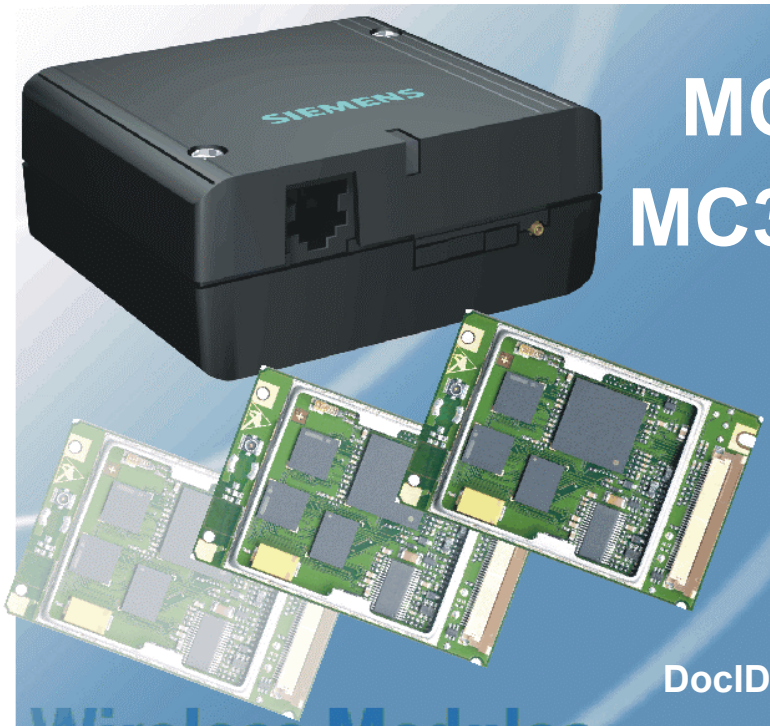
SIEMENS

Remote-SAT

User's Guide



MC35 Module
MC35 Terminal

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Wireless Modules

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Contents

0 Version History

This chapter reports modifications and improvements over previous versions of the document.

"Remote-SAT User's Guide" Version **MC35_sat_01_v02.00=> MC35_SAT_01_v04.00**

Chapter / AT command	Page	What is new
1.1.6.2, Remote-SAT State Transition Table	12	Note regarding 10 minutes timeout for completion of Proactive Command added.

"Remote-SAT User's Guide" Version **MC35_sat_01_v0101a=> MC35_SAT_01_v0200**

Chapter / AT command	Page	What is new
1.1.4, Table 1	9	Section "Termination of Proactive Commands (URCs, TA ← ME ← SIM)": <cmdType> values 116 – 119 removed
1.4.3 AT^SSTGI Remote-SAT Get Information – Set Up Event List (5)	25	<eventList>: "range 0-255" removed bit 9 – 16 (RFU) added
1.4.4 AT^SSTGI Remote-SAT Get Information – Setup Call (16)	26	Description of write command modified
1.4.9 AT^SSTGI Remote-SAT Get Information – Play Tone (32)	32	Parameters added
1.5 and 1.5.2.3	40 44	Syntax of write command response modified: ^SSTR: *xy*<TermQualifier>,<TerminationCauseText> replaced with: ^SSTR: <*pac*>,<TermQualifier>,<TerminationCauseText>

1 AT Commands for Remote-SAT in MC35

This document presents the specification for AT commands and responses required for the SIM Application Toolkit (SAT) implementation in MC35.

1.1 Introduction

SIM Application Toolkit (SAT) is a technology that lets the SIM card execute a great variety of additional applications. Conventionally, SIM cards are intended to store user specific data, such as phonebooks, secure user identification codes and messages, but they can also hold a lot of value-added mobile applications.

The SAT functionality integrated in MC35 and MC35T allows to execute network specific applications implemented on the SIM card. Typical examples are online banking and information services.

The commands exchanged between SAT and the SIM application fall into two categories:

- Proactive commands – sent from the SIM application to the module's SAT, e.g. DISPLAY TEXT.
- Envelope commands – sent from the module's SAT to the SIM application, e.g. MENU SELECTION.

The SAT implementation supports SAT class 3, GSM 11.14 Release 98, no support of letter classes. GSM 11.14 describes Proactive and Envelope Commands in detail.

Note:
The part on PC or PDA side which handles the Remote-SAT AT command interface (referred to as SAT-IF-Handler) is available as an exemplary implementation guidance as source code.

For details, please contact the Wireless Modules Application Engineering Department at Siemens AG.

1.1.1 Supported product versions and related documents

Please note that this document is intended for the MC35 software release 04.00. The SAT functions can be used in conjunction with the MC35 Cellular Engine and the MC35 Terminal.

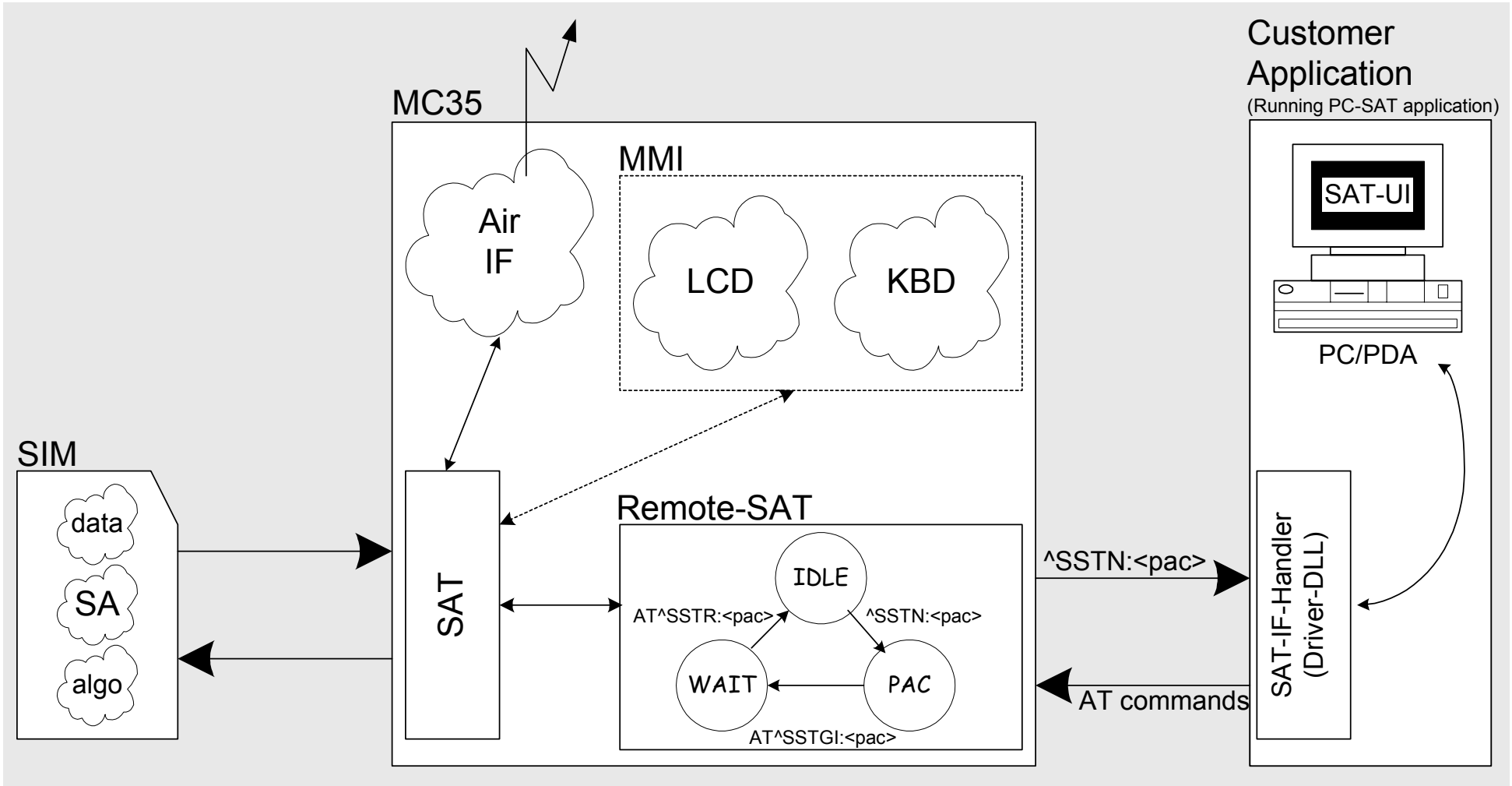
Related documents
[1] AT Command Set for MC35 and MC35 Terminal, Version 04.00
[2] MC35 Hardware Interface Description, Version 04.00
[3] Release Notes: MC35 Version 04.00
[4] MC35 GPRS Startup User's Guide
[5] Application Note 16: Updating MC35 Firmware, Version 04.00
[6] M35 Terminal Hardware Interface Description
[7] TC35 MC35 Terminal User's Guide
[8] Application Note 02: Audio Interface, as of Version 04.00

Prior to using MC35 / MC35T or upgrading to a new firmware release, be sure to carefully read and understand the latest product information provided in the Release Notes.

To visit the Siemens Website you can use the following link:

http://www.siemens.com/wm

1.1.2 SAT Context Diagram



1.1.3 Usage of Remote-SAT

Remote-SAT (RSAT) is designed as an AT interface that forms the link between the SIM application running on the SIM card and the customer application (PDA, laptop etc.). The purpose of RSAT is to allow the customer application to issue commands to the SAT interface and to display all SAT activities on the user interface of the customer application. To take advantage of Remote-SAT it must be explicitly started using the AT^SSTA command.

If no customer application is involved there is no need to communicate through the AT interface, and Remote-SAT can be ignored. In this case, all commands and responses may be exchanged directly between the module's SAT interface and the GSM network.

Both scenarios – whether or not Remote-SAT is activated – are illustrated in the context diagram in Chapter 1.1.2.

As a cellular module does not have an MMI, RSAT differs from a phone implementation of SAT. It uses a special set of AT Commands to pass data, e.g. a list of menu items, to the TA and to receive responses, e.g. a selected menu item.

The TA, being the customer application, is required to implement a state machine that controls the module's SAT. It monitors the states of SAT and sends appropriate AT commands when required, depending upon user input. As an example of a proven implementation approach, the SIEMENS PC-MMI tool is available on request.

If the TA does not offer the SIM Application Toolkit to the end user, e.g. online banking, information services, then the module does not place any requirements on the TA for additional support. Therefore the state machine and the use of RSAT AT commands do not need to be implemented in the TA.

1.1.4 Command Type Values

The Command Type value (<cmdType>) identifies the type of command or associated response passed between the TA (customer application) and the ME.

<cmdType>) is the parameter that comes first in AT commands, in response to AT^SSTGI (see Chapter 1.4) and AT^SSTR (see Chapter 1.5), and in the ^SSTN unsolicited result code (see Chapter 1.3).

The SAT implementation supports SAT class 3 (GSM 11.14 Release 98, no support of letter classes). Therefore, Table 1 summarizes only those command types and parameters which may appear on the user interface (UI) and thus, allow the user to take an action. Command types that are transparent to the user are not listed in the table, although they are supported by Remote-SAT as specified in GSM 11.14.

