Contents

1 Introduction 1

1.1 About this manual 1
1.2 Using this manual 2
1.3 Using the Ericsson Mobile Office Infrared Modem 3
Data functions 3
Facsimile functions 3
Mobile Phone Manager 3
1.4 Communications programs 4
Configuring third party communication programs 4
Configure for V.25ter 4
Locate a Mobile Phone Modem driver 4
Configure the data communications program manually 4
Configure your facsimile communications program manually 5

2 Result and error codes 6

2.1 Result codes 6
Final result codes from AT commands 6
Result codes from call connections 8
Format of the result codes 8
2.2 Error codes 9
Report mobile phone failure (+CMEE) 9
Report operational/access failure (+CMS) 10
Service report (+CR) 11
Cellular result codes (+CRC) 12
Data compression report (+DR) 12

3 AT Commands 13

3.1 Introduction to AT commands 13
3.2 Infrared Modem operating modes 13
3.3 Changing the Infrared Modem operating mode 14
Operating in off-line command mode 15
Switching to on-line data mode 15
Switching back to off-line command mode 15
Switching from on-line command mode to on-line data mode ... 16
Switching from on-line command mode to off-line command mode 16

Contents

3.4 Operating the AT commands 17
Entering a set command 17
Entering an execute command 19
Using read command to view the command settings 19
Using test command to request command help 20
3.5 AT command list 21
General AT commands 21
Short Message Service AT commands 23
Facsimile AT commands 24
General 24
Fax Service Class 1 24
Fax Service Class 2 24

4 General AT commands 26

4.1 Information commands 26
4.2 DTE-DCE interface commands 35
4.3 Modulation control commands 41
4.4 Result and error code control 42
4.5 Data compression commands 47
4.6 Miscellaneous commands 50
4.7 Command mode 58
4.8 Call control 59
4.9 Line interface 67

5 Short message service commands 77

6 Fax commands 91

6.1 General fax AT commands 91
6.2 Fax Service Class 1 commands 92
6.3 Fax Service Class 2 commands 99

7 Glossary 127

8 Index 134

1 Introduction

The Ericsson Infrared Modem is part of the Ericsson Mobile Office DI27.

This Manual describes the operation of the AT commands supported by the Infrared Modem. The information here is not relevant for day-to-day operation of the Infrared Modem, which is described in the User Manual supplied with the Ericsson Mobile Office D127.

The On-line Reference Manual is for advanced users who require detailed information in order to:

- develop new communications software
- add the Infrared Modem to an application's list of compatible modems
- adjust the settings of their mobile telephone and modem.

1.1 About this manual

This manual is designed to supplement the Ericsson Infrared Modem User Manual.

All rights reserved.

© Ericsson Mobile Communications AB, 1998.

® Ericsson Mobile Office Infrared Modem is a Registered trademark of Ericsson Mobile Communications AB.

® Windows is a registered trademark of the Microsoft Corporation.

All other registered trademarks used in this document are also acknowledged.

1.2 Using this manual

The standard text in this manual is modified to distinguish between the text displayed on the screen, typed instructions and examples of command dialog. The distinctions are as follows:

1. Typed commands and option values are written in bold text.

   For example: **S2=**<ESC> Options: <ESC> **0 - 127**.

2) Any key strokes are written in bold text, for example **CR**.

3) Examples of command dialogue, including keyboard entries and on-screen responses, are written in Courier text.
   For example:

```
AT+CBC=?
(0,1),(0-100)
OK
```

4) The default setting used by a command is indicated by **bold** text. For example, Default = **1**.

1.3 Using the Ericsson Mobile Office Infrared Modem

The Infrared Modem connects your computer and GSM mobile phone by means of a digital infrared link. Although the functions performed by this unit are not technically those of a modem (neither Modulation nor Demodulation is performed by the unit), the term Modem is retained as a commonly accepted description.

Data functions

Transmission speed conforms to the ITU-T standard V.22bis which facilitates data transfer at 2,400, 4800 and 9,600 baud. **TBA401** By implementing data compression the transmission speed can be increased to a theoretical maximum data throughput of 38,400 bps between computers.

