WCDMA UGxx STK

AT Commands Manual

UMTS/HSPA Module Series

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About the Document

History

Revision	Date	Author	Description
1.0	2014-12-12	Chris PENG	Initial
1.1	2015-03-01	Jesse ZHANG	Changed the document name from “UG95” to “UGxx”.
1.2	2015-04-01	Jesse ZHANG	Updated applicable modules.
1.3	2016-05-05	Sophie ZHU	Added STK state value for AT+QSTKSTATE=?/AT+QSTKGI=?/ AT+QSTKRSP=?

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1 Introduction

UGxx module provides AT commands to support SIM (USIM) Application Toolkit (STK). This document is a reference guide to all the AT commands defined for SIM (USIM) Application Toolkit.

This document is applicable to Quectel UGxx modules.

1.1. The Process of Using STK AT Command

Step 1: Switch on the module, and enable STK functionality by command AT+QSTK=1[,<alphabet>] then reboot the module.

Step 2: According to URC, query proactive command information by AT+QSTKGI and respond to the STK proactive command by AT+QSTKRSP. When +QSTKURC: 253 has been reported, you can select menu item via command AT+QSTKRSP=253,<result>,<itemID>. Furthermore, you can use AT+QSTKRSP=254 to terminate STK session at any time.

Step 3: Disable STK functionality by AT+QSTK=0, then reboot the module.

1.2. STK States

There are three kinds of states: automatic response state, terminal response state and waiting state. For more details, please refer to Chapter 2.3. The following figure shows the state transition.

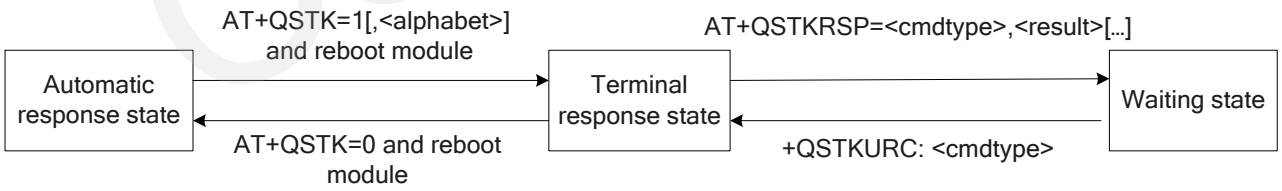

Figure 1: STK States Transition

1.3. Proactive Command Response

When STK functionality is disabled, module will automatically respond to the proactive command. When STK functionality is enabled, you should respond to the proactive command (Refer to Chapter 2.7). If you do not respond to the proactive command in some time, then URC of timeout response will be reported and module will automatically respond to proactive command.

Table 1: Response of Proactive Command

Proactive Command	Automatic Response	User Response	Timeout Response
SET UP CALL (16)	48	0, 4, 16, 32, 34, 35, 48	50
SEND SS (17)	48	0, 4, 20, 32, 48	50
SEND USSD (18)	48	0, 4, 20, 32, 48	50
SEND SHORT MESSAGE (19)	48	0, 4, 32, 48	50
SEND DTMF (20)	48	0, 4, 16, 32, 48	50
PLAY TONE (32)	48	0, 4, 16, 32, 48	50
DISPLAY TEXT (33)	0	0, 4, 16, 17, 18, 32, 48	48
GET INKEY (34)	48	0, 4, 16, 17, 18, 19, 32, 48	48
GET INPUT (35)	48	0, 4, 16, 17, 18, 19, 32, 48	48
SELECT ITEM (36)	48	0, 4, 16, 17, 18, 19, 32, 48	48
SET UP MENU (37)	0	0, 4, 32, 48	48
SET UP IDLE MODE TEXT (40)	0	0, 4, 32, 48	48
LANGUAGE NOTIFICATION (53)	0	0	48

1.4. STK Character Set

The STK AT command interface supports the following character sets:

- GSM character set (default)
- UCS2 character set

The character set can be configured by AT+QSTK=<mode>[,<alphabet>] (Refer to Chapter 2.1), they become effective after setting. And they will affect STK AT command to input parameter and output information. If UCS2 character cannot convert to GSM character, it will convert to 0x20 (space).

2 Description of AT Command

2.1. AT+QSTK Enable STK Functionality

AT+QSTK command is used to enable STK functionality and configure the <alphabet>, and <alphabet> will affect the coding of input and output text.

AT+QSTK Enable STK Functionality	
Test Command **AT+QSTK=?**	Response **+QSTK: (0,1),(0,1)** **OK**
Read Command **AT+QSTK?**	Response **+QSTK: <mode>,<alphabet>** **OK**
Write Command **AT+QSTK=<mode>[,<alphabet>]**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<mode>	Enable STK functionality	
	0	Disable STK functionality
	1	Enable STK functionality
<alphabet>	Alphabet set	
	0	GSM character set
	1	UCS2 character set

2.2. AT+QSTKPD Download STK Profile

AT+QSTKPD command is used to get SIM profile. Profile refers to ETSI TS 102 223.

