

# Manual Reference

## AT Command Set (GSM 07.07, GSM 07.05, Siemens specific commands)

for the SIEMENS Mobile Phones

### S35i, C35i, M35i

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## Revisions Overview

Date	Version	Name	Description of revision
15-03-2000	1.0	Kel	created

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# 1. Software Interface

## 1.1. Overview of the Supported AT Command Set

Page	Commands 07.07	Function
7	AT+CGMI	Issue manufacturer ID code
7	AT+CGMM	Issue model ID code
7	AT+CGMR	Output the GSM telephone version
8	AT+CGSN	Output the serial number (IMEI)
8	AT+GSN	Output the serial number (IMEI)
8	AT+CHUP	Terminate call
8	AT+CEER	Query the reason for disconnection of last call
9	AT+CREG	Network registration
9	AT+COPS	Commands concerning selection of network operator
10	AT+CLCK	Switch locks on and off
10	AT+CPWD	Change password to a lock
11	AT+CLIP	Display telephone number of calling party
11	AT+CCFC	Call forwarding
12	AT+CHLD	Call hold and multiparty
12	AT+CPAS	Query the telephone status
13	AT+CPIN	Enter PIN and query lock
13	AT+CBC	Battery charge
14	AT+CSQ	Output signal quality
14	AT+CPBS	Select a telephone book
15	<b>Fehler! Kein gültiges Resultat für Tabelle.</b>	Read a telephone-book entry
15	AT+CPBW	Write a telephone-book entry
16	AT+CMEE	Expanded error messages according to GSM 07.07
17	AT+VTS	Send a DTMF tone
18	AT+VTD	Set duration of a DTMF tone
18	AT+WS46	Select wireless network
18	AT+CSGS	Select TE character set
19	AT+CAOC	Advice of charge
19	AT+CSSN	Supplementary service notifications
20	AT+CRSM	Restricted SIM access
20	AT+CIMI	Output of IMSI
21	AT+CACM	Accumulated call meter
21	AT+CAMM	Accumulated call meter maximum
22	AT+CLCC	List Current Calls
23	AT+CCLK	Clock
23	AT+COPN	Read operator names
23	AT+CPUC	Price per unit and currency table
24	AT+CALM	Alert sound mode
24	AT+CRSL	Ringer sound level
24	AT+CLVL	Loudspeaker volume level
24	AT+CMUT	Mute control
25	AT+CVIB	Vibrator mode

Page	Commands 07.05	Function
26	AT+CSMS	Selection of message service
27	AT+CPMS	Selection of SMS memory
27	AT+CMGF	SMS format
28	AT+CSCA	Address of the SMS service center
28	AT+CNMI	Display new incoming SMS
29	AT+CNMA	Acknowledgment of a short message directly output
30	AT+CMGL	List SMS
31	AT+CMGR	Read in an SMS
31	AT+CMGS	Send an SMS
31	AT+CMSS	Send an SMS from the SMS memory
32	AT+CMGW	Write an SMS to the SMS memory
32	AT+CMGD	Delete an SMS in the SMS memory
32	AT+CSCB	Select cell broadcast messages
32	AT+CMGC	Send an SMS command

Page	Siemens- specific commands	Function
33	AT^SPBS	Select a telephone book (including Siemens-specific books)
33	AT^SDLD	Delete the "last number redial" memory"
34	AT^SPBC	Seek the first entry in the sorted telephone book which begins with the selected (or next available) letter
34	AT^SPBG	Read entry from the sorted telephone book via the sorted index
35	AT^SLCK	Switch locks (including user-defined locks) on and off
35	AT^SPWD	Change password to a lock (including user-defined locks)
36	AT^SACM	Output ACM (accumulated call meter) and ACMmax
36	AT^SPLM	Read the PLMN
36	AT^SPLR	Read an entry from the preferred-operator list
36	AT^SPLW	Write an entry to the preferred-operator list
37	AT^SCNI	Output call number information
37	AT^SNFV	Set the volume
37	AT^SNFS	Select NF hardware
38	AT^SRTC	Set the ringing tone
38	AT^SCID	Output card ID
38	AT^SCKS	Output SIM card status
39	AT^SPIC	Output PIN counter
39	AT^SMGO	SMS overflow indicator
40	AT^SMGL	List SMS (without status change from <i>unread</i> to <i>read</i> )
40	AT^SMGR	Read SMS record without Changing unread->read
40	AT^SMSO	Switch device off
41	AT^SLNG	Language settings
41	AT^SSTK	SIM Toolkit
41	AT^SBNW	Binary Write
43	AT^SBNR	Binary Read

## **1.2. AT Command Set**

Remote control operation of the GSM mobile telephone runs via a serial interface (data cable or infrared connection), where AT+C commands according to ETSI GSM 07.07 and GSM 07.05 specification as well as several manufacturer specific AT commands are available. These commands are described in more detail later on.

The modem guideline V.25ter applies to the sequence of the interface commands. According to this guideline, commands should begin with the character string "AT" and end with "<CR>" (= 0x0D). The input of a command is acknowledged by the display of "OK" or "ERROR". **A command currently in process is interrupted by each additional character entered.** This means that you should not enter the next command until you have received the acknowledgment; otherwise the current command is interrupted.

The commands supported are listed in the following tables:

**1.2.1. Hayes-Standard Commands**

The Hayes-standard commands correspond to the commands of AT Hayes-compatible modems.

Command	Function
A/	Repeat last command
AT...	Prefix for all other commands
ATA	Accept call
ATD<str>;	Dial the dialing string <str> with the voice utility Valid dial modifiers: "T" (tone dialing), "P" (pulse dialing) is ignored. The character ";" is important, for this tells the phone that the call should be set up with the voice utility. Otherwise an attempt is made to set up a data call, which the phone immediately acknowledges with "ERROR". The dial command responds with OK to the user right after starting a voice call. Other behavior like *# sequences in the dial command and also data calls remain unchanged.
ATD><n>;	Dial the telephone number from the current telephone book location number <n> The telephone book is selected with the command at+cpbs (or at^spbs).
ATD><mem><n>;	Dial the telephone number from the telephone book <mem> location number <n>
ATDL	Dial last telephone number
ATE0	Deactivate command echo
ATE1	Activate command echo
ATH[0]	Separate connection
ATQ0	Display acknowledgments
ATQ1	Suppress acknowledgments
ATV0	Output acknowledgments as numbers
ATV1	Output acknowledgments as text
AT&F[0]	Reset to factory profile
ATZ	Set to default configuration
AT+GCAP	Output the capabilities list

**1.2.2. Acknowledgments for Normal Data Communication**

Response	Numeric	Meaning
OK	0	Command executed, no errors
RING	2	Ring detected
NO CARRIER	3	Link not established or disconnected
ERROR	4	Invalid command or command line too long
NO DIALTONE	6	No dial tone, dialing impossible, wrong mode
BUSY	7	Remote station busy

**1.3. AT Commands and Responses According to GSM 07.07 and GSM 07.05**

According to GSM, it is possible to execute an AT command in various forms.

Test command	AT+CXXX=?	The telephone responds by sending the list of parameters and value ranges; these can be set using the affiliated Write command or by means of internal processes.
Read command	AT+CXXX?	This command tells you the current value setting of the parameter(s).
Write command	AT+CXXX=<...>	This command is used to set parameters that can be set.
Execute command	AT+CXXX	The Execute command reads non-settable parameters which are influenced by internal processes in the telephone.

**1.3.1. AT Cellular Commands According to GSM 07.07**

<b>AT+CGMI</b>		<b>Issue manufacturer ID code</b>
Test command <b>AT+CGMI=?</b>	Response OK	
Execute command <b>AT+CGMI</b>	Response <manufacturer>  Parameter <manufacturer>    Name of manufacturer (SIEMENS)	<b>Important:</b> There is a leading output prefix +CGMI in models before the S25.

<b>AT+CGMM</b>		<b>Issue model ID code</b>
Test command <b>AT+CGMM=?</b>	Response OK	
Execute command <b>AT+CGMM</b>	Response <model>  Parameter <model>    Name of telephone (MOBILE)	<b>Important:</b> There is a leading output prefix +CGMM in models before the S25.

<b>AT+CGMR</b>		<b>Output the GSM telephone version</b>
Test command <b>AT+CGMR=?</b>	Response OK	
Execute command <b>AT+CGMR</b>	Response <revision>  Parameter <revision>            Version of the telephone software	<b>Important:</b> There is a leading output prefix +CGMR in models before the S25.

AT+CGSN		Output the serial number (IMEI)
Test command <b>AT+CGSN=?</b>	Response OK	
Execute command <b>AT+CGSN</b>	Response <sn> Parameter <sn>	IMEI of the telephone
<b>Important:</b> There is a leading output prefix +CGMI in models before the S25.		

AT+GSN		Output the serial number (IMEI)
Test command <b>AT+GSN=?</b>	Response OK	
Execute command <b>AT+GSN</b>	Response +GSN: <sn> Parameter <sn>	IMEI of the telephone
<b>Important:</b> The output prefix +GSN may be missing in future versions.		

AT+CHUP		Terminate call
Test command <b>AT+CHUP=?</b>	Response OK	
Execute command <b>AT+CHUP</b>	Response OK/ERROR	
	Description:	All active calls and all calls on hold are terminated.

AT+CEER		Query the reason for disconnection of last call
Test command <b>AT+CEER=?</b>	Response OK	
Execute command <b>AT+CEER</b>	Response +CEER: <report> Parameter <report>	Disconnection reason reported as number



<b>AT+CREG</b>		<b>Network registration</b>	
Test command <b>AT+CREG=?</b>	Response <b>+CREG: (list of supported &lt;n&gt;s)</b> <b>OK/ERROR/+CME ERROR</b>		
	Parameter <b>&lt;n&gt;</b>	0	Suppresses the unexpected network-status messages
		1	Displays the unexpected network-status messages OK/ERROR/+CME ERROR
Read command <b>AT+CREG?</b>	Response <b>+CREG: &lt;n&gt;,&lt;stat&gt;[,&lt;lac&gt;,&lt;ci&gt;]</b> <b>OK/ERROR/+CME ERROR</b>		
	Parameter <b>&lt;n&gt;</b>	See Test command	
	<b>&lt;stat&gt;</b>	0	Not checked in, not seeking
		1	Checked in
		2	Not checked in, but seeking a network
		3	Check-in denied by network
		4	Unknown
		5	Registered, roaming
	<b>&lt;lac&gt;</b>	Hexadecimal 2-byte string type of location area code	
	<b>&lt;ci&gt;</b>	Hexadecimal 2-byte string type of cell ID	
Write command <b>AT+CREG=&lt;n&gt;</b>	Parameter <b>&lt;n&gt;</b>	See Test command	
	Response <b>OK/ERROR/+CME ERROR</b>		
	Unexpected message <b>+CREG: &lt;stat&gt;</b>		