Facsimile functions

Facsimile operation, at 2,400, 4800, 7200 and 9,600 baud. **TBA401**, conforms to Service Class 1 and the proposed Service Class 2 standards.

Short Message Service

The Infrared Modem supports the short message service (SMS).

Mobile Phone Manager

The Infrared Modem supports commands for access of the mobile phone book according to ETSI (GSM) 07.05 and 07.07.

1.4 Communications programs

Please refer to the User Manual for instructions on the installation and use of the Ericsson Infrared Modem software drivers.

Configuring third party communication programs

If you want to use a communication program which does not include the Ericsson Infrared Modem in the list of supported hardware, the following options are suggested:

Configure for V.25ter

The Infrared Modem supports the V.25ter command set. If your communication program can generate and support a V.25ter command, the Infrared Modem does not require the installation of a specific driver.

Locate a Mobile Phone Modem driver

A Mobile Phone Modem driver for your communication program may be available on either the Ericsson Infrared Mobile Phone Modem utilities disk or from one of the on-line services.

Configure the data communications program manually

To configure your data communications program manually:

1. Select a generic Mobile Phone Modem driver from the list of available Mobile Phone Modem drivers.

3. Set the Init string to `ATZ^M`.

4. Set the optional setup string to Asynchronous RLP: `AT+CBST=0,0,01`

Configure your facsimile communications program manually

To manually configure your facsimile communications program, select a Service Class 1 driver. The Infrared Modem supports Service Class 2 facsimile which might be used if there are problems with the fax service or speed of the computer.

TBA401 - bps or baud?

2 Result and error codes

2.1 Result codes

When you send a command from your PC to the Infrared Modem, the response is terminated by a result code which is shown on the computer screen. You use this code to confirm correct operation or to identify any problem with the command.

There are two types of result codes:

- final result codes related to the operation of AT commands
- result codes associated with call connections.

Final result codes from AT commands

When the Infrared Modem is in command mode (see Section TBA), it terminates each response to an AT command with a final result code:

OK The command and any specified parameters were valid and the command has been executed.
Some AT commands are not relevant to the Infrared Modem operations or can only be set to one parameter value. For completeness and to allow the parameter to be read, some of these commands are supported but not implemented. Calling a command of this type will produce the **OK** result code but will not cause any change to the Infrared Modem. These commands are included in the command descriptions in Chapters 4, 5 and 6.

ERROR

An error has occurred during the command processing. This could arise because:

- there is a fault in the command syntax
- one or more parameters are outside the permitted range
- the command you issued is not implemented on the Infrared Modem
- the command is not appropriate to the service class the Infrared Modem is operating.

When an error is reported, the **ERROR** message is preceeded by a copy of the text response from the last valid AT command. This is shown in the following example:

Valid command	`AT+CBC=?`
Response	`(0,1),(0-100)` `OK`
Invalid command	`AT+CBC=?;+XXX=?`
Response	`+CBC:(0,1),(0-100)` `ERROR`

Result codes from call connections

During on-line operation of the Infrared Modem, result codes inform you about the progress of call connections:

CONNECT <speed>	A connection has been established and the data rate <speed> is shown.
BUSY	The number you called is engaged.
NO DIALTONE	Unable to establish the initial connection.
NO CARRIER	Either a connection could not be established or an existing connection has been lost.
RING	There is an incoming call. This is not a consequence of local activity and is referred to as an unsolicited result code.

Format of the result codes

The result codes described above are in verbose format. You can command the Infrared Modem to display result codes in verbose or numeric format or you can switch them off completely.

To switch between verbose and numeric format, please refer to the use of the AT V command in Section TBA.

To switch the display of result codes on or off, please refer to the use of the AT Q command in Section TBA.

2.2 Error codes

Note to reviewers - a brief note of introduction was requested by the first draft reviewers for each type of error code. Who will supply these?