AT+QSTKPD Download STK Profile	
Test Command **AT+QSTKPD=?**	Response **OK**
Read Command **AT+QSTKPD?**	Response **+QSTKPD: <profile>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<profile>	Hex string; STK profile

2.3. AT+QSTKSTATE Query STK State

When executing AT+QSTKGI or AT+QSTKRSP, you should refer to the value of <cmdtype>. When <state> is 0 or 2, <cmdtype> will be ignored.

When <cmdtype> is 253, it indicates that STK session has finished. At this time, you cannot get STK proactive command information via AT+QSTKGI=<cmdtype> and do not need to respond to the proactive command via AT+QSTKRSP=<cmdtype>,<result>[…]. But you can select menu item via AT+QSTKRSP=253,<result>,<itemID> and start STK session.

AT+QSTKSTATE Query STK State	
Test Command **AT+QSTKSTATE=?**	Response **+QSTKSTATE: (0-2),(16-20,32-37,40,53,64-68,253)** **OK**
Read Command **AT+QSTKSTATE?**	Response **+QSTKSTATE: <state>[,<cmdtype>]** **OK**

Parameter

<state>	STK state 0 Automatic response state 1 Terminal response state 2 Waiting state
<cmdtype>	Integer type, type of command. Its value is 16-20,32-37,40,53,64-68,253

2.4. AT+QSTKGI Get Proactive Command Information

When URC: +QSTKURC: <cmdtype> has been reported, you can get STK proactive command information via AT+QSTKGI=<cmdtype>.

AT+QSTKGI Get Proactive Command Information	
Test Command **AT+QSTKGI=?**	Response **+QSTKGI: (16-20,32-37,40,53,64-68)** **OK**
Write Command **AT+QSTKGI=<cmdtype>**	Response Response varies with the **<cmdtype>**. Please refer to Chapter 2.7 for details.

Parameter

<cmdtype>	Integer type, type of proactive command, refer to the Table 1

2.5. AT+QSTKRSP STK Response

After receiving the URC +QSTKURC: <cmdtype>, you can get information via AT+QSTKGI=<cmdtype> and respond via AT+QSTKRSP.

The AT+QSTKRSP=253,<result>,<itemID> command is used to select menu item, it can only be used after receiving +QSTKURC: 253. Terminate STK session via AT+QSTKRSP=254 command, and then +QSTKURC: 253 will be reported.

AT+QSTKRSP STK Response	
Test Command **AT+QSTKRSP=?**	Response **+QSTKRSP: (16-20,32-37,40,53,64-68,253,254)** **OK**
Write Command **AT+QSTKRSP=253,<result>,<itemID>**	Response It's used to select menu item. **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=254**	Response It's used to terminate the current STK session. **OK** **ERROR**
Write Command **AT+QSTKRSP=<cmdtype>,<result>[…]**	Response Inputted parameters and response vary with the <cmdtype>. Please refer to Chapter 2.7 for details.

Parameter

<cmdtype>	Integer type, type of proactive command, refer to the Table 1
<result>	Command result 0 Trigger modem to select menu 19 Help information required by the user
<itemID>	Menu item ID

2.6. Summary of URC

The URC of STK will be reported to the host by the type of "+QSTKURC: <cmdtype>". It contains URC of proactive command, no proactive command, SIM lost and timeout response.

2.6.1. URC of Proactive Command

When STK session is not finished, this URC will be reported to indicate you to get the proactive command information via AT+QSTKGI=<cmdtype> and respond to the proactive command via AT+QSTKRSP=<cmdtype>,<result>[…].

URC of Proactive Command	
+QSTKURC: <cmdtype>	Indication of proactive command

Parameter

<cmdtype>	A numeric parameter indicates the proactive command to be reported, its value will be 16-20, 32-37, 40, 53

2.6.2. URC of No Proactive Command

When STK session is finished, this URC "+QSTKURC:253" will be reported. At this time, you can't get STK proactive command information via AT+QSTKGI=<cmdtype> and do not need to respond to the proactive command via AT+QSTKRSP=<cmdtype>,<result>[…]. But you can select menu item via AT+QSTKRSP=253,<result>,<itemID> and start STK session <itemID>.

URC of No Proactive Command	
+QSTKURC: 253	Indication of no proactive command

2.6.3. URC of SIM Lost

When SIM is lost, this URC will be reported. For example, SIM pulls out or CFUN changes from 1 to 0.

URC of SIM Lost	
+QSTKURC: 254	Indication of SIM lost

2.6.4. URC of Timeout Response

When you do not respond to the proactive command in some time, this URC will be reported and module will automatically respond to the proactive command. For the timeout value of each proactive command, please refer to Chapter 4.3.

URC of Timeout Response	
+QSTKURC: 255,<cmdtype>	Indication of timeout response

Parameter

<cmdtype>	A numeric parameter indicates timeout response of the proactive command, its value will be 16-20, 32-37, 40, 53

2.7. Details of Proactive Command <cmdtype>

You can get proactive command information repeatedly before responding to proactive command.