<b>AT+COPS</b>		<b>Commands concerning selection of network operator</b>	
Test command <b>AT+COPS=?</b>	Response <b>+COPS: [list of supported (&lt;stat&gt;,long alphanumeric &lt;oper&gt;,,numeric &lt;oper&gt;)s][,,( list of supported &lt;mode&gt;s),( list of supported &lt;format&gt;s)]</b> <b>OK/ERROR/+CME ERROR</b>		
	Parameter <b>&lt;stat&gt;</b>	0	Unknown
		1	Useful network operator
		2	Used network operator
		3	Prohibited network operator
	<b>&lt;oper&gt;</b>	Operator in the format according to <mode>	
	<b>&lt;mode&gt;</b>	0	Automatic mode
		1	Manual selection of network operator
		3	Setting of format
		4	Automatic, manual selected
	<b>&lt;format&gt;</b>	0	Long alphanumeric
		2	Numeric <oper>
Read command <b>AT+COPS?</b>	Response <b>+COPS: &lt;mode&gt;[,&lt;format&gt;,&lt;oper&gt;]</b> <b>OK/ERROR/+CME ERROR</b>		
	Parameter <b>&lt;mode&gt;</b>	See Test command	
	<b>&lt;format&gt;</b>	See Test command	
	<b>&lt;oper&gt;</b>	Network operator	
Write command <b>AT+COPS=&lt;mode&gt; [,&lt;format&gt;[,&lt;oper&gt;]]</b>	Parameter <b>&lt;mode&gt;</b>	See Test command	
	<b>&lt;format&gt;</b>	See Test command	
	<b>&lt;oper&gt;</b>	If <mode> = 1, <format> can only = 2 In numeric form only	
	Response		

OK/ERROR/+CME ERROR

AT+CLCK	Switch locking on and off <b>Revision to GSM 07.07 according to CR TDOC ETSI/SMG4 187/96</b>
<p>Test command <b>AT+CLCK=?</b></p>	<p>Response +CLCK: (list of supported &lt;fac&gt;s) OK/ERROR/+CME ERROR</p> <p>Parameter &lt;fac&gt;</p> <ul style="list-style-type: none"> <li>"CS" Keyboard lock</li> <li>"PS" Phone locked to SIM (device code)</li> <li>"SC" SIM card (PIN)</li> <li>"FD" FDN lock</li> <li>"AO" BAOC (bar all outgoing calls)</li> <li>"OI" BOIC (bar outgoing international calls)</li> <li>"OX" BOIC-exHC (bar outgoing international calls except to home country)</li> <li>"AI" BAIC (bar all incoming calls)</li> <li>"IR" BIC-Roam (bar incoming calls when roaming outside the home country)</li> <li>"AB" All Barring services</li> <li>"AG" All outgoing barring services</li> <li>"AC" All incoming barring services</li> </ul>
<p>Write command <b>AT+CLCK=&lt;fac&gt;, &lt;mode&gt;[, &lt;passwd&gt; [,&lt;class&gt;]]</b></p>	<p>Parameter</p> <ul style="list-style-type: none"> <li>&lt;fac&gt; See Test command</li> <li>&lt;mode&gt; 0 Cancels lock</li> <li>1 Activates lock</li> <li>2 Queries lock status</li> <li>&lt;passwd&gt; Password</li> <li>&lt;class&gt; 1 Voice</li> <li>2 Data</li> <li>4 Fax</li> <li>7 All classes (default value)</li> </ul> <p>Response If &lt;mode&gt;=2 and command is successful +CLCK: &lt;status&gt;[,&lt;class1&gt;[&lt;CR&gt;&lt;LF&gt; +CLCK: &lt;status&gt;, class2....]]</p> <p>Parameter</p> <ul style="list-style-type: none"> <li>&lt;status&gt; 0 Off</li> <li>1 On</li> </ul> <p>OK/ERROR/+CME ERROR</p>

AT+CPWD	Change password to a lock
<p>Test command <b>AT+CPWD=?</b></p>	<p>Response +CPWD: list of supported (&lt;fac&gt;, &lt;pwdlength&gt;)s OK/ERROR/+CME ERROR</p> <p>Parameter</p> <ul style="list-style-type: none"> <li>&lt;fac&gt; "P2" PIN2</li> <li>otherwise See Test command for AT+CLCK command, without "FD"</li> <li>&lt;pwdlength&gt; Password length</li> </ul>
<p>Write command <b>AT+CPWD= &lt;fac&gt;, &lt;oldpwd&gt;, &lt;newpwd&gt;</b></p>	<p>Parameter</p> <ul style="list-style-type: none"> <li>&lt;fac&gt; See Test command for AT+CLCK command</li> <li>&lt;oldpwd&gt;, &lt;newpwd&gt; Old and new password</li> </ul> <p>Response OK/ERROR/+CME ERROR</p>

<b>AT+CLIP</b>		<b>Display telephone number of calling party</b>	
Test command <b>AT+CLIP=?</b>	Response <b>+CLIP:</b> (list of supported <n>s) <b>OK/ERROR/+CME ERROR</b>	Parameter <n>	0 Suppresses the unexpected messages 1 Displays the unexpected messages
Read command <b>AT+CLIP?</b>	Response <b>+CLIP:</b> <n>, <m> <b>OK/ERROR/+CME ERROR</b>	Parameter <n> <m>	See Test command 0 CLIP not booked 1 CLIP booked 2 Unknown
Write command <b>AT+CLIP=[&lt;n&gt; &lt;m&gt;]</b>	Parameter <n>  Response <b>OK/ERROR/+CME ERROR</b>	See Read command	
	Unexpected message <b>+CLIP:</b> <num>,<type>	Telephone number of caller	

<b>AT+CCFC</b>		<b>Call forwarding</b>	
Test command <b>AT+CCFC=?</b>	Response <b>+CCFC:</b> (list of supported <reas>s) <b>OK/ERROR/+CME ERROR</b>	Parameter <reas>	0 Always 1 If busy 2 If no answer 3 If not available 4 All reasons (0-3) 5 All conditional reasons (1-3)
Write command <b>AT+CCFC=&lt;reas&gt;, &lt;mode&gt;[, &lt;num&gt; &lt;type&gt;[, &lt;class&gt; &lt;time&gt;]]]</b>	Parameter <reas> <mode>  <num> <type> <class>  <time> Response If <mode>=2 and command is successful <b>+CCFC:</b> <status>, <class1>[, <num>, <type>[,,, <time>]]][<CR><LF>+CCFC: ....] <b>OK/ERROR/+CME ERROR</b>	See Test command 0 Deactivate 1 Activate 2 Query 3 Install 4 Delete Telephone number Type of telephone number 1 Voice 2 Data 4 Fax 7 All classes 1-30 Time, rounded to a multiple of five seconds	
	Parameter <status>	0 Not active 1 Active	

<b>AT+CHLD</b>		<b>Call hold and multiparty</b>																			
Test command <b>AT+CHLD=?</b>	Response <b>+CHLD:</b> (list of supported <n>s) <b>OK/ERROR/+CME ERROR</b>																				
Write command <b>AT+CHLD=</b> <b>[&lt;n&gt;]</b>	Parameter <table border="0"> <tr> <td>&lt;n&gt;</td> <td>0</td> <td>Terminates all held calls or sets UDUB (<b>U</b>ser <b>D</b>etermined <b>U</b>ser <b>B</b>usy) for a waiting call</td> </tr> <tr> <td></td> <td>1</td> <td>Terminates all active calls (if there are any) and accepts the other call (waiting call or held call)</td> </tr> <tr> <td></td> <td>1X</td> <td>Terminates call number X (X= 1-7)</td> </tr> <tr> <td></td> <td>2</td> <td>Puts all active calls on hold (if there are any) and accepts the other call (waiting call or held call) as active</td> </tr> <tr> <td></td> <td>2X</td> <td>Puts all active calls except call X (X= 1-7) on hold</td> </tr> <tr> <td></td> <td>3</td> <td>Connects the call put on hold to the active call</td> </tr> </table> <p>For terminating Terminating all calls except waiting calls is done with "AT+CHUP"</p> <p><b>Note:</b> Command scope depends on the SIM clearing and/or on the network support</p>	<n>	0	Terminates all held calls or sets UDUB ( <b>U</b> ser <b>D</b> etermined <b>U</b> ser <b>B</b> usy) for a waiting call		1	Terminates all active calls (if there are any) and accepts the other call (waiting call or held call)		1X	Terminates call number X (X= 1-7)		2	Puts all active calls on hold (if there are any) and accepts the other call (waiting call or held call) as active		2X	Puts all active calls except call X (X= 1-7) on hold		3	Connects the call put on hold to the active call	Response <b>OK/ERROR/+CME ERROR</b>	
<n>	0	Terminates all held calls or sets UDUB ( <b>U</b> ser <b>D</b> etermined <b>U</b> ser <b>B</b> usy) for a waiting call																			
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	2X	Puts all active calls except call X (X= 1-7) on hold																			
	3	Connects the call put on hold to the active call																			

<b>AT+CPAS</b>		<b>Query the telephone status</b>										
Test command <b>AT+CPAS=?</b>	Response <b>+CPAS:</b> (list of supported <pas>s) <b>OK/ERROR/+CME ERROR</b>	Parameter <table border="0"> <tr> <td>&lt;pas&gt;</td> <td>0</td> <td>Ready</td> </tr> <tr> <td></td> <td>3</td> <td>Incoming call (phone is ringing)</td> </tr> <tr> <td></td> <td>4</td> <td>Call is active</td> </tr> </table>	<pas>	0	Ready		3	Incoming call (phone is ringing)		4	Call is active	
<pas>	0	Ready										
	3	Incoming call (phone is ringing)										
	4	Call is active										
Execute command <b>AT+CPAS</b>	Response <b>+CPAS:</b> <pas> <b>OK/ERROR/+CME ERROR</b>	Parameter <table border="0"> <tr> <td>&lt;pas&gt;</td> <td>See Test command</td> </tr> </table>	<pas>	See Test command	Response <b>OK/ERROR/+CME ERROR</b>							
<pas>	See Test command											

<b>AT+CPIN</b>		<b>Enter PIN and query lock</b>	
Test command <b>AT+CPIN=?</b>	Response OK		
Read command <b>AT+CPIN?</b>	Response <b>+CPIN: &lt;code&gt;</b> OK/ERROR/+CME ERROR Parameter <b>&lt;code&gt;</b> READY                   No further input necessary SIM PIN                   SIM PIN input necessary SIM PUK                   SIM PUK input necessary PH-SIM PIN               Device-code (theft protection) input necessary PH-SIM PUK               Device-code PUK (theft protection) input necessary SIM PIN2                  PIN2, e.g. for editing the FDN book; only possible if previous command was acknowledged with +CME ERROR:17  SIM PUK2                  Only possible if previous command was acknowledged with error +CME ERROR:18  The required error message can (must) be provoked by an attempted Write command.		
Write command <b>AT+CPIN=&lt;pin&gt;</b> <b>[,&lt;new pin&gt;]</b>	Parameter <b>&lt;pin&gt;</b> Password for appropriate lock; if the lock is a PUK, then a <b>&lt;new pin&gt;</b> New password for the lock Response OK/ERROR/+CME ERROR		