Report mobile phone failure (+CMEE)

+CME ERROR: 0	Phone failure.
+CME ERROR: 1	No connection to phone.
+CME ERROR: 2	Phone modem link reserved.
+CME ERROR: 3	Operation not permitted.
+CME ERROR: 4	Operation not supported.
+CME ERROR: 5	PH-SIM card PIN required.
+CME ERROR: 10	SIM card not inserted.
+CME ERROR: 11	SIM card PIN required.
+CME ERROR: 12	SIM card PUK required.
+CME ERROR: 13	SIM card failure.
+CME ERROR: 14	SIM card busy.
+CME ERROR: 15	SIM card wrong.
+CME ERROR: 16	Incorrect password.
+CME ERROR: 20	Memory full.
+CME ERROR: 21	Invalid index.
+CME ERROR: 22	Not found.
+CME ERROR: 23	Memory failure.

+CME ERROR: 24	Text string too long.
+CME ERROR: 25	Invalid character in text string.
+CME ERROR: 26	Dial string too long.
+CME ERROR: 27	Invalid character in dial string.
+CME ERROR: 100	Unknown.

Report operational/access failure (+CMS)

+CMS ERROR: 0 to +CMS ERROR: 127	GSM 04.11 Annex E-2 values.
+CMS ERROR: 128 to +CMS ERROR: 255	GSM 03.40 Section 9.2.3.22 values.
+CMS ERROR: 300	Mobile phone failure.
+CMS ERROR: 301	Short message service of mobile phone reserved.
+CMS ERROR: 302	Operation not allowed.
+CMS ERROR: 303	Operation not supported.
+CMS ERROR: 304	Invalid PDU mode parameter.
+CMS ERROR: 305	Invalid text mode parameter.
+CMS ERROR: 310	SIM card not inserted.
+CMS ERROR: 311	SIM card PIN necessary.
+CMS ERROR: 312	SIM card PIN necessary for PH-SIM.

+CMS ERROR: 313	SIM card failure.
+CMS ERROR: 314	SIM card busy.
+CMS ERROR: 315	SIM card wrong.
+CMS ERROR: 320	Memory failure.
+CMS ERROR: 321	Invalid memory index.
+CMS ERROR: 322	Memory full.
+CMS ERROR: 330	SMSC address unknown.
+CMS ERROR: 331	No network service.
+CMS ERROR: 332	Network timeout.
+CMS ERROR: 500	Unknown error.

Service report (+CR)

+CR: ASYNC	Asynchronous transparent.
+CR: SYNC	Synchronous transparent.
+CR: REL ASYNC	Asynchronous non-transparent.
+CR: REL SYNC	Synchronous non-transparent.

Cellular result codes (+CRC)

+CRING: ASYNC	Asynchronous transparent.
+CRING: SYNC	Synchronous transparent.
+CRING: REL ASYNC	Asynchronous non-transparent.
+CRING: REL SYNC	Synchronous non-transparent.
+CRING: FAX	Facsimile.
+CRING: VOICE	Normal voice.

Data compression report (+DR)

+DR: NONE	No data compression negotiated.
+DR: V42B	V.42bis data compression negotiated.
+DR: V42B RD	V.42bis data compression negotiated on received data.
+DR: V42B TD	V.42bis data compression negotiated on transmitted data.

3 AT Commands

3.1 Introduction to AT commands

This chapter describes how AT commands are used to exchange information with your mobile telephone and Infrared Modem. The AT commands are listed at the end of this chapter. For a description of each command, refer to Chapters 4, 5 and 6.

You use AT commands to:

- configure your mobile telephone and Infrared Modem
- request information about the current configuration or operational status of your mobile phone/modem
- request the range of valid parameters, when applicable, for an AT command.