Table 1 Command Type Identifiers

Command Types supported by Remote-SAT (i.e. UI related)				
<cmdType> value (decimal)	^SSTGI applicable	Used as Next Action Indicator	^SSTR required	Command Name
Proactive Commands (TA ← ME ← SIM)				
				Follows GSM 11.14 (ver 8.5.0 2000-12) Section 13.4
1	X		X	REFRESH
5	X		X	SET UP EVENT LIST
16	X	X	X	SET UP CALL
17	X	X	X	SEND SS
18	X	X	X	SEND USSD
19	X	X	X	SEND SHORT MESSAGE
20	X		X	SEND DTMF
32	X	X	X	PLAY TONE
33	X	X	X	DISPLAY TEXT
34	X	X	X	GET INKEY
35	X	X	X	GET INPUT
36	X	X	X	SELECT ITEM
37	X	X	X	SET UP MENU
40	X	X	X	SET UP IDLE MODE TEXT
Termination of Proactive Commands (URCs, TA ← ME ← SIM)				
101				Terminate REFRESH
105				Terminate SET UP EVENT LIST
120				Terminate SEND DTMF
132				Terminate PLAY TONE
133				Terminate DISPLAY TEXT
134				Terminate GET INKEY
135				Terminate GET INPUT
136				Terminate SELECT ITEM
137				Terminate SET UP MENU
140				Terminate SET UP IDLE MODE TEXT
Event Commands (TA → ME → SIM)				
				Follows GSM 11.14 (ver 8.5.0 2000-12) Sections 12.25 and 13.1.
211				User Menu Item Selection
				Follows GSM 11.14 (ver 8.5.0 2000-12) Section 12.25.
232				User activity
233				Idle screen available
235				Language selection
Additional Commands (URCs, TA ← ME ← SIM)				
250	X			Get icon data (if told to be available by ^SSTGI)
251		X		End of session (used for next action indication only)
252				Notification: Update to application menu
254				Notification: SIM Application returns to main menu

Note:
Use of icons is not supported. All icon related actions will respond with <iconId> = 0 (no icon).

1.1.5 Parameter Types

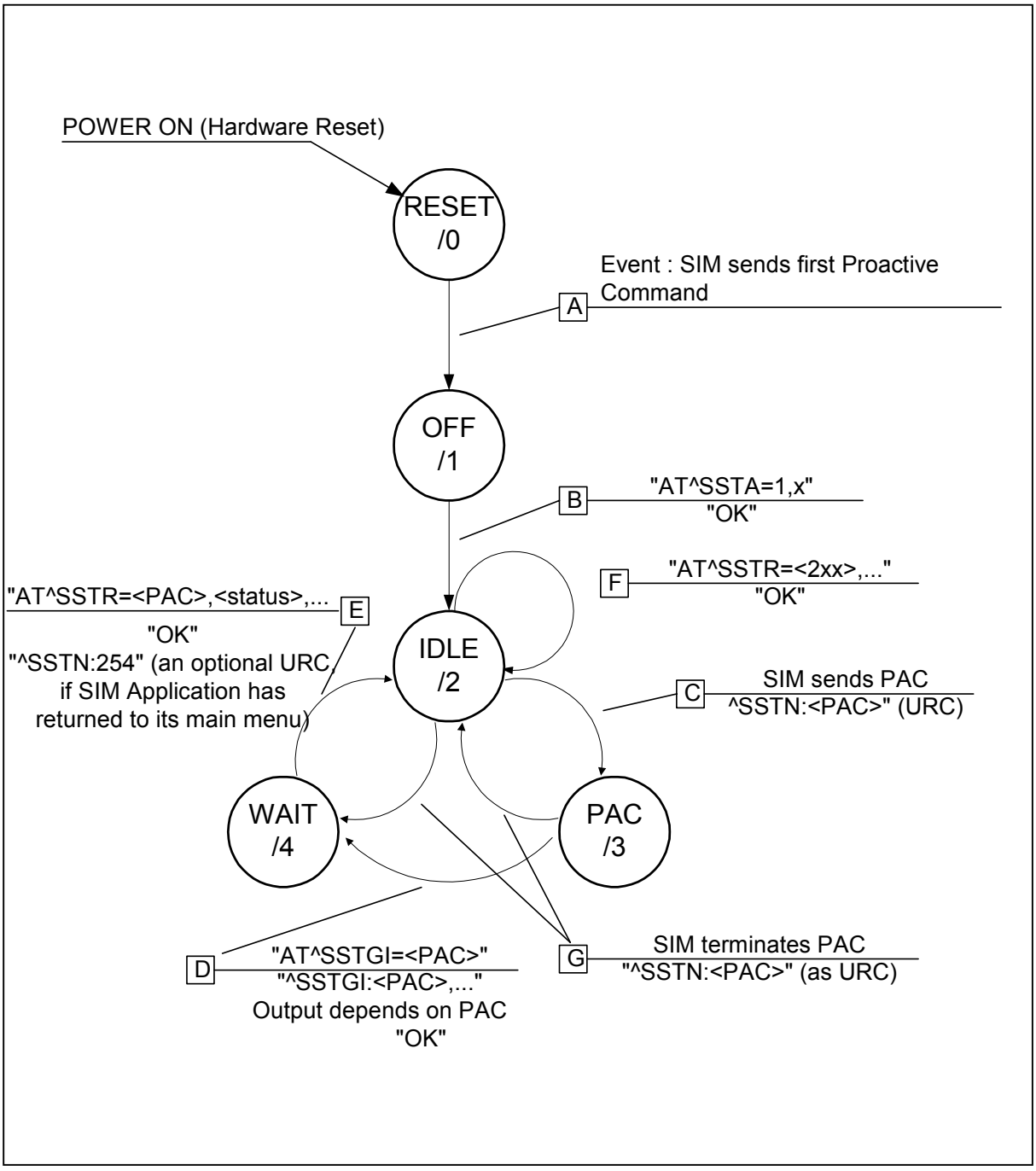
Strings are passed as UCS2 characters, usage of the GSM alphabet is also possible. However, use of the GSM alphabet is not recommended since a SIM can contain text which then is not displayable (e.g. Greek characters). To select the type of alphabet, use the AT^SSTA command. The type is determined both for inputs and outputs.
UCS is specified in ISO/IEC 10646. There are 2 and 4 octet versions available, of which only the 2-octet variant is used, known as UCS2.
The 65536 positions in the 2-octet form of UCS are divided into 256 rows, each with 256 cells. The first octet of a character representation gives the row number, the second the cell number. The first row, row 0, contains exactly the same characters as ISO/IEC 8859-1. The first 128 characters are thus the ASCII characters.
The octet representing an ISO/IEC 8859-1 character is easily transformed to the representation in UCS, by putting a 0 octet in front of it. UCS includes the same control characters as ISO/IEC 8859 and these are also in row 0.
e.g. '<x><x><n><n>'
<x><x> specifies the character set.
<n><n> specifies the character.

1.1.6 States of Remote-SAT

The communication with the SIM Application Toolkit is performed via the AT commands detailed in the following chapters.
In general, the type of AT command that can (and should) be issued depends on the current state of the Remote-SAT interface.

The current state of Remote-SAT is determined by
1. the application running on the SIM,
2. the application running on the TA (external controller),
3. the internal actions of the ME (especially SAT and Call Control).

1.1.6.1 Remote-SAT State Transition Diagram



1.1.6.2 Remote-SAT State Transition Table

The following table outlines which AT commands can be issued during certain states. However, the test and read AT commands are available at any time. So it is possible to determine the current state of the interface via **AT^SSTA?**.
If a response contains text, the selected alphabet has to be used.

Meaning of options in column “M/O/X”:
M: The TA has to issue the AT command to get Remote-SAT service (mandatory).
O: Issue of the AT command is optional.
X: Issue of the AT command is not allowed at this time and will lead to an error message.

State	AT command		
RESET (0)	State after power on the ME and no notification given by the SIM that an application is available. No write version of an AT command is allowed. State is entered after SIM removal again.		
	Action	M/O/X	Description
	^SSTA=1,n	X	
	^SSTGI=<pac>	X	
	^SSTR=<pac>	X	
	^SSTR=<event>	X	
OFF (1)	SIM has released its application. SAT service is available, but Remote-SAT interface needs to be activated by the TA.		
	Action	M/O/X	Description
	^SSTA=1,n	M	Enable SAT service, so that all SAT notifications may be issued as URCs (**^SSTN:<cmdType>**).
	^SSTGI=<pac>	X	
	^SSTR=<pac>	X	
	^SSTR=<event>	X	
IDLE (2)	SIM application is running, but no proactive command has been issued.		
	Action	M/O/X	Description
	^SSTA=1,n	O	Use to switch to alphabet type <n>
	^SSTGI=<pac>	X	
	^SSTR=<pac>	X	
	^SSTR=<event>	O	Response to indicate TA, i.e. user activity.
PAC*) (3)	SIM application has issued a proactive command. This event is signalled to the TA via **^SSTN:<cmdType>**.		
	Action	M/O/X	Description
	^SSTA=1,n	O	Use to switch to alphabet type <n>
	^SSTGI=<pac>	M	Get information related to an issued notification **^SSTN:<cmdType>**. This is requested before a response can be issued via **^SSTR=<pac>**.
	^SSTR=<pac>	X	
	^SSTR=<event>	X	
WAIT*) (4)	SIM application is waiting for the response to the ongoing proactive command.		
	Action	M/O/X	Description
	^SSTA=1,n	O	Use to switch to alphabet type <n>
	^SSTGI=<pac>	X	
	^SSTR=<pac>	M	Issue Terminal Response related to the ongoing proactive command.
	^SSTR=<event>	X	

*) To limit the time Remote-SAT is kept in the states PAC or WAIT any ongoing (but unanswered) Proactive Command will automatically be aborted after 10 minutes. In this case, the Terminal Response is either “ME currently unable to process command”, or if applicable, “No response from user”. A URC “Terminate Proactive Command” will be sent to the external application, too.

