

**AT COMMAND SET  
FOR  
NOKIA GSM PRODUCTS  
Version 1.0  
08-05-02**

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# NOKIA

AT command set for Nokia GSM products

Version 1.0

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# NOKIA

AT command set for Nokia GSM products

Version 1.0

## 1. INTRODUCTION

This document describes the AT commands that can be used with Nokia GSM products in sales after autumn 2001 and operating in the GSM network (including also DCS1800 and PCS1900). Starting with products: 8310, 6310, 7650, 8910, D211... A short description, the syntax, the possible setting values and responses of the AT commands are presented.



**Some AT commands are not supported by all Nokia GSM products or by all operators.** Giving a command that is not supported by the product causes an error response. All command parameters are not supported by all products and using those parameters also causes an error response.



# NOKIA

AT command set for Nokia GSM products

Version 1.0



Computers use AT commands to communicate with modems. Most communications applications, however, have a user interface that hides these AT commands from the user. AT commands can be issued via communications application. When the software in the Nokia product has received an AT command, it responds with a message that is displayed on the screen of the used device which can also be the phone.

## 1.1 AT command syntax

"AT " or "at " prefix must be included at the beginning of each command line. Several AT commands can be typed on the same line, and in such cases the "AT" or "at" prefix is needed only at the beginning of the command line.

The marking <n> used in command syntax is the setting value typed in as a part of the command. If the value is optional it is enclosed into square brackets. When a setting value is set with an AT command, the setting is valid until you change it or reboot the device.

### 1.1.1 S-register commands

S-register command factory default value (&F) is given in parenthesis under column '<n> values'. The existence of an S-register command may be queried by giving command without equal or question marks (e.g. `ATS3` returns `OK`, but does not change the <n> setting). <n> may not be omitted when its value is set (e.g. `ATS3=` returns `ERROR`).

Format used in command description sections:

Command	Response	<n> values
<code>Sn=&lt;n&gt;</code>		x..y (default z)
<code>Sn?</code>	<n>	xxx..yyy

### 1.1.2 Basic commands

Commands **D** (dial), **A** (answer) and **O** (return to online data state) include also columns for possible result codes.

Basic command has no '+' prefix. If there is no default value, the setting of that command is not stored in non-volatile memory (command **&Y** is an exception). If command parameter is in brackets (usually zero), the parameter may be omitted.

Format used in command description sections:

Command	Description
CMD [x]	for value x
CMDy	for value y

### 1.1.3 Extended commands

Extended command ('+' prefix) subparameter default values are given in separate column. If default value is not in brackets, it is the **&F** default value of the corresponding subparameter. When this kind of subparameter is omitted when command is given, its value remains the same as before. If default value is in brackets, this value shall be used when subparameter is omitted in command line. The setting of this kind of subparameter is not stored in memory. If subparameter has no default value, it must always be given.

NOTE: Voice (+V) and fax (+F) commands do not exactly follow this format.

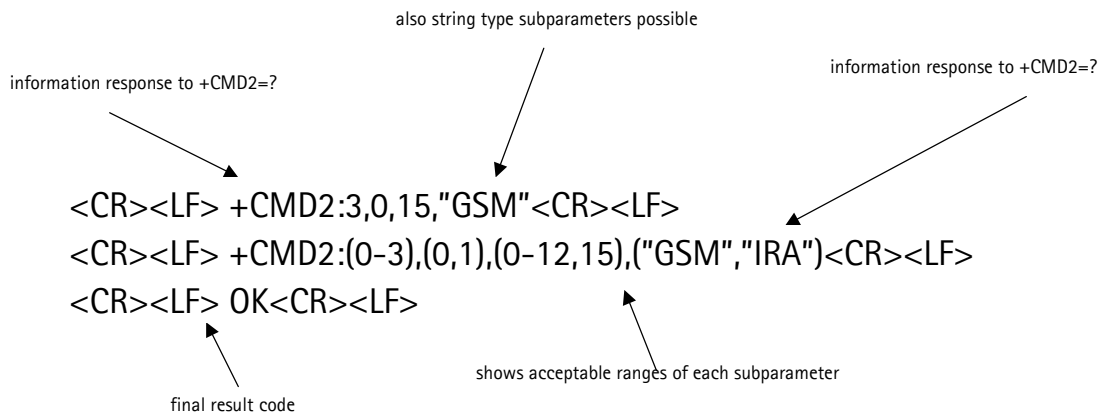
GSM commands may also return **+CME ERROR** or **+CMS ERROR** final result code, when error is related to ME or network functionality. Presentation of **+CME ERROR** can be controlled with **+CMEE** command.

Table format used in command description sections:

Command	Response	Default
+CMD[=<x>,...]	[+CMD: <y>,...]	[x,...]
+CMD?	+CMD: <z>[,...]	
+CMD=?	[+CMD: ...]	



## Response to a command line



## GSM 07.07 /2/

So called intermediate result codes inform about progress of TA operation (e.g. connection establishment CONNECT), and so called unsolicited result codes indicate occurrence of an event not directly associated with issuance of a command from TE (e.g. ring indication RING).

## 2. PRODUCT SUPPORT

### 2.1 S registers

Here is the list of S registers which values can be changed with AT commands. Unless otherwise specified, the value range is 0 – 255.

S-register	Definition	S register value
0	Auto answer ring count (0 = disabled)	
1	Ring counter (read only)	
2	Escape code character	0 - 127
3	Carriage return	0 - 127
4	Line feed	0 - 127
5	Backspace	0 - 127
7	Wait for connection completion (sec)	
8	Interval of DTMF characters (sec)	
10	DCD OFF to hang-up delay (sec/10)	
12	Escape guard time (sec/50)	
25	Detect DTR change (sec)	

## 2.2 V.250

### 2.2.1 AT\$3 Command line termination character

V.250 section 6.2.1 /1/. Default character is carriage return. The setting is also used in result code and information response formatting, see also command V.

Command	Response	<n> values
S3=<n>		0..127 (default 13)
S3?	<n>	000.. 127

**2.2.2 AT\$4** Response formatting character

V.250 section 6.2.2 /1/. Default character is line feed. See also command V.

Command	Response	<n> values
S4=<n>		0..127 (default 10)
S4?	<n>	000.. 127

**2.2.3 AT\$5** Command line editing character

V.250 section 6.2.3 /1/. Default character is backspace.

Command	Response	<n> values
S5=<n>		0..127 (default 8)
S5?	<n>	000.. 127

**2.2.4 AT\$E** Command echo

V.250 section 6.2.4 /1/. Controls command character echo in online/offline command state.

Command	Description
E[0]	no echo
E1	echo, default

**2.2.5 AT\$Q** Result code suppression

V.250 section 6.2.5 /1/. Affects only result codes, not information responses.

Command	Description
Q[0]	Transmit codes, default
Q1	Suppress codes

## 2.2.6 ATV DCE response format

V.250 section 6.2.6 /1/. For numeric result code values refer V.250 section 5.7.1 and D, A and O commands in this document. Command S3 and S4 settings affect on header/trailer formatting. Note that result codes defined in GSM 07.07 /2/ and GSM 07.05 /3/ have only verbose values.

Command	Description
V[0]	numeric V.250 basic syntax result codes, limited headers and trailers
V1	verbose V.250 basic syntax result codes, full headers and trailers, default

## 2.2.7 ATX Result code selection and call progress monitoring control

V.250 section 6.2.7 /1/. When BUSY, NO ANSWER, DELAYED or BLACKLISTED is not enabled, NO CARRIER is used instead. When CONNECT <rate> with a correct data rate is not enabled, a plain CONNECT is used instead. Also GPRS context activation is indicated by CONNECT. This command does not affect the presentation of other result codes than the ones mentioned in the table.

Command	Description
X[0]	OK, CONNECT, RING, NO CARRIER, ERROR codes enabled
X1	also CONNECT 1200, CONNECT 2400 enabled
X2	same as value 1
X3	also BUSY enabled
X4	also NO ANSWER enabled
X5	also CONNECT 4800 (or higher data rates), DELAYED, BLACKLISTED enabled, default

## 2.2.8 AT&amp;C Circuit 109 (received line signal detector) behaviour

V.250 section 6.2.8 /1/. Also known as DCD or carrier signal.

Command	Description
&C[0]	always on
&C1	normal operation, default



## 2.2.9 AT&amp;D Circuit 108 (data terminal ready) behaviour

V.250 section 6.2.9 /1/. Determines how the DCE responds when circuit 108 is changed from the ON to the OFF condition during online data state. Circuit 108 is also known as DTR signal.

Command	Description
&D[0]	Ignored
&D1	on->off causes transition to on-line command state if call in progress
&D2	on->off causes hangup, default
&D3	on->off causes hangup and performs reset (like Z) ('de facto' feature)

## 2.2.10 AT+IPR Fixed DTE rate

V.250 section 6.2.10 /1/. Command must be in products that do not support autobauding in all configurations and have more than one <rate> to be set (either 1200 or 9600 is mandatory according to V.250 ). Note that reset commands Z and &F do not change this setting.

Response to +IPR test command includes list of supported autodetectable <rate> values and list of fixed-only <rate> values.

Command	Response	Default
+IPR=<rate>		[0]
+IPR?	+IPR: <rate>	
+IPR=?	+IPR: (0,300,600,1200,2400,4800,9600,19200,38400, 57600,115200),(0)	

## 2.2.11 AT+ICF Character framing

V.250 section 6.2.11 /1/. Command must be in products that do not support autobauding in all configurations and have more than one <format>/<parity> pair to be set. Note that reset commands Z and &F do not change this setting.

Command	Response	Default
+ICF=<format>,<parity>		[0]
+ICF?	+ICF: <format>,<parity>	
+ICF=?	+ICF: (0,1,2,3,4,5,6),(0,1,2,3)	

### 2.2.12 AT+IFC DTE-DCE local flow control

V.25O section 6.2.12 /1/. Controls the operation of local flow control.

Command	Response	Default
+IFC=<dce-by-dte>,<dte-by-dce>		2,2
+IFC?	+IFC: <dce-by-dte>,<dte-by-dce>	
+IFC=?	+IFC: (0-3),(0-2)	

### 2.2.13 AT+ILRR DTE-DCE local rate reporting

V.25O section 6.2.13 /1/. Controls presentation of +ILRR intermediate result code.

Command	Response	Default
+ILRR=<n>		0
+ILRR?	+ILRR: <n>	
+ILRR=?	+ILRR: (0,1)	

## 2.3 De facto

### 2.3.1 ATS25 Detect DTR change time

Time (in seconds) to react on DTR signal change. See also command &tD.

Command	Response	<n> values
S25=<n>		0..255 (default 0)
S25?	<n>	000..255

### 2.3.2 AT&S DSR signal behaviour

This command defines how the DSR V.24 signal is handled.

Command	Description
&tS[0]	Always on
&tS1	normal operation, default

### 2.3.3 AT&K Select flow control

This command changes the same setting as +IFC. Use of +IFC is recommended.

Command	Description
&K[0]	no flow control
&K3	hardware flow control (RTS/CTS), default
&K4	software flow control (XON/XOFF)

## 3. GENERIC COMMANDS

### 3.1 V.250

#### 3.1.1 ATZ Reset to default configuration

V.250 section 6.1.1 /1/. Settings that are not stored in a profile (refer &W) will be reset to their factory defaults (refer &F (Z resets also all Fax commands)). Although product would not have memory profiles (or only one of them) it shall accept both Z0 and Z1 (and reset to factory defaults). Additional commands on the same command line after the Z command will be ignored.

Command	Description
Z[0]	disconnect, reset to stored profile 0
Z1	disconnect, reset to stored profile 1

#### 3.1.2 AT&F Set to factory-defined configuration

V.250 section 6.1.2 /1/. Command parameters (if implemented) that are reset to their factory defaults are: All S-registers, E, Q, V, X, &C, &D, +IFC, +ILRR, &S, +CSCS, +DS, +DR, +ES, +ER, +CSTA, +CMOD, +CBST, +CRLP, +CR, +CRC, +CSNS, +CHST, +CHSN, +CV120 (only <mfm>), +CVHU, +CREG, +COPS (only <format>), +CLIP, +CLIR, +COLP, +CCWA (only <n>), +CUSD (only <n>), +CSSN, +CPBS, +CMEE, SMS commands, GPRS commands, Fax commands (except +FCLASS, and Class 2.0 specific parameters when +FCLASS = 2.0).

Command	Description
&F[0]	reset to factory defaults

## 3.1.3 ATI Request identification information

V.250 section 6.1.3 /1/. This command displays information about the product.

Command	Response	Description
I[0]	Nokia	same as +GMI
I1	(product serial number)	same as +GSN
I2	(product version)	same as +GMR
I3	(product name)	same as +GMM
I4	(Minor SW version)	
I9	(plug and play info)	
I5-I8 and I10-I255		dummies that are just accepted

## 3.1.4 AT+GMI Request TA manufacturer identification

V.250 section 6.1.4 /1/. This command displays the product manufacturer information.

Command	Response
+GMI	Nokia

## 3.1.5 AT+GMM Request TA model identification

V.250 section 6.1.5 /1/. This command displays the product model identification.

Command	Response
+GMM	model information

## 3.1.6 AT+GMR Request TA revision identification

V.250 section 6.1.6 /1/. This command displays the product revision identification.

Response must include product SW version.

Command	Response
+GMR	SWxx.xx

### 3.1.7 AT+GSN Request TA serial number identification

V.250 section 6.1.7 /1/. This command displays the product serial number.

Command	Response
+GSN	xxxxxxxxxxxx...

### 3.1.8 AT+GCAP Request complete capabilities list

V.250 section 6.1.9 /1/. Mentioned response returned when GSM 07.07 commands, some fax classes, and V.42bis compression is supported. Response may differ depending on the implemented features in a product.

Command	Response
+GCAP	+GCAP: +CGSM, +FCLASS, +DS, +W

## 3.2 De facto

### 3.2.1 A/ Repeat last command line

V.250 section 5.2.4 /1/. Replacing normal AT as first chars in command line. Also lowercase (a/) accepted.

### 3.2.2 AT&V View configuration

Response format is product specific, but it must fit in one 80 times 24 character display and all command parameters stored in a profile (or current settings) must be shown as 'command name'-'values of parameters' pairs (e.g. +CSSN=0,1 or E0 or S7=80 or +COPS=,2 or +CSCS="HEX").