Table 2: Type of Proactive Command (Refer to Chapter 13.4 in 3GPP TS 11.14)

<cmdtype>	Name
16	Set up call
17	Send SS
18	Send USSD
19	Send SMS
20	Send DTMF
32	Play tone
33	Display text
34	Get inkey
35	Get input
36	Select item
37	Set up menu
40	Set up idle mode text
53	Language notification

2.7.1. Set up Call (16)

After receiving +QSTKURC: 16, you can get information via AT+QSTKGI=16, then respond to proactive command via AT+QSTKRSP=16,<result>[,<additional_info>]. Please refer to the example in Chapter 3.2.

Set up Call (16)	
Write Command **AT+QSTKGI=16**	Response **+QSTKGI:** **16,<command_details>,<confirm_info>,<callnum>,<call_setup_info>,<confirm_icon_qualifier>,<confirm_iconID>,<icon_qualifier>,<iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=16,<result>[,<additional_info>]**	Response **+QSTKRSP:** **16,<termination_qualifier>[,<termination_cause_text>]** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	Details of call set up command 0 Set up call, only if no currently busy calls 1 Set up call, only if no currently busy calls, support redial 2 Set up call, hold on all other calls (if any) 3 Set up call, hold on all other calls (if any), support redial 4 Set up call, disconnect all other calls (if any) 5 Set up call, disconnect all other calls (if any), support redial 6-255 RFU (Reserved for Future Use)
<confirm_info>	String type; confirmation information
<callnum>	String type; called number
<call_setup_info>	String type; call set up information
<confirm_icon_qualifier>	Confirmation of icon qualifier Bit 1 0: Icon is self-explanatory and can replace text 1: Icon is non self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists) Bit 2-8 RFU
<confirm_iconID>	Confirmation of icon ID

	0	No icon
	1-255	ID of icon
<icon_qualifier>	Icon qualifier	
	Bit 1	0: Icon is self-explanatory and can replace text 1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists)
	Bit 2-8	RFU
<iconID>	Icon ID	
	0	No Icon
	1-255	ID of Icon
<result>	Command result code.	
	0	Command performed successfully. Indicate that the user has accepted the call request
	4	Command performed successfully, but requested icon could not be displayed
	16	Proactive SIM session is terminated by user
	20	USSD/SS transact is terminated by user
	32	UE is unable to process command currently
	34	User did not accept the proactive command. Indicate that the user has denied the call request
	35	User cleared call before connection or network release
	48	Command is beyond UE's capabilities
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255	
<termination_qualifier>	Termination qualifier	
	0	The proactive command is successfully finished
	1-255	The proactive command is performed incorrectly
<termination_cause_text>	The text contains information regarding to the termination cause	

2.7.2. Send SS (17)

After receiving +QSTKURC: 17, you can get information via AT+QSTKGI=17, then respond via AT+QSTKRSP=17,<result>[,<additional_info>].

Send SS (17)	
Write Command **AT+QSTKGI=17**	Response **+QSTKGI:** **17,<command_details>,<text>,<icon_qualifier>,<iconID>** **OK** **ERROR**

	If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=17,<result>[,<additional_info>]**	Response **+QSTKRSP: 17,<termination_qualifier>[,<termination_cause_text>]** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	RFU	
<text>	String type; text	
<icon_qualifier>	Icon qualifier	
	Bit 1	0: Icon is self-explanatory and can replace text
		1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists)
	Bit 2-8	RFU
<iconID>	Icon ID	
	0	No icon
	1-255	ID of icon
<result>	Command result code	
	0	Command performed successfully. Indicate that the user has accepted the call request
	4	Command performed successfully, but requested icon could not be displayed
	20	USSD/SS transact is terminated by user
	32	UE is unable to process command currently
	48	Command is beyond UE's capabilities
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255	
<termination_qualifier>	Termination qualifier	
	0	The proactive command is successfully finished
	1-255	The proactive command is performed incorrectly
<termination_cause_text>	The text contains information regarding to the termination cause	

2.7.3. Send USSD (18)

After receiving +QSTKURC: 18, you can get information via AT+QSTKGI=18, then respond via AT+QSTKRSP=18,<result>[,<additional_info>].