1.1.7 Examples: Using Remote-SAT

To give you an idea of how to start and use Remote-SAT, you may follow the steps described below:

```
// Start after switch on the module
at
OK

// Switch on verbose error messages
at+cmee=2
OK

// Enter the PIN code (if necessary due to SIM configuration)
at+cpin=1234
OK

// Ask if a SIM application is available and has started right now
at^ssta?
^SSTA: 1,1,1,"7FFFFFFF7F0100DF1F"
OK

// OK, First ´1´ tells us that SIM application has started but interface is still in ´OFF´ state.
// Tell the module that we are interested in SAT, i.e. switch to ´IDLE´ state.
at^ssta=1,0
OK

// Now we receive the first proactive command
^SSTN:37

// We have to ask for the parameter details
at^sstgi=37

// These are the details:
^SSTGI: 37,0,3,"SAT Special Menue",0,1,1,0
^SSTGI: 37,1,"News",0,0
^SSTGI: 37,2,"EMail",0,0
^SSTGI: 37,3,"Banking",0,0

OK

// We always have to acknowledge the proactive command
at^sstr=37,0

OK

// SAT tells us that the proactive session has ended and enters its main menu (which should then be opened on the screen by an MMI):
^SSTN:254

// Now we want to select item no. 1 of the menu sent before:
at^sstr=211,0,1

OK
```

// We get the next proactive command:
```
^SSTN:36
```

// We ask for more information...
```
at^sstgi=36
```

// ... and get it:
```
^SSTGI: 36,0,12,"Rubriken   >",0,0,1,1,0
^SSTGI: 36,1,"News       >",0,0
^SSTGI: 36,2,"Stock Infos>",0,0
^SSTGI: 36,3,"Aktien D   >",0,0
^SSTGI: 36,4,"Aktien INT >",0,0
^SSTGI: 36,5,"Sport      >",0,0
^SSTGI: 36,6,"1.BL-Clubs >",0,0
^SSTGI: 36,7,"Unterhaltng>",0,0
^SSTGI: 36,8,"Horoskop   >",0,0
^SSTGI: 36,9,"Wetter D   >",0,0
^SSTGI: 36,10,"Wetter INT >",0,0
^SSTGI: 36,11,"Wetter spez>",0,0
^SSTGI: 36,63,"Extras     >",0,0

OK
```

// Do not forget to acknowledge:
```
at^sstr=36,0,63

OK
```

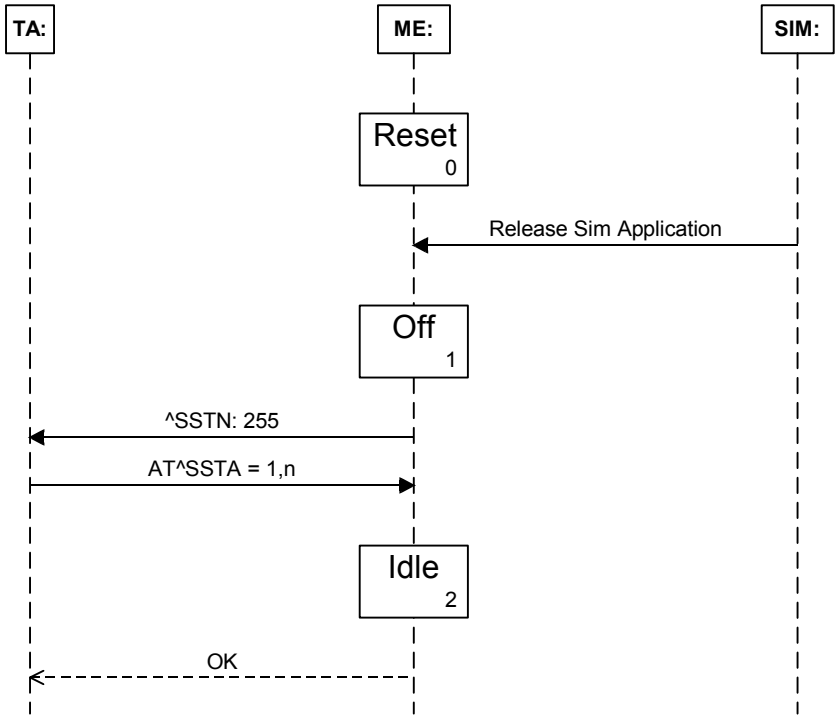
// And again: We get the next proactive command:
```
^SSTN:36
```

// ...

1.1.8 Sequence scenarios

In the following sequence diagrams dashed lines refer to events which respond to a formerly issued request.

1.1.8.1 Initialisation sequence

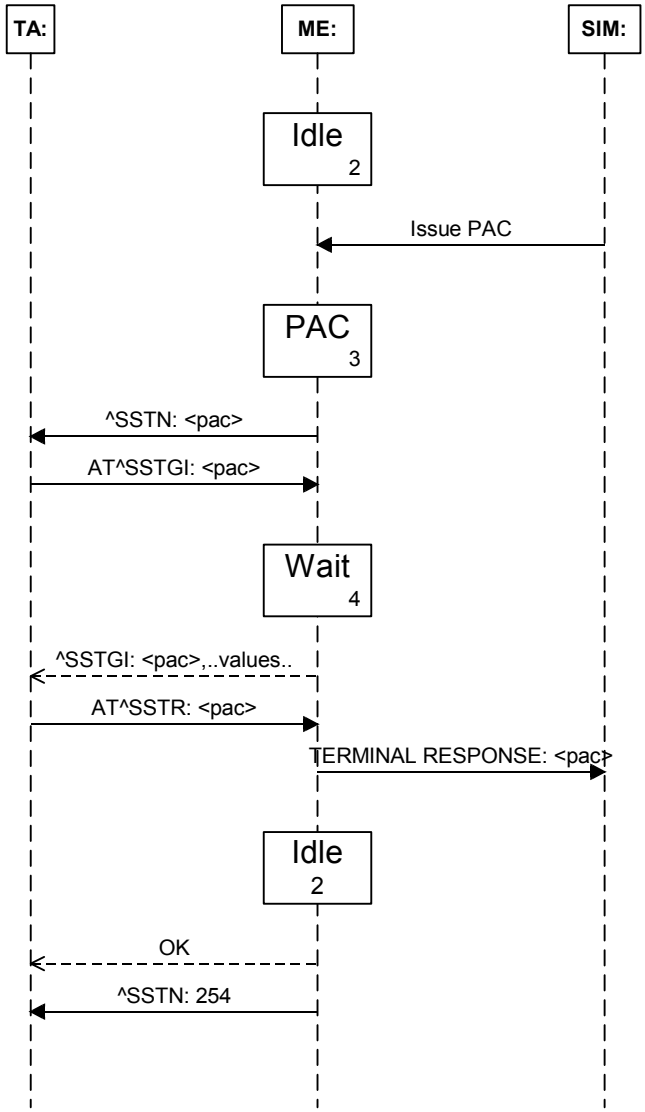


The SAT starts in the “Reset” state when the module powers up. In this state no SAT related AT commands can be issued or responses received. When the SIM Application is released SAT moves into the “Off” state.

When in the “Off” state a supported SIM Application exists on the SIM card. The TA receives an Unsolicited Result Code to indicate this and SAT can be activated now by activated by the TA.

Issuing the AT^SSTA command activates SAT and specifies the alphabet to be used. SAT then moves into the “Idle” state where it is then ready for use. When in “Idle” state SAT can receive input from the TA, such as forms of the AT^SSTR command.

1.1.8.2 Proactive Command sequence

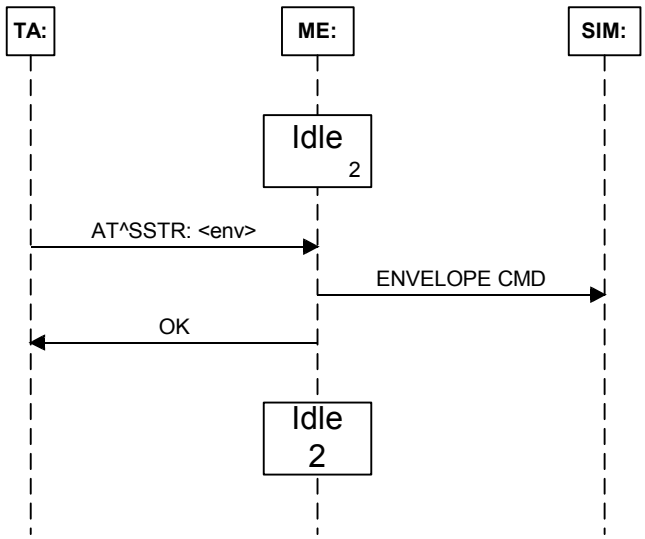


Upon receiving a Proactive command (PAC) from the SIM, SAT steps into the “PAC” state. The TA is informed that a PAC has been issued and is expected to respond with a request for further information. Whilst in the “PAC” state some forms of the AT^SSTR commands can be issued.

Upon receiving the AT^SSTGI command SAT changes into the “Wait” state. Further information about the PAC is sent to the TA and a response is required to trigger a TERMINAL RESPONSE back to the SIM Application.

SAT then moves back to the “Idle” state and either another PAC is issued or SAT informs the TA that the proactive session is over.

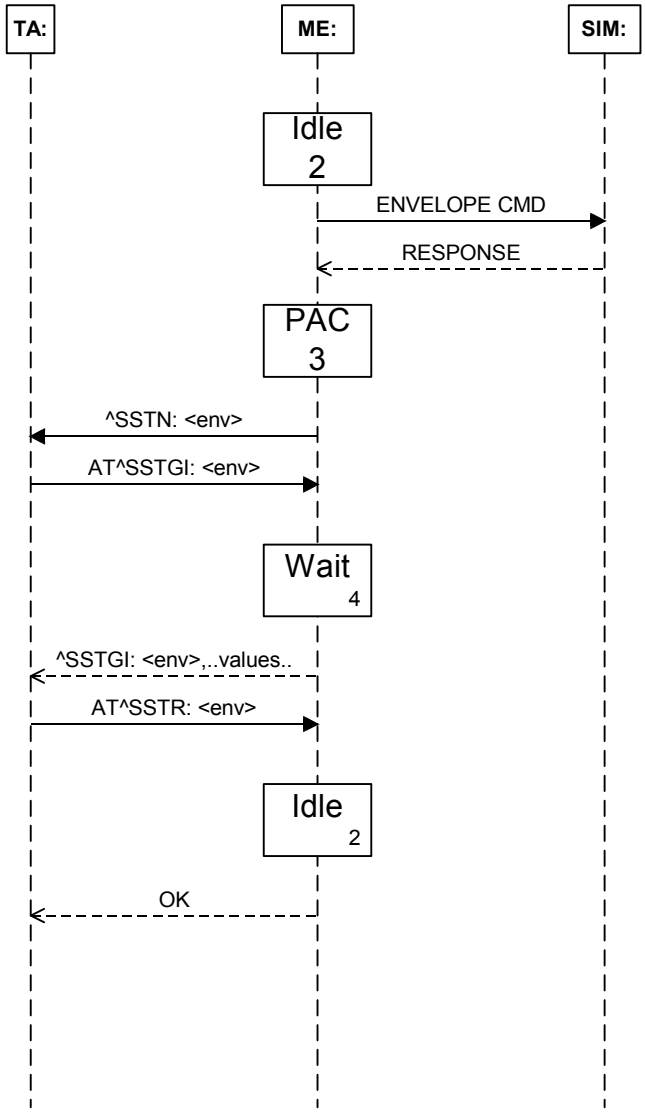
1.1.8.3 Envelope Command sequence (Menu Selection)



A SIM Application will provide SAT with Main Menu to display, using the PAC SETUP MENU. The Envelope Command MENU SELECTION allows the TA to select an item from this menu, via AT^SSTR.

When this takes place, SAT will issue a response to the user, but will not change the state. The SIM Application is then generally expected to issue a PAC.