Command	Description
&tV[0]	show current settings (all command parameter values under &F plus &Y setting)
&tV1	show settings in stored profile 0 (all command parameter values defined under &W)
&tV2	show settings in stored profile 1 (all command parameter values defined under &W)

### 3.2.3 AT&W Store configuration

Command parameters (if implemented) that are stored to a profile are same as listed under &F command except the parameters of the following commands which are not stored: +CMOD, +CSCA, +CSMP.

Command	Description
&W[0]	store to profile 0
&W1	store to profile 1

### 3.2.4 AT&Y Select power-up configuration

This setting is not part of the settings that are stored in a profile. &F command does not affect this setting.

Command	Description
&Y[0]	power-up uses profile 0
&Y1	power-up uses profile 1

## 3.3 GSM 07.07

### 3.3.1 AT+CGMI Request ME manufacturer identification

07.07 section 5.1 /2/. This command displays the product manufacturer identification.

Command	Response
+CGMI	Nokia
+CGMI=?	

### 3.3.2 AT+CGMM Request ME model identification

07.07 section 5.2 /2/. Note that in case of a product with TA and ME in a single physical entity, response of +GMM is identical.

Command	Response
+CGMM	Model info
+CGMM=?	

### 3.3.3 AT+CGMR Request ME revision identification

07.07 section 5.3 /2/. Response must include product SW version. Note that in case of a product with TA and ME in a single physical entity, response of +GMR is identical.

Command	Response
+CGMR	SW version
+CGMR=?	

### 3.3.4 AT+CGSN Request ME serial number identification

07.07 section 5.4 /2/. Returns IMEI. Note that in case of a product with TA and ME in a single physical entity, response of +GSN is identical.

Command	Response
+CGSN	xxxxxxxxxxxxxxxxxxxx
+CGSN=?	

### 3.3.5 AT+CSCS Select TE character set

07.07 section 5.5 /2/. This command informs the data card of which character set is used by the TE. The data card is then able to convert character strings correctly between TE and ME character sets. When the data card-TE interface is set to 8-bit operation and the TE alphabet used is 7-bit, the highest bit shall be set to zero. This setting affects text mode SMS data and alpha fields in the phone book memory. If ME is using the GSM default alphabet, its characters shall be padded with the 8th bit (zero) before converting them to hexadecimal numbers (i.e., no SMS-style packing of a 7-bit alphabet).

Command	Response	Default
+CSCS=<chset>		"PCCP437"
+CSCS?	+CSCS: <chset>	
+CSCS=?	+CSCS:("UCS2","GSM","PCCP437","PCDN","IRA","8859-1","HEX")	

### 3.3.6 AT+WS46 Select wireless network

07.07 section 5.7 /2/. TIA-678 section 5.2.4.3. Currently there are no values for GSM1800 or GSM1900 but '12' could be used for them also.

Command	Response
+WS46=[<n>]	
+WS46?	<n>
+WS46=?	(12,14,15,22)

## 4. CALL CONTROL COMMANDS

### 4.1 V.250

#### 4.1.1 ATD Dial

V.250 section 6.3.1 /2/. All result codes are not in V.250 . Before one of the above codes may be returned some of the following: +CSSI, +COLP, +CR, +ER, +DR, or +ILRR (in that order). Available connection rates depend on the product. DELAYED/BLACKLISTED mechanism, i.e. blacklist is cleared by pressing ME key or by resetting ME. Dial command is also used to control alternating mode calls (see GSM 07.07 section 6.6 and annexes E and F /2/). In GPRS connections data rate can actually be higher than the value desired because it is a minimum desired value. The only verbose code returned in the case of GPRS call is word CONNECT.

NOTE: +VTS command or comma modifier (e.g. "ATD,1234"; in this case the first comma do not cause a pause) can be used to send DTMF digits.



Command	Possible verbose / numeric result codes	Description
D<dial-string>	BLACKLISTED / 14	call to the number is forbidden until manual reset
	BUSY / 7	called party is busy
	CONNECT / 1	data/fax call established; rate 300 bps (or X forbids rate display) or GPRS context activation
	CONNECT 1200 / 5	data/fax call established; rate 1200 bps
	CONNECT 2400 / 10	data/fax call established; rate 2400 bps
	CONNECT 4800 / 11	data/fax call established; rate 4800 bps
	CONNECT 9600 / 12	data/fax call established; rate 9600 bps
	CONNECT 14400 / 17	HSCSD (or 14.4 tch) data/fax call established; rate 14400 bps
	CONNECT 19200 / 18	HSCSD data call established; rate 19200 bps
	CONNECT 28800 / 19	HSCSD data call established; rate 28800 bps
	CONNECT 38400 / 20	HSCSD data call established; rate 38400 bps
	CONNECT 43200 / 21	HSCSD data call established; rate 43200 bps
	DELAYED / 13	call to the number is temporarily (5 sec - 3 min) forbidden
	ERROR / 4	command cannot be actioned
	NO ANSWER / 8	called party does not answer
	NO CARRIER / 3	call could not be established
	OK / 0	command aborted or voice call started with semicolon character

See also 07.07 section 6.2 /2/ and V.250 sections 6.3.1.1–6.3.1.7 /1/. For voice call example refer 07.07 annex G. Note that I is the only case-sensitive dial string character.

<dial-string> characters	Values	Description
V.250 dialling digits	0123456789+*	accepted as valid digits
	#ABCD	accepted but ignored
V.250 modifiers	,	in case of voice call: originate call to the number preceding comma, wait for remote answer, pause for length specified with S8 register, and send numbers after comma as DTMF digits; further commas cause pause for length specified with S8 register (all commas are ignored in case of data call)
	T P ! W @	accepted but ignored
V.250 semicolon	;	voice call originating (must be last character in command line)
GSM 07.07 modifiers	>	direct dialling from phonebook (must be first char after D) (see next table)
	i	allow calling line id presentation for this call
	I	restrict calling line id presentation for this call
	G	control CUG information for this call; use +CCUG values
de facto	L	redial to the number last dialed with ATD
any other character	any of not listed above	accepted and ignored from command line for compatibility reasons

GSM 07.07 section 6.3 /2/.

Direct dialling command	Description
D<str>[i/l][G][:]	originate call to phone number which corresponding alphanumeric field is <str>; search all ME, SIM (ADN) and TA memories (if available) for the entry; used character set should be the one specified by +CSCS
D>mem<n>[i/l][G][:]	originate call to phone number found from location <n> in a specific memory mem, which is one of the two letter memory abbreviations as returned by +CPBS=? (without double quotes); location range can be queried with +CPBR=?; note that in case of SIM ADN memory (SM) also D>SIM<n> shall be accepted (due to inconsistency in GSM 07.07)
D><n>[i/l][G][:]	originate call to phone number in memory location <n>; memory selected with +CPBS is used

07.60 section 10.4.1.1.

NOTE: GPRS Phase 1 does not support mobile originated context modification

Request GPRS service 'D'	Description
D*99[*[<called_address>][* [<L2P>][* [<cid>]]]#	causes the MT to enter the V.250 online data state and, with the TE, to start the specified layer 2 protocol

#### 4.1.2 ATT Select tone dialling

V.250 section 6.3.2 /1/. This setting is ignored

Command
T

#### 4.1.3 ATP Select pulse dialling

V.250 section 6.3.3 /1/. This setting is ignored

Command
P

## 4.1.4 ATA Answer

V.250 section 6.3.5 /1/. All result codes are not in V.250 . Before one of the above codes may be returned some of the following: +CR, +ER, +DR, or +ILRR (in that order). Available connection rates depend on the product. Answer command is also used to control alternating mode calls (see GSM 07.07 section 6.6 and annexes E and F /2/). In GPRS connections data rate can actually be higher than the value returned because it is minimum desired value. The only verbose code returned in the case of GPRS call is word CONNECT.

Command	Possible verbose / numeric (V0) result codes (V1)	Description
A	CONNECT / 1	data/fax call established; rate 300 bps (or X forbids rate display) or GPRS context activation
	CONNECT 1200 / 5	data/fax call established; rate 1200 bps
	CONNECT 2400 / 10	data/fax call established; rate 2400 bps
	CONNECT 4800 / 11	data/fax call established; rate 4800 bps
	CONNECT 9600 / 12	data/fax call established; rate 9600 bps
	CONNECT 14400 / 17	HSCSD (or 14.4 tch) data/fax call established; rate 14400 bps
	CONNECT 19200 / 18	HSCSD data call established; rate 19200 bps
	CONNECT 28800 / 19	HSCSD data call established; rate 28800 bps
	CONNECT 38400 / 20	HSCSD data call established; rate 38400 bps
	CONNECT 43200 / 21	HSCSD data call established; rate 43200 bps
	ERROR / 4	command cannot be actioned
	NO CARRIER / 3	call could not be established
	OK / 0	command aborted

## 4.1.5 ATH Hook control

V.250 section 6.3.6 /1/. This command hangs up the call.

Command	Description
H[0]	hangup all calls (except possible waiting call) if only single mode calls in progress, or switch to voice mode if alternate mode call is active

## 4.1.6 ATO Return to online data state

V.250 section 6.3.7 /1/. Available connection rates depend on the product. In GPRS connections data rate can actually be higher than the value returned because it is minimum desired value. The only verbose code returned in the case of GPRS call is CONNECT.

Command	Possible verbose (V1) / numeric (V0) result codes	Description
O[0]	CONNECT / 1	data/fax call continued; rate 300 bps (or X forbids rate display)
	CONNECT 1200 / 5	data call continued; rate 1200 bps
	CONNECT 2400 / 10	data call continued; rate 2400 bps
	CONNECT 4800 / 11	data call continued; rate 4800 bps
	CONNECT 9600 / 12	data call continued; rate 9600 bps
	CONNECT 14400 / 17	HSCSD data call continued; rate 14400 bps
	CONNECT 19200 / 18	HSCSD data call continued; rate 19200 bps
	CONNECT 28800 / 19	HSCSD data call continued; rate 28800 bps
	CONNECT 38400 / 20	HSCSD data call continued; rate 38400 bps
	CONNECT 43200 / 21	HSCSD data call continued; rate 43200 bps
	ERROR / 4	command cannot be actioned
	NO CARRIER / 3	call could not be continued

## 4.1.7 ATSO Automatic answer

V.250 section 6.3.8 /1/. Value indicates number of rings (RING or +CRING result codes) to wait before answering automatically. Value 0 disables auto-answer.

Command	Response	Description
S0=<n>		0...255(default 0)
S0?	<n>	000...255

**4.1.8 AT\$6** Pause before blind dialling

V.250 section 6.3.9 /1/. This setting is ignored.

Command	Response	Description
S6=<n>		0...255
S6?	002	002

**4.1.9 AT\$7** Connection completion timeout

V.250 section 6.3.10 /1/. Also known as 'no answer timeout'. Value is given in seconds. Value 0 (unlimited time) is not in V.250 .

Command	Response	Description
S7=<n>		0...255(default 60)
S7?	<n>	000...255

**4.1.10 AT\$8** Comma dial modifier time

V.250 section 6.3.11 /1/. Value is given in seconds. See also D.

Command	Response	Description
S8=<n>		0...255(default 2)
S8?	<n>	000...255

**4.1.11 AT\$10** Automatic disconnect delay

V.250 section 6.3.12 /1/. Value is given in tenths of a second. Values 0 and 255 (do not disconnect) are not in V.250 .

Command	Response	Description
S10=<n>		0...255(default 100)
S10?	<n>	000...255

# NOKIA

AT command set for Nokia GSM products

Version 1.0

## 4.1.12 ATL Monitor speaker loudness

V.250 section 6.3.13 /1/. This setting is ignored.

Command
L[0]..L3

## 4.1.13 ATM Monitor speaker mode

V.250 section 6.3.14 /1/. This setting is ignored.

Command
M[0]..M3

## 4.1.14 AT+DS Data compression

V.250 section 6.6.1 /1/. Controls the V.42 bis data compression.

Command	Response	Default
+DS=<dir>,<neg>,<P1>,<P2>		0,0,2048,20
+DS?	+DS: <dir>,<neg>,<P1>,<P2>	
+DS?	+DS: (0-3),(0,1),(512-2048),(6-32)	

## 4.1.15 AT+DR Data compression reporting

V.250 section 6.6.2 /1/. Controls presentation of +DR intermediate result code.

Command	Response	Default
+DR=<mode>		0
+DR?	+DR: <mode>	
+DR=?	+DR: (0,1)	

## 4.2 De facto

### 4.2.1 ATB CCITT/Bell mode

This setting is ignored.

Command
B[0]..B1

### 4.2.2 ATS1 Ring count

Returns number of rings (RING or +CRING result codes) counted after last MT call setup.

Command	Response	<n> values
S1?	<n>	000..255

### 4.2.3 ATS2 Escape code character

Default character is plus sign. See also Escape sequence.

Command	Response	<n> values
S2=<n>		0..127 (default 43)
S2?	<n>	000..127

### 4.2.4 ATS12 Escape guard time

Value is in fiftieths of a second (default is one second). See also Escape sequence.

Command	Response	<n> values
S12=<n>		0..255 (default 50)
S12?	<n>	000..255

### 4.2.5 Escape sequence

During online data state, online command state can be entered by giving three same characters (defined by S2 register; default is '+') in a sequence. Before and after the sequence there must be a pause of at least the time defined by S12 register. By setting S12 to zero, escape sequence detection can be disabled.



During GPRS online data state, the escape sequence is handled similarly as of DTR OFF would have been seen. This enhancement implements an alternative way to terminate a GPRS DUN connection.

### 4.3 GSM 07.07

#### 4.3.1 AT+CSTA Select type of address

GSM 07.07 section 6.1 /2/. Dial command D uses always this setting except when dial string includes international access code character (+). In this case type of address sent to the network defaults to 145 (international/telephony).

Command	Response	Default
+CSTA=<type>		129
+CSTA?	+CSTA: <type>	
+CSTA=?	+CSTA: (128-255)	

#### 4.3.2 AT+CMOD Call mode

GSM 07.07 sections 6.4, 6.6, and annexes E, F /2/. Note that alternating call answering operations from an external UI may change +CMOD values.

