag  
**06:** length  
**40:** GSM 7 bit default alphabet, the text is uncompressed,  
**AA182D3702:** USSD string content

#### 4.4.2.3. SEND SS proactive command:

**+STKPCI: 1,"D0:** proactive SIM command  
**22:** length  
**8103011100:** [command details](#)  
**81:** command details tag  
**03:** length  
**01:** command number  
**1100:** SEND SS  
**82028183:** [device id](#)  
**82:** device id tag  
**02:** length  
**8183:** source: SIM destination: Network  
**051180865574064E2D002C00208ACB7A0D5019:** [alpha id](#)  
**05:** alpha id tag  
**11:** length  
**80865574064E2D002C00208ACB7A0D5019:** 處理中, 請稍候  
**8904811A94FB":** [SS string](#)  
**89:** SS string tag  
**04:** length  
**81:** TON: Unknown, NPI: ISDN/telephony numbering plan  
**1A94FB:** SS or USSD string content

## 5. Appendix: STK protocol structure

Here list some structures which have been used in this document for better understanding. More details please refer to GSM 11.14.

### 5.1. Structure of SIM Application Toolkit communications

Please refer to GSM 11.14 Annex D.

**BER-TLV data object:**

Tag	Length	Value	1..n SIMPLE TLV objects
-----	--------	-------	-------------------------

**SIMPLE-TLV data object:**

Tag	Length	Value	1..m elements
-----	--------	-------	---------------

### 5.2. BER\_TLV tag in SIM to ME direction

Please refer to GSM 11.14 subclause 13.2.

Description	Length	Value
Proactive SIM command tag	1	D0

### 5.3. BER\_TLV tag in ME to SIM direction

Please refer to GSM 11.14 subclause 13.1.

Description	Length	Value
SMS-PP download tag	1	D1
Cell Broadcast download tag	1	D2
Menu Selection tag	1	D3
Call control tag	1	D4
MO Short message control tag	1	D5
Event download tag	1	D6
Timer expiration	1	D7

### 5.4. Simple TLV objects

Please refer to GSM 11.14 subclause 13.3 for Simple TLV tag value in both directions.

The structure of simple TLV data object is Tag, Length, Value elements. Below table lists tag value and elements.

Tag	Value	Elements	Reference in
Description	Value	Elements	Reference in

			GSM 11.14
Command details tag	01 or 81	Command number	12.6
		<a href="#">Type of command</a>	
		Command Qualifier	
Device identity tag	02 or 82	Source <a href="#">device identity</a>	12.7
		Destination <a href="#">device identity</a>	
Result tag	03 or 83	<a href="#">General result</a>	12.12
Alpha identifier tag	05 or 85	Alpha identifier (If the first byte is "80", it means UCS2 coding schema)	12.2
Address tag	06 or 86	TON and NPI	12.1
		Dialing number string	
SS string tag	09 or 89	TON and NPI	12.14
		SS or USSD string	
USSD string tag	0A or 8A	Data coding scheme	12.17
		USSD string	
SMS TPDU tag	0B or 8B	SMS TPDU	12.13
Text string tag	0D or 8D	Data coding scheme	12.15
		Text string	
Item tag	0F or 8F	Identifier of item	12.9
		Text string of item (If the first byte is "80", it means UCS2 coding schema)	
Item identifier tag	10 or 90	Identifier of item chosen	12.10
Response length tag	11 or 91	Minimum length of response	12.11
		Maximum length of response	

**Type of Command:** (Refer to GSM 11.14 subclause 13.4)

Value	Name
10	Set up Call
11	Send SS
12	Send USSD
13	Send short message
14	Send DTMF
21	Display text
23	Get input
24	Select item
25	Set up menu

**Device identity**

Value	Name
01	Keypad
02	Display
81	SIM

82	ME
83	Network

**General result:**

Value	Meaning
00	Command performed successfully
10	Proactive SIM session terminated by the user;
11	Backward move in the proactive SIM session requested by the user

**5.5. Structure of terminal response**

Please refer to GSM 11.14 subclause 6.8.

Description	M/O
<a href="#">Command details</a>	M
<a href="#">Device identities</a>	M
<a href="#">Result</a>	M
<a href="#">Text string</a>	M/O
<a href="#">Item identifier</a>	M/O

**5.6. Structure of envelope for menu selection**

Please refer to GSM 11.14 subclause 8.2.

Description	M/O
Menu selection tag="D3"	M
Length	M
<a href="#">Device identities</a>	M
<a href="#">Item identifier</a>	M
Help request	O

# QUECTEL



**Quectel Wireless Solutions Co., Ltd.**

Room 501, Building 9, No.99, Tianzhou Road, Shanghai, China 200233

Tel: +86 21 5108 2965

Mail: [info@quectel.com](mailto:info@quectel.com)