1.1.8.4 Envelope Command sequence (Call / MO / SMS Control)

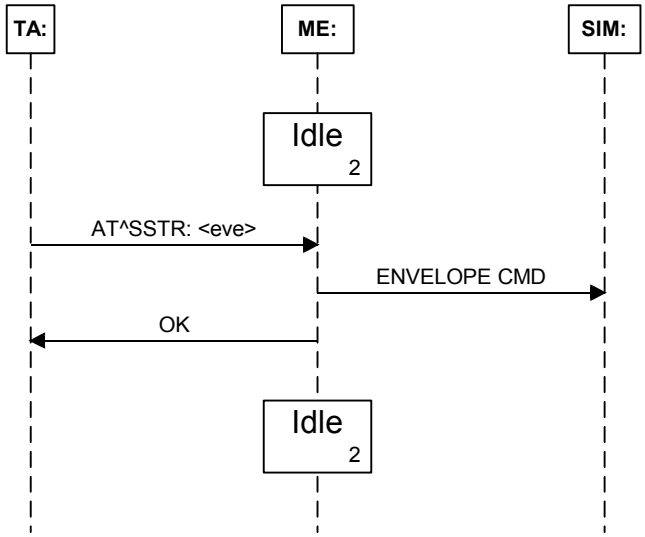


Envelope commands are issued for Call/MO Control by SAT if Call control is enabled. Upon receiving the response from the SIM Application SAT changes to the “PAC” state.

In the “PAC” state the TA is informed of the pending information and expected to issue AT^SSTGI to request further information. This sends SAT into the “Wait” state upon which is sends the relevant Call/MO Control information to the TA.

SAT then returns to its “Idle” state.

1.1.8.5 Event Download sequence



When an event occurs that is in the TA event list, as configured using the PAC SETUP EVENTLIST, SAT is informed using AT^SSTR.
SAT creates the Envelope Command to send to the SIM Application and responds to the TA. During this operation SAT remains in the “Idle” state.

1.2 AT^SSTA Remote-SAT Activation

Test command AT^SSTA=?	Response ^SSTA:(list of supported <state>s), (list of supported <alphabet>s) Parameter description see below.
Read command AT^SSTA?	The read command can be used to request the current operating status and the used alphabet of the Remote-SAT interface. State handling is described in chapter “States of Remote-SAT”, pg. 10. Response ^SSTA:<state>,<alphabet>,<allowedInstance>,<SatProfile> <state> device is in one of the following state: 0 RESET 1 OFF 2 IDLE *) 3 PAC 4 WAIT *) Note: Only this state can be selected directly by the TA, see write command. <allowedInstance> 0 SAT is already used on an other instance (logical channel in case of the multiplex protocol). Only test and read commands can be used. 1 SAT may be started on this instance via the write version of this command (see below). <SatProfile> SAT profile according to GSM 11.14, see appendix. The profile tells the SIM application which features are supported by the SIM Application Toolkit implemented by the ME. The profile cannot be changed by the TA.
Write command AT^SSTA=<mode>[,<Alphabet>]	The write command activates the AT command interface to the SIM Application Toolkit in the ME. It must be issued each time the ME is switched on again. However, removing and inserting the SIM does not affect the activation status. SAT commands which are not using the AT interface (non MMI related SAT commands , e.g. PROVIDE LOCAL INFORMATION) may be executed without activating Remote-SAT. Response OK

	Parameter <mode> 1 Activate Remote-SAT (to enter state IDLE) <Alphabet> 0 GSM default alphabet (GSM 03.38)Input of a character requests one byte , e.g. “Y”. • On ME’s output of string parameter (e.g. ,”Examples”) character values will range from 32 to 255. • On input to the ME only character values from 32 to 128 are accepted! Therefore input characters with GSM alphabet values outside this range have to be entered with an escape character and the hexadecimal value, e.g. “\00 is @”. 1 UCS2 To display the 16 bit value of characters represented in UCS2 alphabet a 4 byte string is required, e.g. “0059” is coding the character “Y”. For details please refer to ISO/IEC 10646.
Reference Siemens	Note Use of GSM default alphabet may cause software flow control (XON/XOFF) problems.

1.3 ^SSTN Remote-SAT Notification

Proactive Commands	Every time the SIM application issues a proactive command, via the ME, the TA will receive a notification. This indicates the type of proactive command issued. **AT^SSTGI** must then be used by the TA to request the parameters of the proactive command from the ME. Upon receiving the ^SSTGI response from the ME, the TA must send **AT^SSTR** to confirm the execution of the proactive command and provide any required user response e.g. selected menu item. Unsolicited result code ^SSTN: <cmdType> Parameters <cmdType> Proactive command ID, see Table 1 Note: Only one proactive command can be ongoing at any one time.
Terminate Proactive Command	When the SIM application has issued a proactive command, via the ME, to the TA, it is possible that this command must be terminated. The ^SSTN Unsolicited Result Code is sent but with a different command type (add terminate offset 100), to indicate the termination of the specified command. The state changes to idle. The TA should then avoid sending any further commands related to the terminated proactive command, e,g. AT^SSTGI or AT^SSTR. Unsolicited result code ^SSTN: <cmdTerminateValue> Parameters <cmdTerminateValue> is defined as <cmdType> + terminate offset. The terminate offset equals 100. Terminate proactive command ID, see Table 1 Command Type Identifiers
SIM Application returns to main menu	Notification to the TA when the SIM Application has finished a command cycle and again enters its main menu, which was transferred with an URC ^SSTN: 37 (SET UP MENU) at start up. This URC should be used to open this menu on the screen. The TA does not need to respond directly, i.e. AT^SSTR is not required. Unsolicited result code ^SSTN: <254>
Reference Siemens	Note

1.4 AT^SSTGI Remote-SAT Get Information

1.4.1 AT^SSTGI Remote-SAT Get Information – Generic Format

Test command AT^SSTGI=?	Response ^SSTGI:(list of supported <state>s), (list of supported <cmdType>s) OK
Read command AT^SSTGI?	Response ^SSTGI: <state>, <cmdType> OK Parameters <state> Remote-SAT interface states (refer to AT^SSTA) <cmdType> Ongoing Proactive Command (values see chapter 1.1.4 "Command Type Values"). However, this information is valid during states PAC and WAIT only.
Write command AT^SSTGI= <cmdType>	There are two situations for use of the Write command: 1. Regularly the Write command is used upon receipt of an unsolicited result code ^SSTN:<cmdType>. In this case the TA is expected to acknowledge the ^SSTGI response with AT^SSTR to confirm that the proactive command has been executed. AT^SSTR will also provide any user information e.g. selected menu item. 2. There may be the situation to request the information via AT^SSTGI without previously receiving an URC ^SSTN:<cmdType>. This will always be the case if the TA has started or restarted its application (e.g. a MMI) after power on the ME. To request the information despite the probably missed URCs it is possible to issue AT^SSTGI during states IDLE, PAC and WAIT at any time for the following Proactive Commands: PAC type 5: Set Up Event List, PAC type 37: Setup Menu, PAC type 40: Setup Idle Mode Test. Note: In case of using the Write command without receipt of an unsolicited result code ^SSTN:<cmdType> it is neither necessary nor possible to acknowledge the ^SSTGI response with AT^SSTR. Such a ^SSTGI response will not cause any state changes. The command type value is returned to the ME to identify which ^SSTN is being responded to.
Reference Siemens	Note

1.4.2 AT^SSTGI Remote-SAT Get Information – Refresh (1)

Write command AT^SSTGI=1	This command is to be used upon receiving an unsolicited result code ^SSTN:1. The response from the module indicates the type of REFRESH that is going to be undertaken. Response ^SSTGI: <cmdType>, <commandDetails> <CR> <LF> Parameters <cmdType> 1 – Proactive command ID, see Table 1 <commandDetails> Unsigned Integer, range 0 – 255, used as an enumeration. 0 SIM Initialization and Full File Change Notification; 1 File Change Notification; 2 SIM Initialization and File Change Notification; 3 SIM Initialization; 4 SIM Reset; ME is performing a SIM reset. Therefore a Terminal Response should not be issued. 5 to 255 = reserved values. For every return value of <commandDetails> except 4 (SIM reset) the external application shall react as follows: 1. Issue the related Terminal Response AT^SSTR=1,<status>. 2. If <status> is 0 (Command performed successfully) the TA is requested to show a “Please wait” alert window on its screen until it will receive the RSAT notification ^SSTN:101 (Terminate proactive command REFRESH).
Reference Siemens	Note

1.4.3 AT^SSTGI Remote-SAT Get Information – Set Up Event List (5)

Write command AT^SSTGI=5	This command is mainly to be used upon receiving an unsolicited result code ^SSTN:5. However, please refer to note below. The response informs the TA of the events that it must monitor within itself. If any of these events then occur the TA must report them to the ME. Response ^SSTGI: <cmdType>, <commandDetails>, <eventList> <CR> <LF> Parameters <cmdType> 5 – Proactive command ID, see Table 1 <commandDetails> This byte is RFU. <eventList> Unsigned integer, used as bitfield: bit 1-4 RFU bit 5 0 User Activity not in Event List 1 Any user activity (keyboard press) has to be signaled to the ME. bit 6 0 Idle Screen Available not in Event List 1 Any idle screen available event has to be signaled to the ME. bit 7 RFU bit 8 0 Language Selection not in Event List 1 Language Selection events have to be signaled to the ME. bit 9 – 16 RFU The event list tells the TA which events have to be reported to the ME via the related commands AT^SSTR=(232, 233, 235).
Reference Siemens	Note It is possible to issue AT^SSTGI during states IDLE, PAC and WAIT for this Proactive Command **without previously** receiving an URC ^SSTN:<cmdType>, see section “AT^SSTGI Remote-SAT Get Information – Generic Format”, pg. 23.

1.4.4 AT^SSTGI Remote-SAT Get Information – Setup Call (16)

Write command

AT^SSTGI=16

This command is to be used upon receiving an unsolicited result code ^SSTN:16.

If the SIM Application attempts to set up a call it uses this response to inform the TA of the call parameters.
The sequence of events is as follows:

1. After the Remote-SAT notification 16 was issued the TA has to ask for the command parameter via AT^SSTGI=16.
2. If the SIM Application supplies no confirmation text or icon parameter, the TA gives other information to the user, e.g. the telephone number. In this case flow continues at step 4.
3. If the SIM Application supplies a non empty confirmation text or icon parameter, the TA uses only these to ask the user whether or not he wishes to set up the call.
4. If the user confirms to set up the call, AT^SSTR=16,0 shall be responded.
5. If the user denies to set up the call, AT^SSTR=16,34 shall be responded.
6. After confirmation phase the TA may present a dialling animation on the screen until a mandatory parameter line
   ^SSTR: 16, <TermQualifier>, <TerminationCauseText>
   is issued.
7. If <TermQualifier> is not equal to 0 the dialling process did not perform successfully.
   If <TerminationCauseText> is not an empty string, this text has to be shown to the user for an appropriate time, e.g. 2 seconds. The text contains information regarding the dial termination cause, e.g. call barring through Call Control by SIM mechanism.
   <TerminationCauseText> is an empty string, the TA shall give an own indication to the user.
8. If <TermQualifier> is equal to 0, the dial process has been successfully finished:
   If <TerminationCauseText> is not an empty string, this text shall be used to inform the user during the call setup.
   If <TerminationCauseText> is an empty string, <callSetupText> and/or <confirmationIconId> shall be used to inform the user during call setup. However, if <callSetupText> contains no data, too, no indication shall be shown.
9. The TA shall give the user an opportunity to end an ongoing call, set up by the Proactive Command. In this case the TA shall issue an ATH command to the ME.