Command	Response	Default
+CMOD=<mode>		0
+CMOD?	+CMOD: <mode>	
+CMOD=?	+CMOD: (0-3)	

#### 4.3.3 AT+CHUP Hangup call

GSM 07.07 sections 6.5, 6.6, and annexes E, F /2/. This is an assured procedure to terminate an alternating mode call.

Command
+CHUP
+CHUP=?

## 4.3.4 AT+CBST Select bearer service type

GSM 07.07 section 6.7 /2/. Supported parameter values depend on which data services product implements.

Command	Response	Default
+CBST=<speed>,<name>,<ce>		0,0,1
+CBST?	+CBST: <speed>,<name>,<ce>	
+CBST=?		

## 4.3.5 AT+CRLP Radio link protocol

GSM 07.07 section 6.8 /2/. Command/response parameters in brackets are present when product implements RLP version 2 (multislot RLP). Note that 0 is default for <ver> and each RLP version has its own parameter set stored in TA memory (with the exception of versions 0 and 1 which use the same set). Range of version 2 window size parameters depend on +CHSN selection (selected HSCSD speed).

Command	Response	Default
+CRLP=<iws>,<mws> ,<T1>,<N2>[,<ver> ,<T4>]		RLP version 0 or 1 set: 61,61,48,6  RLP version 2 defaults depend on +CHSN selection
+CRLP?	+CRLP: <iws>,<mws>,<T1>,<N2>[<CR><LF> +CRLP: <iws>,<mws>,<T1>,<N2>,2,<T4>]	
+CRLP=?	+CRLP: (0-61),(0-61),(39-255),(1-255) [<CR><LF>+CRLP: (0-n),(0-n),(39-255), (1-255),2,(3-255)]	

## 4.3.6 AT+CR Service reporting control

GSM 07.07 section 6.9 /2/. Controls presentation of +CR intermediate result code.

Command	Response	Default
+CR=<mode>		0
+CR?	+CR: <mode>	
+CR=?	+CR: (0,1)	

## 4.3.7 AT+CEER Extended error report

GSM 07.07 section 6.10 /2/. Returns the reason of last call setup or in-call modification failure, or the reason for last call release. <report> is the textual representation of network cause value as listed in GSM 04.08 annex H.

Command	Response
+CEER	+CEER: <report>
+CEER=?	

## 4.3.8 AT+CRC Cellular result codes

GSM 07.07 section 6.11 /2/. Controls presentation of +CRING unsolicited result code, which can be returned instead of a regular RING. See also Result codes section.

Command	Response	Default
+CRC=<mode>		0
+CRC?	+CRC: <mode>	
+CRC=?	+CRC: (0,1)	

## 4.3.9 AT+CSNS Single numbering scheme

GSM 07.07 section 6.18 /2/. Used to select the bearer service to be used when a call without bearer capability element is received.

Command	Response	Default
+CSNS=<mode>		0
+CSNS?	+CSNS: <mode>	
+CSNS=?	+CSNS: (0-7)	

## 4.3.10 AT+CHSR HSCSD parameters report

GSM 07.07 section 6.16 /2/. The current HSCSD configuration report.

Command	Response	Default
+CHSR=<mode>		0
+CHSR?	+CHSR: <mode>	
+CHSR=?	+CHSR: (0-1)	

## 4.3.11 AT+CHSD HSCSD device parameters

GSM 07.07 section 6.12 /2/. Execution command returns information HSCSD features supported by the product.

Command	Response
+CHSD	+CHSD: <mclass>,<maxRx>,<maxTx>,<sum>,<codings>
+CHSD=?	

## 4.3.12 AT+CHSN HSCSD non-transparent call configuration

GSM 07.07 /2/. Set command controls parameters for non-transparent HSCSD calls.

Command	Response	Default
+CHSN=<wAiur>,<wRx>,<topRx>,<codings>		0,0,0,0
+CHSN?	+CHSN: <wAiur>,<wRx>,<topRx>,<codings>	
+CHSN=?	+CHSN: (list of supported <wAiur>s), (list of supported <wRx>s),(list of supported <topRx>s, (list of supported <codings>s)	

## 4.3.13 AT+CHSC HSCSD current call parameters

GSM 07.07 section 6.15 /2/. Execution command returns information about current HSCSD call. When no call in progress (or external ME is not connected) all values are zero.

Command	Response
+CHSC	+CHSC: <rx>,<tx>,<aiur>,<coding>
+CHSC=?	

## 4.3.14 AT+CV120 V.120 rate adaption protocol

GSM 07.07 section 6.20 /2/. Set command sets the values of the V.120 protocol parameters (defined in CCITT V.120) that are carried in the GSM BC and/or LLC information elements.

Command	Response	Default
+CV120=<rah>,<mfm>,<mode>,<llineg>,<assign>,<negtype>		,1
+CV120?	+CV120: <rah>,<mfm>,<mode>,<llineg>,<assign>,<negtype>	
+CV120=?	+CV120: (1),(0,1),(1),(0),(0),(0)	

#### 4.3.15 AT+CVHU Voice hangup control

GSM 07.07 section 6.19 /2/. By default Nokia products should ignore DTR drop, but disconnect on ATH during voice mode of a call.

Command	Response	Default
+CVHU=<mode>		0
+CVHU?	+CVHU: <mode>	
+CVHU=?	+CVHU: (0-2)	

## 5. NETWORK SERVICE COMMANDS (GSM 07.07)

### 5.1 AT+CNUM Subscriber number

GSM 07.07 section 7.1 /2/. Returns MSISDNs from SIM. <speed>, <service> and <itc> not supported by Nokia products.

Command	Response
+CNUM	+CNUM: [<alpha1>,<number1>,<type1>[<CR><LF>+CNUM: [<alpha2>,<number2>,<type2>[...]]
+CNUM=?	

### 5.2 AT+CREG Network registration

GSM 07.07 section 7.2 /2/. Controls presentation of +CREG unsolicited result code or returns current registration status.

Command	Response	Default
+CREG=<n>		0
+CREG?	+CREG: <n>,<stat>[,<lac>,<ci>]	
+CREG=?	+CREG: (0-2)	

### 5.3 AT+COPS Operator selection

GSM 07.07 section 7.3 /2/. 'Set' command selects network or sets automatic network selection. 'Read' command returns current network. 'Test' command returns available networks. Short alphanumeric operator name format (<format>=1) and selection <mode>=2 and =4 not supported by Nokia products.

Command	Response	Default
+COPS=<mode>,<format>,<oper>		[0],0
+COPS?	+COPS: <mode>[,<format>,<oper>]	
+COPS=?	+COPS: [(<stat>,<long>,,<numeric>)[...]],,(0,1),(2)	

#### 5.4 AT+CLCK Facility lock

GSM 07.07 section 7.4 /2/. Enables/disables or queries the state of SIM/ME security features (PIN/security code query or fixed dialling feature) or call barring supplementary services. <fac> values "AB", "AG" and "AC" are only applicable for <mode>=0. Only security code levels 'phone' and 'none' can be handled with this command. If 'memory' level is set and status is queried (+CLCK="PS",2), AT interface shall indicate 'not active' (+CLCK: 0). When SS status request response from network indicates that SS is active for specific data bearer services (e.g. 'circuit async'), AT interface shall only indicate 'data' (<class>=32) ('not active' case is displayed only when SS is not active to any service; i.e. +CLCK: 0,7). Supported <class> values: 1, 2, 4, 5, 7, 8, 12, 13, 15, 16, 32, 64, 128, 144, 160, 240, 242 and 255.

Class values:

1	voice (telephony)
2	data (refers to all bearer services; with <mode>=2 this may refer only to some bearer service if TA does not support values 16, 32, 64 and 128)
4	fax (facsimile services)
8	short message service
16	data circuit sync
32	data circuit async
64	dedicated packet access
128	dedicated PAD access

Command	Response	Default
+CLCK=<fac>,<mode>,<passwd>,<class>	when <mode>=2: +CLCK: <status>[,<class1>[<CR><LF>+CLCK: <status>,<class2>[...]]]	[,,7]
+CLCK=?	+CLCK: ("PS","SC","AO","OI","OX","AI","IR","AB","AG","AC")	

### 5.5 AT+CPWD Change password

GSM 07.07 section 7.5 [2]. Changes passwords of SIM/ME/network features. "AB" = network/barring password.

Command	Response
+CPWD=<fac>,<oldpwd>,<newpwd>	
+CPWD=?	+CPWD: ("PS",10),("SC",8),("AB",4),("P2",8)

### 5.6 AT+CLIP Calling line identification presentation

GSM 07.07 section 7.6 [2]. Controls presentation of +CLIP unsolicited result code or returns CLIP subscription status from network. If product does not support network status query, <m> shall always equal 2.

Command	Response	Default
+CLIP=<n>		0
+CLIP?	+CLIP: <n>,<m>	
+CLIP=?	+CLIP: (0,1)	

### 5.7 AT+CLIR Calling line identification restriction

GSM 07.07 section 7.7 [2]. Enables/disables own number sending to network or returns CLIR subscription status from network. If product does not support network status query, <m> shall always equal 2.

Command	Response	Default
+CLIR=<n>		0
+CLIR?	+CLIR: <n>,<m>	
+CLIR=?	+CLIR: (0-2)	



## 5.8 AT+COLP Connected line identification presentation

GSM 07.07 section 7.8 [2]. Controls presentation of +COLP intermediate result code or returns COLP subscription status from network. If product does not support network status query, <m> shall always equal 2.

Command	Response	Default
+COLP=<n>		0
+COLP?	+COLP: <n>,<m>	
+COLP=?	+COLP: (0,1)	

## 5.9 AT+CCFC Call forwarding number and conditions

GSM 07.07 section 7.10 [2]. Controls call forwarding supplementary services. <reason> values 4 and 5 are only applicable for <mode>=0. When status request response from network indicates that SS is active for specific data bearer services (e.g. 'circuit async'), AT interface shall indicate 'data circuit async' (<class>=32) ('not active' case is displayed only when SS is not active to any service; i.e. +CCFC: 0,7). Supported <class> values: 1, 2, 4, 5, 7, 8, 12, 13, 15, 16, 32, 64, 128, 144, 160, 240, 242 and 255.

Class values:

1	voice (telephony)
2	data (refers to all bearer services; with <mode>=2 this may refer only to some bearer service if TA does not support values 16, 32, 64 and 128)
4	fax (facsimile services)
8	short message service
16	data circuit sync
32	data circuit async
64	dedicated packet access
128	dedicated PAD access

Command	Response	Default
+CCFC=<reason>, <mode>,<number>, <type>,<class>, <subaddr>, <satype>, <time>	when <mode>=2: +CCFC: <status>,<class1>[,<number>,<type> [,<subaddr>,<satype>[,<time>]]] [<CR><LF>+CCFC: <status>,<class2>[,<number> ,<type>[,<subaddr>,<satype>[,<time>]]] [...]]	[,,,7,,20]
+CCFC=?	+CCFC: (0-5)	

### 5.10 AT+CCWA Call waiting

GSM 07.07 section 7.11 /2/. Controls call waiting supplementary service and presentation of +CCWA unsolicited result code. When status request response from network indicates that SS is active for specific data bearer services (e.g. 'circuit async'), AT interface shall only indicate 'data' (<class>=2) ('not active' case is displayed only when SS is not active to any service; i.e. +CCWA: 0,7). Supported <class> values: 1, 2, 4, 5 and 7.

Command	Response	Default
+CCWA=<n>,<mode>,<class>	when <mode>=2: +CCWA: <status>,<class1> [<CR><LF>+CCWA: <status>,<class2> [...]]	0[,7]
+CCWA?	+CCWA: <n>	
+CCWA=?	+CCWA: (0,1)	

### 5.11 AT+CHLD Call related supplementary services

GSM 07.07 section 7.12 /2/. Controls call hold, multiparty and explicit call transfer supplementary service operations similarly as defined in GSM 02.30 section 4.5.5.1.

Short description of <n> values: 0 = release all held calls or send 'busy' cause to network for a waiting call; 1 = release all active calls and accept other (waiting or held) call; 1x = release a specific active call x; 2 = active calls on hold and accept other (waiting or held) call; 2x = all active multiparty call on hold except call x; 3 = add held call to multiparty call; 4 = connect held and active (or MO alerting) call with each other (locally both calls are disconnected).

Where both a held and a waiting call exist, the above procedures shall apply to the waiting call (i.e. not to the held call) in conflicting situation.

Command	Response
+CHLD=<n>	
+CHLD=?	+CHLD: (0,1,1x,2,2x,3,4)

### 5.12 AT+CUSD Unstructured supplementary service data

GSM 07.07 section 7.14 /2/. Used to send MO USSD and set the presentation of +CUSD unsolicited result code (MT USSD). Used also to reply to a network initiated USSD (see Result codes section).

Command	Response	Default
+CUSD=<n>,<str>,<dcs>	+CUSD: <m>[,<str>,<dcs>]	0[,0]
+CUSD?	+CUSD: <n>	
+CUSD=?	+CUSD: (0,1)	

### 5.13 AT+CAOC Advice of charge

GSM 07.07 section 7.15 /2/. Returns current call parameter value (in home units) from ME The unsolicited result code +CCCM: <ccm> is sent when the CCM value changes, but not more that every 10 seconds. Deactivation of the unsolicited event reporting is made with the same command.

Command	Response
+CAOC=[<mode>]	[+CAOC: <ccm>]
+CAOC?	+CAOC: <mode>
+CAOC=?	+CAOC: (0-2)

### 5.14 AT+CSSN Supplementary service notifications

GSM 07.07 section 7.16 /2/. Controls presentation of +CSSI intermediate result code and +CSSU unsolicited result code.

Command	Response	Default
+CSSN=<n>,<m>		0,0
+CSSN?	+CSSN: <n>,<m>	
+CSSN=?	+CSSN: (0,1),(0,1)	

## 6. ME CONTROL AND STATUS COMMANDS (GSM 07.07)

### 6.1 AT+CPIN Enter PIN

GSM 07.07 section 8.3 /2/. Used to enter device passwords that ME is querying, or to query whether ME is currently querying a password. When last executed AT command failed in PIN2/PUK2 authentication error (or security code error in case of memory updating), read command shall return PIN2/PUK2 (or security code) <code> although the operation of ME is not blocked.

Command	Response
+CPIN=<pin>,<newpin>	
+CPIN?	+CPIN: <code>
+CPIN=?	