<b>AT+CBC</b>		<b>Battery charge</b>	
Test command <b>AT+CBC=?</b>	Response <b>+CBC: (list of supported &lt;bcs&gt;s),(list of supported &lt;bcl&gt;s)</b> OK/ERROR/+CME ERROR Parameter <b>&lt;bcs&gt;</b> 0            ME is supplied from battery 1            ME has battery but is not supplied from there 2            ME has no battery connected 3            Error <b>&lt;bcl&gt;</b> 0            Battery is flat, but no more actions possible 1-100   charge in per cent		
Execute command <b>AT+CBC</b>	Response <b>+CBC: &lt;bcs&gt;,&lt;bcl&gt;</b>		

AT+CSQ	Output signal quality
Test command <b>AT+CSQ=?</b>	Response +CSQ: (list of supported <rssi>S), list of supported <ber>) OK/ERROR/+CME ERROR Parameter <rssi>                      Reception level: 0        -113 dBm or less 1        -111 dBm 2-30   -109 to -53 dBm 31       -51 dBm or more 99       Unknown  <ber>                              Bit error rate: 0-7     Like RXQUAL values from Table GSM 05.08 in Section 8.2.4 99       Unknown
Execute command <b>AT+CSQ</b>	Response +CSQ: <rssi>, <ber> OK/ERROR/+CME ERROR Parameter <rssi>                              See Test command <ber>                                See Test command

AT+CPBS	Select a telephone book
Test command <b>AT+CPBS=?</b>	Response +CPBS: (list of supported <sto>s) OK/ERROR/+CME ERROR Parameter <sto>                      "FD"    SIM fix-dialing phonebook "SM"    SIM phonebook "ME"    ME phonebook "DC"    ME Dialed Calls List "ON"    SIM (or ME) own numbers (MSISDNs) list "LD"    SIM last-dialling phonebook "MC"    ME missed (unanswered received) calls list "RC"    ME received calls list  *For description of telephone-book features, see <i>Appendix A</i>  <b>Note:</b> "DC" and "LD" are never both available.
Read command <b>AT+CPBS?</b>	Response +CPBS: <sto> OK/ERROR/+CME ERROR Parameter <sto>                              See Test command
Write command <b>AT+CPBS=&lt;sto&gt;</b>	Parameter <sto>                              See Test command Response OK/ERROR/+CME ERROR

AT+CPBR		Read a telephone-book entry
Test command <b>AT+CPBR=?</b>	Response +CPBR: (list of supported <index>s), <nlength>, <tlength> OK/ERROR/+CME ERROR Parameter <index>                      Location number <nlength>                    Max. length of telephone number <tlength>                      Max. length of text corresponding to the number	
Write command <b>AT+CPBR=                      &lt;index1&gt;                      [,&lt;index2&gt;]</b>	Response +CPBR: <index1>, <nummer>, <typ>, <text>[<CR><LF> +CPBR: ..... +CPBR: <index2>, <nummer>, <typ>, <text>] OK/ERROR/+CME ERROR Parameter <index1>                      Location number where the read of the entry starts <index2>                      Location number where the read of the entry ends <nummer>                      Telephone number <typ>                          Type of number <text>                          Text corresponding to the telephone number <b>NOTE:</b> In the <text> field, there may appear special characters like `"' (0x22), `@` (0x00), `ð` (0x08), `Ö` (0x5c). (See also +CPBW and <i>Appendix A: Special hints for using +CPBR/+CPBW command</i> )  In models before the S25, empty phonebook records are reported as follows: <b>+CPBR: &lt;index1&gt;,empty</b> In S25ff, those empty entries don't produce any output.	

AT+CPBW		Write a telephone-book entry																													
Test command <b>AT+CPBW=?</b>	Response +CPBW: (list of supported <index>s), <nlength>,(list of supported <type>s), <tlength> OK/ERROR/+CME ERROR Parameter <index>                      Location number <nlength>                    Max. length of telephone number <tlength>                      Max. length of text corresponding to the number																														
Write command <b>AT+CPBW=                      [&lt;index&gt;]                      [,&lt;nummer&gt;                      [,&lt;typ&gt;[,&lt;text&gt;]]]</b>	Parameter <index>                      Location number at which the entry is written <nummer>                      Telephone number <typ>                          Type of number <text>                          Text corresponding to the telephone number Response OK/ERROR/+CME ERROR Note:                          The following characters in <text> must be entered via the escape sequence (see also <i>Appendix A: Special hints for using                      +CPBR/+CPBW command</i> )  <table border="1"> <thead> <tr> <th>GSM Char</th> <th>Hex char.</th> <th>ASCII</th> <th>GSM Esc Seq</th> <th>Seq.(hex)</th> <th>Note</th> </tr> </thead> <tbody> <tr> <td>Ö</td> <td>5C</td> <td>\</td> <td>Ö5C</td> <td>5C 35 43</td> <td>Backslash</td> </tr> <tr> <td>"</td> <td>22</td> <td>"</td> <td>Ö22</td> <td>5C 32 32</td> <td>String delim</td> </tr> <tr> <td>ð</td> <td>08</td> <td>BSP</td> <td>Ö08</td> <td>5C 30 38</td> <td>Backspace</td> </tr> <tr> <td>@</td> <td>00</td> <td>NULL</td> <td>Ö00</td> <td>5C 30 30</td> <td>GSM Null</td> </tr> </tbody> </table> y cause problems on application level when using the function strlen() and should thus be represented by an escape sequence	GSM Char	Hex char.	ASCII	GSM Esc Seq	Seq.(hex)	Note	Ö	5C	\	Ö5C	5C 35 43	Backslash	"	22	"	Ö22	5C 32 32	String delim	ð	08	BSP	Ö08	5C 30 38	Backspace	@	00	NULL	Ö00	5C 30 30	GSM Null
GSM Char	Hex char.	ASCII	GSM Esc Seq	Seq.(hex)	Note																										
Ö	5C	\	Ö5C	5C 35 43	Backslash																										
"	22	"	Ö22	5C 32 32	String delim																										
ð	08	BSP	Ö08	5C 30 38	Backspace																										
@	00	NULL	Ö00	5C 30 30	GSM Null																										

AT+CMEE	Expanded error messages according to GSM 07.07
Test command <b>AT+CMEE=?</b>	Response +CMEE: (list of supported <n>s) Parameter <n>            0        Suppresses the expanded error format 1        Expanded error messages as number 2        Expanded error messages as text
Read command <b>AT+CMEE?</b>	Response +CMEE: <n> Parameter <n>                                    See Read command
Write command <b>AT+CMEE=&lt;n&gt;</b>	Parameter <n>                                    See Read command Response OK/ERROR/+CME ERROR
	Description: <b>The following CME errors are possible:</b> 0                    PHONE FAILURE 1                    NO CONNECTION TO PHONE 2                    PH-TA LINK RESERVED 3                    OPERATION NOT ALLOWED 4                    OPERATION NOT SUPPORT 5                    PH-SIM PIN REQUIRED 10                   SIM NOT INSERTED 11                   SIM PIN REQUIRED 12                   SIM PUK REQUIRED 13                   SIM FAILURE 14                   SIM BUSY 15                   SIM WRONG 16                   INCORRECT PASSWORD 17                   SIM PIN2 REQUIRED 18                   SIM PUK2 REQUIRED 20                   MEMORY FULL 21                   INVALID INDEX 22                   NOT FOUND 23                   MEMORY FAILURE 24                   TEXT TOO LONG 25                   INV CHAR IN TEXT 26                   DIAL STRING TOO LONG 27                   INV CHAR IN DIAL 30                   NO NETWORK SERVICE 31                   NETWORK TIMEOUT  100                  UNKNOWN  512                  CALL BARRED BY BLACKLIST 513                  PHONE LINK RESERVED 514                  INVALID DIAL STRING 515                  PHONE BUSY  550                  PH-SIM PUK REQUIRED 551                  NTF-SIM PIN REQUIRED 552                  NTF-SIM PUK REQUIRED 553                  PH-NET PIN REQUIRED 554                  PH-NET PUK REQUIRED 555                  PH-SP PIN REQUIRED 556                  PH-SP PUK REQUIRED 557                  PH-CP PIN REQUIRED 558                  PH-CP PUK REQUIRED 559                  FEATURE PIN REQUIRED



	560	FEATURE PUK REQUIRED
	The following CMS errors have been defined for SMS:	
	300	ME failure
	301	SMS service of ME reserved
	302	operation not allowed
	303	operation not supported
	304	invalid PDU parameter
	305	invalid TEXT mode
	310	SIM not inserted
	311	SIM PIN necessary
	312	PH-SIM PIN necessary
	313	SIM failure
	314	SIM busy
	315	SIM wrong
	320	memory failure
	321	invalid memory failure
	322	memory full
	330	SMSC address unknown
	331	no network service
	332	network timeout
	340	NO +CNMA ACK EXPECTED
	500	unknown error

AT+VTS	Send a DTMF tone
<small>Test command</small> <b>AT+VTS=?</b>	<small>Response</small> (list of supported <dtmf>s), (list of supported <duration>s) OK/ERROR/+CME ERROR <small>Parameter</small> <dtmf>                    0-9,#,*,A-D, exactly one character <duration>                Duration of tone in (duration/10) seconds
<small>Write command</small> <b>AT+VTS=</b> <b>&lt;dtmf&gt;</b> <b>[,&lt;duration&gt;]</b> or <b>AT+VTS=</b> <b>&lt;dtmf-string&gt;</b>	<small>Parameter</small> <dtmf> <b>One</b> character from the list, see Test command<duration> See Test command <dtmf-string> max. 29 characters in quotation marks ("..."), then a duration cannot be specified  <small>Response</small> OK/ERROR/+CME ERROR  <b>Important:</b> There is a leading output prefix +VTS in models before the S25.

<b>AT+VTD</b>		<b>Set duration of a DTMF tone</b>	
Test command <b>AT+VTD=?</b>	Response +VTD: (list of supported <duration>s) OK/ERROR/+CME ERROR	Parameter <duration>	1-255 Duration of tone in (duration/10) seconds
Read command <b>AT+VTD?</b>	Response +VTD: <duration> OK/ERROR/+CME ERROR		
Write command <b>AT+VTD= &lt;duration&gt;</b>	Parameter <duration>	See Test command	
	Response OK/ERROR		
<b>Important:</b> There is a leading output prefix +VTD in models before the S25.			

<b>AT+WS46</b>		<b>Select wireless network</b>	
Test command <b>AT+WS46=?</b>	Response (list of supported <n>s) OK		
Read command <b>AT+WS46?</b>	Response <n> OK/ERROR/+CME ERROR	Parameter <n>	Integer; WDS side stack 12 GSM digital cellular
Write command <b>AT+WS46=[&lt;n&gt;]</b>	Response OK/ERROR/+CME ERROR		
<b>Important:</b> There is a leading output prefix +WS46 in models before the S25.			