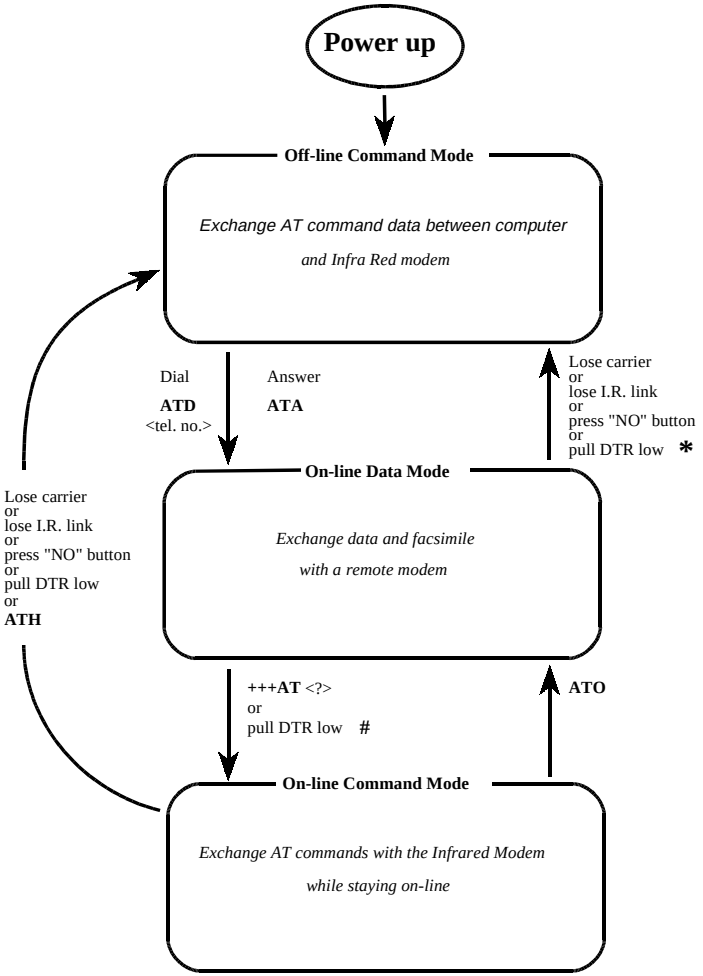
3.2 Infrared Modem operating modes

The Infrared Modem can be set in any one of three modes of operation. These are:

off-line command mode	the Infrared Modem is placed in off-line command mode when first powered up and is ready for entry of AT commands.
on-line data mode	allows “normal” operation of the Infrared Modem, exchanging data or facsimile with the remote modem.
on-line command mode	you can switch to on-line command mode when you want to send AT commands to the Infrared Modem while still remaining connected to the remote modem.

3.3 Changing the Infrared Modem operating mode

The following illustration summarises the methods that are used to switch between the three Infrared Modem operating modes.:



\# &D previously set to 1.

* &D previously set to 2.

Operating in off-line command mode

In off-line command mode, the Infrared Modem accepts data as commands and not as normal communications traffic. You enter commands by typing at the PC keyboard.

Switching to on-line data mode

To enter on-line data mode, so that you can make a connection and exchange data with the modem at the other end of the link, you enter the **ATD** command followed by the telephone number. Alternatively, typing **ATA** to answer an incoming call will also place the Infrared Modem in on-line mode.

Switching back to off-line command mode

Any of the following will return the Infrared Modem to off-line command mode from on-line data mode:

- loss of the connection (**NO CARRIER** error)
- loss of the I.R. link between the Infrared Modem and your computer
- pressing the “NO” button on your mobile phone
- pulling DTR low provided &D has previously been set to 2,

Note: *The &D command is described on page TBA. The setting of &D determines the action taken when DTR is pulled low while you are in on-line data mode*

&D set to 1 - Infrared Modem switches to on-line command mode
&D set to 2 - Infrared Modem switches to off-line command mode.

Using AT commands during a data connection

If you wish to use AT commands while in on-line data mode and maintain connection with the remote modem, you must enter on-line command mode.

There are two ways you can switch from on-line data mode to on-line command mode:

- Type the escape sequence **"+++**" followed by an appropriate AT command. This command must be selected from the options **AT**, **ATE**, **ATH**, **ATI**, **ATL**, **ATM**, **ATQ**, **ATV** and **ATX**. Using this method you can perform an AT function as you move in to on-line command mode. For example, if you switch using:

  +++ATH<CR>

  the Infrared Modem is switched to on-line command mode and the AT command is executed, causing the connection to be terminated (hang-up).
  If you type the escape sequence "**+++**" without any following command, the system waits one second, switches to on-line command mode and responds `"OK"`.

- Pull DTR low after previously setting &D to 1, (See page TBA).