### 6.2 AT+CBC Battery charge

GSM 07.07 section 8.4 /2/. Returns ME battery charging status and charge level. In Nokia products <bcs>=1 shall mean that battery is being charged.

Command	Response
+CBC	+CBC: <bcs>,<bcl>
+CBC=?	+CBC: (0,1),(0-100)

### 6.3 AT+CSQ Signal quality

GSM 07.07 section 8.5 [2]. Returns signal strength as calculated by ME. Bit error rate reporting not supported by Nokia products.

Command	Response
+CSQ	+CSQ: <rssi>,99
+CSQ=?	+CSQ: (0-31,99),(99)

### 6.4 AT+CPBS Select phonebook memory storage

GSM 07.07 section 8.11 [2]. Selects memory where phonebook commands operate. Supported <storage> values depend on the product. Supported <storage> values are: "DC", "MC", "RC", "ME", "FD", "SM", "ON", "EN".

Read command returns currently selected memory, number of used locations and total number of locations in the memory.

Command	Response	Default
+CPBS=<storage>		"SM"
+CPBS?	+CPBS: <storage>,<used>,<total>	
+CPBS=?	+CBPS: (list of supported <storage>s)	

### 6.5 AT+CPBR Read phonebook entries

GSM 07.07 section 8.12 [2]. If given index range is valid but all entries in it are empty, response is empty. Test command returns location range supported by the current storage as a compound value and the maximum lengths of <number> and <text> fields.

Command	Response
+CPBR=<index1>,<index2>	[+CPBR: <index1>,<number>,<type>,<text>[[...]<CR><LF>+CPBR: <index2>,<number>,<type>,<text>]]
+CPBR=?	+CPBR: (<index>-list),[<nlength>],[<tlength>]

## 6.6 AT+CPBF Find phonebook entries

GSM 07.07 section 8.13 /2/. If searched text is not found from entries in current memory, response is empty. Test command returns the maximum lengths of <number> and <text> fields.

Command	Response
+CPBF=<findtext>	[+CPBF: <index1>,<number>,<type>,<text>[[...]<CR><LF>+CPBF: <index2>,<number>,<type>,<text>]]
+CPBF=?	+CPBF: [<nlength>],[<tlength>]

## 6.7 AT+CPBW Write phonebook entry

GSM 07.07 section 8.14 /2/. Execution command writes phonebook entry in location number <index> in the current phonebook memory storage selected with +CPBS. Entry fields written are phone number <number> (in the format <type>) and text <text> associated with the number. If those fields are omitted, phonebook entry is deleted. If <index> is left out, but <number> is given, entry is written to the first free location in the phonebook.

Test command returns location range supported by the current storage as a compound value, the maximum length of <number> field, supported number formats of the storage, and the maximum length of <text> field.

Command	Response	Default
+CPBW=[<index>][, <number>[,<type>[,<text>]]]		[,129/145]
+CPBW=?	+CPBW: (<index>-list), <nlength>,(129,145), [<tlength>]	

## 6.8 AT+CPROT Enter protocol mode

3G TS 27.007 section 8.41 /9/.

Set command informs TA that TE wants to establish a peer-to-peer protocol <proto> with the ME on the link from which the command was received. This command can be used in case the link between TE and ME does not provide itself such a mechanism. This command is only supported with RS232.

If ME has succeeded in establishing a logical link between application protocols and external interface, it will send CONNECT message to the TE. Otherwise, the NO CARRIER response will be returned.

If the CONNECT response is received, TE can start sending <proto> or upper layer frames.

The connection shall always return for <proto> mode when the protocol session is ended. When the ME receives a disconnect request from its peer entity, it will process it and send OK response to the TE indicating its capability for receiving new AT commands. Since <proto> can be accessed in other ways, TA must have pre-knowledge of the fact that connection is initiated with AT+CPROT command. This means that switch to <proto> mode must include some sort of notification to the protocol entity.

Test command returns values supported by the TA as a compound value.

Command	Response
+CPROT=<proto>	CONNECT NO CARRIER OK ERROR
+CPROT=?	+CPROT: <proto1>

## 7. ME ERROR COMMAND (GSM 07.07)

### 7.1 AT+CMEE Report mobile equipment error

GSM 07.07 section 9.1 /2/. Controls presentation of extended error information result code. See also result code +CME ERROR. Textual error code presentation (parameter value 2) is not supported.

Command	Response	Default
+CMEE=<n>		0
+CMEE?	+CMEE: <n>	
+CMEE=?	+CMEE: (0-1)	

## 8. SMS COMMANDS (GSM 07.05)

### 8.1 AT+CSMS Select message service

GSM 07.05 section 3.2.1 /3/. Selects the messaging service <service>. Main difference between <service> 0 and 1 is that when <service>=1 +CNMA acknowledgement is required to most MT short messages routed directly TE.

Command	Response	Default
+CSMS=<service>	+CSMS: 1,1,1	0
+CSMS?	+CSMS: <service>,1,1,1	
+CSMS=?	+CSMS: (0,1)	

### 8.2 AT+CPMS Preferred message storage

GSM 07.05 section 3.2.2 /3/. Selects memory storages. <mem1> is for read/delete procedures, <mem2> for writing/sending, <mem3> is preferred memory for received messages (when they are not routed directly to TE).

Command	Response	Default
+CPMS=<mem1> [,<mem2>[ ,<mem3>]]	+CPMS: <used1>,<total1>,<used2>, <total2>,<used3>,<total3>	"SM","SM","MT"
+CPMS?	+CPMS: <mem1>,<used1>,<total1>,<mem2>, <used2>,<total2>,<mem3>,<used3>,<total3>	
+CPMS=?	+CPMS: ("ME","SM"),("ME","SM"),("MT")	

### 8.3 AT+CMGF Message format

GSM 07.05 section 3.2.3 /3/. This command is used to select SMS PDU mode or SMS Text mode.

Command	Response	Default
+CMGF=[<mode>]		0
+CMGF?	+CMGF: <mode>	
+CMGF=?	+CMGF: (0,1)	



#### 8.4 AT+CSCA Service centre address

GSM 07.05 section 3.3.1 /3/. Controls the local (TA) SMSC address. SMSC address is fetched from the SMS server at the beginning of DTE session. SMSC address may change also when +CRES is actioned.

Command	Response
+CSCA=<sca>[,<tosca>]	
+CSCA?	+CSCA: <sca>,<tosca>
+CSCA=?	

#### 8.5 AT+CSMP Set text mode parameters

GSM 07.05 section 3.3.2 /3/. This command is used to select values for additional parameters needed when SMS messages are sent to the network, or placed in a storage when the text format message mode is selected. The values of these parameters may change also when +CRES is actioned.

Command	Response	Default
+CSMP=[<fo>[,<vp>[,<pid>[,<dc>]]]]		17,167,0,0
+CSMP?	+CSMP: <fo>,<vp>,<pid>,<dc>	
+CSMP=?		

#### 8.6 AT+CSDH Show text mode parameters

GSM 07.05 section 3.3.3 /3/. Controls whether detailed header information is shown in text mode result codes.

Command	Response	Default
+CSDH=[<show>]		0
+CSDH?	+CSDH: <show>	
+CSDH=?	+CSDH: (0,1)	

## 8.7 AT+CSCB Select cell broadcast message types

GSM 07.05 section 3.3.4 /3/. Selects which types of CBM's are to be received by the ME.

Command	Response	Default
+CSCB=[<mode>[,<mids>[,<dcss>]]]		0,"", ""
+CSCB?	+CSCB: <mode>,<mids>,<dcss>	
+CSCB=?	+CSCB: (0,1)	

## 8.8 AT+CSAS Save settings

GSM 07.05 section 3.3.5 /3/. Saves SMS settings (+CSMP and +CSCA parameters) to non-volatile memory (usually SIM). First <profile> location is 1. SMSC address is not stored if +CSCA is not set/restored during current session (i.e. +CSCA? returns +CSCA: "", 129). Validity period is not stored if <fo> does not indicate relative validity period format (i.e. bits 4-3 are not '10'). NOTE: The values that are not stored shall remain intact in the <profile>.

Command	Response	Default
+CSAS[=<profile>]		[1]
+CSAS=?	+CSAS: (<profile>-list)	

## 8.9 AT+CRES Restore settings

GSM 07.05 section 3.3.6 /3/. Restores SMS settings (+CSMP and +CSCA parameters) from non-volatile memory (usually SIM). First <profile> location is 1. In addition, if validity period is returned, <fo> is forced to indicate relative validity period format (i.e. bits 4-3 are set to '10').

Command	Response	Default
+CRES[=<profile>]		[1]
+CRES=?	+CRES: (<profile>-list)	

**8.10 AT+CNMI New message indications to TE**

GSM 07.05 section 3.4.1 /3/. Selects the procedure, for how the receiving of new messages from the network is indicated to the TE when the TE is active. <bm>=1 is not implemented in Nokia products (requires CBM memory in ME).

Command	Response	Default
+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]		0,0,0,0,0
+CNMI?	+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>	
+CNMI=?	+CNMI: (0-2),(0-3),(0,2,3),(0-2),(0,1)	

## 8.11 AT+CMGL List messages

GSM 07.05 section 3.4.2 /3/. Returns messages with a status value <stat> from a preferred message storage <mem1> to the TE. <alpha> is not supported by Nokia products.

Command	Response	Default
+CMGL[= <stat>]	Text mode (+CMGF=1), SMS-DELIVER or SMS-SUBMIT: +CMGL: <index>,<stat>,<oa/da>,[<alpha>],[<scts>] [,<tooa/toda>,<length>]<CR><LF><data>[<CR><LF> +CMGL: <index>,<stat>,<oa/da>,[<alpha>],[<scts>] [,<tooa/toda>,<length>]<CR><LF><data>[...] SMS-STATUS-REPORT: +CMGL: <index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>, <dt>,<st>[<CR><LF> +CMGL: <index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>, <dt>,<st>[...] SMS-COMMAND: +CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF> +CMGL: <index>,<stat>,<fo>,<ct>[...] PDU mode (+CMGF=0): +CMGL: <index>,<stat>,[<alpha>],<length><CR><LF><pdu> [<CR><LF>+CMGL:<index>,<stat>,[<alpha>],<length> <CR><LF><pdu>[...]	["REC UNREAD"/0]
+CMGL=?	Text mode (+CMGF=1): +CMGL: ("REC UNREAD","REC READ","STO UNSENT", "STO SENT","ALL") PDU mode (+CMGF=0): +CMGL: (0-4)	

## 8.12 AT+CMGR Read message

GSM 07.05 section 3.4.3 /3/. Returns a message with the location value <index> from preferred message storage <mem1> to the TE. <alpha> is not supported by Nokia products.

Command	Response
+CMGR= <index>	text mode (+CMGF=1), SMS-DELIVER: +CMGR: <stat>,<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcsc>,<sca>,<tosca>,<length>]<CR><LF><data> SMS-SUBMIT: +CMGR: <stat>,<da>,[<alpha>],[<toda>,<fo>,<pid>,<dcsc>,[<vp>],<sca>,<tosca>,<length>]<CR><LF><data> SMS-STATUS-REPORT: +CMGR: <stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> SMS-COMMAND: +CMGR: <stat>,<fo>,<ct>[,<pid>,[<mn>],[<da>],[<toda>],<length><CR><LF><cdata>] PDU mode (+CMGF=0): +CMGR: <stat>,[<alpha>],<length><CR><LF><pdu>
+CMGR=?	

### 8.13 AT+CNMA New message acknowledgement to ME/TA

GSM 07.05 section 3.4.4 /3/. PDU is entered as specified in 07.05. Command is available only when +CSMS=1 is supported.

NOTE: It depends on +CSMS setting and AT interface state (data/command mode) whether acknowledgement is automatically handled or is +CNMA command waited from the terminal before sending acknowledgement.

Command	Response
text mode (+CMGF=1): +CNMA PDU mode (+CMGF=0): +CNMA=[<n>[,<length>[<CR> PDU is given<ctrl-Z/ESC> ]]]	
+CNMA?	PDU mode (+CMGF=0): +CNMA: (0-2)

### 8.14 AT+CMGS Send message

GSM 07.05 section 3.5.1 /3/. Sends a message from a TE to the network (SMS-SUBMIT). Message reference value <mr> is returned to the TE on successful message delivery. Sending can be cancelled by using the <ESC> character. <ctrl-Z> must be used to indicate the ending of the message body. Text/PDU is entered as specified in 07.05.

Command	Response	Default
Text mode (+CMGF=1): +CMGS=<da>[,<toda>]<CR> text is entered<ctrl-Z/ESC> PDU mode (+CMGF=0): +CMGS=<length><CR> PDU is given<ctrl-Z/ESC>	Text mode and sending ok: +CMGS: <mr>[,<scts>] PDU mode and sending ok: +CMGS: <mr>[,<ackpdu>]	Text mode: [,129/145]
+CMGS=?		

### 8.15 AT+CMSS Send message from storage

GSM 07.05 section 3.5.2 /3/. Sends a message with the location value <index> from preferred message storage <mem2> to the network (SMSSUBMIT). If a new recipient address <da> is given, it shall be used instead of the one stored with message. Reference value <mr> is returned to TE on

successful message delivery. Also SMS-COMMANDs can be sent, but if <index> contains SMS-COMMAND and <da> is given, +CMS ERROR is returned.

Command	Response	Default
+CMSS=<index>[,<da>[,<toda>]]	Text mode (+CMGF=1) and sending ok: +CMSS: <mr>[,<scts>]  PDU mode (+CMGF=0) and sending ok: +CMSS: <mr>[,<ackpdu>]	[, "", 129/145]
+CMSS=?		

### 8.16 AT+CMGW Write message to memory

GSM 07.05 section 3.5.3 /3/. Stores a message (either SMS-DELIVER or SMS-SUBMIT) in a preferred memory storage <mem2>. Memory location <index> of stored message is returned. By default, message status will be set to "stored unsent", but parameter <stat> also allows other status values to be given. Text/PDU entering as specified in 07.05.

Command	Response	Default
Text mode (+CMGF=1): +CMGW[=<oa/da>[,<tooa/toda>[,<stat>]]] <CR>text is entered<ctrl-Z/ESC>  PDU mode (+CMGF=0): +CMGW=<length>[,<stat>]<CR>PDU is given<ctrl-Z/ESC>	storing successful: +CMGW: <index>	Text mode: [, 129/145, "STO UNSENT"]  PDU mode: [, 2]
+CMGW=?		