Send USSD (18)	
Write Command **AT+QSTKGI=18**	Response **+QSTKGI: 18,<command_details>,<text>,<icon_qualifier>,<iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=18,<result>[,<additional_info>]**	Response **+QSTKRSP: 18,<termination_qualifier>[,<termination_cause_text>]** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	RFU	
<text>	String type; text	
<icon_qualifier>	Icon qualifier	
	Bit 1	0: Icon is self-explanatory and can replace text
		1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists)
	Bit 2-8	RFU
<iconID>	Icon ID	
	0	No icon
	1-255	ID of icon
<result>	Command result code	
	0	Command performed successfully. Indicate that the user has accepted the call request
	4	Command performed successfully, but requested icon could not be displayed

	20	USSD/SS transact is terminated by user
	32	UE is unable to process command currently
	48	Command is beyond UE's capabilities
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255	
<termination_qualifier>	Termination qualifier	
	0	The proactive command is successfully finished
	1-255	The proactive command is performed incorrectly
<termination_cause_text>	The text contains information regarding to the termination cause	

2.7.4. Send SMS (19)

After receiving +QSTKURC: 19, you can get information via AT+QSTKGI=19, then respond via AT+QSTKRSP=19,<result>[,<additional_info>]. Please refer to Chapter 3.3 for example.

Send SMS (19)	
Write Command **AT+QSTKGI=19**	Response **+QSTKGI:** **19,<command_details>,<text>,<icon_qualifier>,<iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=19,<result>[,<additional_info>]**	Response **+QSTKRSP:** **19,<termination_qualifier>[,<termination_cause_text>]** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	RFU	
<text>	String type; text	
<icon_qualifier>	Icon qualifier	
	Bit 1	0: Icon is self-explanatory and can replace text
		1: Icon is not self-explanatory and shall be displayed with
		The text determined value only if associated icon ID is

		not 0 (an icon exists)
	Bit 2-8	RFU
<iconID>	Icon ID	
	0	No icon
	1-255	ID of icon
<result>	Command result code	
	0	Command performed successfully. Indicate that the user has accepted the call request
	4	Command performed successfully, but requested icon could not be displayed
	32	UE is unable to process command currently
	48	Command is beyond UE's capabilities
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255	
<termination_qualifier>	Termination qualifier	
	0	The proactive command is successfully finished
	1-255	The proactive command is performed incorrectly
<termination_cause_text>	The text contains information regarding to the termination cause	

2.7.5. Send DTMF (20)

After receiving +QSTKURC: 20, you can get information via AT+QSTKGI=20, then respond via AT+QSTKRSP=20,<result>[,<additional_info>].

Send DTMF (20)	
Write Command **AT+QSTKGI=20**	Response **+QSTKGI:** **20,<command_details>,<text>,<icon_qualifier>,<iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=20,<result>[,<additional_info>]**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	RFU
<text>	String type; text
<icon_qualifier>	Icon qualifier Bit 1 0: Icon is self-explanatory and can replace text 1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists) Bit 2-8 RFU
<iconID>	Icon ID 0 No icon 1-255 ID of icon
<result>	Command result code 0 Command performed successfully. Indicate that the user has accepted the call request 4 Command performed successfully, but requested icon could not be displayed 16 Proactive SIM session is terminated by user 32 UE is unable to process command currently 48 Command is beyond UE's capabilities
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255

2.7.6. Play Tone (32)

After receiving the +QSTKURC: 32, you can get information via AT+QSTKGI=32, then response via AT+QSTKRSP=32,<result>[,<additional_info>].

Play Tone (32)	
Write Command **AT+QSTKGI=32**	Response **+QSTKGI: 32,<command_details>,<text>,<tone>,<duration_unit>,<duration>,<icon_qualifier>,<iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=32,<result>[,<additional_info>]**	Response **OK** **ERROR**

	If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	RFU
<text>	String type; text
<tone>	Tone generated by the UE. 01-08 are standard supervisory tones and 16-18 are UE proprietary tones “01” Dial tone “02” Called subscriber busy “03” Congestion “04” Radio path acknowledge “05” Radio path not available/call dropped “06” Error/special information “07” Call waiting tone “08” Ringing tone “16” General beep “17” Positive acknowledgement tone “18” Negative acknowledgement or error tone
<duration_unit>	Duration unit 0 Minutes 1 Seconds 2 A tenth of a second
<duration>	Duration of tone in units, range is 1-255
<icon_qualifier>	Icon qualifier Bit 1 0: Icon is self-explanatory and can replace text 1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists) Bit 2-8 RFU
<iconID>	Icon ID 0 No icon 1-255 ID of icon
<result>	Command result code. 0 Command performed successfully. Indicate that the user has accepted the call request 4 Command performed successfully, but requested icon could not be displayed 16 Proactive SIM session is terminated by user 32 UE is unable to process command currently 48 Command is beyond UE's capabilities
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223 Range is 0-255

2.7.7. Display Text (33)

After receiving the +QSTKURC: 33, you can get information via AT+QSTKGI=33, then respond via AT+QSTKRSP=33,<result>[,<additional_info>].