Response

^SSTGI: <cmdType>, <commandDetails>, <confirmationText>, <calledNumber>, <callSetupText>, <confirmationIconQualifier>, <confirmationIconId>, <callSetupIconQualifier>,<callSetupIconId> <CR> <LF>

Parameters

<cmdType>	16 – Proactive command ID, see Table 1
<commandDetails>	This byte is RFU.
<confirmationText>	String for user confirmation stage
<calledNumber>	String containing called number
<callSetupText>	String for call setup stage
<confirmationIconQualifier>	Unsigned Integer, range 0 – 255, used as a bitfield.
	bit 1: 0 = icon is self explanatory and replaces 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). bits 2-8: = RFU <confirmationIconId> 0-255, 0: no icon <callSetupIconQualifier> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icon is self explanatory and replaces 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). bits 2-8: = RFU <callSetupIconId> 0-255, 0: no icon
Reference Siemens	Note

1.4.5 AT^SSTGI Remote-SAT Get Information – Send SS (17)

Write command AT^SSTGI=17	This command is to be used upon receiving an unsolicited result code ^SSTN:17. The module is sending a supplementary service request to the network, and is alerting the user of this. Text and an Icon Identifier can be passed to the TA to display to the user. Text and an Icon Identifier can be passed to the TA to display to the user. Response ^SSTGI: <cmdType>, [<commandDetails>], [<text>], <iconQualifier>, <iconId>, <CR>, <LF> Parameters <cmdType> 17 – Proactive command ID, see Table 1 <commandDetails> This byte is RFU. <text> String <iconQualifier> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icon is self explanatory and replaces 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). bits 2-8: = RFU <iconId> 0-255, 0: no icon
Reference Siemens	Note

1.4.6 AT^SSTGI Remote-SAT Get Information – Send USSD (18)

Write command AT^SSTGI=18	This command is to be used upon receiving an unsolicited result code ^SSTN:18. The module is sending an unstructured supplementary service request to the network, and is alerting the user of this. Text and an Icon Identifier can be passed to the TA to display to the user. Response ^SSTGI: <cmdType>, [<commandDetails>], [<text>], <iconQualifier>, <iconId> <CR> <LF> Parameters <cmdType> 18 – Proactive command ID, see Table 1 <commandDetails> This byte is RFU. <text> String <iconQualifier> Unsigned integer, range 0 – 255, used as a bit field. bit 1: 0 = icon is self explanatory and replaces 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). bits 2-8: = RFU <iconId> 0-255, 0: no icon
Reference Siemens	Note

1.4.7 AT^SSTGI Remote-SAT Get Information – Send Short Message (19)

Write command AT^SSTGI=19	This command is to be used upon receiving an unsolicited result code ^SSTN:19. The SIM Application is sending a Short Message and the TA is informed of this. The user can be passed a string containing information to display. Response ^SSTGI: <cmdType>, <commandDetails>, <textInfo>, <iconQualifier>, <iconId> <CR> <LF> Parameters <cmdType> 19 – Proactive command ID, see Table 1 <commandDetails> This byte is RFU. <textInfo> String to provide the user with information. If the string is provided by the SIM and is not a null data object (empty string), the TA shall use it to inform the user. This is also an indication that the TA should not give any other information to the user on the fact that the ME is sending a short message. If the string is a null data object (i.e. an empty string), the TA may give own information to the user concerning what is happening (e.g. “Please Wait”). <iconQualifier> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icon is self explanatory and replaces 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). bits 2-8: = RFU <iconId> Unsigned Integer, range 0-255, 0: no icon 1: an icon is provided by the SIM, the icon indicated in the command may be used by the ME to inform the user, in addition to, or instead of the alpha identifier, as indicated with the icon qualifier.
Reference Siemens	Note

1.4.8 AT^SSTGI Remote-SAT Get Information – Send DTMF (20)

Write command AT^SSTGI=20	This command is to be used upon receiving an unsolicited result code ^SSTN:20. The SIM Application is sending DTMF tones to the network, and can provide the TA with some information about this. Text and an Icon Identifier can be passed to the TA to display to the user. Response ^SSTGI: <cmdType>, <commandDetails>, <text>, <iconQualifier>, <iconId> <CR> <LF> Parameters <cmdType> 20 – Proactive command ID see Table 1 <commandDetails> This byte is RFU. <text> String to provide user with information. <iconQualifier> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icon is self explanatory and replaces 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). bits 2-8: = RFU <iconId> 0-255, 0: no icon
Reference Siemens	Note

1.4.9 AT^SSTGI Remote-SAT Get Information – Play Tone (32)

Write command
AT^SSTGI=32

This command is to be used upon receiving an unsolicited result code ^SSTN:32.

The ME has been instructed to generate an audible tone, and may pass to the TA some information to support this.

Text and an Icon Identifier are passed to the TA for display to the user.

Response

^SSTGI: <cmdType>, <commandDetails>, <infoText>>, <tone>, <durationUnit>, <duration>, <iconQualifier>, <iconId> <CR> <LF>

Parameters

<cmdType>		32 – Proactive command ID, see Table 1.
<commandDetails>		This byte is RFU.
<infoText>		String to accompany tone
<tone>		Tone that the ME generates
Standard supervisory 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
ME proprietary tones:		
10		General beep
11		Positive acknowledgement tone
12		Negative acknowledgement or error tone

<durationUnit>

0	Minutes
1	Seconds
2	Tenths of Seconds

<duration>		Duration of tone, expressed in units (1-255)
<iconQualifier>		Unsigned Integer, range 0 – 255, used as a bitfield.
bit 1:	0	icon is self explanatory and replaces 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).
bits 2-8:		RFU
<iconId>		0-255, 0: no icon

Reference
Siemens

Note

Command is issued if the SIM application requests playing a tone with a length more than 5 seconds.

1.4.10 AT^SSTGI Remote-SAT Get Information – Display Text (33)

Write command AT^SSTGI=33	This command is to be used upon receiving an unsolicited result code ^SSTN:33. The TA is being passed a message to display to the user, which can have different display characteristics. Text and an Icon Identifier can be passed to the TA to display to the user. Response ^SSTGI: <cmdType>, <commandDetails>, <text>, <immediateResponse>, <iconQualifier>, <iconId> <CR> <LF> Parameters <cmdType> 33 – Proactive command ID, see Table 1 <commandDetails> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = normal priority 1 = high priority bits 2-7: = RFU bit 8: 0 = clear message after a delay 1 = wait for user to clear message <text> String to be displayed (up to 240 bytes) <immediateResponse> Indicates when to send TERMINAL RESPONSE 0 = send TERMINAL RESPONSE when text clears from screen 1 = TERMINAL RESPONSE sent immediately <iconQualifier> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icon is self explanatory and replaces 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). bits 2-8: = RFU <iconId> 0-255, 0: no icon
Reference Siemens	Note

1.4.11 AT^SSTGI Remote-SAT Get Information – Get Inkey (34)

Write command
AT^SSTGI=34
	This command is to be used upon receiving an unsolicited result code ^SSTN:34.
	The TA is asked to prompt the user for an input, which is a single character. Help can be requested by the user, if available.
	Text and an Icon Identifier can be passed to the TA to display to the user.
	Response
	^SSTGI: <cmdType>, <commandDetails>, <text>, <iconQualifier>, <iconId>
	<CR> <LF>
	
	Parameters
	<cmdType> 34 – Proactive command ID, see Table 1
	<commandDetails> Unsigned Integer, range 0 – 255, used as a bitfield.
	bit 1: 0 = digits (0-9, *, # and +) 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
	bits 4-7: = RFU
	bit 8: 0 = no help information available
	1 = help information available
	<text> String as prompt for text.
	<iconQualifier> Unsigned Integer, range 0 – 255, used as a bitfield.
	bit 1: 0 = icon is self explanatory and replaces 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).
	bits 2-8: = RFU
	<iconId> 0-255, 0: no icon

Reference Siemens	Note

1.4.12 AT^SSTGI Remote-SAT Get Information – Get Input (35)

Write command

AT^SSTGI=35

This command is to be used upon receiving an unsolicited result code ^SSTN:35.

The TA is asked to prompt the user for an input, of a specified length and type, e.g. digits only. Help can be requested by the user, if available.

Text and an Icon Identifier can be passed to the TA to display to the user.

Response

^SSTGI: <cmdType>, <commandDetails>, <text>, <responseMin>, <responseMax>, [<defaultText>], <iconQualifier>, <iconId> <CR> <LF>

Parameters

<cmdType>	35 – Proactive command ID, see Table 1
<commandDetails>	Unsigned Integer, range 0 – 255, used as a bitfield.
	bit 1: 0 = digits (0-9, *, #, and +) 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 (see note)
	bit 4: 0 = user input to be in unpacked format
	1 = user input to be in SMS packed format
	bits 5 to 7: RFU
	bit 8: 0 = no help information available
	1 = help information available
<text>	String as prompt for text
<responseMin>	minimum length of user input (0 – 255)
<responseMax>	maximum length of user input (0 – 255)
<defaultText>	String supplied as default response text
<iconQualifier>	Unsigned Integer, range 0 – 255, used as a bitfield.
	bit 1: 0 = icon is self explanatory and replaces 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).
	bits 2-8: = RFU
<iconId>	0-255, 0: no icon

Reference

Siemens

Note

Hidden entry mode (GSM 11.14) is only available when using digit input. In hidden entry mode only characters ‘0’-‘9’, ‘*’ and ‘#‘ are allowed.

1.4.13 AT^SSTGI Remote-SAT Get Information – Select Item (36)

Write command
AT^SSTGI=36

This command is to be used upon receiving an unsolicited result code ^SSTN:36.

The TA is supplied with a list of items allowing the user to select one. Help can be requested by the user, if available and the presentation style is specified.

In addition to text strings and icon identifiers, a next action indicator informs the user of the likely result of selecting a chosen item.