### 8.17 AT+CMGD Delete message

GSM 07.05 section 3.5.4 /3/. Deletes a message from preferred message storage <mem1> location <index>.

Command	Response
+CMGD=<index>[,<delflag>]	
+CMGD=?	+CMGD: (list of supported <index>s) [(list of supported <delflag>s)]

**8.18 AT+CMGC Send command**

GSM 07.05 section 3.5.5 /3/. Text/PDU is entered as specified in 07.05.

Command	Response	Default
Text mode (+CMGF=1): +CMGC=<fo>,<ct>[,<pid>[,<mn>[,<da>[,<to da>]]]]<CR>text is entered <ctrl-Z/ESC>	Text mode and sending ok: +CMGC: <mr>[,<scts>]	text mode: [2,0,0, 0,"", 129/145]
PDU mode (+CMGF=0): +CMGC=<length><CR> PDU is given<ctrl-Z/ESC>	PDU mode and sending ok: +CMGC: <mr>[,<ackpdu>]	
+CMGC=?		

**8.19 AT+CMMS More messages to send**

GSM 07.05 section 3.5.6 /3/. Controls the continuity of SMS relay protocol link. If enabled (and supported by network), several consecutive messages can be sent much faster as link is kept open.

Command	Response	Default
+CMMS=[<n>]		0
+CMMS?	+CMMS: <n>	
+CMMS=?	+CMMS: (0,2)	



## 9. FAX COMMANDS

The following fax (+F) command sets are available for use by products supporting GSM 03.45 facsimile group 3 transparent. It is product dependant which of these command sets are supported, and also whether error correction mode (ECM) and quality checking in Class 2/2.0 is supported.

### 9.1 All Classes

#### 9.1.1 AT+FCLASS DCE mode select

This command selects a DCE mode - data (0) or facsimile (class 1, 2 or 2.0).

Command	Response	Default
+FCLASS=<mode>		0
+FCLASS?	<mode>	
+FCLASS=?	0,1,2,2.0	

#### 9.1.2 AT+FLO Select flow control

TIA/EIA-578-A Section 8.5.1 /6/ and TIA/EIA-592-A Section 8.5.3.1 /7/.

Command	Response	Default
+FLO=<n>		2
+FLO?	<n>	
+FLO=?	(0-2)	

## 9.1.3 AT+FPR Serial port rate control

TIA/EIA-578-A Section 8.5.2 /6/ and TIA/EIA-592-A Section 8.5.3.2 /7/.

+FPR value	0	1	2	4	8	10	18	30
DTE speed	autobauding	2400	4800	9600	19200	38400	57600	115200

Command	Response	Default
+FPR=<n>		0
+FPR?	<n>	
+FPR=?	+FPR: (0,1,2,4,8,10,18,30)	

## 9.2 Class 1

All Class 1 facsimile commands are defined in ITU-T T.31 /11/ and TIA-578-A /6/.

## 9.2.1 AT+FDD Double escape character replacement

TIA/EIA-578-A Section 8.5.3 /6/.

Command	Response	Default
+FDD=0		0
+FDD?	0	
+FDD=?	0	

## 9.2.2 AT+FMI Request manufacturer ID

TIA/EIA-578-A Section 8.2.4 /6/.

Command	Response
+FMI?	E.g. Nokia

## 9.2.3 AT+FMM Request model ID

TIA/EIA-578-A Section 8.2.4 /6/.

Command	Response
+FMM?	e.g. Datacom

## 9.2.4 AT+FMR Request revision ID

TIA/EIA-578-A Section 8.2.4 /6/.

Command	Response
+FMR?	e.g. V 5.792 10-01-01 NHM-7 (c)NMP

## 9.2.5 AT+FRH Receive HDLC data with a supported carrier

TIA/EIA-578-A Section 8.3.6 /6/. Can only be set when on-line.

Command	Response
+FRH=3	
+FRH=?	3

## 9.2.6 AT+FRM Receive data with a supported carrier

TIA/EIA-578-A Section 8.3.4 /6/. Can only be set when on-line.

Command
+FRM=<n>
+FRM=?

### 9.2.7 AT+FRS Receive silence

TIA/EIA-578-A Section 8.3.2 /6/. Can only be used when on-line.

Command	Response
+FRS=<n>	
+FRS=?	(0-255)

### 9.2.8 AT+FTH Transmit HDLC data with a supported carrier

TIA/EIA-578-A Section 8.3.5 /6/. Can only be set when on-line.

Command	Response
+FTH=3	
+FTH=?	3

### 9.2.9 AT+FTM Transmit data with a supported carrier

TIA/EIA-578-A Section 8.3.3 /6/. Can only be set when on-line.

Command
+FTM=<n>
+FTM=?

### 9.2.10 AT+FTS Transmit silence

TIA/EIA-578-A Section 8.3.1 /6/. Can only be used when on-line.

Command	Response
+FTS=<n>	
+FTS=?	(0-255)

### 9.3 Class 2

All Class 2 facsimile commands are defined in SP-2388 /10/.

#### 9.3.1 AT+FAA Adaptive answer

SP-2388 Section 8.5.4.1 /10/.

Command	Response	Default
+FAA=<n>		0
+FAA?	<n>	
+FAA=?	(0-1)	

#### 9.3.2 AT+FAXERR Fax error value parameter

SP-2388 Section 8.5.2.7 /10/.

Command	Response	Default
+FAXERR?	<n>	0
+FAXERR=?	(0-103)	

#### 9.3.3 AT+FBADLIN RTN threshold number of consecutive bad lines for FCQ

SP-2388 Section 8.5.2.5 /10/.

Command	Response	Default
+FBADLIN=<n>		0
+FBADLIN?	<n>	
+FBADLIN=?	(0-255)	

## 9.3.4 AT+FBADMUL RTN threshold error rate multiplier for FCQ

SP-2388 Section 8.5.2.4 /10/.

Command	Response	Default
+FBADMUL=<n>		20
+FBADMUL?	<n>	
+FBADMUL=?	(0-255)	

## 9.3.5 AT+FBOR Data bit order

SP-2388 Section 8.5.3.3 /10/.

Command	Response	Default
+FBOR=<n>		0
+FBOR?	<n>	
+FBOR=?	(0-3)	

## 9.3.6 AT+FBUF DCE's data buffer characteristics

SP-2388 Section 8.5.4.2 /10/.

Command	Response
+FBUF?	e.g. 5400,0,0,0

## 9.3.7 AT+FBUG Session message reporting

SP-2388 Section 8.5.1.10 /10/.

Command	Response	Default
+FBUG=<n>		0
+FBUG?	<n>	
+FBUG=?	(0-1)	

## 9.3.8 AT+FCIG Local polling ID string

SP-2388 Section 8.5.1.6 /10/.

Command	Response	Default
+FCIG="<string>"		""
+FCIG?	"<string>"	
+FCIG=?	(20)(32-126)	

## 9.3.9 AT+FCQ Quality checking

SP-2388 Section 8.5.2.3 /10/.

Command	Response	Default
+FCQ=<n>		0
+FCQ?	<n>	
+FCQ=?	(0,2)	

## 9.3.10 AT+FCR Capability to receive

SP-2388 Section 8.5.1.9 /10/.

Command	Response	Default
+FCR=<n>		1
+FCR?	<n>	
+FCR=?	(0-1)	

## 9.3.11 AT+FCTCRTY ECM retry count

SP-2388 Section 8.5.2.8 /10/.

Command	Response	Default
+FCTCRTY=<n>		0
+FCTCRTY?	<n>	
+FCTCRTY=?	(0-255)	

## 9.3.12 AT+FDCC Capabilities parameters

SP-2388 Section 8.5.1.1 /10/.

Command	Response
+FDCC=<a>,<b>,<c>,<d>,<e>,<f>,<g>,<h>	
+FDCC?	<a>,<b>,<c>,<d>,<e>,<f>,<g>,<h>
+FDCC=?	

## 9.3.13 AT+FDSCS Negotiated current session parameters

SP-2388 Section 8.5.1.3 /10/.

Command	Response	Default
+FDSCS?	<a>,<b>,<c>,<d>,<e>,<f>,<g>,<h>	0,0,0,0,0,0,0,0

## 9.3.14 AT+FDFFC Data encoding format conversion parameter

SP-2388 Section 8.5.3.6 /10/.

Command	Response	Default
+FDFFC=0		0
+FDFFC?	0	
+FDFFC=?	0	



## 9.3.15 AT+FDIS Current session parameters

SP-2388 Section 8.5.1.2 /10/.

Command	Response
+FDIS=<a>, <b>,<c>, <d>,<e>, <f>,<g>,<h>	
+FDIS?	<a>,<b>,<c>,<d>,<e>,<f>,<g>,<h>
+FDIS=?	

## 9.3.16 AT+FDR Receive phase C data

SP-2388 Section 8.3.5 /10/. Can be used only when on-line.

Command
+FDR

## 9.3.17 AT+FDT Transmit phase C data

SP-2388 Section 8.3.3 /10/. Can be used only when on-line.

Command
+FDT

## 9.3.18 AT+FECCM ECM control parameter

SP-2388 Section 8.5.2.1 /10/.

Command	Response	Default
+FECCM=<n>		2
+FECCM?	<n>	
+FECCM=?	(0,2)	

## 9.3.19 AT+FET Transmit page punctuation

SP-2388 Section 8.3.4 /10/.

Command	Response	Default
+FET=<n>		0
+FET?	<n>	
+FET=?	(0-2)	

## 9.3.20 AT+FK Terminate session

SP-2388 Section 8.3.6 /10/.

Command
+FK

## 9.3.21 AT+FLID Local ID string

SP-2388 Section 8.5.1.5 /10/.

Command	Response	Default
+FLID="<string>"		""
+FLID?	"<string>"	
+FLID=?	(20)(32-126)	

## 9.3.22 AT+FLNFC Page length format conversion parameter

SP-2388 Section 8.5.3.7 /10/.

Command	Response	Default
+FLNFC=0		0
+FLNFC?	0	
+FLNFC=?	0	

## 9.3.23 AT+FLPL Indicate a document to poll

SP-2388 Section 8.5.1.7 /10/.

Command	Response	Default
+FLPL=<n>		0
+FLPL?	<n>	
+FLPL=?	(0-1)	

## 9.3.24 AT+FMDL Request model ID

SP-2388 Section 8.2.5 /10/.

Command	Response
+FMDL?	e.g. Datacom

## 9.3.25 AT+FMFR Request manufacturer ID

SP-2388 Section 8.2.4 /10/.

Command	Response
+FMFR?	e.g. Nokia

## 9.3.26 AT+FMINSP Minimum acceptable Phase C speed

SP-2388 Section 8.5.2.9 /10/.

Command	Response	Default
+FMINSP=<n>		0
+FMINSP?	<n>	
+FMINSP=?	(0-3)	

## 9.3.27 AT+FPHCTO Phase C response timeout

SP-2388 Section 8.5.2.6 /10/.

Command	Response	Default
+FPHCTO=<n>		30
+FPHCTO?	<n>	
+FPHCTO=?	(0-255)	

## 9.3.28 AT+FPTS Page transmission status parameter

SP-2388 Section 8.5.2.2 /10/.

Command	Response	Default
+FPTS=<n>		1
+FPTS?	<n>	
+FPTS=?	(1-3)	

## 9.3.29 AT+FRBC Phase C receive data block size

SP-2388 Section 8.5.3.2 /10/.

Command	Response	Default
+FRBC=0		0
+FRBC?	0	
+FRBC=?	0	

## 9.3.30 AT+FREL Phase C received EOL alignment control parameter

SP-2388 Section 8.5.3.4 /10/.

Command	Response	Default
+FREL=0		0
+FREL?	0	
+FREL=?	0	

## 9.3.31 AT+FREV Request revision ID

SP-2388 Section 8.2.6 /10/.

Command	Response
+FREV?	e.g. V 5.792 10-01-01 NHM-7 (c)NMP

## 9.3.32 AT+FSPL Request to poll

SP-2388 Section 8.5.1.8 /10/.

Command	Response	Default
+FSPL=<n>		0
+FSPL?	<n>	
+FSPL=?	(0-1)	

## 9.3.33 AT+FTBC Phase C transmit data block size

SP-2388 Section 8.5.3.1 /10/.

Command	Response	Default
+FTBC=0		0
+FTBC?	0	
+FTBC=?	0	

## 9.3.34 AT+FVRFC Vertical resolution format conversion

SP-2388 Section 8.5.3.5 /10/.

Command	Response	Default
+FVRFC=0		0
+FVRFC?	0	
+FVRFC=?	0	

**9.3.35 AT+FWDFC Page width format conversion**

SP-2388 Section 8.5.3.8 /10/.

Command	Response	Default
+FWDFC=0		0
+FWDFC?	0	
+FWDFC=?	0	

**9.4 Class 2.0**

All Class 2.0 facsimile commands are defined in ITU-T T.32 /8/ and TIA/EIA-592-A /7/.

**9.4.1 AT+FAA Adaptive answer**

TIA/EIA-592-A Section 8.5.2.5 /7/.

Command	Response	Default
+FAA=<n>		0
+FAA?	<n>	
+FAA=?	(0-1)	

**9.4.2 AT+FBO Data bit order**

TIA/EIA-592-A Section 8.5.3.4 /7/.

Command	Response	Default
+FBO=<n>		0
+FBO?	<n>	
+FBO=?	(0-3)	

**9.4.3 AT+FBS Buffer size**

TIA/EIA-592-A Section 8.5.3.2 /7/.

Command	Response
+FBS?	e.g. 100,1518

## 9.4.4 AT+FBU HDLC frame reporting

TIA/EIA-592-A Section 8.5.1.10 /7/.

Command	Response	Default
+FBU=<n>		0
+FBU?	<n>	
+FBU=?	(0-1)	

## 9.4.5 AT+FCC Capabilities parameters

TIA/EIA-592-A Section 8.5.1.1 /7/.

Command	Response
+FCC=<a>,<b>,<c>,<d>,<e>,<f>,<g>,<h>	
+FCC?	<a>,<b>,<c>,<d>,<e>,<f>,<g>,<h>
+FCC=?	