Switching from on-line command mode to on-line data mode

To return to on-line data mode while in on-line command mode, type:

ATO<CR>

Switching from on-line command mode to off-line command mode

To return the Infrared Modem to off-line command mode from on-line command mode:

- use any of the methods described in "Switching back to off-line command mode" above
- type **+++ATH** <**CR**> to switch to on-line command mode and hang up at once.

3.4 Operating the AT commands

In command mode, there are four types of command you can issue:

- a set command to adjust the Infrared Modem's operating parameters
- an execute command which directs action without the need of any parameters
- a read command to view the current command settings
- a test command to view the available command parameters.

Not all AT commands support all four functions. The descriptions in Chapters 4 to 6 list the functions available for each AT command.

Entering a set command

The standard format for entering a set command is:

AT<command>=<parameters> <**CR**>

Where:	**AT**	Notifies the Infrared Modem that a command is being entered.
	<command>	The name of the command being entered.
	<parameters>	The values to be used by the command.
	<**CR**>	All command lines are terminated by pressing the <**CR**> (Return or Enter) key.

Note: *All command lines are completed by pressing the <**CR**> key on the computer keyboard. For the remainder of this manual, appropriate use of the <**CR**> key is assumed.The operation of an AT command is illustrated by the following example which uses the +CBST command to set the speed, bearer service and connection element of the Infrared Modem:*

***+CBST**=<data rate>,<bearer service>,<connection element>*

To set the Infrared Modem to operate with autobaud over an asynchronous connection the command line would be:

AT+CBST=0,0,1

However, the commands also have default settings. These are values which are assumed to have been entered when no actual value is placed in the command line.
For example, the above command can be entered as:

AT+CBST=,,1

The default values used by the commands are indicated in the following descriptions by bold text.

When the parameter is a character string (for example “<name>”) then the value should be entered between quotes. For example “Peter”.

Optional parameters are shown in square brackets. For example [<value>].

Entering an execute command

Execute commands are very similar to set commands. They usually do not require any parameters and are used to obtain information about the mobile phone or Infrared Modem or to execute an event.

For example, to find out information about the mobile phone battery, enter the +CBC command:

AT+CBC

The Infrared Modem responds:

+CBC: 0,60

indicating that the mobile phone battery is connected (0) and that it has 60% charge remaining.

To answer an incoming call, you execute the A command:

ATA

Using read command to view the command settings

To check the current settings of a command, use the '?' option.
For example, to check the current settings of the +CBST command, enter:

AT+CBST?

If CBST has been set according to the previous example, the settings are displayed as:

+CBST: 0,0,1

Using test command to request command help

To view the parameters available to a command, use the '=?' option with the command.

For example, to check the parameters available to the command line in the example above, enter:

AT+CBST=?

The line:

+CBST: (0,4,6,7,68,70,71),(0),(1)

is displayed indicating the range of valid entries that can be set for the parameters <data rate>, <bearer service> and <connection element>. These will determine Infrared Modem settings when initiating a call.

The values enclosed in the first parenthesis indicate the range of data rates available according to the following options:

0	Auto selection of baud setting.
4	2400bps V22bis.
6	4800bps V32.
7	9600bps V32.
68	2400bps V.110.
70	4800bps V.110.
71	9600bps V.110.

The value in the second parenthesis sets the type of bearer service. The single value, **0,** indicates there is only one option which is asynchronous connection.

The single value **1** in the third parenthesis indicates the only option which is non transparent RLP.

3.5 AT command list

General AT commands

+CBC Mobile phone battery charge 26
+CGMI Request mobile phone manufacturer identification 27
+CGMM Request mobile phone model identification 27
S2 Escape sequence character 28
+CGMR Request mobile phone revision identification 29
+CPAS Mobile phone activity status 29
+CSQ Mobile phone signal quality 30
+GCAP Request Infrared Modem capabilities list 31
+GMI Request Infrared Modem manufacturer identification 32
+GMM Request Infrared Modem model identification 32
+GMR Request Infrared Modem revision identification 33
I Request Infrared Modem identification value 34
&C Circuit 109 (DCD) control 35
&D Circuit 108 (DTR) response 35
E Command echo 36
+IFC DTE-DCE local flow control 37
S3 Command line termination character 38
S4 Response formatting character 39
S5 Command line editing character 40
+CR Service reporting control 41
+CEER Extended error report 42
+CMEE Report mobile phone failure 43
+CRC Cellular result codes 44
Q Result code suppression 45
V Result code format 46
+DR Data compression reporting 47
+DS Data compression mode 48