Response

The first line of output from the ME is:

^SSTGI: <cmdType>, <commandDetails>, <numOfItems>, <titleText>, <defaultItemId>, <itemIconsPresent>, <itemIconsQualifier>, <titleIconQualifier>, <titleIconId> <CR> <LF>

One line follows for every item, repeated for <numOfItems>:

^SSTGI: <cmdType>, <itemId>, <itemText>, <nextActionId>, <iconId> <CR><LF>

Parameters

<cmdType>	36 – Proactive command ID, see Table 1
<commandDetails>	Unsigned Integer, range 0 – 255, used as a bitfield. 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 is '1' bit 3: 0 = no selection preference 1 = selection using soft key preferred bits 4 to 7: = RFU bit 8: 0 = no help information available 1 = help information available
<numOfItems>	Number of items in the list
<titleText>	String giving menu title
<defaultItemId>	id of default item The SIM may supply with the list an indication of the default item, e.g. the previously selected item. 0 = no default item issued by the SIM application >1 = Any value greater than 0 shall be used as an id of the default item.
<itemIconsPresent>	0 = no Icons 1 = Icons present
<itemIconsQualifier>	Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icons are self explanatory and replace text 1 = icons are not self-explanatory and shall be displayed with the text Determined value only if associated icon id is

		not 0 (an icon exists). bits 2-8: = RFU
	<titleIconQualifier>	Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icon is self explanatory and replaces 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). bits 2-8: = RFU
	<titleIconId>	0-255, 0: no icon
	<itemId>	item identifier (1 – <numOfItems>)
	<itemText>	Title of item
	<nextActionId>	The next proactive command type to be issued upon execution of the menu item. See Table 1. 0: No Next Action information available.
	<iconId>	0-255, 0: no icon
Reference Siemens	Note	

1.4.14 AT^SSTGI Remote-SAT Get Information – Setup Menu (37)

Write command
AT^SSTGI=37

This command is mainly to be used upon receiving an unsolicited result code ^SSTN:37. However, please refer to note below.

The response provides the main menu of the SIM Application to the TA. This is stored by the TA so that it can be displayed without invoking a proactive session.

Note:

As with every proactive command the TA is expected to acknowledge the ^SSTGI response with AT^SSTR to confirm that the proactive command has been executed.

Terminal Response via AT^SSTR will not provide any user information in case of this proactive command. Refer to “AT^SSTR Remote-SAT Event Response – Menu Selection (211)”, pg. 56

Response

The first line of output from the ME is:

^SSTGI: <cmdType>, <commandDetails>, <numOfItems>, <titleText>, <menuItemIconsPresent>, <menuItemIconsQualifier>, <titleIconQualifier>, <titleIconId> <CR> <LF>

One line follows for every menu item, repeated for <numOfItems>:

^SSTGI: <cmdType>, <itemId>, <itemText>, <nextActionId>, <iconId> <CR> <LF>

Parameters

<cmdType>	37 – Proactive command ID, see Table 1
<commandDetails>	Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = no selection preference 1 = selection using soft key preferred bits 2 to 7: = RFU bit 8: 0 = no help information available 1 = help information available
<titleText>	String displaying menu title
<menuItemIconsPresent>	0 = no Icons 1 = Icons present
<menuItemIconsQualifier>	Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icons are self explanatory and replace text 1 = icons are not self-explanatory and shall be displayed with the text Determined value only if associated icon id is not 0 (an icon exists). bits 2-8: = RFU
<titleIconQualifier>	Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icon is self explanatory and replaces 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).

		bits 2-8: = RFU
	<titleIconId>	0-255, 0: no icon
	<numOfItems>	Number of menu items in the list
	<itemId>	Menu item identifier (1 – numOfItems)
	<itemText>	Title of menu item
	<nextActionId>	The next proactive command type to be issued upon execution of the menu item. See Table 1 0: No next action information available.
	<iconId>	0-255, 0: no icon
Reference Siemens	Note It is possible to issue AT^SSTGI during states IDLE, PAC and WAIT for this Proactive Command without previously receiving an URC ^SSTN:<cmdType>, see section “AT^SSTGI Remote-SAT Get Information – Generic Format”, pg. 23.	

1.4.15 AT^SSTGI Remote-SAT Get Information – Setup Idle Mode Text (40)

Write command
AT^SSTGI=40

This command is mainly to be used upon receiving an unsolicited result code ^SSTN:40. However, please refer to note below.

It provides text, and optionally an icon, to be displayed by the TA when the display is Idle.

Response

^SSTGI: <cmdType>, <commandDetails>, <text>, <iconQualifier>, <iconId>
<CR> <LF>

Parameters

<cmdType>	40 – Proactive command ID, see Table 1
<commandDetails>	This byte is RFU.
<text>	String to display when TA in Idle Mode.
<iconQualifier>	Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icon is self explanatory and replaces 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). bits 2-8: = RFU
<iconId>	0-255, 0: no icon

Reference
Siemens

Note

It is possible to issue AT^SSTGI during states IDLE, PAC and WAIT for this Proactive Command without previously receiving an URC ^SSTN:<cmdType>, see section “AT^SSTGI Remote-SAT Get Information – Generic Format”, pg. 23.

1.5 AT^SSTR Remote-SAT Response – Generic Format

Test command AT^SSTR=?	Response ^SSTR:(list of supported <state>s), (list of supported <cmdType>s) OK
Read command AT^SSTR?	Response ^SSTR: <state>, <cmdType> OK Parameters <state> Remote-SAT interface states (refer to AT^SSTA) <cmdType> Ongoing Proactive Command (values see chapter 1.1.4 "Command Type Values"). However, this information is valid during states PAC and WAIT only.
Write command AT^SSTR= <cmdType>, <status> [,<itemId>] [,<inputString>]	The TA is expected to acknowledge the ^SSTGI response with AT^SSTR to confirm that the proactive command has been executed. AT^SSTR will also provide any user information e.g. selected menu item. Response During execution of a Proactive Command after AT^SSTR a response parameter line may be issued by the ME: ^SSTR: <pac>, <TermQualifier>, <TerminationCauseText> <TerminationQualifier> Unsigned Integer, range 0 – 255 0 If <TerminationQualifier> is equal to 0, the Proactive Command has been successfully finished. >0 If <TerminationQualifier> is not equal to 0 the Proactive Command did not perform sucessfully. <TerminationCauseText> • If <TermQualifier> is not equal to 0 the Proactive Command did not perform sucessfully: If <TerminationCauseText> is not an empty string, this text has to be shown to the user for an appropriate time, e.g. 2 seconds. The text contains information regarding the termination cause, e.g. in case of a failed dialling process call barring through Call Control by SIM mechanism may be indicated. If <TerminationCauseText> is an empty string, the TA shall give an own indication to the user. • If <TermQualifier> is equal to 0, the Proactive Command has been successfully finished: If <TerminationCauseText> is not an empty string, this text shall be shown to the user for an appropriate time. OK

	Parameters <cmdType> Number related to Proactive command or event type, see table 1.1.4 Command Type Values, pg. 8. <status> Command status return regarding the type of action that has taken place, e.g. action performed by the user, possible values see the table in Chapter 1.5.1 Remote-SAT Command Status, pg. 42. [<itemId>] id of menu item selected by user [<inputString>] string response entered by user
Reference Siemens	Note If an optional parameter is not issued, no trailing commas are allowed to be returned.

1.5.1 Remote-SAT Command Status

The following status values give a response to a previously issued Proactive command, and are used by the AT Command AT^SSTR. The status parameter is used to identify the type of response from the TA to the ME.
Table based upon GSM 11.14.

Status value	Terminal response	REFRESH 1	SETUP EVENT LIST 5	SET UP CALL 16	SEND SS 17	SEND USSD 18	SEND SMS 19	SEND DTMF 20	PLAY TONE 32	DISPLAY TEXT 33	GET INKEY 34	GET INPUT 35	SELECT ITEM 36	SET UP MENU 37	SETUP IDLE MODE TEXT 40
00	Command performed successfully	•	•	•	•	•	•	•	•	•	•	•	•	•	•
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										•	•	•		
20	USSD/SS Transact terminated by user			•	•	•									
32	ME currently unable to process command	•	•	•	•	•	•	•	•	•	•	•	•	•	•
132	ME currently unable to process command - screen is busy	•	•	•	•	•	•	•	•	•	•	•	•	•	•
34	User did not accept the proactive command			•											
35	User cleared down call before connection or network release			•											

1.5.2 Proactive Commands

1.5.2.1 AT^SSTR Remote-SAT Response – Refresh (1)

Write command AT^SSTR=1, <status>	If <cmdDetail> reported by AT^SSTGI was 4, ME is performing a SIM reset. Therefore a Terminal Response should not be issued. Response OK Parameters <cmdType> 1 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.2.2 AT^SSTR Remote-SAT Response – Set Up Event List (5)

Write command AT^SSTR=5, <status>	The TA is acknowledging that the Event list has been set up correctly. Response OK Parameters <cmdType> 5 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.2.3 AT^SSTR Remote-SAT Response – Setup Call (16)

Write command AT^SSTR=16, <status>	The TA indicates if the call setup has been accepted by the user. For further details please refer to chapter “AT^SSTGI Remote-SAT Get Information – Setup Call (16)”, pg. 26. Response After confirmation phase the TA may show a dialling animation on the screen until a mandatory response parameter is issued. ^SSTR: <pac>, <TermQualifier>, <TerminationCauseText> For a detailed explanation of these parameters please refer to chapter “AT^SSTGI Remote-SAT Get Information – Setup Call (16)”, pg. 26. OK Parameters <cmdType> 16 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 0 Command performed successfully Indicate that the user has accepted the call request. 16 Proactive SIM session terminated by user 20 USSD/SS Transact terminated by user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. 34 User did not accept the proactive command. Indicate that the user has denied the call request. 35 User cleared down call before connection or network release
Reference Siemens	Note

1.5.2.4 AT^SSTR Remote-SAT Response – Send SS (17)

Write command AT^SSTR=17, <status>	The TA indicates if the Send SS command has been cancelled by the user. Response OK Parameters <cmdType> 17– Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 20 USSD/SS Transact terminated by user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. Notes: Used only for confirmation of customer application status
Reference Siemens	Note Used to provide information to the ME, upon receiving a ^SSTGI response.

1.5.2.5 AT^SSTR Remote-SAT Response – Send USSD (18)

Write command AT^SSTR=18, <status>	The TA indicates if the Send USSD command has been cancelled by the user. Response OK Parameters <cmdType> 18 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 0 Command performed successfully 20 USSD/SS Transact terminated by user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. Notes: Used only for confirmation of customer application status
Reference Siemens	Note

1.5.2.6 AT^SSTR Remote-SAT Response – Send Short Message (19)

Write command AT^SSTR=19, <status>	The TA acknowledges the successful receipt of the proactive command. Response OK Parameters <cmdType> 19 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 0 Command performed successfully 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. Notes: Used only for confirmation of customer application status
Reference Siemens	Note

1.5.2.7 AT^SSTR Remote-SAT Response – Send DTMF (20)

Write command AT^SSTR=20, <status>	The TA acknowledges a successful receipt of the proactive command. Response OK Parameters <cmdType> 20 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 16 Proactive SIM session terminated by user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. Notes: Used only for confirmation of customer application status
Reference Siemens	Note

1.5.2.8 AT^SSTR Remote-SAT Response – Play Tone (32)

Write command AT^SSTR=32, <status>	The TA acknowledges a successful receipt of the proactive command. Response OK Parameters <cmdType> 32 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 16 Proactive SIM session terminated by user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. Notes: Used only for confirmation of customer application status
Reference Siemens	Note

1.5.2.9 AT^SSTR Remote-SAT Response – Display Text (33)

Write command AT^SSTR=33, <status>	The TA can respond with a move through proactive session, or provide additional information. Response OK Parameters <cmdType> 33 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 16 Proactive SIM session terminated by user 17 Backward move in the proactive SIM session requested by the user 18 No response from user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. Notes: User confirmation to clear the displayed text.
Reference Siemens	Note Used to provide information to the ME, upon receiving a ^SSTGI response.