Display Text (33)	
Write Command **AT+QSTKGI=33**	Response **+QSTKGI: 33,<command_details>,<text>,<immediate_response>,<icon_qualifier>,<iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=33,<result>[,<additional_info>]**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	Number parameter; display text command details, its value is 0-255 Bit 1 0: Normal priority 1: High priority Bit 2-7 RFU Bit 8 0: Clear message after a delay 1: Wait for user to clear message
<text>	String type; text
<immediate_response>	Immediate response 0 Send terminal response when text is cleared from screen 1 Send terminal response immediately and continue to display the text until one of the following events occurs: ● A subsequent proactive command is received, containing displayed data ● A short delay notified with <command_details> has expired ● User intervention ● A higher priority event occurs, e.g. a mobile terminated call
<icon_qualifier>	Icon qualifier Bit 1 0: Icon is self-explanatory and can replace text

	1:	Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists)
	Bit 2-8	RFU
<iconID>	Icon ID	
	0	No icon
	1-255	ID of icon
<result>	Command result code	
	0	Command performed successfully. Indicate that the user has accepted the call request
	4	Command performed successfully, but requested icon could not be displayed
	16	Proactive SIM session is terminated by user
	17	Backward move in the proactive SIM session is requested by the user
	18	No response from user
	32	UE is unable to process command currently
	48	Command is beyond UE's capabilities
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255	

2.7.8. Get Inkey (34)

After receiving the +QSTKURC: 34, you can get information via AT+QSTKGI=34, then respond via AT+QSTKRSP=34,<result>,<input_string>[,<additional_info>].

Get Inkey (34)	
Write Command **AT+QSTKGI=34**	Response **+QSTKGI: 34,<command_details>,<text>,<icon_qualifier>,<iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=34,<result>,<input_string>[,<additional_info>]**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	Number parameter; get inkey command details, its value is 0-255 Bit 1 0: Digits only 1: Alphabet set Bit 2 0: SMS default alphabet (GSM character set) 1: UCS2 alphabet Bit 3 0: Character sets defined by bit 1 and bit 2 are enabled 1: Character sets defined by bit 1 and bit 2 are disabled and the "Yes/No" response is requested Bit 4-7 RFU Bit 8 0: No help information is available 1: Help information is available
<text>	String type; text
<icon_qualifier>	Icon qualifier Bit 1 0: Icon is self-explanatory and can replace text 1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists) Bit 2-8 RFU
<iconID>	Icon ID 0 No icon 1-255 ID of icon
<result>	Command result code 0 Command performed successfully. Indicate that the user has accepted the call request 4 Command performed successfully, but requested icon could not be displayed 16 Proactive SIM session is terminated by user 17 Backward move in the proactive SIM session requested by the user 18 No response from user 19 Help information is required by the user 32 UE is unable to process command currently 48 Command is beyond UE's capabilities
<input_string>	Input string
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255

2.7.9. Get Input (35)

After receiving the +QSTKURC: 35, you can get information via AT+QSTKGI=35, then respond via AT+QSTKRSP=35,<result>,<input_string>[,<additional_info>]. Please refer to Chapter 3.3 for example.

Get Input (35)	
Write Command **AT+QSTKGI=35**	Response **+QSTKGI: 35,<command_details>,<text>,<inputmin>,<inputmax>,<default_input>,<icon_qualifier>,<iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=35,<result>,<input_string>[,<additional_info>]**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	Number parameter; get input command details, its value is 0-255 Bit 1 0: Digits only 1: Alphabet set Bit 2 0: SMS default alphabet (GSM character set) 1: UCS2 alphabet Bit 3 0: ME may echo user input on the display 1: User input shall not be revealed in any way Bit 4 0: User input in unpacked format 1: User input in SMS packed format Bit 5-7 RFU Bit 8 0: No help information available 1: Help information available
<text>	String type; text
<inputmin>	Minimum length of user input
<inputmax>	Maximum length of user input
<default_input>	String type; default input text
<icon_qualifier>	Icon qualifier Bit 1 0: Icon is self-explanatory and can replace text 1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists) Bit 2-8 RFU
<iconID>	Icon ID

	0 No icon 1-255 ID of icon
<result>	Command result code 0 Command performed successfully. Indicate that the user has accepted the call request 4 Command performed successfully, but requested icon could not be displayed 16 Proactive SIM session is terminated by user 17 Backward move in the proactive SIM session requested by the user 18 No response from user 19 Help information is required by the user 32 UE is unable to process command currently 48 Command is beyond UE's capabilities
<input_string>	Input string
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255

2.7.10. Select Item (36)

After receiving the +QSTKURC: 36, you can get information via AT+QSTKGI=36, then respond via AT+QSTKRSP=36,<result >,<itemID> [,<additional_info>].