## 9.4.6 AT+FCQ Copy quality checking

TIA/EIA-592-A Section 8.5.2.3 /7/.

Command	Response	Default
+FCQ=<n>,0		1,0
+FCQ?	<n>,0	
+FCQ=<n>,0	(0,1),0	

## 9.4.7 AT+FCR Capability to receive

TIA/EIA-592-A Section 8.5.1.9 /7/.

Command	Response	Default
+FCR=<n>		1
+FCR?	<n>	
+FCR=?	(0-1)	

## 9.4.8 AT+FCS Current session results

TIA/EIA-592-A Section 8.5.1.3 /7/.

Command	Response	Default
+FCS?	<a>,<b>,<c>,<d>,<e>,<f>,<g>,<h>	0,0,0,0,0,0,0,0

## 9.4.9 AT+FCT Phase C response timeout

TIA/EIA-592-A Section 8.5.2.6 /7/.

Command	Response	Default
+FCT=<n>		1E
+FCT?	<n>	
+FCT=?	(0-FF)	

## 9.4.10 AT+FDR Receive phase C data

TIA/EIA-592-A Section 8.3.4 /7/. Can be used only when on-line.

Command
+FDR



## 9.4.11 AT+FDT Transmit phase C data

TIA/EIA-592-A Section 8.3.3 /7/. Can be used only when on-line.

Command
+FDT

## 9.4.12 AT+FEA Phase C receive EOL alignment

TIA/EIA-592-A Section 8.5.3.5 /7/.

Command	Response	Default
+FEA=0		0
+FEA?	0	
+FEA=?	0	

## 9.4.13 AT+FFC Data encoding format conversion

TIA/EIA-592-A Section 8.5.3.6 /7/.

Command	Response	Default
+FFC=<a>,<b>,<c>,<d>		0,0,0,0
+FFC?	0,0,0,0	
+FFC=?	(0),(0),(0),(0)	

## 9.4.14 AT+FHS Call termination status

TIA/EIA-592-A Section 8.5.2.7 /7/.

Command	Response	Default
+FHS?	<n>	00

## 9.4.15 AT+FIE Procedure interrupt enable

TIA/EIA-592-A Section 8.5.2.1 /7/.

Command	Response	Default
+FIE=<n>		0
+FIE?	<n>	
+FIE=?	(0-1)	

## 9.4.16 AT+FIP Initialize facsimile parameters

TIA/EIA-592-A Section 8.3.6 /7/.

Command	Response	Default
+FIP		
+FIP=0		0
+FIP?	0	
+FIP=?	0	

## 9.4.17 AT+FIS Current session parameters

TIA/EIA-592-A Section 8.5.1.2 /7/.

Command	Response
+FIS=<a>,<b>,<c>,<d>,<e>,<f>,<g>,<h>	
+FIS?	<a>,<b>,<c>,<d>,<e>,<f>,<g>,<h>
+FIS=?	

## 9.4.18 AT+FKS Terminate session

TIA/EIA-592-A Section 8.3.5 /7/.

Command
+FKS

## 9.4.19 AT+FLI Local ID string

TIA/EIA-592-A Section 8.5.1.5 /7/.

Command	Response	Default
+FLI="<string>"		""
+FLI?	"<string>"	
+FLI=?	(20-7E)	

## 9.4.20 AT+FLP Indicate a document to poll

TIA/EIA-592-A Section 8.5.1.7 /7/.

Command	Response	Default
+FLP=<n>		0
+FLP?	<n>	
+FLP=?	(0-1)	

## 9.4.21 AT+FMI Request manufacturer ID

TIA/EIA-592-A Section 8.2.4 /7/.

Command	Response
+FMI?	e.g. Nokia

## 9.4.22 AT+FMM Request model ID

TIA/EIA-592-A Section 8.2.4 /7/.

Command	Response
+FMM?	e.g. Datacom

## 9.4.23 AT+FMR Request revision ID

TIA/EIA-592-A Section 8.2.4 /7/.

Command	Response
+FMR?	e.g. V 5.792 10-01-01 NHM-7 (c)NMP

## 9.4.24 AT+FMS Minimum phase C speed

TIA/EIA-592-A Section 8.5.2.9 /7/.

Command	Response	Default
+FMS=<n>		0
+FMS?	<n>	
+FMS=?		

## 9.4.25 AT+FNR Negotiation message reporting

TIA/EIA-592-A Section 8.5.1.11 /7/.

Command	Response	Default
+FNR=<a>,<b>,<c>,<d>		0,0,0,0
+FNR?	<a>,<b>,<c>,<d>	
+FNR=?	(0-1),(0-1),(0-1),(0-1)	

## 9.4.26 AT+FNS Non-standard frame FIF octet string

TIA/EIA-592-A Section 8.5.1.6 /7/. New string is added to the already stored string. String consists of hexadecimal numbers.

Command	Response	Default
+FNS="<string>"		""
+FNS?	"<string>"	
+FNS=?	5A	

## 9.4.27 AT+FPI Local polling ID string

TIA/EIA-592-A Section 8.5.1.5 /7/.

Command	Response	Default
+FPI="<string>"		""
+FPI?	"<string>"	
+FPI=?	(20-7E)	

## 9.4.28 AT+FPP Packet protocol command

TIA/EIA-592-A Section 8.5.3.3 /7/.

Command	Response	Default
+FPP=0		0
+FPP?	0	
+FPP=?	0	

## 9.4.29 AT+FPS Page status

TIA/EIA-592-A Section 8.5.2.2 /7/.

Command	Response	Default
+FPS=<n>		1
+FPS?	<n>	
+FPS=?	(1-5)	

## 9.4.30 AT+FRQ Receive quality threshold

TIA/EIA-592-A Section 8.5.2.4 /7/.

Command	Response	Default
+FRQ=<a>,<b>		5F,0
+FRQ?	<a>,<b>	
+FRQ=?	(0-64),(0-FF)	

**9.4.31 AT+FRY ECM Retry Count**

TIA/EIA-592-A Section 8.5.2.8 /7/.

Command	Response	Default
+FRY=<n>		0
+FRY?	<n>	
+FRY=?	(0-FF)	

**9.4.32 AT+FSP Request to poll**

TIA/EIA-592-A Section 8.5.1.8 /7/.

Command	Response	Default
+FSP=<n>		0
+FSP?	<n>	
+FSP=?	(0-1)	

**10. VOICE COMMANDS (PN-3131)****10.1 AT+FCLASS DCE mode**

This command selects a DCE mode - data, facsimile, or voice.

Command	Response	Default
+FCLASS=<mode>		0
+FCLASS?	<mode>	
+FCLASS=?	0,1,2,2.0	

**10.2 AT+VTS DTMF generation**

PN-3131 section 10.1.3 /5/. Also dialling command can be used to send DTMFs. Parameter <str> is <DTMF> or {<DTMF>,<duration>}, where <DTMF> is a single ASCII character in the set 0-9,#,\*,A-D. If duration is not given command uses 100 ms as "manufacturer specific" value.

Sends dtmf 1 (100ms), Sends dtmf 2 (100ms), Sends dtmf A (100ms):

AT+VTS=1,2,A

Sends dtmf 1 (100ms), Sends dtmf 2 (1000ms), Sends dtmf A (100ms):

AT+VTS=1,{2,1000},A

Sends dtmf 1 (1000ms), Sends dtmf 2 (100ms), Sends dtmf A (500ms):

AT+VTS={1,1000},2,{A,500},

Command	Response
+VTS=<str>,<str>,...	
+VTS=?	+VTS: 0,0,0

## 11. GPRS COMMANDS (GSM 07.07)

### 11.1 AT+CGDCONT Define PDP context

Specifies PDP context parameter values for a PDP context. This command is used in conjunction with the +CGDATA command.

Command	Response	Default
+CGDCONT=<cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>,<pd1>[,...[,<pdN>]]		1,"IP",,,0,0
+CGDCONT?	+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp>,<pd1>[,...[,<pdN>]] [<CR><LF>+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp>,<pd1> [...[,<pdN>]] [...]]	
+CGDCONT=?	+CGDCONT: (1),"IP",,, (0,1), (0,1)	

### 11.2 AT+CGQREQ Quality of service profile (requested)

Used to specify a Quality of Service Profile that is used when the MT sends an Activate PDP Context Request message to the network. This command is used in conjunction with the +CGDATA, ATD\*99# command.

Command	Response
+CGQREQ=<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>	
+CGQREQ?	+CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean> [<CR><LF>+CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean> [...]]
+CGQREQ=?	+CGQREQ: (1),(1-3),(1-4), (1-5), (1-9),(1-18,31)

### 11.3 AT+CGQMIN Quality of service profile (minimum acceptable)

Used to specify a minimum acceptable profile that is checked by the MT against the negotiated profile returned in the Activate PDP Context Accept message. This command is used in conjunction with the +CGDATA command.

Command	Response
+CGQMIN=<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>	
+CGQMIN?	+CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean> [<CR><LF>+CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean> [...]]
+CGQMIN=?	+CGQMIN: (1),(1-3),(1-4),(1-5), (1-9),(1-18,31)



#### 11.4 AT+CGATT GPRS attach or detach

The execution command is used to attach the MT to, or detach the MT from, the GPRS service. Any active PDP contexts will be automatically deactivated when the attachment state changes to detached.

Command	Response
+CGATT= <state>	
+CGATT?	+CGATT: <state>
+CGATT=?	+CGATT: (0-1)

#### 11.5 AT+CGACT PDP context activate or deactivate

The execution command is used to activate or deactivate the specified PDP context (s). <cid>: a numeric parameter which specifies a particular PDP context definition.

Command	Response
+CGACT= [<state> [,<cid>[,<cid>[,...]]]	
+CGACT?	+CGACT: <cid>, <state>[<CR><LF>+CGACT: <cid>, <state>[...]]
+CGACT=?	+CGACT: (0-1)

#### 11.6 AT+CGDATA Enter data state

Causes the MT to perform whatever actions are necessary to establish communication between the TE and the network using one or more GPRS PDP types. Nokia products support only <L2P>="PPP". Valid <cid> values are 1 and 2 for current GSM products. If user, however, uses a non-existent <cid> value, even if within valid range, DCE shall issue an ERROR result code to such attempt. See +CGDCONT.

NOTE: GPRS Phase 1 does not support mobile originated context modification

Command	Possible response	Description
+CGDATA=<L2P>[,<cid>]	CONNECT	Enter data state
	NO CARRIER	Data state cannot be entered
+CGDATA=?	+CGDATA: ("PPP")	

### 11.7 AT+CGREG GPRS network registration status

27.007 section 10.1.19 /9/. This command sets whether or not to return the network registration status for the ME by an unsolicited result. Note. <n> values 0, 1 and 2 are supported.

Command	Response
+CGREG=<n>]	
+CGREG?	+CGREG: <n>, <stat>[,<lac>,<ci>]
+CGREG=?	+CGREG: (0-2)

## 12. COMMANDS FOR BLUETOOTH AUDIO ACCESSORIES (HFP & HSP)

This section specifies commands that are intended to be used only by bluetooth audio accessories. There are two different kind of profiles defined for BT audio accessories: Head-Set and Hands-Free profiles /12/ /13/. These profiles are specified by Bluetooth SIG. Hands-Free type of accessories use AT commands specified in HFP like Head-Set type of accessories use AT commands described in Head-Set profile. For further information see the specification reference in each command.

### 12.1 AT+CIND Indicator control

HFP section 4.24.2 /12/. Read command returns the status of ME indicators. If ME is not currently reachable, +CME ERROR: <err> is returned.

Test command returns pairs, where string value <descr> is a maximum 16 character description of the indicator and compound value is the allowed values for the indicator.

<ind> value 0 means that the indicator is off (or in state which can be identified as "off"-state), 1 means that indicator is on (or in a state which is more substantial than "off"-state), 2 is more substantial than 1, and so on. If the indicator is a simple on/off style element, it has values 0 and 1.

Command	Response
+CIND?	+CIND: <ind>[,<ind>[,...]] +CME ERROR: <err>
+CIND=?	+CIND: (<descr>,(list of supported <ind>s)) [,(<descr>,(list of supported <ind>s))[,...]] +CME ERROR: <err>

## 12.2 AT+CMER Mobile Equipment event reporting

HFP section 4.24.2 /12/. Set command enables or disables sending of unsolicited result codes from TA to TE in the case of key pressings, display changes, and indicator state changes. <mode> controls the processing of unsolicited result codes specified within this command. <bfr> controls the effect on buffered codes when <mode> 1, 2 or 3 is entered. Test command returns the modes supported by the TA as compound values.

Command	Response
+CMER=[<mode>[,<key>[,<disp>[,<ind>[,<bfr>]]]]]	
+CMER?	+CMER: <mode>,<key>,<disp>,<ind>,<bfr>
+CMER=?	+CMER: (list of supported <mode>s),(list of supported <key>s),(list of supported <disp>s),(list of supported <ind>s),(list of supported <bfr>s)

## 12.3 AT+BLDN Last number redial

HFP section 4.24.3 /12/. Command used for calling the last phone number dialed. On reception of this command, the AG will set up a voice call to the last phone number dialed.

Command
+BLDN

## 12.4 AT+BVRA Voice recognition

HFP section 4.24.3 /12/. Enables/disables the voice recognition function in the AG.

Command
+BVRA=<vrec>

## 12.5 AT+NREC Echo canceling / noise reduction

HFP section 4.24.3 /12/. Command issued to disable any Echo Canceling and Noise Reduction functions embedded in the AG.

Command
+NREC=<nrec>

## 12.6 AT+VGM Microphone gain

HFP section 4.24.3 /12/. Command issued by the HF to report the current microphone gain level setting to the AG. <gain> is a decimal numeric constant, relating to a particular (implementation dependent) volume level controlled by the HF.

Command
+VGM=<gain>

## 12.7 AT+VGS Speaker gain

HFP section 4.24.3 /12/. Command issued by the HF to report the current speaker gain level setting to the AG. <gain> is a decimal numeric constant, relating to a particular (implementation dependent) volume level controlled by the HF.

Command
+VGS=<gain>

## 12.8 AT+CKPD=200 Head-Set button press

HSP section 4.7.3 /12/. Command issued by the HS to indicate that the button has been pressed.

If incoming call but no active call: Answer the call.

If active call: Terminate the active call.

Otherwise: No action specified.