<b>AT+CSCS</b>		<b>Select TE character set</b>	
Test command <b>AT+CSCS=?</b>	Response +CSCS: (list of supported <chset>s) OK		
Read command <b>AT+CSCS?</b>	Response +CSCS: <chset> OK/ERROR/+CME ERROR	Parameter <chset>	String; determines which TE character set is used
Write command <b>AT+CSCS= [&lt;chset&gt;]</b>	Response OK/ERROR/+CME ERROR		

<b>AT+CAOC</b>		<b>Advice of charge</b>	
Test command <b>AT+CAOC=?</b>	Response <b>+CAOC:</b> (list of supported <mode>s) Parameter <mode>      0      query CCM value		
Read command <b>AT+CAOC?</b>	Response <b>+CAOC:</b> <mode> Parameter <mode>      0      See Test command		
Write command <b>AT+CAOC=&lt;mode&gt;</b>	Response <b>OK</b> Parameter <mode>      0      See Test command		
Execute command <b>AT+CAOC</b>	Response <b>+CAOC:</b> <ccm> <b>OK/ERROR/+CME ERROR</b> Parameter <ccm>                      Updated hexadecimal call meter, measured in home units; coding analogous to ACMmax on the SIM		

<b>AT+CSSN</b>		<b>Supplementary service notifications</b>	
<b>Revision according to GSM 07.07 Version 5.0.0</b>			
Test command <b>AT+CSSN=?</b>	Response <b>+CSSN:</b> (list of supported <n>s), (list of supported <m>s) Parameter <n>                      0      Suppresses the +CSSI messages 1      Activates the +CSSI messages <m>                      0      Suppresses the +CSSU messages 1      Activates the +CSSU messages  For supported +CSSI/+CSSU messages, see also 1.3.4. <b>Summary of All UnexpectedMessages</b>		
Read command <b>AT+CSSN?</b>	Response <b>+CSSN:</b> <n>,<m> Parameter <n>                                      See Test command <m>                                      See Test command		
Write command <b>AT+CSSN=&lt;n&gt;[,&lt;m&gt;]</b>	Parameter <n>                                      See Read command <m>                                      See Read command		
	Unexpected message <b>+CSSI:</b> <code1> <b>+CSSU:</b> <code2> Parameter <code1>                      Intermediate result code 3      Waiting call is pending <code2>                      Unsolicited result code 5      Held call was terminated		

AT+CRSM		Restricted SIM access	
Test command <b>AT+CRSM=?</b>	Response OK		
Write command <b>+CRSM=&lt;command&gt; [,&lt;fileid&gt; [,&lt;P1&gt;,&lt;P2&gt;,&lt;P3&gt; [,&lt;data&gt;]]]</b>	Response <b>+CRSM: &lt;sw1&gt;,&lt;sw2&gt;[,&lt;response&gt;] OK/ERROR/+CME ERROR</b>	Parameter <b>&lt;command&gt;:</b>	176 READ BINARY 178 READ RECORD 192 GET RESPONSE 214 UPDATE BINARY 220 UPDATE RECORD 242 STATUS
		<b>&lt;fileid&gt;:</b>	Integer, identifier of the data file on the SIM, mandatory for every command except STATUS (see GSM 11.11)
		<b>&lt;P1&gt;, &lt;P2&gt;, &lt;P3&gt;:</b>	Integer, transferal parameter from ME to SIM, mandatory for every command except GET RESPONSE, STATUS (see GSM 11.11)
		<b>&lt;data&gt;:</b>	Hexadecimal string; information that is to be written to the SIM
		<b>&lt;sw1&gt;, &lt;sw2&gt;:</b>	Integer; information from the SIM as to how/whether the command was executed
		<b>&lt;response&gt;:</b>	Hexadecimal string; given when a command was successfully processed
		<b>Note:</b>	The write access to CK boxes receives only limited support and differs from device to device.

AT+CIMI		Output of IMSI	
Test command <b>AT+CIMI=?</b>	Response OK		
Execute command <b>AT+CIMI</b>	Response <b>&lt;imsi&gt;</b>	Parameter <b>&lt;imsi&gt;</b>	International Mobile Subscriber Identity (IMSI)

<b>AT+CACM</b> Accumulated call meter	
Test command <b>AT+CACM=?</b>	Response OK
Read command <b>AT+CACM?</b>	Response +CACM: <acm> OK/ERROR/+CME ERROR Parameter <acm> Accumulated call meter in hexadecimal format, measured in home units; coding analogous to ACMmax on the SIM
Write command <b>AT+CACM=[&lt;passwd&gt;]</b>	Response OK/ERROR/+CME ERROR Parameter <passwd> String type; usually PIN2

<b>AT+CAMM</b> Accumulated call meter maximum	
Test command <b>AT+CAMM=?</b>	Response OK
Read command <b>AT+CAMM?</b>	Response +CAMM: <acmmax> OK/ERROR/+CME ERROR Parameter <acmmax> Accumulated call meter maximum in hexadecimal format, measured in home units; coding analogous to ACMmax on the SIM
Write command <b>AT+CAMM=[&lt;acmmax&gt;[,&lt;passwd&gt;]]</b>	Response OK/ERROR/+CME ERROR Parameter <acmmax> (see Read command) <passwd> String type; usually PIN2

AT+CLCC	List Current Calls
Test command <b>AT+CLCC=?</b>	Response OK
Execute command <b>AT+CLCC</b>	Response [+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>,<number>,<type>] [<CR><LF>+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>,<number>,<type> [...]]  OK/ERROR/+CME ERROR Parameter <id>x>: integer type; call identification number as described in GSM 02.30 [19] subclause 4.5.5.1; this number can be used in +CHLD command operations <dir>: 0 mobile originated (MO) call 1 mobile terminated (MT) call <stat> (state of the call): 0 active 1 held 2 dialing (MO call) 3 alerting (MO call) 4 incoming (MT call) 5 waiting (MT call) <mode> (bearer/teleservice): 0 voice 1 data 2 fax 3 voice followed by data, voice mode 4 alternating voice/data, voice mode 5 alternating voice/fax, voice mode 6 voice followed by data, data mode 7 alternating voice/data, data mode 8 alternating voice/fax, fax mode 9 unknown <mpty>: 0 call is not one of multiparty (conference) call parties 1 call is one of multiparty (conference) call parties <number>: string type phone number in format specified by <type> <type>: type of address octet in integer format

AT+CCLK	Clock
Test command AT+CCLK=?	Response OK
Read command AT^SCLK?	Response +CCLK: <time> OK/ERROR/+CME ERROR  Parameter: <time>: string type value; format is "yy/MM/dd, hh:mm:ss", where characters indicate year (two last digits), month, day, hour, minutes; E.g. 6th of May 1994, 22:10:00 hours equals to „94/05/06,22:10:00"
Write command AT+CCLK=<time>	Response OK/ERROR/+CME ERROR  Parameter: <time> see Test commnd

AT+COPN	Read operator names
Test command AT+COPN=?	Response OK
Execute command AT+COPN	Response +COPN:numeric <oper>,long alphanumeric <oper><CR><LF> +COPN:..... OK/ERROR/+CME ERROR Parameter <oper> Network operator in numeric and alphanumeric notation see AT^SPLM

AT+CPUC	Price per unit and currency table
Test command AT+CPUC=?	Response OK
Read command AT+CPUC?	Response +CPUC: <currency> , <ppu> OK/ERROR/+CME ERROR Parameter <currency> three-character currency code (e.g. "FRA", "DEM") <ppu> price per unit; dot is used as a decimal separator (e.g. "1.33")
Write command AT+CPUC= <currency>,<ppu>[, <passwd>]	Response OK/ERROR/+CME ERROR  Parameter <passwd> String type; usually PIN2

<b>AT+CALM</b>	<b>Alert sound mode</b>
Test command <b>AT+CALM=?</b>	Response +CALM: (list of supported <mode>s) OK
Read command <b>AT+CALM?</b>	Response +CALM: <mode> OK/ERROR/+CME ERROR
Write command <b>AT+CALM=&lt;mode&gt;</b>	Response OK/ERROR/+CME ERROR Parameter <mode>: 0 normal mode 1 silent mode (all sounds are prevented) 2 beep (only a short beep indicates an incoming call)

<b>AT+CRSL</b>	<b>Ringer sound level</b>
Test command <b>AT+CRSL=?</b>	Response +CRSL: (list of supported <level>s) OK
Read command <b>AT+CRSL?</b>	Response +CRSL: <level> OK/ERROR/+CME ERROR
Write command <b>AT+CRSL=&lt;level&gt;</b>	Response OK/ERROR/+CME ERROR Parameter <level>: Ringer Sound Level

<b>AT+CLVL</b>	<b>Loudspeaker volume level</b>
Test command <b>AT+CLVL=?</b>	Response +CLVL: (list of supported <level>s) OK
Read command <b>AT+CLVL?</b>	Response +CLVL: <level> OK/ERROR/+CME ERROR
Write command <b>AT+CLVL=&lt;level&gt;</b>	Response OK/ERROR/+CME ERROR Parameter <level>: Loudspeaker Volume Level

<b>AT+CMUT</b>	<b>Mute control</b>
Test command <b>AT+CMUT=?</b>	Response +CMUT: (list of supported <n>s) OK
Read command <b>AT+CMUT?</b>	Response +CMUT: <n> OK/ERROR/+CME ERROR
Write command <b>AT+CMUT=&lt;n&gt;</b>	Response OK/ERROR/+CME ERROR Parameter <n>: 0 mute off 1 mute on



AT+CVIB	Vibrator mode
Test command <b>AT+CVIB=?</b>	Response +CVIB: (list of supported <mode>s) OK
Execute command <b>AT+CVIB</b>	Response +CVIB: <mode> OK/ERROR/+CME ERROR
Write command <b>AT+CVIB=&lt;mode&gt;</b>	Response OK/ERROR/+CME ERROR Parameter <mode>: Vibrator mode 0 disable 1 enable 16 vibrate then ring (not available in every model)

**1.3.2. AT Commands According to GSM 07.05 for SMS**

The GSM 07.05 commands are used for operating the SMS functions of the GSM mobile phone. The GSM module MOBILE supports the SMS PDU mode.