Select Item (36)	
Write Command **AT+QSTKGI=36**	Response The response for first line of output: **+QSTKGI: 36,<command_details>,<item_num>,<title>,<default_itemID>,<item_icons_present>,<item_icons_qualifier>,<title_icon_qualifier>,<title_iconID>** **OK** There are repeated lines with total number of <item_num>, and here just lists one line of every item: **+QSTKGI: 36,<itemID>,<item_text>,<next_actionID>,<item_iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command	Response

AT+QSTKRSP=36,<result>,<itemID>[,<additional_info>]	**OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	Details of selected item command Bit 1 0: Presentation type is not specified 1: Presentation type is specified in bit 2 Bit 2 0: Presentation as a choice of data values, if bit 1='1' 1: Presentation as a choice of navigation options if bit 1='1' Bit 3 0: No selection preference 1: Using soft key preferred to select Bit 4-7 RFU Bit 8 0: No help information is available 1: Help information is available
<item_num>	Number of items in the list
<title>	String type; title
<default_itemID>	Default item ID 0 No default item is issued 1-255 ID of the default Item
<item_icons_present>	Presence of item icon 0 No icon 1 Icon is presented
<item_icons_qualifier>	Item icon qualifier Bit 1 0: Icon is self-explanatory and can replace text 1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists) Bit 2-8 RFU
<title_icon_qualifier>	Title icon qualifier Bit 1 0: Icon is self-explanatory and can replace text 1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists) Bit 2-8 RFU
<title_iconID>	Title icon ID 0 No Icon 1-255 ID of Icon
<itemID>	Item identifier
<item_text>	String type; item text

<next_actionID>	The next proactive command type to be issued upon execution of the menu item
<item_iconID>	Item Icon ID 0 No Icon 1-255 ID of Icon
<result>	Command result code 0 Command performed successfully. Indicate that the user has accepted the call request 4 Command performed successfully, but requested icon could not be displayed 16 Proactive SIM session terminated by user 17 Backward move in the proactive SIM session requested by the user 18 No response from user 19 Help information required by the user 32 UE is unable to process command currently 48 Command beyond UE's capabilities
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255

2.7.11. 2.7.11 Set up Menu (37)

After receiving the +QSTKURC: 37, you can get information via AT+QSTKGI=37, then respond via AT+QSTKRSP=37,<result>[,<additional_info>]. Please refer to Chapter 3.1 for example. After this, you can get main menu via AT+QSTKGI=37 at any time.

Set up Menu (37)	
Write Command **AT+QSTKGI=37**	Response The response for first line of output: **+QSTKGI: 37,<command_details>,<item_num>,<title>,<item_icons_present>,<item_icons_qualifier>,<title_icon_qualifier>,<title_iconID>** There are repeated lines with total number of <item_num>, and here just lists one line of every item: **+QSTKGI: 37,<itemID>,<item_text>,<next_actionID>,<item_iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Write Command	Response
AT+QSTKRSP=37,<result>[,<additional_info>]	**OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	Details of set up menu command Bit 1 0: No selection preference 1: Using soft key preferred to select Bit 2-7 RFU Bit 8 0: No help information is available 1: Help information is available
<item_num>	Number of items in the list
<title>	String type; title
<item_icons_present>	Presence of item icon 0 No icon 1 Icon is presented
<item_icons_qualifier>	Item icon qualifier Bit 1 0: Icon is self-explanatory and can replace text 1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists) Bit 2-8 RFU
<title_icon_qualifier>	Icon qualifier Bit 1 0: Icon is self-explanatory and can replace text 1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists) Bit 2-8 RFU
<title_iconID>	Title icon ID 0 No Icon 1-255 ID of Icon
<itemID>	Item identifier
<item_text>	String type; item text
<next_actionID>	The next proactive command type to be issued upon execution of the menu item.
<item_iconID>	Item Icon ID 0 No Icon 1-255 ID of Icon
<result>	Command result code. 0 Command performed successfully. Indicate that the user has

		accepted the call request.
	4	Command performed successfully, but requested icon could not be displayed
	32	UE is unable to process command currently
	48	Command is beyond UE's capabilities
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255	

2.7.12. Set up Idle Mode Text (40)

After receiving the +QSTKURC: 40, you can get information via AT+QSTKGI=40, then respond via AT+QSTKRSP=40,<result>[,<additional_info>]. This command provides text, and an icon will be displayed by the TE optionally when the display is idle.

Set up Idle Mode Text (40)	
Write Command **AT+QSTKGI=40**	Response The response for first line of output: **+QSTKGI:** **40,<command_details>,<text>,<icon_qualifier>,<iconID>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=40,<result>[,<additional_info>]**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	RFU	
<text>	String type; text to be displayed when TE is in idle mode	
<icon_qualifier>	Icon qualifier	
	Bit 1	0: Icon is self-explanatory and can replace text 1: Icon is not self-explanatory and shall be displayed with the text determined value only if associated icon ID is not 0 (an icon exists)
	Bit 2-8	RFU
<iconID>	Icon ID	

	0 No icon 1-255 ID of icon
<result>	Command result code. 0 Command performed successfully. Indicate that the user has accepted the call request 4 Command performed successfully, but requested icon could not be displayed 32 UE is unable to process command currently 48 Command is beyond UE's capabilities
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255

2.7.13. Language Notification (53)

After receiving the +QSTKURC: 53, you can get information via AT+QSTKGI=53, then respond via AT+QSTKRSP=53,<result>[,<additional_info>].