1.5.2.10 AT^SSTR Remote-SAT Response – Get Inkey (34)

Write command AT^SSTR=34, <status>, , <inputString>	The TA provides a response that can indicate the user's intentions, and include the input key. Response OK Parameters <cmdType> 34 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 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 TA currently unable to process command 132 TA currently unable to process command because screen is busy. <inputString> User response entered as a string parameter. Coding of any input character is related to the selected alphabet: • Input of a character in case of ANSI character set requests one byte , e.g. “Y”. • Input of any characters in UCS2 alphabet requests a 4 byte set, e.g. “0059” is coding the same character “Y”. • Coding of an empty string is done as a “\1b” string with every alphabet.
Reference Siemens	Note The alphabet – and therefore the set of allowed characters - is specified by the ME in the response to the related AT^SSTGI. However, do not mix up this alphabet with the one selected for the alphabet format on the transmission line on SAT activation, i.e. second parameter of AT^SSTA).

1.5.2.11 AT^SSTR Remote-SAT Response – Get Input (35)

Write command

AT^SSTR=35, <status>, , <inputString>

The TA sends a response that can indicate the user's intentions and include the input string.

Response

OK

Parameters

<cmdType> 35 – Proactive command ID, see Table 1

<status> Unsigned Integer, range 0-255

0	Command performed successfully
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	TA currently unable to process command
132	TA currently unable to process command because screen is busy.

<inputString> User response entered as a string, length depends on values of <responseMin> and <responseMax> returned by the related AT^SSTGI command.

Coding of any input character is related to the selected alphabet:

- Input of a character in case of ANSI character set requests one byte , e.g. “Y”.
- Input of a characters in UCS2 alphabet requests a 4 byte string, e.g. “0059” is coding the same character “Y”.
- Coding of an empty string is done as “\1b” in every alphabet.

Reference

Siemens

Note

The alphabet – and therefore the set of allowed characters - is specified by the ME in the response to the related AT^SSTGI. However, do not mix up this alphabet with the one selected for the alphabet format on the transmission line on SAT activation, i.e. second parameter of AT^SSTA).

1.5.2.12 AT^SSTR Remote-SAT Response – Select Item (36)

Write command AT^SSTR=36, <status>, <itemId>	The TA sends a response that can indicate the user's intentions, e.g. when the user is requesting help or selecting a menu item. Response OK Parameters <cmdType> 36 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 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 TA currently unable to process command 132 TA currently unable to process command because screen is busy. <itemId> ID of selected item (1-255), can be issued if a <status> value of 0 is returned. Item IDs are supplied by the SIM Application
Reference Siemens	Note

1.5.2.13 AT^SSTR Remote-SAT Response – Set Up Menu (37)

Write command AT^SSTR=37, <status>	Note: As with every proactive command the TA is expected to acknowledge the ^SSTGI response with AT^SSTR to confirm that the proactive command has been executed. The response simply conveys, to the SAT, the information that the main menu was received and set up on the user interface. It does not transmit any information about a selected item, like in the case of AT^SSTR=36. Once this command was executed the user can proceed as described in the Chapter “AT^SSTR Remote-SAT Event Response – Menu Selection (211)”, pg. 56. Response OK Parameters <cmdType> 37 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 0 Command performed successfully (Proactive session will end). 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.2.14 AT^SSTR Remote-SAT Response – Set Up Idle Mode Text (40)

Write command AT^SSTR=40, <status>	The TA indicates whether the Set Up Idle Mode Text command was correctly executed. Response OK Parameters <cmdType> 40 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 0 Command performed successfully 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. Notes: Used only for confirmation of customer application status
Reference Siemens	Note

1.5.3 Event Response Commands

The following types of responses are neither issued in reaction to a formerly given notification (^SSTN) nor a AT^SSTGI sequence. These responses are intended to report activities at the external application, e.g. when the user is pressing a key.

1.5.3.1 AT^SSTR Remote-SAT Event Response – Menu Selection (211)

Write command AT^SSTR=211, <status>, < itemId >	The TA specifies a user's selection of an item from the main menu, that was set up using SETUP MENU command. Alternatively help can be requested. Response OK Parameters <cmdType> 211 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully. 19 Help information required by the user, no other value can be input. <itemId> Id of selected item (1-255)
Reference Siemens	Note

1.5.3.2 AT^SSTR Remote-SAT Event Response – User Activity (232)

Write command AT^SSTR=232	Sent by the customer application to indicate that a key has been pressed. Response OK Parameters <cmdType> 232 – Event command ID, see Table 1
Reference Siemens	Note

1.5.3.3 AT^SSTR Remote-SAT Event Response – Idle Screen Available (233)

Write command AT^SSTR=233	Sent by the customer application to indicate that the screen has become idle. Response OK Parameters <cmdType> 233 – Event command ID, see Table 1.
Reference Siemens	Note

1.5.3.4 AT^SSTR Remote-SAT Event Response – Language Selection (235)

Write command AT^SSTR=235, , , <inputString>	Sent by the customer application to indicate that the customer application has changed language. Response OK Parameters <cmdType> 235 – Event command ID, see Table 1 <inputString> Two character language tag, e.g. “en” for English or “de” for German, refer to appendix.
Reference Siemens	Note

1.5.3.5 AT^SSTR Remote-SAT Event Response – Terminate Command (254)

Write command AT^SSTR=254	This command allows the TA to finish an ongoing proactive command, if any. This is done by sending a Terminal Response “ME currently unable to process command - screen is busy” to the SIM (see table “Remote-SAT Command Status”, pg. 42), if issued in states PAC or WAIT. No action is performed if the interface is already in IDLE state. However, command returns “OK”. The actual reaction regarding the Terminal Response depends on the SIM application. The command can be used to return to IDLE state regardless whether a Proactive command is ongoing or not. Response OK Parameters <cmdType> 254 – Event command ID, see Table 1
Reference Siemens	Note This command is allowed in states IDLE, PAC and WAIT and forces a return to IDLE state once it has been issued successfully, i.e. OK response.

2 Appendix

2.1 Appendix A – SAT Profile

SAT Profile download is used as a means of the ME telling the SIM what it is capable of. The Profile download instruction is sent to the SIM from the ME as part of the SIM initialisation process. The profile sent by the ME states which facilities the ME will support.

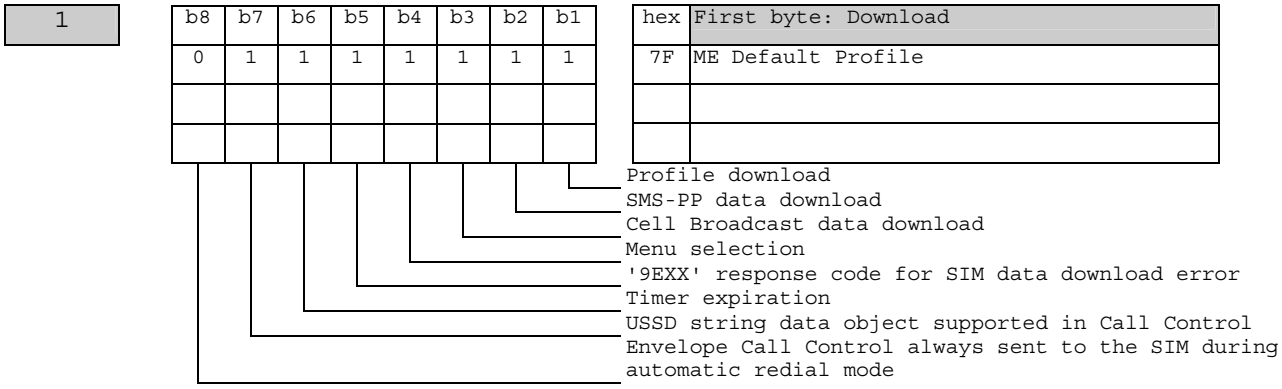
The SIM adapts its behaviour to the capabilities of the ME by reducing its instruction range.

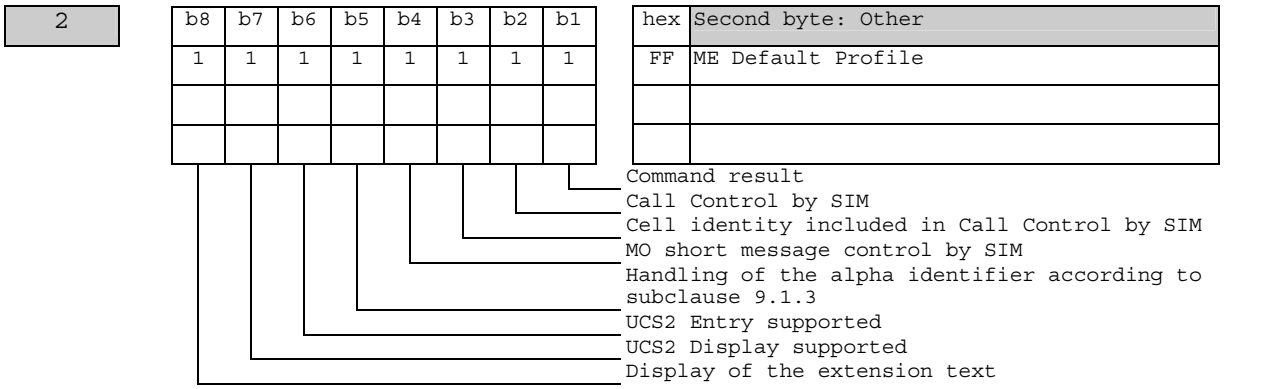
The AT command AT^SSTA is used to read the profile, please refer to chapter 1.2 AT^SSTA Remote-SAT Activation, pg. 20.

For further information please refer to GSM 11.14 section 5.2.

Profile:
Contents: The list of SIM Application Toolkit facilities that are supported by the ME.