AT+CSMS	Selection of message service <b>Revision according to GSM 07.05 Version 5.0.0</b>
Test command <b>AT+CSMS=?</b>	Response +CSMS: (list of supported <service>S) Parameter <service> 0            GSM 3.40 and 3.41 1            GSM 3.40 and 3.41 and compatibility of the AT command syntax for phase 2+  <b>NOTE:</b> Deactivating the phase 2+ compatibility is only possible if the direct output of short messages +CNMI=1,2 or +CNMI=1,3 is not activated. If necessary, the latter should be deactivated first.
Read command <b>AT+CSMS?</b>	Response +CSMS: <service>,<mt>,<mo>,<bm> Parameter <service> 0            GSM 3.40 and 3.41 <mt>                    Mobile terminated messages 1                    Type supported <mo>                    Mobile originated messages 1                    Type supported <bm>                    Broadcast type messages 0                    Type not supported
Write command <b>AT+CSMS= &lt;service&gt;</b>	Parameter <service> 0            GSM 3.40 and 3.41  Response +CSMS: <mt>,<mo>,<bm> OK/ERROR/+CMS ERROR

AT+CPMS	Selection of SMS memory Revision according to GSM 07.05 Version 4.7.0
Test command <b>AT+CPMS=?</b>	Response +CPMS: (list of supported <mem1>s),( list of supported <mem2>s) ,(list of supported <mem3>s) Parameter <mem1> Memory from which messages are read and deleted "SM"      SIM-messages memory <mem2> Memory to which messages are written and sent "SM"      SIM-messages memory <mem3> Memory in which received messages are stored, if forwarding to the PC is not set ("CNMI") "SM"      SIM-messages memory
Read command <b>AT+CPMS?</b>	Response +CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2> ,<mem3>,<used3>,<total3> Parameter <memx> Memory from which messages are read and deleted <usedx> Number of messages currently in <memx> <totalx> Number of storable messages in <memx>
Write command <b>AT+CPMS=                      &lt;mem1&gt;                      [,&lt;mem2&gt;                      [,&lt;mem3&gt;]]</b>	Parameter <mem1> See Test command <mem2> See Test command <mem3> See Test command Response +CPMS: <used1>,<total1>,<used2>,<total3>,<used3>,<total3> OK/ERROR/+CMS ERROR

AT+CMGF	SMS format
Test command <b>AT+CMGF=?</b>	Response +CMGF: (list of supported <mode>s) Parameter <mode>: 0          PDU mode
Read command <b>AT+CMGF?</b>	Response +CMGF: <mode> Parameter <mode>: 0          PDU mode
Write command <b>AT+CMGF=[&lt;                      mode&gt;]</b>	Parameter <mode>: 0          PDU mode Response OK/ERROR

AT+CSCA	Address of the SMS service center
Test command <b>AT+CSCA=?</b>	Response OK
Read command <b>AT+CSCA?</b>	Response +CSCA: <sca>,<tosca>  Parameter <sca>                   Service-center address in string format <tosca>                Service-center address format
Write command <b>AT+CSCA= &lt;sca&gt;[,&lt;tosca&gt;]</b>	Parameter <sca>                   Service-center address in string format <tosca>                Service-center address format  Response OK/ERROR

AT+CNMI	Display new incoming SMS Revision according to GSM 07.05 Version 4.7.0
Test command <b>AT+CNMI=?</b>	Response +CNMI: (list of supported <mode>s),(list of supported <mt>s),(list of supported <bm>s),(list of supported <ds>s),(list of supported <bfr>s)  Parameter <mode> 0           Buffers unexpected messages (but is equivalent to rejecting; see <bfr>) 1           Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved. Otherwise forward them directly to the TE. (only with S25ff) 2           Buffers unexpected messages if serial interface is occupied, otherwise they are output (only models before S25)  <mt>                0           Suppresses unexpected messages for incoming short messages 1           Unexpected messages of a received short message (SMS-DELIVER) that is stored on a chip card are output in the form +CMTI: <mem>,<index> 2           Unexpected messages of a received short message (SMS-DELIVER) (except class 2 and the message "Waiting Indication Group: store message") are output in the form +CMT: [<alpha>],<length><CR><LF><pdu> (<alpha> is not supported) 3           Class 2 and the message "Waiting Indication Group: store message" are output as <mt>=1 3           Unexpected messages of a received short message (SMS-DELIVER) class 3 are output as <mt>=2. Messages with other data coding schemes are output as <mt>=1. <b>NOTE:</b> <mt>=2 and <mt>=3 are not possible unless the Phase 2+ compatibility has been activated by means of +CSMS=1  <bm>                0           Suppresses unexpected messages for incoming cell broadcast messages 2           Outputs unexpected messages for cell broadcast messages in the form +CBM: <length><CR><LF><pdu>  <ds>                0           Suppresses unexpected messages for incoming SMS status reports 2           Outputs unexpected messages for SMS status reports in the form +CDS: <length><CR><LF><pdu>

	<p>&lt;bfr&gt; 1 Buffered unexpected messages are rejected when switching from &lt;mode&gt; 0 to &lt;mode&gt; 2.</p> <p>&lt;mem&gt; See +CPMS</p> <p>&lt;index&gt; Index of the record on the chip card</p> <p>&lt;alpha&gt; alphanumeric representation of the sender address</p> <p>&lt;length&gt; Length of &lt;pdu&gt;</p> <p>&lt;pdu&gt; See +CMGL</p>
<p>Read command</p> <p><b>AT+CNMI?</b></p>	<p>Response</p> <p>+CNMI: &lt;mode&gt;,&lt;mt&gt;,&lt;bm&gt;,&lt;ds&gt;,&lt;bfr&gt;</p> <p>Parameter</p> <p>&lt;mode&gt; See Test command</p> <p>&lt;mt&gt; See Test command</p> <p>&lt;bm&gt; See Test command</p> <p>&lt;ds&gt; See Test command</p> <p>&lt;bfr&gt; See Test command</p>
<p>Write command</p> <p><b>AT+CNMI=</b>  <b>[&lt;mode&gt;</b>  <b>[,&lt;mt&gt;[,&lt;bm&gt;</b>  <b>[,&lt;ds&gt;[,&lt;bfr&gt;]]]]</b>  <b>]</b></p>	<p>Parameter</p> <p>&lt;mode&gt; See Test command</p> <p>&lt;mt&gt; See Test command</p> <p>&lt;bm&gt; See Test command</p> <p>&lt;ds&gt; See Test command</p> <p>&lt;bfr&gt; See Test command</p> <p>Response</p> <p>OK/ERROR/+CMS ERROR</p>
	<p>Unexpected message</p> <p>+CMTI: &lt;mem&gt;,&lt;index&gt; Indication that new message has arrived</p> <p>+CMT: &lt;length&gt;&lt;CR&gt;&lt;LF&gt;&lt;pdu&gt; Direct output of the short message</p> <p>+CDS: &lt;length&gt;&lt;CR&gt;&lt;LF&gt;&lt;pdu&gt; Direct output of the status report</p> <p>+CBM: &lt;length&gt;&lt;CR&gt;&lt;LF&gt;&lt;pdu&gt; Direct output of the cell broadcast message</p>

<b>AT+CNMA</b>	<p>Acknowledgment of a short message directly output (without storing on the chip card)</p> <p><b>Revision according to GSM 07.05 Version 5.0.0</b></p> <p><i>(NOTE: This command is not possible unless the Phase 2+ compatibility has been activated by means of +CSMS=1)</i></p>
<p>Test command</p> <p><b>AT+CNMA=?</b></p>	<p>Response</p> <p>+CNMA: (list of supported &lt;n&gt;s)</p> <p>Parameter</p> <p>&lt;n&gt; 0 Mode of functioning analogous to GSM 07.05 text mode</p>
<p>Write command</p> <p><b>AT+CNMA[=&lt;n&gt;]</b></p>	<p>Parameter</p> <p>&lt;n&gt; See Test command</p> <p>Response</p> <p>OK/ERROR/+CMS ERROR: &lt;err&gt;</p>

AT+CMGL	List SMS Revision according to GSM 07.05 Version 4.7.0
Test command <b>AT+CMGL=?</b>	Response +CMGL: (list of supported <stat>s)  Parameter <stat>  0           "REC UNREAD": received unread messages (default) 1           "REC READ": received read messages 2           "STO UNSENT": stored unsent messages 3           "STO SENT": stored sent messages 4           "ALL":               all messages
Write command <b>AT+CMGL</b> <b>[=&lt;stat&gt;]</b>	Parameter <stat>               See Test command  Response If PDU mode (+CMGF=0) and command are successful: +CMGL:<index>,<stat>,[<alpha>],<length> <CR><LF><pdu>[<CR><LF> +CMGL: <index>,<stat>,[alpha],<length> <CR><LF><pdu><CR><LF> [...]]
	Parameter <pdu>               The PDU begins with the service-center address (according to GSM04.11), followed by the TPDU according to GSM03.40               in hexadecimal format otherwise: +CMS ERROR: <err>

<b>AT+CMGR</b>		<b>Read in an SMS</b> <b>Revision according to GSM 07.05 Version 4.7.0</b>	
Test command <b>AT+CMGR=?</b>	Response OK		
Write command <b>AT+CMGR= &lt;index&gt;</b>	Parameter <index>	Index of message in selected memory <mem1>	
	Response <b>If PDU mode (+CMGF=0) and command are successful:</b> +CMGR: <stat>,[<alpha>],<length><CR><LF><pdu>		
	Parameter <pdu>	Siehe "AT+CMGL"	
	otherwise: +CMS ERROR: <err>		

<b>AT+CMGS</b>		<b>Send an SMS</b>	
Test command <b>AT+CMGS=?</b>	Response OK		
Write command <b>If PDU mode (+CMGF=0)</b> <b>+CMGS=&lt;length&gt;&lt;CR&gt;PDU is given</b> <b>&lt;ctrl-Z/ESC&gt;</b>	Parameter <length>	Length of PDU	
	<pdu>	See "AT+CMGL"	
	<mr>	Message reference	
	Response <b>If sending is successful:</b> +CMGS: <mr>		
	<b>If sending is not successful:</b> +CMS ERROR: <err>		

<b>AT+CMSS</b>		<b>Send an SMS from the SMS memory</b>	
Test command <b>AT+CMSS=?</b>	Response OK		
Write command <b>+CMSS=&lt;index&gt;[,&lt;da&gt;[,&lt;toda&gt;]]</b>	Parameter <index>	Index of message in selected memory <mem1>	
	<da>	Destination address in string format	
	<toda>	Format of destination address	
	<mr>	Message reference	
	Response <b>If sending is successful:</b> +CMSS: <mr>		
	<b>If sending is not successful:</b> +CMS ERROR: <err>		

AT+CMGW		Write an SMS to the SMS memory	
Test command AT+CMGW=?	Response OK		
Write command <b>If PDU mode (+CMGF=0)</b> AT+CMGW=<length>[,<stat>]<CR> <b>PDU is given</b> <ctrl-Z/ESC>	Parameter <length>            Length of PDU <stat>                See command +CMGL <pdu>                 See "AT+CMGL" <index>               Index of message in selected memory <mem1>	Response +CMGW: <index> +CMS ERROR: <err>	

AT+CMGD		Delete an SMS in the SMS memory	
Test command At+CMGD=?	Response OK		
Write command AT+CMGD= <index>	Parameter <index>                Index of message in the selected memory <mem1>	Response OK/ERROR/+CMS ERROR	

AT+CSCB		Select cell broadcast messages	
Test command AT+CSCB=?	Response +CSCB: (list of supported <mode>s)	Parameter <mode>                0     Accepts messages that are defined in <mids> and <dcss> 1     Does not accept messages that are defined in <mids> and <dcss>	
Read command AT+CSCB?	Response +CSCB: <mode>,<mids>,<dcss>	Parameter <mode>                See Test command <mids>                String type; combinations of CBM message IDs <dcss>                String type; combinations of CBM data coding schemes	
Write command AT+CSCB=[<mode>[,<mids>][,<dcss>]]			

AT+CMGC		Send an SMS command	
Test command AT+CMGC=?	Response OK		
Write command <b>If PDU mode (+CMGF=0)</b> +CMGC=<length><CR> <b>PDU is given</b> <ctrl-Z/ESC>	Parameter <length>            Length of PDU <pdu>                See "AT+CMGL" <mr>                 Message reference	Response <b>If sending is successful:</b> +CMGC: <mr> <b>If sending is not successful:</b> +CMS ERROR: <err>	



**1.3.3. User-Defined Commands for Controlling the GSM Mobile Phone**

Since user-defined commands cannot be implemented according to official syntax, the character string "+C" is replaced by "^S" ("^" = 0x5E). For the future: if a user-defined command is accepted in the same syntax in GSM recommendations, the command can be addressed using both command strings.