Language Notification (53)	
Write Command **AT+QSTKGI=53**	Response The response for first line of output: **+QSTKGI: 53,<command_details>,<lang>** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+QSTKRSP=53,<result>[,<additional_info>]**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<command_details>	Details of language notification command Bit 1 0: Non-specific language notification 1: Specific language notification Bit 2-8 RFU
<lang>	Language code string is provided as a pair of alpha-numeric characters, defined in ISO 639. Each alphanumeric character is coded on one byte using the SMS default 7-bit coded alphabet as defined in 3GPP TS 23.038

<result>	Command result code 0 Command performed successfully. Indicate that the user has accepted the call request
<additional_info>	Optional additional command status; for possible values refer to ETSI TS 102 223. Range is 0-255

3 Examples of STK AT Command

3.1. Enable STK Function and Set up Menu

1. Switch on the module and enable STK function.

```
AT+QSTK=1,1                          //Enable STK function.
OK
```

2. Reset the module and you will receive the URC of the first proactive command, as follow:

```
+QSTKURC: 37
```

3. Request menu parameter information and respond to the menu setup proactive command.

```
AT+QSTKGI=37                         //Get menu setup proactive command information.
+QSTKURC: 37,0,13,"52A8611F57305E2600530049004D5361",0,0,0,0
+QSTKURC: 37,13,"621176848EAB4EFD8BA48BC1",0,0
+QSTKURC: 37,14,"77ED4FE17FA453D1",0,0
+QSTKURC: 37,17,"4E1A52A163A88350",0,0
+QSTKURC: 37,1,"00530049004D84254E1A5385",0,0
+QSTKURC: 37,2,"59296C1467E58BE2",0,0
+QSTKURC: 37,3,"62117684624B673A62A5",0,0
+QSTKURC: 37,4,"6211768498DE4FE1",0,0
+QSTKURC: 37,5,"621176845F6994C3",0,0
+QSTKURC: 37,6,"65E07EBF97F34E504FF14E5090E8",0,0
+QSTKURC: 37,7,"00310032003500380030 4FE1606F67E58BE2",0,0
+QSTKURC: 37,8,"68218BAF901A",0,0
+QSTKURC: 37,9,"94F64FE1901A",0,0
+QSTKURC: 37,15,"00530049004D53614FE1606F",0,0

OK
AT+QSTKRSP=37,0                      //Respond to menu setup proactive command.
OK

+QSTKURC: 33                         //Display text proactive command notification.
AT+QSTKGI=33                         //Get the displayed text proactive command information.
+QSTKURC: 33,1,"6CA19519FF0162115C31662F004D002D005A006F006E00654EBA",0,0,0
```

```
OK
AT+QSTKRSP=33,0                    //Respond to displayed text proactive command.
OK

+QSTKURC: 253                      //URC indicates that the proactive session has ended.
```

3.2. Menu Selection and Set up Call

1. Select menu item.

```
AT+QSTKRSP=253,0,7                 //Select menu item, ID is 7.
OK
```

2. Select item.

```
+QSTKURC: 36                       //Select item proactive command notification.

AT+QSTKGI=36                       //Get the selected item proactive command information.
+QSTKURC: 36,0,3,"",0,0,0,0,0
+QSTKURC: 36,30,"4E1A52A14ECB7ECD",0,0
+QSTKURC: 36,31,"786E8BA462E86253",0,0
+QSTKURC: 36,51,"83DC53557BA17406",0,0

OK
AT+QSTKRSP=36,0,31                 //Respond to the selected item proactive command and the
                                     item (ID is 31) is selected.
OK
```

3. Set up call.

```
+QSTKURC: 16                       //Set up call proactive command notification.
AT+QSTKGI=16                       //Get the call proactive command information which you have
                                     set up.
+QSTKURC: 16,0,"","12580","",0,0,0,0

OK
AT+QSTKRSP=16,0                    //Respond to the call proactive command.
+QSTKRSP: 16,0

OK

+QSTKURC: 253                      //URC indicates that the proactive session has ended.
```