Coding:
1 bit is used to code each facility:
bit = 1: facility supported by ME
bit = 0: facility not supported by ME





3

b8	b7	b6	b5	b4	b3	b2	b1
1	1	1	1	1	1	1	1

hex	Third byte: Proactive SIM
FF	ME Default Profile

Proactive SIM: DISPLAY TEXT
Proactive SIM: GET INKEY
Proactive SIM: GET INPUT
Proactive SIM: MORE TIME
Proactive SIM: PLAY TONE
Proactive SIM: POLL INTERVAL
Proactive SIM: POLLING OFF
Proactive SIM: REFRESH

4

b8	b7	b6	b5	b4	b3	b2	b1
1	1	1	1	1	1	1	1

hex	Fourth byte: Proactive SIM
FF	ME Default Profile

Proactive SIM: SELECT ITEM
Proactive SIM: SEND SHORT MESSAGE
Proactive SIM: SEND SS
Proactive SIM: SEND USSD
Proactive SIM: SET UP CALL
Proactive SIM: SET UP MENU
Proactive SIM: PROVIDE LOCAL INFORMATION (MCC, MNC, LAC, Cell ID & IMEI)
Proactive SIM: PROVIDE LOCAL INFORMATION (NMR)

5

b8	b7	b6	b5	b4	b3	b2	b1
0	1	1	1	1	1	1	1

hex	Fifth byte: Event driven information
7F	ME Default Profile

Proactive SIM: SET UP EVENT LIST
Event: MT call
Event: Call connected
Event: Call disconnected
Event: Location status
Event: User activity
Event: Idle screen available
Event: Card reader status

6

b8	b7	b6	b5	b4	b3	b2	b1
0	0	0	0	0	0	0	1

hex	Sixth byte: Event driven information extensions
01	ME Default Profile

Event: Language selection
Event: Browser Termination
Event: Data available
Event: Channel status
RFU, bit = 0
RFU, bit = 0
RFU, bit = 0
RFU, bit = 0

7

b8	b7	b6	b5	b4	b3	b2	b1
0	0	0	0	0	0	0	0

hex	Seventh byte: Multiple card proactive commands for class "a"
00	ME Default Profile

Proactive SIM: POWER ON CARD
Proactive SIM: POWER OFF CARD
Proactive SIM: PERFORM CARD APDU
Proactive SIM: GET READER STATUS (Card reader status)
Proactive SIM: GET READER STATUS (Card reader identifier)
RFU, bit = 0

8

b8	b7	b6	b5	b4	b3	b2	b1
1	1	0	1	1	1	1	1

hex	Eighth byte: Proactive SIM
DF	ME Default Profile

Proactive SIM: TIMER MANAGEMENT (start, stop)
Proactive SIM: TIMER MANAGEMENT (get current value)
Proactive SIM: PROVIDE LOCAL INFORMATION (date, time and time zone)
Binary choice in GET INKEY
SET UP IDLE MODE TEXT
RUN AT COMMAND (i.e. class "b" is supported)
2nd alpha identifier in SET UP CALL
2nd capability configuration parameter (see 9.1.6)

9

b8	b7	b6	b5	b4	b3	b2	b1
0	0	0	1	1	1	1	1

hex	Ninth byte
1F	ME Default Profile

Sustained DISPLAY TEXT
SEND DTMF command
Proactive SIM: PROVIDE LOCAL INFORMATION
Proactive SIM: PROVIDE LOCAL INFORMATION (language)
Proactive SIM: PROVIDE LOCAL INFORMATION (Timing Advance)
Proactive SIM: LANGUAGE NOTIFICATION
Proactive SIM: LAUNCH BROWSER
RFU, bit = 0

2.2 Appendix B - UCS2 Character Set Options

UCS Character Set Rows	
Value	**Language**
A-ZONE (alphabetical characters and symbols)	
00	(Control characters,) Basic Latin, Latin-1 Supplement (=ISO/IEC 8859-1)
01	Latin Extended-A, Latin Extended-B
02	Latin Extended-B, IPA Extensions, Spacing Modifier Letters
03	Combining Diacritical Marks, Basic Greek, Greek Symbols and Coptic
04	Cyrillic
05	Armenian, Hebrew
06	Basic Arabic, Arabic Extended
07--08	(Reserved for future standardization)
09	Devanagari, Bengali
0A	Gumukhi, Gujarati
0B	Oriya, Tamil
0C	Telugu, Kannada
0D	Malayalam
0E	Thai, Lao
0F	(Reserved for future standardization)
10	Georgian
11	Hangul Jamo
12--1D	(Reserved for future standardization)
1E	Latin Extended Additional
1F	Greek Extended
20	General Punctuation, Super/subscripts, Currency, Combining Symbols
21	Letterlike Symbols, Number Forms, Arrows
22	Mathematical Operators
23	Miscellaneous Technical Symbols
24	Control Pictures, OCR, Enclosed Alphanumerics
25	Box Drawing, Block Elements, Geometric Shapes
26	Miscellaneous Symbols
27	Dingbats
28--2F	(Reserved for future standardization)
30	CJK Symbols and Punctuation, Hiragana, Katakana
31	Bopomofo, Hangul Compatibility Jamo, CJK Miscellaneous

32	Enclosed CJK Letters and Months
33	CJK Compatibility
34--4D	Hangul
I-ZONE (ideographic characters)	
4E--9F	CJK Unified Ideographs
O-ZONE (open zone)	
A0--DF	(Reserved for future standardization)
R-ZONE (restricted use zone)	
E0--F8	(Private Use Area)
F9--FA	CJK Compatibility Ideographs
FB	Alphabetic Presentation Forms, Arabic Presentation Forms-A
FC--FD	Arabic Presentation Forms-A
FE	Combining Half Marks, CJK Compatibility Forms, Small Forms, Arabic-B
FF	Halfwidth and Fullwidth Forms, Specials

2.3 Appendix C – Language Codes

Language	ISO Code	Win Code	Mac Name	Mac Code
Abkhazian	ab			
Afar	aa			
Afrikaans	af	0x0036		
Albanian	sq	0x001c	langAlbanian	36
Amharic	am		langAmharic	85
Arabic	ar	0x0001	langArabic	12
Armenian	hy		langArmenian	51
Assamese	as		langAssamese	68
Aymara	ay		langAymara	134
Azerbaijani	az		langAzerbaijani(Latin), langAzerbaijanAr(Arabic)	49(L), 50(A)
Bashkir	ba			
Basque	eu	0x002d	langBasque	129
Bengali (Bangla)	bn		langBengali	67
Bhutani	dz		langDzongkha	137
Bihari	bh			
Bislama	bi			
Breton	br		langBreton	142
Bulgarian	bg	0x0002	langBulgarian	44
Burmese	my		langBurmese	77
Byelorussian	be	0x0023	langByelorussian	46
Cambodian	km		langKhmer	78
Catalan	ca	0x0003	langCatalan	130
Chewa			langChewa	92
Chinese	zh	0x0004	langTradChinese, langSimpChinese	19(T), 33(S)
Corsican	co			
Croatian	hr	0x001a	langCroatian	18
Czech	cs	0x0005	langCzech	38
Danish	da	0x0006	langDanish	7
Dutch	nl	0x0013	langDutch	4
English	en	0x0009	langEnglish	0
Esperanto	eo		langEsperanto	94
Estonian	et	0x0025	langEstonian	27
Faeroese	fo	0x0038	langFaeroese	30
Farsi	fa	0x0029	langFarsi, langPersian	31
Fiji	fj			
Finnish	fi	0x000b	langFinnish	13
Flemish			langFlemish	34
French	fr	0x000c	langFrench	1
Frisian	fy			
Galician	gl			
Galla			langGalla	87
Georgian	ka		langGeorgian	52
German	de	0x0007	langGerman	2
Greek	el	0x0008	langGreek	14
Greenlandic	kl			
Guarani	gn		langGuarani	133
Gujarati	gu		langGujarati	69
Hausa	ha			
Hebrew	iw, he	0x000d	langHebrew	10
Hindi	hi	0x0039	langHindi	21
Hungarian	hu	0x000e	langHungarian	26
Icelandic	is	0x000f	langIcelandic	15

Language	ISO Code	Win Code	Mac Name	Mac Code
Indonesian	in, id	0x0021	langIndonesian	81
Interlingua	ia			
Interlingue	ie			
Inuktitut	iu		langInuktitut	143
Inupiak	ik			
Irish	ga		langIrish	35
Italian	it	0x0010	langItalian	3
Japanese	ja	0x0011	langJapanese	11
Javanese	jw		langJavaneseRom	138
Kannada	kn		langKannada	73
Kashmiri	ks		langKashmiri	61
Kazakh	kk		langKazakh	48
Kinyarwanda	rw			
Kirghiz	ky		langKirghiz	54
Kirundi	rn			
Korean	ko	0x0012	langKorean	23
Kurdish	ku		langKurdish	60
Laothian	lo		langLao	79
Lappish			langLappish, langSaamisk	29
Latin	la		langLatin	131
Latvian (Lettish)	lv	0x0026	langLatvian	28
Lingala	ln			
Lithuanian	lt	0x0027	langLithuanian	24
Macedonian	mk	0x002f	langMacedonian	43
Malagasy	mg		langMalagasy	93
Malay	ms	0x003e	langMalayRoman(Latin), langMalayArabic(Arabic)	83(L), 84(A)
Malayalam	ml		langMalayalam	72
Maltese	mt		langMaltese	16
Manx Gaelic	gv*		langGailck	141
Maori	mi			
Marathi	mr		langMarathi	66
Moldavian	mo		langMoldavian	53
Mongolian	mn		langMongolian(Mongolian), langMongolianCyr(Cyrillic)	57(M), 58(C)
Nauru	na			
Nepali	ne		langNepali	64
Norwegian	no	0x0014	langNorwegian	9
Occitan	oc			
Oriya	or		langOriya	71
Oromo (Afan)	om		langOromo	87
Pashto (Pushto)	ps		langPashto	59
Polish	pl	0x0015	langPolish	25
Portuguese	pt	0x0016	langPortuguese	8
Punjabi	pa		langPunjabi	70
Quechua	qu		langQuechua	132
Rhaeto-Romance	rm			
Romanian	ro	0x0018	langRomanian	37
Ruanda			langRuanda	90
Rundi			langRundi	91
Russian	ru	0x0019	langRussian	32
Samoan	sm			
Sangro	sg			
Sanskrit	sa		langSanskrit	65
Scots Gaelic	gd		langGaidhlig	140

Language	ISO Code	Win Code	Mac Name	Mac Code
Serbian	sr	0x001a	langSerbian	42
Serbo-Croatian	sh			
Sesotho	st			
Setswana	tn			
Shona	sn			
Sindhi	sd		langSindhi	62
Singhalese	si		langSinhalese	76
Siswati	ss			
Slovak	sk	0x001b	langSlovak	39
Slovenian	sl	0x0024	langSlovenian	40
Somali	so		langSomali	88
Spanish	es	0x000a	langSpanish	6
Sundanese	su		langSundaneseRom	139
Swahili	sw	0x0041	langSwahili	89
Swedish	sv	0x001d	langSwedish	5
Tagalog	tl		langTagalog	82
Tajik	tg		langTajiki	55
Tamil	ta		langTamil	74
Tatar	tt		langTatar	135
Telugu	te		langTelugu	75
Thai	th	0x001e	langThai	22
Tibetan	bo		langTibetan	63
Tigrinya	ti		langTigrinya	86
Tonga	to			
Tsonga	ts			
Turkish	tr	0x001f	langTurkish	17
Turkmen	tk		langTurkmen	56
Twi	tw			
Uighur	ug		langUighur	136
Ukrainian	uk	0x0022	langUkrainian	45
Urdu	ur	0x0020	langUrdu	20
Uzbek	uz		langUzbek	47
Vietnamese	vi	0x002a	langVietnamese	80
Volapük	vo			
Welsh	cy		langWelsh	128
Wolof	wo			
Xhosa	xh			
Yiddish	ji, yi		langYiddish	41
Yoruba	yo			
Zulu	zu			