<b>AT^SPBS</b>		<b>Select a telephone book (including Siemens-specific books)</b>	
Test command <b>AT^SPBS=?</b>	Response ^SPBS: (list of supported <sto>s) OK/ERROR/+CME ERROR Parameter <sto>	"FD" SIM fix-dialing telephone book "SM" SIM telephone book "ME" Telephone book in device "DC" ME Dialed Calls List "ON" Own telephone numbers "LD" SIM last dialing number "MC" ME Missed Calls List "RC" ME Received Calls List  "MD" Last number redial memory in telephone device "OW" Own numbers "BD" Barred dialing numbers "SD" Service dialing numbers "MS" Missed dialing numbers (unanswered calls) "CD" Callback dialing numbers (answered calls) "BL" Blacklist dialing numbers (barred numbers from remote) "MB" Mailbox dialing numbers (network-operator mailbox)  "CS" Common sortable telephone book (sorted combination of "SM", "ME", "FD"; access only via ^SPBC, ^SPBG) "RD" Red book (all entries in "CS" whose name portions have an exclamation point (!) as the final character)	*For a description of the telephone-book features, see Appendix A
Read command <b>AT^SPBS?</b>	Response ^SPBS: <sto> OK/ERROR/+CME ERROR Parameter <sto>	See Test command	
Write command <b>AT^SPBS= &lt;sto&gt;</b>	Parameter <sto>	See Test command	Response OK/ERROR/+CME ERROR

<b>AT^SDLD</b>		<b>Delete the "last number redial" memory</b>	
Test command <b>AT^SDLD=?</b>	Response OK		
Execute command <b>AT^SDLD</b>	Response OK/ERROR/+CME ERROR		

<b>AT^SPBC</b>	Seek the first entry in the sorted telephone book which begins with the selected (or next available) letter
Test command <b>AT^SPBC=?</b>	Response ^SPBC: (list of sorted telephone books supported <mem>s) See AT+CPBS/AT^SPBS OK/ERROR/+CME ERROR
Write command <b>AT^SPBC=&lt;char&gt;</b>	Parameter <char> First letter of sought entry "A" to "Z" (with any other character, the index of the first entry that begins with a special character is sent back) <index> Index in the sorted telephone book (access via AT^SPBG) Response ^SPBC: <index> OK/ERROR/+CME ERROR

<b>AT^SPBG</b>	Read entry from the sorted telephone book via the sorted index
Test command <b>AT^SPBG=?</b>	Response ^SPBG: (list of supported <index>s), <nlength>, <tlength> OK/ERROR/+CME ERROR Parameter <index> Location number <nlength> Max. length of telephone number <tlength> Max. length of the text corresponding to the number
Write command <b>AT^SPBG= &lt;index1&gt; [, &lt;index2&gt;]</b>	Response ^SPBG: <index1>, <nummer>, <typ>, <text>[<CR><CL> ^SPBG: ..... ^SPBG: <index2>, <nummer>, <typ>, <text> ] OK/ERROR/+CME ERROR Parameter <index1> Location number where the read of the entry starts <index2> Location number where the read of the entry ends <nummer> Telephone number <typ> Type of number <text> Text corresponding to the telephone number

AT^SLCK	Switch locks (including user-defined locks) on and off
<p>Test command</p> <p>AT^SLCK=?</p>	<p>Response</p> <p>^SLCK: (list of supported &lt;fac&gt;s) OK/ERROR/+CME ERROR</p> <p>Parameter</p> <p>&lt;fac&gt;</p> <ul style="list-style-type: none"> <li>"PS" Phone locked to SIM (device code)</li> <li>"SC" SIM card (PIN)</li> <li>"FD" FDN lock</li> <li>"AO" BAOC (bar all outgoing calls)</li> <li>"OI" BOIC (bar outgoing international calls)</li> <li>"OX" BOIC-exHC (bar outgoing international calls except to home country)</li> <li>"AI" BAIC (bar all incoming calls)</li> <li>"IR" BIC-Roam (bar incoming calls when roaming outside the home country)</li> <li>"AB" All barring services</li> <li>"AG" All outgoing barring services</li> <li>"AC" All incoming barring services</li> </ul> <ul style="list-style-type: none"> <li>"PN" Network personalization (GSM 02.22)</li> <li>"PC" Corporate personalization (GSM 02.22)</li> <li>"PU" Network subset personalization (GSM 02.22)</li> <li>"PP" Service provider personalization (GSM 02.22)</li> <li>"PF" Phone locked to very first inserted SIM</li> </ul>
<p>Write command</p> <p>AT^SLCK = &lt;fac&gt;, &lt;mode&gt; [,&lt;passwd&gt; [,&lt;class&gt;]]</p>	<p>Parameter</p> <p>&lt;fac&gt; See Test command</p> <p>&lt;mode&gt;</p> <ul style="list-style-type: none"> <li>0 Cancels lock</li> <li>1 Activates lock</li> <li>2 Queries lock status</li> </ul> <p>&lt;passwd&gt; Password</p> <p>&lt;class&gt;</p> <ul style="list-style-type: none"> <li>1 Voice</li> <li>2 Data</li> <li>4 Fax</li> <li>7 All classes (default value)</li> </ul> <p>Response</p> <p><b>If &lt;mode&gt;=2 and command is successful</b></p> <p>^SLCK: &lt;status&gt;[,&lt;class1&gt;[&lt;CR&gt;&lt;LF&gt; ^SLCK: &lt;status&gt;, class2.....]]</p> <p>Parameter</p> <p>&lt;status&gt;</p> <ul style="list-style-type: none"> <li>0 Off</li> <li>1 On</li> </ul> <p>OK/ERROR/+CME ERROR</p>

AT^SPWD	Change password to a lock (including user-defined locks)
<p>Test command</p> <p>AT^SPWD=?</p>	<p>Response</p> <p>^SPWD: list of supported (&lt;fac&gt;, &lt;pwdlength&gt;)s OK/ERROR/+CME ERROR</p> <p>Parameter</p> <p>&lt;fac&gt; "P2" PIN2</p> <p>otherwise See Test command for the command AT^SLCK, without "FD"</p> <p>&lt;pwdlength&gt; Length of password</p>
<p>Write command</p> <p>AT^SPWD = &lt;fac&gt;,&lt;oldpwd&gt;, &lt;newpwd&gt;</p>	<p>Parameter</p> <p>&lt;fac&gt; See Test command for the command AT^SLCK</p> <p>&lt;oldpwd&gt;, &lt;newpwd&gt; Old and new password</p> <p>Response</p> <p>OK/ERROR/+CME ERROR</p>

<b>AT^SACM</b>		<b>Output ACM (accumulated call meter) and ACMmax</b>	
Test command <b>AT^SACM=?</b>	Response ^SACM: (list of supported <n>s)		
Execute command <b>AT^SACM</b>	Response ^SACM: <n>,<acm>,<acm_max> OK/ERROR/+CME ERROR	Parameter <n>	See Test command
		<acm>	Accumulated call meter
		<acm_max>	Maximum accumulated call meter
Write command <b>AT^SACM=&lt;n&gt;</b>	Parameter <n>	0	Suppresses the unexpected message
		1	Outputs the unexpected message

<b>AT^SPLM</b>		<b>Read the PLMN list</b>	
Test command <b>AT^SPLM=?</b>	Response OK		
Execute command <b>AT^SPLM</b>	Response ^SPLM:numeric <oper>,long alphanumeric <oper><CR><LF> ^SPLM:..... OK/ERROR/+CME ERROR	Parameter <oper>	Network operator in numeric and alphanumeric notation

<b>AT^SPLR</b>		<b>Read an entry from the preferred-operator list</b>	
Test command <b>AT^SPLR=?</b>	Response ^SPLR: (list of supported <index>s) OK/ERROR/+CME ERROR	Parameter <index>	Location numbers
Write command <b>AT^SPLR=&lt;index1&gt; [, &lt;index2&gt;]</b>	Response ^SPLR: <index1>, numeric <oper> ^SPLR: ..... ^SPLR: <index2>, numeric <oper> OK/ERROR/+CME ERROR	Parameter <index1> <index2> <oper>	Location number where the read of the entry starts Location number where the read of the entry ends Network operator in numeric form

<b>AT^SPLW</b>		<b>Write an entry to the preferred-operator list</b>	
Test command <b>AT^SPLW=?</b>	Response ^SPLW: (list of supported <index>s) OK/ERROR/+CME ERROR	Parameter <index>	Location number
Write command <b>AT^SPLW=&lt;index&gt;[, &lt;oper&gt;]</b>	Response OK/ERROR/+CME ERROR	Parameter <index> <oper>	Location number at which the entry is written Network operator in numeric form

AT^SCNI	Output call number information
Test command AT^SCNI=?	Response OK
Execute command AT^SCNI	Response ^SCNI: 1[,<cs>[,<number>,<type>]]<CR><LF> ^SCNI: 2[,<cs>[,<number>,<type>]]<CR><LF> ^SCNI: 3[,<cs>[,<number>,<type>]]<CR><LF> ^SCNI: 4[,<cs>[,<number>,<type>]]<CR><LF> ^SCNI: 5[,<cs>[,<number>,<type>]]<CR><LF> ^SCNI: 6[,<cs>[,<number>,<type>]]<CR><LF> ^SCNI: 7[,<cs>[,<number>,<type>]]  OK/ERROR/+CME ERROR Parameter <cs>            Call status of affiliated call number ( first parameter) 0        Call on hold 1        Active call 2        Waiting call <number>       Telephone number <type>          Type of number

AT^SNFV	Set the volume
Test command AT^SNFV=?	Response ^SNFV: (list of supported <vol>s) Parameter <vol>                            Value range of volume (0 to 4) (0 low, ..., 4 max. volume; approx. 3 dB/level)
Read command AT^SNFV?	Response ^SNFV: <vol> Parameter <vol>                            See Test command
Write command AT^SNFV=<vol>	Parameter <vol>                            See Test command Response OK/ERROR

AT^SNFS	Select NF hardware
Test command AT^SNFS=?	Response ^SNFS: (list of supported <dev>s) Parameter <dev>                            0 Cell phone mode 1 Handsfree
Read command AT^SNFS?	Response ^SNFS: <dev> Parameter <dev>                            See Test command <b>Note:</b> Volume should be temporarily set to „0“ before NF hardware is changed.
Write command AT^SNFS=<dev>	Parameter <dev>                            See Test command Response OK/ERROR

AT^SRTC		Set the ringing tone	
Test command AT^SRTC=?	Response ^SRTC: (list of supported <type>s), (list of supported <vol>s)	Parameter <type>	1-X Number of ringing tone 0 Mutes the ringing tone; when MTC is set, the phone does not ring and the volume is ignored
		<vol>	0-Y Volume of ringing tone
Read command AT^SRTC?	Response ^SRTC: <type>, <vol>, <ringing>	Parameter <type>	See Test command
		<vol>	See Test command
		<ringing>	0 Test-ring is switched off 1 Test-ring is switched on
Write command AT^SRTC=[<type>][,<vol>]	Parameter <type> <vol>		See Test command See Test command
	Response OK/ERROR		
Execute command AT^SRTC	Response The ringing tone sounds on the current NF device; it is selected using "AT+CNFS" until AT^SRTC is called up again OK/ERROR/+CME ERROR <b>Note:</b> If an MTC arrives while the test-ring is active, the latter is switched off and the "normal" ring is switched on.		