3.3. Select Menu and Send SMS

1. Select menu item.

```
AT+QSTKRSP=253,0,14                    //Select menu item, ID is 14.
OK
```

2. Select item and edit SMS.

```
+QSTKURC: 36                           //Select item proactive command notification.

AT+QSTKGI=36                           //Get the selected item proactive command information.
+QSTKURC: 36,0,6,"",0,0,0,0,0
+QSTKURC: 36,1,"65B07F1677ED4FE1",0,0
+QSTKURC: 36,2,"5DF2653677ED4FE1",0,0
+QSTKURC: 36,3,"7EC454587BA17406",0,0
+QSTKURC: 36,4,"589E52A07FA47EC4",0,0
+QSTKURC: 36,5,"7FA47EC46539540D",0,0
+QSTKURC: 36,6,"522096647FA47EC4",0,0

OK
AT+QSTKRSP=36,0,1                      //Respond to the selected item proactive command and the
                                         item (ID is 1) is selected.
OK

+QSTKURC: 35                           //Get input proactive command notification.
AT+QSTKGI=35                           //Get the input proactive command information.
+QSTKURC: 35,3,"8F93516551855BB9FF1A",100,1,"",0,0      //Indicate input SMS content.

OK

AT+QSTKRSP =35,0,"00310038003200320036003600320031003100300036" //Respond to the input
                                                                   proactive command
                                                                   and input content.
OK

+QSTKURC: 36
AT+QSTKGI=36
+QSTKURC: 36,0,3,"",0,0,0,0,0
+QSTKURC: 36,1,"900962E97FA47EC4",0,0
+QSTKURC: 36,2,"900962E953F77801",0,0
+QSTKURC: 36,3,"8F93516553F77801",0,0

OK
```

```
AT+QSTKRSP=36,0,3
OK

+QSTKURC: 35
AT+QSTKGI=35
+QSTKURC: 35,0,"8F93516553F77801FF1A",16,3,"",0,0       //Indicate input SMS number.

OK
AT+QSTKRSP =35,0,"00310038003200320036003600320031003100300036"
OK

+QSTKURC: 36
AT+QSTKGI=36
+QSTKURC: 36,0,3,"",0,0,0,0,0
+QSTKURC: 36,1,"53D1900177ED4FE1",0,0
+QSTKURC: 36,2,"7EE77EED6DFB52A0",0,0
+QSTKURC: 36,3,"67E5770B63A56536800552178868",0,0

OK
AT+QSTKRSP=36,0,1
OK
```

3. Send SMS.

```
+QSTKURC: 19                                    //Send SMS proactive command notification.
AT+QSTKGI=19                                    //Get the sent SMS proactive command information.
+QSTKURC: 19,0,"7B2C003000315C01002C65364FE14EBA003A672A547D540D",0,0

OK
AT+QSTKRSP=19,0                                 //Respond to the SMS proactive command and send SMS.
+QSTKRSP: 19,0

OK
```

3.4. STK Session Termination and Timeout Response

1. Terminate STK session.

```
AT+QSTKRSP=253,0,7                              //Select menu item. ID is 7.
OK

+QSTKURC: 36                                    //Select item proactive command notification.
AT+QSTKGI=36                                    //Get the selected item proactive command information.
```

```
+QSTKURC: 36,0,3,"",0,0,0,0,0
+QSTKURC: 36,30,"4E1A52A14ECB7ECD",0,0
+QSTKURC: 36,31,"786E8BA462E86253",0,0
+QSTKURC: 36,51,"83DC53557BA17406",0,0

OK
AT+QSTKRSP=254                    //Terminate STK session.
OK

+QSTKURC: 253                     //URC indicates that the proactive session has ended.
```

2. Timeout response of STK session.

```
AT+QSTKRSP=253,0,7                //Select menu item, ID is 7.
OK

+QSTKURC: 36                      //Select item proactive command notification.
AT+QSTKGI=36                      //Get the selected item proactive command information.
+QSTKURC: 36,0,3,"",0,0,0,0,0
+QSTKURC: 36,30,"4E1A52A14ECB7ECD",0,0
+QSTKURC: 36,31,"786E8BA462E86253",0,0
+QSTKURC: 36,51,"83DC53557BA17406",0,0

OK

+QSTKURC: 255,36                  //Indicate the timeout response of STK session.

+QSTKURC: 253                     //URC indicates that the proactive session has ended and
                                    entered into main menu (different SIM cards may have
                                    different performances).
```

3.5. Disable STK Function

After disabling the STK function, you should reboot the module.

```
AT+QSTK=0                         //Disable STK function.
OK
```

4 Appendix

4.1. Reference

Table 3: Related Documents

SN	Document Name	Remark
[1]	3GPP TS 11.14	Specification of the STK for the Subscriber Identity Module - Mobile Equipment
[2]	3GPP TS 11.111	Universal Subscriber Identity Module (USIM) Application Toolkit (USAT)
[3]	ETSI TS 102 223	Smart Cards Card Application Toolkit (CAT)

Table 4: Terms and Abbreviations

Abbreviation	Description
ME	Mobile Equipment
TA	Terminal Adapter
MS	Mobile Station
DTE	Data Terminal Equipment
STK	SIM Application Toolkit
USAT	USIM Application Toolkit
URC	Unsolicited Result Code
SMS	Short Message Service
RFU	Reserved for Future Use

4.2. Common <err> Code

Table 5: Common <err> Code in STK AT Command

Code of <err>	Meaning
3	Operation not allowed
4	Parameters error
21	Invalid index

4.3. Auto Response Timeout Value

Table 6: Proactive Command Auto Response Timeout Value

Proactive Command	Auto Response Timeout (Unit: second)
SETUP MENU	60
SELECT ITEM	180
DISPLAY TEXT	180
GET INKEY	180
GET INPUT	180
LANCH BROWSER	180
SEND SMS	180
SEND DTMF	180
SETUP IDLE MODE TEXT	60
SETUP CALL	300
SEND SS	300
SEND USSD	300
PLAY TONE	305