Command
+CKPD=200

## 13. RESULT CODES

### 13.1 V.250

#### 13.1.1 Basic syntax result codes

OK, ERROR, BUSY, CONNECT, CONNECT <rate>, NO ANSWER, NO CARRIER: see V.250 /1/ section 5.7.1 and X, D, A and O commands in this document. Available <rate>s depend on the product. Note that OK may be a result of successful remote initiated in-call modification from data to speech mode, and CONNECT[ <rate>] a result of successful remote initiated in-call modification from speech to data mode (when alternating calls supported by the product). NO CARRIER can

also indicate a remote hangup of a speech call. No OK shall be returned when a voice call is originated/answered through external ME UI.

RING: see V.250 section 6.3.4 /1/ and +CRC command in this document. MT voice calls or alternating voice/data calls starting with voice shall not result to this indication unless +FCLASS=8 has been set. When RING result code is enabled (+CRC=0), alternating MT voice/fax calls starting with voice shall be automatically switched into fax mode by TA (if call is answered through TA with +CMOD=0). Note that RING result code is not given for waiting calls.

### 13.1.2 +DR Data compression report

V.250 section 6.6.2 /1/. This intermediate result code is given after (possible) +ER result code.

Format	Description
+DR: <type>	given when +DR=1; informs about the presence of V.42bis data compression in the established connection

### 13.1.3 +ILRR DTE-DCE local rate report

V.250 section 6.2.13 /1/. <rxRate> parameter is not needed by Nokia products. This intermediate result code is given after (possible) +DR result code.

Format	Description
+ILRR: <rate>[,<rxRate>]	given when +ILRR=1; informs about the local port rate after connection establishment

## 13.2 De facto

### 13.2.1 Call repeat restriction result codes

BLACKLISTED and DELAYED. Refer dialling command D and GSM 02.07 Annex A.

## 13.3 GSM 07.07

### 13.3.1 +CSSI Intermediate supplementary service notification

GSM 07.07 section 7.2 /2/. This is the first intermediate result code after dial command D. Supported <code1>s depend on the supplementary services implemented in a product.

Format	Description
+CSSI: <code1>[,<index>]	given when +COLP=1 and number received from network when MO call established

## 13.3.2 +COLP Connected line identification report

GSM 07.07 section 7.8 /2/. This intermediate result code is given after (possible) +CSSI result code. Subaddress and alpha not supported by Nokia products.

Format	Description
+COLP: <number>,<type>	given when +COLP=1 and number received from network when MO call established

## 13.3.3 +CR Data service report

GSM 07.07 section 6.9 /2/. This intermediate result code is given after (possible) +COLP result code during MO data call setup. During MT data call setup this is the first intermediate result code. Note that this result code shall replace CARRIER result code (when X5 is set).

Format	Description
+CR: <type>	given when +CR=1 and data call established; informs about the type of data call being established

## 13.3.4 +CRING Distinctive ring

GSM 07.07 section 6.11 /2/. Note that this replaces the V.250 RING result code.

Format	Description
+CRING: <type>	given when +CRC=1 and incoming MT call (no active or held calls in ME)

## 13.3.5 +CLIP Calling line identification report

GSM 07.07 section 7.6 /2/. This result code is sent to TE after every RING (or +CRING) result code. Subaddress and alpha not supported by Nokia products.

Format	Description
+CLIP: <number>,<type>	given when +CLIP=1 and number received from network when MT call received (no active or held calls in ME)

## 13.3.6 +CSSU Unsolicited supplementary service notification

GSM 07.07 section 7.16 /2/. In MT call setup case, this result code is sent to TE after every (possible) +CLIP result code. In case of a waiting call, this is given after +CCWA result code (but

discarded if TA is in on-line data state is disabled or not supported). Supported <code2>s depend on the supplementary services implemented in a product.

Format	Description
+CSSU: <code2>[,<index>[,<number>,<type>[,<saddr>,<satype>]]]	given when +CSSN=,1 and some supplementary service notification is given by network during MT call setup, during a voice call, or whenever in case of forward check SS notification; note that also remote release of a held call is informed with this result code

### 13.3.7 +CCWA Call waiting

GSM 07.07 section 7.11 /2/. Note that this result code is not repeated similarly as RING, but given only once. Alpha not supported by Nokia products.

Format	Description
+CCWA: <number>,<type>,<class>	given when +CCWA=1 and incoming MT call is received when there is active or held calls in ME (discarded if in on-line data state)

### 13.3.8 +CREG Network registration

GSM 07.07 section 7.2 /2/.

Format	Description
+CREG: <stat>[,<lac>,<cid>]	+CREG=1: given when <stat> value changes; given after NO CARRIER if network lost when on-line +CREG=2: given when <stat> value changes and when network cell (<lac> and <cid>) of ME changes; given after NO CARRIER if network lost when on-line; if V.80 is enabled

## 13.3.9 +CUSD Network initiated unstructured supplementary service data

GSM 07.07 section 7.14 /2/. Note that only the first 'request' message during a network initiated USSD session yields to this unsolicited result code. Rest are information responses of +CUSD command.

Format	Description
+CUSD: <m>,<str>,<dcs>	given when +CUSD=1 and network initiated 'notify' or 'request' USSD message received; discarded if in on-line data

## 13.3.10 +CME ERROR Mobile equipment error

GSM 07.07 section 9.2 /2/. See also Error values section.

Format	Description
+CME ERROR: <err>	given instead of ERROR when +CMEE=1 or =2 and error is related to ME or network operation

## 13.3.11 +CHSR HSCSD parameters report

GSM 07.07 section 6.16 /2/.

Format	Description
+CHSR: <rx>, <tx>, <aiur>,<coding>	given when +CHSR=1. Result code transmission is done after possible service (+CR), error control (+ER), and/or compression (+DR) reporting but before possible TE-TA rate (+ILRR) reporting and before the intermediate result code CONNECT is transmitted

## 13.4 GSM 07.05



## 13.4.1 +CMTI New SMS-DELIVER indication

GSM 07.05 section 3.4.1 /3/. See also +CNMI.

Format	Description
+CMTI: <mem>,<index>	+CNMI=0: indications are buffered into TA/ME +CNMI=1: in on-line data state indications are discarded; in command mode forwarded directly to TE +CNMI=2: in on-line data state indications are buffered into TA/ME; in command mode forwarded directly to TE

## 13.4.2 +CMT New SMS-DELIVER

GSM 07.05 section 3.4.1 /3/. <alpha> is not supported by Nokia products. See also +CNMI.

Format	Description
Text mode: +CMT: <oa>,<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data> PDU mode: +CMT: ,<length><CR><LF><pdu>	+CNMI=0: routed messages are buffered into TA/ME +CNMI=1: in on-line data state routed messages are rejected and in command mode forwarded directly to TE +CNMI=2: in on-line data state routed messages are buffered into TA/ME and in command mode forwarded directly to TE

## 13.4.3 +CBM New CBM

GSM 07.05 section 3.4.1 /3/. See also +CNMI.

Format	Description
Text mode: +CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> PDU mode: +CBM: <length><CR><LF><pdu>	+CNMI=0: messages are discarded +CNMI=1-2: messages are forwarded directly to TE (CBMs cannot be received during a call)

## 13.4.4 +CDSI New SMS-STATUS-REPORT indication

GSM 07.05 section 3.4.1 /3/. See also +CNMI.

Format	Description
+CDSI: <mem>,<index>	+CNMI=0: indications are buffered into TA/ME +CNMI=1: in on-line data state indications are discarded; in command mode forwarded directly to TE +CNMI=2: in on-line data state indications are buffered into TA/ME; in command mode forwarded directly to TE

#### 13.4.5 +CDS New SMS-STATUS-REPORT

GSM 07.05 section 3.4.1 /3/. See also +CNMI.

Format	Description
text mode: +CDS: <fo>,<mr>,[<ra>],[<tora>],[<scts>],[<dt>],[<st> PDU mode: +CDS: <length><CR><LF><pdu>	+CNMI=0: routed messages are buffered into TA/ME +CNMI=1: in on-line data state routed messages are rejected and in command mode forwarded directly to TE +CNMI=2: in on-line data state routed messages are buffered into TA/ME and in command mode forwarded directly to TE

#### 13.4.6 +CMS ERROR Message service failure

GSM 07.05 section 3.2.5 /3/. See also Error values section.

Format	Description
+CMS ERROR: <err>	given instead of ERROR when error is related to ME or network operation

### 13.5 Fax Class 2

Below is a list of possible responses that fax can give to the DTE during fax Class 2 call. They are defined in SP-2388 /10/.

Response	Description
+FCIG:	report a CIG frame received from remote, example: +FCIG:" +358105056888"
+FCFR	indicate that CFR (Confirmation to Receive) frame has been received
+FCON	indicate a facsimile connection, issued in the beginning of Phase B
+FCSI:	report a CSI frame received from remote, example: +FCSI:" +358105056888"
+FDCS:	report a DCS frame (sent or received), example: +FDCS:0,3,0,2,0,0,1
+FDIS:	report a DIS frame received from remote, example: +FDIS:1,3,0,2,3,1,0,3
+FDTC:	report a DTC frame received from remote, example: +FDTC:1,3,0,2,3,1,0,3
+FET:	report post message command in a receiving session, example (EOP): +FET:2
+FHNG:	report call termination status response, example (normal termination): +FHNG:0
+FHR:	report a received HDLC frame, only used when +FBUG parameter sets to 1
+FHT:	report a transmitted HDLC frame, only used when +FBUG parameter sets to 1
+FNSC:	report an NSC frame received from remote
+FNSF:	report an NSF frame received from remote
+FNSS:	report an NSS frame received from remote
+FPOLL	an indication of the remote having indicated that it has a document for polling
+FPTS:	page transfer status response as indicated by the receiver, be it our end or the other
+FTSI:	report a TSI frame received from remote, example: +FTSI:" +358105056888"
+FVOICE	an indication of the session having been suspended through a procedure interruption

## 13.6 Fax Class 2.0

Below is a list of possible responses that fax can give to the DTE during fax Class 2.0 call. They are defined in ITU-T T.32 /8/.

Response	Description
+FCI:	Report a CIG frame received from remote, example: +FCI:"+358105056888"
+FCO	indicate a facsimile connection, issued in the beginning of Phase B
+FCS:	Report a DCS frame (sent or received), example: +FCS:0,3,0,2,0,0,0,1
+FDM	indicate transition to data modem operation
+FET:	Report the post message command in a receiving session, example (EOP): +FET:2
+FHS:	Report call termination status
+FHR:	Report a received HDLC frame (only reported when +fbu has been set to 1)
+FHT:	Report a transmitted HDLC frame (only reported when +fbu has been set to 1)
+FIS:	Report the capabilities of the remote station (from received DIS frame)
+FNC:	Report a received NSC frame
+FNF:	Report a received NSF frame
+FNS:	Report a received NSS frame
+FPI:	Report remote ID, CIG
+FPO	An indication of the remote having indicated that it has a document for polling
+FPS:	Phase C page reception response
+FTC:	Report remote capabilities, DTC
+FTI:	Report remote ID, TSI
+FVO	Transition to voice, an indication of a procedure interrupt and suspended session

## 13.7 Bluetooth audio accessories (HFP & HSP)

### 13.7.1 +CIEV indications

HFP section 4.24.2 /12/.

Format	Description
+CIEV: <ind>,<value>	Indicator status has changed. Refer +CIND/+CMER commands.

### 13.7.2 +VGM microphone gain changed

HFP section 4.24.3 /12/. Unsolicited result code issued by the AG to set the microphone gain of the HF. <gain> is a decimal numeric constant, relating to a particular (implementation dependent) volume level controlled by the HF. Note that in HSP the separator is '=' instead of ':'.:

Format	Description
+VGM: <gain>	change in microphone gain

### 13.7.3 +VGS speaker gain changed

HFP section 4.24.3 /12/. Unsolicited result code issued by the AG to set the speaker gain of the HF. <gain> is a decimal numeric constant, relating to a particular (implementation dependent) volume level controlled by the HF. Note that in HSP the separator is '=' instead of ':'.:

Format	Description
+VGS: <gain>	change in speaker gain

### 13.7.4 +BVRA voice recognition

HFP section 4.24.3 /12/. Unsolicited result code used to notify the HF when the voice recognition function in the AG has been terminated autonomously, as would be the case when voice recognition in the AG is only activated for a predefined period of time. Only autonomous activation/de-activation of voice recognition is reported asynchronously to the HF.

Format	Description
+BVRA: <vrect>	voice recognition termination

## 14. ERROR VALUES

### 14.1 +CME ERROR values

Final result code +CME ERROR: <err> indicates an error related to mobile equipment or network.

#### 14.1.1 General errors

GSM 07.07 /2/.

Numeric	Text
0	phone failure
1	no connection to phone
2	phone-adaptor link reserved
3	operation not allowed
4	operation not supported
5	PH-SIM PIN required
6	PH-FSIM PIN required
7	PH-FSIM PUK 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 string too long

25	invalid characters in text string
26	dial string too long
27	invalid characters in dial string
30	no network service
31	network timeout
32	network not allowed - emergency calls only
40	network personalization PIN required
41	network personalization PUK required
42	network subset personalization PIN required
43	network subset personalization PUK required
44	service provider personalization PIN required
45	service provider personalization PUK required
46	Corporate personalization PIN required
47	Corporate personalization PUK required
100	Unknown

#### 14.1.2 GPRS-related errors

Errors related to a failure to perform an Attach GSM 07.07 [2].

Numeric	Text
103	Illegal MS (#3)
106	Illegal ME (#6)
107	GPRS services not allowed (#7)
111	PLMN not allowed (#11)
112	Location area not allowed (#12)
113	Roaming not allowed in this location area (#13)

(Values in parentheses are GSM 04.08 cause codes.)

Errors related to a failure to Activate a Context GSM 07.07 /2/.

Numeric	Text
132	service option not supported (#32)
133	requested service option not subscribed (#33)
134	service option temporarily out of order (#34)
149	PDP authentication failure

(Values in parentheses are GSM 04.08 cause codes.)

Other GPRS errors GSM 07.07 /2/.

Numeric	Text
150	invalid mobile class
148	unspecified GPRS error

## 14.2 +CMS ERROR values

Final result code +CMS ERROR: <err> indicates an error related to mobile equipment or network.