AT^SCID		Output card ID	
Test command AT^SCID=?	Response OK/ERROR/+CME ERROR		
Execute command AT^SCID	Response ^SCID: <cid> OK/ERROR/+CME ERROR	Parameter <cid>	Number of SIM card

AT^SCKS		Output SIM card status	
Test command AT^SCKS=?	Response ^SCKS: (list of supported <n>s)	Parameter <n>	0 Suppresses the unexpected messages 1 Outputs the unexpected messages
Read command AT^SCKS?	Response ^SCKS: <n>, <m>	Parameter <m>	0 No card 1 Card in card reader
Write command AT^SCKS=<n>	Parameter <n>		See Test command
	Response OK/ERROR		
	Unexpected message ^SCKS: <m> See Read command		

<b>AT^SPIC</b>	<b>Output PIN counter</b>
Test command <b>AT^SPIC=?</b>	Response OK/ERROR/+CME ERROR
Execute command <b>AT^SPIC</b>	Response ^SPIC: <counter> OK/ERROR/+CME ERROR Parameter <counter>                      Number of tries still available to enter the <passwd. The command "AT+CPIN?" must be used to check which password is currently needed.

<b>AT^SMGO</b>	<b>SMS overflow indicator</b>
Test command <b>AT^SMGO=?</b>	Response ^SMGO: (list of supported <n>s) OK/ERROR/+CME ERROR Parameter <n>                              0      Disable 1      Enable
Read command <b>AT^SMGO?</b>	Response ^SMGO: <n>,<mode> OK/ERROR/+CME ERROR
	Parameter <n>                              See Test command <mode>                      0      Space still available 1      SMS buffer is full (chip card) 2      Buffer is full and new message that should be sent to the telephone is present in the SC
Write command <b>AT^SMGO=&lt;n&gt;</b>	Parameter <n>                              See Test command Response OK/ERROR/+CME ERROR
	Unexpected message ^SMGO: <mode> See Read command

<b>AT^SMGL</b>	List SMS (without status change from <i>unread</i> to <i>read</i> ) Revision according to GSM 07.05 Version 4.7.0
Test command <b>AT^SMGL=?</b>	Response <b>^SMGL:</b> (list of supported <stat>s) Parameter <stat> 0 "REC UNREAD": received unread messages (default) 1 "REC READ": received read messages 2 "STO UNSENT": stored unsent messages 3 "STO SENT": stored sent messages 4 "ALL": all messages
Write command <b>AT^SMGL [=&lt;stat&gt;]</b>	Parameter <stat> See Test command  Response <b>If PDU mode (+CMGF=0) and command is successful:</b> ^SMGL: <index>,<stat>,[<alpha>],<length> <CR><LF><pdu> [<CR><LF>^SMGL: <index>,<stat>,[alpha],<length> <CR><LF><pdu> [...]]
	Parameter <pdu> The PDU begins with the service-center address (according to GSM04.11), followed by the TPDU according to GSM03.40 in hexadecimal format  <b>otherwise:</b> +CMS ERROR: <err>

<b>AT^SMGR</b>	Read SMS record without Changing unread->read <b>Syntax like AT+CMGR</b>
Test command <b>AT^SMGR=?</b>	Response OK
Write command <b>AT^SMGR= &lt;index&gt;</b>	Parameter <index> Index of message in selected memory <mem1>  Response <b>If PDU mode (+CMGF=0) and command are successful:</b> ^SMGR: <stat>,[<alpha>],<length><CR><LF><pdu>  Parameter <pdu> Siehe "AT+CMGL" <b>otherwise:</b> +CMS ERROR: <err>

<b>AT^SMSO</b>	Switch device off
Test command <b>AT^SMSO=?</b>	Response OK
Execute command <b>AT^SMSO</b>	Response OK Device switches off



AT^SLNG		Language settings
Test command AT^SLNG=?	Response ^SLNG: (list of supported languages <lng>s)	Parameter: <lng>: Integer; language coded according to GSM 03.38 or mobile-specific language (>100)
Read command AT^SLNG?	Response ^SLNG: <lng>	
Write command AT^SLNG=<lng>	Response OK/ERROR/+CME ERROR	

AT^SSTK		SIM Toolkit
Test command AT^SSTK=?	Response ^SSTK: <profile>	Parameter: <profile> ME profile according to GSM 11.14
Write command AT^SSTK=<length>[,<mode>]<CR> <b>PDU is given</b> <ctrl-Z/ESC>	Response: OK/ERROR/CME ERROR	Parameter: <length>: Length of PDU in bytes <mode>: 0: Single command 1: Sequence of commands <pdu>: SIM Toolkit commands, see GSM 11.14  <b>Limitation:</b> The maximum PDU length is 176 bytes.

AT^SBNW		Binary Write
Test command AT^SBNW=?	Response ^SBNW: ((list of supported <types>s, list of supported <subtype>s)) OK/ERROR/+CME ERROR	Parameter: <type> „bmp“ bitmap Windows bitmap format without compression; 2/16/256 colours, at least 97x26 pixels  <subtype> 0 shown permanently when registered in home network  1 shown temporarily, deleted by more important display contents  „mid“ ring tones in standard MIDI format 0, without polyphony specification: <a href="http://www.midi.org">http://www.midi.org</a> <subtype> 0 first (and only) entry of type “mid”  „vcs“ vcal format specification: <a href="http://www.imc.org/pdi">http://www.imc.org/pdi</a>

	<p>&lt;subtype&gt;    0    first entry of type "vcs"</p> <p>                  1    entry of type "vcs"</p> <p>                  ...</p> <p>&lt;actNumber&gt; 0    deletes entry of the act. subtype</p> <p>                 other    actual packet number</p> <p>&lt;maxNumber&gt; maximum number of packets</p>
<p>Write command</p> <p>AT^SBNW=&lt;type&gt;,&lt;subtype&gt;, [&lt;actNumber&gt;[, &lt;maxNumber&gt;]]&lt;CR&gt; <b>PDU is given</b>&lt;ctrl-Z/ESC&gt;</p>	<p>Response</p> <p>OK/ERROR/+CME ERROR</p> <p>Parameter:</p> <p>&lt;type&gt;            see Test commnd</p> <p>&lt;subtype&gt;        see Test commnd</p> <p>&lt;actNumber&gt;      see Test commnd</p> <p>&lt;maxNumber&gt;     see Test commnd</p> <p><b>Note:</b></p> <p>-It is not possible to upload data when a call is active or in progress.</p> <p>If a call is active the mobile responses with +CME ERROR: PHONE BUSY and the actual upload sequence is aborted and all data packets are discarded.</p> <p>-If uploaded data is not useable (e.g. wrong data format) the mobile responses with +CME ERROR: INV CHAR IN TEXT after the last packet is uploaded.</p> <p>-To get the extended +CME-ERROR-responses AT+CMEE=2 has to be sent before. Otherwise the mobile responses only with ERROR . (see GSM07.07)</p> <p>-If &lt;actNumber&gt; and &lt;maxNumber&gt; during the upload are omitted, the mobile aborts the whole input sequence for the current subtype.</p> <p>-If &lt;actNumber&gt; is 0 during the upload and &lt;maxNumber&gt; is omitted, the mobile deletes the actual record with index &lt;subtype&gt;</p> <p>-Packets have to be uploaded in the right order!</p> <p><b>-Limitation:</b>The maximum pdu size is 176 bytes (or 352 characters)</p> <p>See Appendix B for examples.</p>

AT^SBNR	Binary Read
<p>Test command AT^SBNR=?</p>	<p>Response ^SBNR: (list of supported &lt;types&gt;s, (list of supported &lt;subtype&gt;s)) OK/ERROR/+CME ERROR</p> <p>Parameter: &lt;type&gt;           see AT^SBNW command &lt;subtype&gt;       see AT^SBNW command</p>
<p>Write command AT^SBNR=&lt;type&gt;,&lt;subtype&gt;</p>	<p>Response ^SBNR: &lt;type&gt;,&lt;subtype&gt;,1,&lt;maxNumber&gt; &lt;CR&gt;&lt;LF&gt;&lt;data&gt;&lt;CR&gt;&lt;LF&gt; ^SBNR: &lt;type&gt;,&lt;subtype&gt;,2,&lt;maxNumber&gt; &lt;CR&gt;&lt;LF&gt;&lt;data&gt;&lt;CR&gt;&lt;LF&gt;[...] OK/ERROR/+CME ERROR</p> <p>Parameter: &lt;type&gt;           see AT^SBNW command &lt;subtype&gt;       see AT^SBNW command &lt;data&gt;           data in hexadecimal form (PDU) &lt;maxNumber&gt;   see AT^SBNW command</p> <p><i>See Appendix B for examples.</i></p>

**1.3.4. Summary of All Unexpected Messages**

Message	Meaning
+CREG: <stat>	Network registration
+CLIP: <num>	Telephone number of caller
+CMTI: <mem>,<index>	Indication of a new short message
+CMT: ,<length><CR><LF> <pdu>	Short message
+CSSI: <code1> +CSSU: <code2>	Supplementary service intermediate/unsolicited result code
^SMGO: <mode>	SMS overflow indicator
^SCKS: <m>	Message indicating whether card has been removed or inserted
^SACM: <m>	Message indicating if ACM has reached the maximum value ACMmax

**Appendix A**

**Factory settings made by AT&F**

ATE1 (only in case of RCCP mode)  
 ATQ0  
 ATV1

AT+CREG=0  
 AT+CLIP=0  
 AT+CRC=0  
 AT+CAOC=0  
 AT+CMEE=0  
 AT+CPBS=SM (if available)  
 AT+COPS=0  
 AT+VTS=1  
 AT+CSCS="GSM"  
 AT+CSSN=0,0  
 AT^SCKS=0  
 Reset pending locks (Phone Pin/Puk, Pin2/Puk2 ...)  
 which are give as answer of AT+CPIN?

AT+CSMS=0  
 AT+CNMI=0,0,0,0,1  
 AT^SMGO=0  
 AT+CSCB=0

**Features of the Telephone-Book Memory**

Name	Description	Category / Access	Write	Delete completely
FD	Fix-dialing number (SIM fix-dialing telephone book)	GSM 07.07 / +CPBS or ^SPBS	Allowed (PIN2 required)	
SM	Abbreviate dialing number (SIM telephone book)	GSM 07.07 / +CPBS or ^SPBS	Allowed (device code required if FDN replacement is active)	
DC (MD)	Mobile last dialing number (last number redial memory; only if "LD" is not available)	GSM 07.07 / +CPBS or ^SPBS	Not allowed	By means of AT^SDLD
ON (OW)	Own Numbers (SIM own telephone numbers)	GSM 07.07 (Siemens) / +CPBS (historical)	Allowed	

LD	SIM last dialing number (last number redial memory on SIM)	GSM 07.07 / +CPBS or ^SPBS	Not allowed	By means of AT^SDLD
ME	Mobile-equipment telephone book (ME dialing numbers)	GSM 07.07 / +CPBS or ^SPBS	Allowed (device code required if FDN replacement is active)	
BD	Barred dialing numbers (blocked numbers)	Siemens / ^SPBS	Not allowed	
SD	Service dialing numbers (Service numbers)	Siemens / ^SPBS	Not allowed	
MC (MS)	Missed dialing numbers (unanswered calls)	GSM 07.07 (Siemens) / +CPBS, ^SPBS	Not allowed	
RC (CD)	Callback dialing numbers (answered calls)	GSM 07.07 (Siemens) / +CPBS, ^SPBS	Not allowed	
BL	Blacklist dialing numbers (numbers that are blocked for a certain time in order to prevent continuous accesses from remote control)	Siemens / ^SPBS	Not allowed	
MB	Mailbox dialing numbers (network-operator mailbox)	Siemens / ^SPBS	Not allowed	
CS	Common sortable numbers (sorted combination of "SM", "ME", "FD")	Siemens / ^SPBS /^SPBC / ^SPBG	Not allowed	
RD	Red book numbers ("CS" entries with '!' at the end of the name portion)	Siemens / ^SPBS /^SPBC / ^SPBG	Not allowed	

## Writing to the FDN Phonebook / FDN Replacement

Writing to the fix-dialing number phonebook is protected by PIN2.

A Write sequence (to e.g. record 5) runs as follows:

```

AT+CMEE=2 //Activate expanded error message
OK

AT+CPBS=? // Listing of available telephone books
+CPBS: ("FD","SM","LD")
OK

AT+CPBS="FD" // Selection of the FDN telephone book
OK

AT+CPBW=5,"1234",,"test" // A Write to record 5 is attempted...
+CME ERROR: SIM PIN2 REQUIRED // ... PIN2 is required for this purpose

AT+CPIN? // Query of the PIN status...
+CPIN: SIM PIN2 // ... PIN2 is to be entered

AT+CPIN="12345678" // Input of PIN2
OK

AT+CPBW=5,"1234",,"test" // A Write to record 5 is attempted...
OK // PIN2 remains active as long as you use the commands
// +CPIN, +CPBS, +CPBR, +CPBW, +CACM,
// +CMM, +CPUC
// ^SPIC, ^SPBS, ^SPBC, ^SPBG,:
// If you use other commands or if none of the
// above commands are executed within five
// minutes, the validity of PIN2 is voided.

AT+CPBW=6,"5678",,"new test" // A Write to record 6 is attempted...
OK

...

```

In addition, if there is no FDN phonebook available on the SIM, it is possible to activate a feature which activates FDN-like behavior for the "SM" and "ME" phonebooks (FDN replacement). (Currently this feature can only be activated via the MMI lock/device lock/excluding telephone book.)

In this case, the Write to the "SM" and "ME" phonebooks is ensured by the device code (PH-SIM PIN and PH-SIM PUK, respectively).

The sequence for entering the device code is analogous to the above example.

**Special hints for using +CPBR/+CPBW command**

String parameters ,like the <text> in +CPBW command shall be entered using quotation marks `"` ( Ascii=Windows=GSM=0x22).e.g. "Doe Joe"

It is possible to enter string parameters without `` but not recommended, because following problems may occur:

If no `` are used:

- SPACES (Space, Blank, Ascii=Windows=GSM=0x20) are skipped.  
 E.g.       at+cpbw=1,"123",,K. H.       results in "K.H." ☹️  
           at+cpbw=1,"123",,K. H." SPACES are kept ☺️
  
- No `;` (Ascii=Windows=GSM=0x2C) and  
       `:` (Ascii=Windows=GSM=0x3B) in <text> is possible, because this characters  
 are used as separator of parameters/commands.  
 E.g.       at+cpbw=1,"123",,Kurz,Helmut   result in ERROR ☹️  
           at+cpbw=1,"123",,"Kurz,Helmut"       ☺️

But there are also some points to note when using quotation marks `"`:  
 There are some characters which cannot be entered in normal way:  
 e.g. quotation mark `` character itself, because this is interpreted as the  
 end of the <text>

To make this (and some other special characters) possible to be entered,  
 the character with hex value 0x5c is used as escape character. In the ASCII character  
 set this is equal the `\  
 Unfortunately there is no `\  
 The 0x5C equals the `Ö`

The escape sequence has the following structure:

- The sequence begins with the escape character 0x5C  
 (ASCII=Windows=`, GSM=`Ö`)
- The special character follows and is entered 2 Byte representation of the GSM  
 character set value .  
 e.g. the 2 Byte representation of the `@` (GSM=0x00) is `00`

Following special characters shall be entered by using the escape sequence:

<b>GSM Char</b>	Hex char.	ASCII	<b>GSM Esc Seq</b>	Seq.(hex)	Note
Ö	5C	\	Ö5C	5C 35 43	Backslash
"	22	"	Ö22	5C 32 32	String delimiter
ò	08	BSP	Ö08	5C 30 38	Backspace
@	00	NULL	Ö00	5C 30 30	GSM NULL

Examples:



GSM string wanted in Phonebook	String in AT+CPBW Command(GSM)	String in AT+CPBW Command (Hex)
Ölhändler	"Ö5ClhÖ7Bndler"	22 5C 35 43 6C 68 7B 6E 64 6C 65 72 22
"Eddi" Kurz	"Ö22EddiÖ22 Kurz"	22 5C 32 32 45 64 64 69 5C 32 32 20 4B 75 72 7A 22
Oòo	"OÖ08o"                    22 4F 5C 30 38 6F 22	
@Adr.	"Ö00Adr."	22 5C 30 30 41 64 72 2E 22 [no problems with strlen()]
	"@Adr."	22 00 41 64 72 2E 22 [may cause problems with strlen() in application]

**Note:**

When reading phonebook records, there is NO replacement. Every character will appear in normal GSM character set notation (like the left column in the example above).

## Appendix B

### Example for creating/interrogation of an organizer entry

#### -vcs object which has to be uploaded:

```
BEGIN:VCALENDAR
VERSION:1.0
BEGIN:VEVENT
CATEGORIES:ANNIVERSARY
DTSTART:19991213T100000
DESCRIPTION:W. von Siemens
END:VEVENT
END:VCALENDAR
```

#### -hexadecimal representation of this object:

```
424547494E3A5643414C454E4441520D0A56455253494F4E3A312E300D0A4245
47494E3A564556454E540D0A43415445474F524945533A414E4E4956455253415
2590D0A445453544152543A3139393931323133543130303030300D0A44455343
52495054494F4E3A572E20766F6E205369656D656E730D0A454E443A56455645
4E540D0A454E443A5643414C454E4441520D0A
```

#### -upload of an entry on record 20

```
at^sbnw="vcs",20,1,3<CR>
<CR><LF> > <Space>
424547494E3A5643414C454E4441520D0A56455253494F4E3A312E300D0A4245
47494E3A564556454E540D0A43415445474F<Ctrl-Z>
<CR><LF>OK<CR><LF>
```

```
at^sbnw="vcs",20,2,3<CR>
<CR><LF> > <Space>
524945533A414E4E49564552534152590D0A445453544152543A3139393931323
133543130303030300D0A44455343524950<Ctrl-Z>
<CR><LF>OK<CR><LF>
```

```
at^sbnw="vcs",20,3,3<CR>
<CR><LF> > <Space>
54494F4E3A572E20766F6E205369656D656E730D0A454E443A564556454E540D
0A454E443A5643414C454E4441520D0A<Ctrl-Z>
<CR><LF>OK<CR><LF>
```

All characters are answered with an echo.

Echoing can be switched off with „ATE0“.

In this example the organizer entry is uploaded in 50 bytes packets (100 input characters in every pdu).

The blue painted characters characterize the responses of the mobile.

**-interrogation of the current <type>,<subtype>,<actNumber>,<maxNumber>**

```
at^sbnw?<CR>  
<CR><LF>^SBNW: "vcs",20,2,3<CR><LF>  
<CR><LF>OK<CR><LF>
```

description: The actual object which is uploaded is an VCS object.  
It has to be stored on record 20.  
2 of 3 packets are already uploaded.

**-deleting of record 20**

```
at^sbnw="vcs",20,0<CR>  
<CR><LF>OK<CR><LF>
```

**-download entry from record 20**

```
at^sbnr="vcs",20<CR>  
<CR><LF>^SBNR:<space>"vcs",20,1,1<CR><LF>  
424547494E3A5643414C454E4441520D0A56455253494F4E3A312E300D0A4245  
47494E3A564556454E540D0A43415445474F524945533A414E4E4956455253415  
2590D0A445453544152543A3139393931323133543130303030300D0A44455343  
52495054494F4E3A572E20766F6E205369656D656E730D0A454E443A56455645  
4E540D0A454E443A5643414C454E4441520D0A<CR><LF>  
<CR><LF>OK<CR><LF>
```

The mobile segments the record entry in 176 byte (=176\*2 characters) packets.

**-Download of an empty record 20**

```
at^sbnr="vcs",20<CR>  
<CR><LF>OK<CR><LF>
```

**-Test command of AT^SBNW**

```
at^sbnw=?<CR>  
<CR><LF>^SBNW:<space>("bmp",(0)),(„mid“, (0)),(„vcs“, (1-30)) <CR><LF>  
<CR><LF>OK<CR><LF>
```

description: The mobile supports bitmaps with suptype 0, midi objects with suptype 0 and vcs objects with the suptypes 1 up to 30.