GSM 04.11 Annex E-2 values.

Numeric	Text
1	"Unassigned (unallocated) number" This cause indicates that the destination requested by the Mobile Station cannot be reached because, although the number is in a valid format, it is not currently assigned (allocated).
8	"Operator determined barring" This cause indicates that the MS has tried to send a mobile originating short message when the MS's network operator or service provider has forbidden such transactions.
10	"Call barred" This cause indicates that the outgoing call barred service applies to the short message service for the called destination.
21	"Short message transfer rejected" This cause indicates that the equipment sending this cause does not wish to accept this short message, although it could have accepted the short message since the equipment sending this cause is neither busy nor incompatible.



27	<p>"Destination out of service"</p> <p>This cause indicates that the destination indicated by the Mobile Station cannot be reached because the interface to the destination is not functioning correctly. The term "not functioning correctly" indicates that a signalling message was unable to be delivered to the remote user; e.g., a physical layer or data link layer failure at the remote user, user equipment off-line, etc.</p>
28	<p>"Unidentified subscriber"</p> <p>This cause indicates that the subscriber is not registered in the PLMN (i.e. IMSI not known).</p>
29	<p>"Facility rejected"</p> <p>This cause indicates that the facility requested by the Mobile Station is not supported by the PLMN.</p>
30	<p>"Unknown subscriber"</p> <p>This cause indicates that the subscriber is not registered in the HLR (i.e. IMSI or directory number is not allocated to a subscriber).</p>
38	<p>"Network out of order"</p> <p>This cause indicates that the network is not functioning correctly and that the condition is likely to last a relatively long period of time; e.g., immediately reattempting the short message transfer is not likely to be successful.</p>
41	<p>"Temporary failure"</p> <p>This cause indicates that the network is not functioning correctly and that the condition is not likely to last a long period of time; e.g., the Mobile Station may wish to try another short message transfer attempt almost immediately.</p>
42	<p>"Congestion"</p> <p>This cause indicates that the short message service cannot be serviced because of high traffic.</p>
47	<p>"Resources unavailable, unspecified"</p> <p>This cause is used to report a resource unavailable event only when no other cause applies.</p>
50	<p>"Requested facility not subscribed"</p> <p>This cause indicates that the requested short message service could not be provided by the network because the user has not completed the necessary administrative arrangements with its supporting networks.</p>
69	<p>"Requested facility not implemented"</p> <p>This cause indicates that the network is unable to provide the requested short message service.</p>
81	<p>"Invalid short message transfer reference value"</p>

	<p>This cause indicates that the equipment sending this cause has received a message with a short message reference that is not currently in use on the MS-network interface.</p>
95	<p>"Invalid message, unspecified"</p> <p>This cause is used to report an invalid message event only when no other cause in the invalid message class applies.</p>
96	<p>"Invalid mandatory information"</p> <p>This cause indicates that the equipment sending this cause has received a message where a mandatory information element is missing and/or has a content error (the two cases are indistinguishable).</p>
97	<p>"Message type non-existent or not implemented"</p> <p>This cause indicates that the equipment sending this cause has received a message with a message type it does not recognize either because this is a message not defined or defined but not implemented by the equipment sending this cause.</p>
98	<p>"Message not compatible with short message protocol state"</p> <p>This cause indicates that the equipment sending this cause has received a message such that the procedures do not indicate that this is a permissible message to receive while in the short message transfer state.</p>
99	<p>"Information element non-existent or not implemented"</p> <p>This cause indicates that the equipment sending this cause has received a message which includes information elements not recognized because the information element identifier is not defined or it is defined but not implemented by the equipment sending the cause.</p> <p>However, the information element is not required to be present in the message in order for the equipment sending the cause to process the message.</p>
111	<p>"Protocol error, unspecified"</p> <p>This cause is used to report a protocol error event only when no other cause applies.</p>
127	<p>"Interworking, unspecified"</p> <p>This cause indicates that there has been interworking with a network which does not provide causes for actions it takes; thus, the precise cause for a message which is being send cannot be ascertained.</p>

GSM 03.40 subclause 9.2.3.22 values.

Numeric	Text
0 – 127	Reserved
128 – 143	TP-PID errors
128	Telematic interworking not supported
129	Short message Type 0 not supported
130	Cannot replace short message
131 – 142	Reserved
143	Unspecified TP-PID error
144 – 159	TP-DCS errors
144	Data coding scheme (alphabet) not supported
145	Message class not supported
146 - 158	Reserved
159	Unspecified TP-DCS error
160 – 175	TP-Command Errors
160	Command cannot be actioned
161	Command unsupported
162 – 174	Reserved
175	Unspecified TP-Command error
176	TPDU not supported
177 – 191	Reserved
192	SC busy
193	No SC subscription
194	SC system failure
195	Invalid SME address
196	Destination SME barred
197	SM Rejected-Duplicate SM
198	TP-VPF not supported
199	TP-VP not supported
200 – 207	Reserved
208	SIM SMS storage full

209	No SMS storage capability in SIM
210	Error in MS
211	Memory Capacity Exceeded
212	SIM Application Toolkit Busy
213	SIM data download error
214 – 223	Reserved
224 – 254	Values specific to an application
255	Unspecified error cause

GSM 07.05 subclause 3.2.5 values /3/.

Numeric	Text
300	ME failure
301	SMS service of ME reserved
302	operation not allowed
303	operation not supported
304	invalid PDU mode parameter
305	invalid text mode parameter
310	(U)SIM not inserted
311	(U)SIM PIN required
312	PH-(U)SIM PIN required
313	(U)SIM failure
314	(U)SIM busy
315	(U)SIM wrong
316	(U)SIM PUK required
317	(U)SIM PIN2 required
318	(U)SIM PUK2 required
320	Memory failure
321	invalid memory index

322	Memory full
330	SMSC address unknown
331	No network service
332	Network timeout
340	No +CNMA acknowledgement expected
500	unknown error
...511	other values in range 256...511 are reserved
512...	manufacturer specific

## 15. UNSUPPORTED COMMANDS

The following commands are not described in previous sections and they are not supported by Nokia products.

### 15.1 V.250

- +GOI request global object identification. V.250 section 6.1.8 /1/. No Nokia product is planned to have ISO system unique object identifier (ITU-T X.208/X.209).
- +GCI country of installation. V.250 section 6.1.10 /1/. As GSM is not country specific, this command is not needed.
- +ICLOK Select Sync Transmit Clock Source
- +ILSD Select Long Space Disconnect Option
- +IDSR Select Data Set Ready Option
- +IRTS Select Synchronous Mode RTS Option
- +ASTO Store Telephone Number
- +MS, +MA, +MR, +MV18S, +MV18R, +MV18AM and +MV18P modulation commands. V.250 section 6.4 /1/. These are only for analog modems.
- +EWIND Window Size
- +EFRAM Frame Length

V.250 test commands and parameters. They are listed in V.250 section 6.7.1 /1/.

+A8E, +A8M and +A8T ITU-T V.8/V.8bis control commands. V.250 Annex A /1/. These are only for analog modems.

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## 15.2 V.80

- +IBM in-band MARK idle reporting control. V.80 section 7.10. Sets timers for MARK in-band events.
- +ITF transmit flow control thresholds. V.80 section 8.4 /4/. Related to synchronous access modes.

In-band commands (and indications) for synchronous access modes listed in V.80 section 8.5 /4/.

## 15.3 PN-3131

- +VCID reporting and presentation of data associated the Caller ID services in United States and Canada in the Incoming Call Line ID (ICLID) data format.
- +VDID DID service. PN-3131 section 9.2.4 /5/. Service not applicable to GSM.
- +VNH automatic hang-up control. PN-3131 section 9.2.5 /5/. No need identified.
- +FLO Flow Control Select
- +VRL ring local phone. PN-3131 section 10.1.2 /5/. No need to make ME beep.
- +VXT translate voice data. PN-3131 section 10.1.6 /5/. No need to put ME to do voice format conversions.
- +VRA ringback goes away timer. PN-3131 section 10.2.5 /5/. Not applicable to GSM (connect message from network).
- +VRN ringback never appeared timer. PN-3131 section 10.2.6 /5/. Not applicable to GSM (connect message from network).
- +VSD Silence Detection
- +VDR distinctive ring. PN-3131 section 10.3.1 /5/. GSM 07.07 +CRC replaces this.
- +VDT control tone cadence reporting. PN-3131 section 10.3.2 /5/. Not applicable to GSM.
- +VPP voice packet protocol. PN-3131 section 10.4.2 /5/. No need to support DTE-DCE packet protocol.

Supported in-band actions are listed under Voice commands section, others are not applicable to GSM network.

## 15.4 GSM 07.07

- +CMUX multiplexing mode
- +CHSU automatic user initiated upgrading
- +CCWE call meter maximum event

+CPWC	power class
+CLAN	select language
+CLAE	language event
+CSGT	set greeting text
+CSVM	set voice mail number
+CRMP	ring melody playback
+CMAR	master reset
+CLAC	list all available AT commands
+CGCLOSP	configure local octet stream PAD parameters
+CGPADDR	show PDP address
+CGAUTO	automatic response to a network request for PDP context activation
+CGANS	manual response to a network request for PDP context activation
+CGCLASS	GPRS mobile station class
+CGCLPAD	configure local triple-X PAD parameters
+CGEREP	GPRS event reporting
+CGSMS	select service for MO SMS messages

### 15.5 3G 27.007

Take a look at /9/. If not supported command is also listed in GSM 07.07 /2/ not supported list it is not repeated in this list. In this list are listed also commands that are supported by Nokia but have different parameter set in 3G.

+CHSA	HSCSD non-transparent asymmetry configuration
+CSDF	settings date format
+CSIL	silence format
+CSTF	settings time format
+CDIP	called line identification presentation
+CALD	delete alarm
+CAPD	postpone of dismiss an alarm
+CTZU	automatic time zone update

+CTZR	time zone reporting
+CGDSCONT	define secondary PDP context
+CGTFT	define traffic flow template
+CGEQMIN	3G quality of service profile (minimum acceptable)
+CGEQNEG	3G quality of service profile (negotiated)
+CGCMOD	PDP context modify

### 15.6 Removed commands

In this chapter there is a list of commands which were included in previous Nokia products but are not supported anymore in newer products.

+IBC	in-band control
+CIMI	request IMSI
+ESR	selective repeat
+EFCS	32-bit frame check sequence
+ETBM	call termination buffer management
+EB	break handling in error control operation
+CCUG	closed user group
+CPOL	preferred operator list
+COPN	read operator names
+CPAS	phone activity status
+CFUN	set phone functionality
+CMEC	ME control mode
+CKPD	keypad control
+CDIS	display control
+CIND	indicator control
+CMER	ME event reporting
+CCLK	clock
+CALA	alarm



+CSIM	generic SIM access
+CRSM	restricted SIM access
+CSCC	secure control command
+CALM	alert sound mode
+CRSL	ringer sound level
+CVIB	vibrator mode
+CLVL	loudspeaker volume level
+CMUT	mute control
+CACM	accumulated call meter
+CAMM	accumulated call meter maximum
+CPUC	price per unit and currency table
+CESP	enter SMS block mode protocol

## fax class 1.0 command set

## fax class 2.1 command set

+VIP	initialize voice parameters
+VRX	receive data state
+VTX	transmit data state
+VGR	receive gain selection
+VGT	transmit gain selection
+VIT	inactivity timer
+VLS	line selection
+VSM	select compression method
+VTD	beep tone duration timer
+VEM	event reporting and masking
+VBT	buffer threshold setting
+VPR	DTE/DCE interface rate

## in-band actions

# NOKIA

AT command set for Nokia GSM products

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?	help
*C	SMS interpreter mode
*T	enter SMS block mode protocol
*V	V.25bis interpreter mode

**16. REFERENCES**

- /1/ ITU-T Recommendation V.250 - Serial asynchronous automatic dialling and control; Jul 1997;
- /2/ GSM 07.07: Digital cellular telecommunications system (Phase 2+); AT command set for GSM Mobile Equipment (ME); version 7.5.0; Dec 1999;
- /3/ GSM 07.05: Digital cellular telecommunications system (Phase 2+); Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE - DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS); version 7.0.1; Jul 1999;
- /4/ ITU-T Recommendation V.80 - In-band DCE control and synchronous data modes for asynchronous DTE; Aug 1996;
- /5/ TIA PN-3131: Project to complete IS-101 Facsimile Digital Interfaces - Voice Control Interim Standard for Asynchronous DCE; Feb 1995;
- /6/ TIA-578-A Facsimile Digital Interfaces - Asynchronous Facsimile DCE Control Standard, Service Class 1; Feb 1994;
- /7/ TIA/EIA-592-A Facsimile Digital Interfaces - Asynchronous Facsimile DCE Control Standard, Service Class 2; April 1998;
- /8/ ITU-T T.32 asynchronous facsimile DCE control - service class 2; Aug 95;
- /9/ 3G TS 27.007 v3.3.0; AT Command Set for 3G User Equipment (UE); Dec 1999
- /10/ EIA/TIA Standards Proposal SP-2388 Asynchronous Facsimile DCE Control Standard; Aug 90;
- /11/ ITU-T T.31 asynchronous facsimile DCE control - service class 1; Aug 95;
- /12/ Bluetooth SIG; Hands-Free Profile (0.95)
- /13/ Bluetooth SIG; Head-Set Profile (1.1)

**17. LIST OF TERMS AND ABBREVIATIONS**

<b>Term or abbreviation</b>	<b>Default</b>
3G	3 <sup>rd</sup> Generation
AG	Audio Gateway (e.g. ME)
AT	Attention
CBM	Cell Broadcast Message
DCE	Data Circuit-terminating Equipment; see TA
DTE	Data Terminal Equipment; see TE
HSCSD	High Speed Circuit Switched Data
IMEI	International Mobile Equipment Identity (ME serial number)
ME	Mobile Equipment, e.g. a GSM phone
MO	Mobile Originated
MT	Mobile Terminated
PDU	Protocol Data Unit
PPP	Point-to-Point Protocol
SIM	Subscriber Identity Module
SM	Short Message
SMSC	Short Message Service Centre
TA	Terminal Adaptor, the physical equipment where AT command interpreter resides (may be combined with ME)
TE	Terminal Equipment, the physical equipment from where applications communicate with TA using AT commands
UI	User Interface