+CFUN	Set mobile phone functionality 50
+CPBR	Read mobile phone phonebook entries 51
+CPBS	Select mobile phone phonebook memory storage 52
+CPBW	Write mobile phone phonebook entries 53
+CSCS	Select terminal character set 55
&F	Set to factory configuration 56
Z	Reset to user defined configuration 57
O	Return to on-line data mode 58
A	Answer 59
D	Dial 60
H	Hook control 62
P	Select pulse dialling 63
T	Select tone dialling 64
X	Call progress monitoring control 65
+CBST	Select bearer service type 67
+CRLP	Radio link protocol 69
S0	Automatic answer control 70
S6	Blind dial delay control 71
S7	Connection completion timeout 72
S8	Comma dial modifier delay control 73
S10	Automatic disconnect delay control 74
L	Monitor speaker loudness control 75
M	Monitor speaker control 76

Short Message Service AT commands

+CMGD Delete SMS message 77
+CMGF SMS Message format 78
+CMGL List SMS messages 79
+CMGR Read SMS messages 80
+CMGS Send SMS messages 81
+CMGW Write SMS messages to storage 82
+CMSS Send SMS message from storage 83
+CMTI SMS Message received indication 84
+CNMI New SMS message indicator 85
+CPMS Preferred SMS message storage 87
+CSCA SMS service centre address 89
+CSMS Select SMS message service 90

Facsimile AT commands

General

+FCLASS Capabilities Identification and Control 91

Fax Service Class 1

+FTS Stop transmission and wait 92
+FRS Receive silence 93
+FTM Facsimile transmit 94
+FRM Facsimile receive 95
+FTH Transmit HDLC 96
+FRH Receive HDLC 97
+FMI Request manufacturer's identification 97
+FMM Request product identification 98
+FMR Request version 98

Fax Service Class 2

+FAA Fax auto answer setting 99
+FAXERR Request hang-up cause code 100
+FBADLIN Number of consecutive bad lines to accept 101
+FBADMUL Bad line multiplier parameter 102
+FBOR Facsimile page transfer bit order parameter 103
+FBUF Buffer size report 104
+FCQ Copy quality checking 105
+FCR Capability to receive parameter 106
+FCIG Local polling ID parameter 107
+FCTCRTY Continue to correct count during ECM 108
+FDFFC Data format failure check 109
+FDCS Session results 110
+FDIS Current session parameters 111

+FECM Error correction mode 113
+FK Orderly fax abort 114
+FLID Local polling ID parameter 114
+FLNFC Page length format conversion parameter 115
+FLPL Document for polling parameter 116
+FMDL Request product identification 117
+FMFR Request manufacturer’s identification 117
+FMINSP Minimum facsimile page transfer speed parameter 118
+FPHCTO Facsimile page transfer timeout parameter 119
+FPTS Page transfer status parameter 120
+FREV Request DCE revision 120
+FRBC Receive data block size 121
+FREL Facsimile page transfer EOL alignment parameter 122
+FSPL Enable polling parameter 123
+FTBC Fax page transfer data transmit byte count parameter 124
+FVRFC Vertical resolution conversion parameter 125
+FWDFC Page width conversion parameter 126

4 General AT commands

4.1 Information commands

+CBC ***Mobile phone battery charge***

Description: Returns the connection status and charge level of the mobile phone battery.

Execute command: **+CBC**

Returns: +CBC: <status>,<charge%>

<status>	**0**	mobile phone is powered by the battery
	1	mobile phone has the battery connected but is not powered by it.
<charge%>	**0**	battery discharged
	1-100	percentage of charge remaining.

Example:
```
AT+CBC
+CBC: 1,0
OK
```

Test command: **+CBC=?** Always returns **(0,1),(0-100)**

Example:
```
AT+CBC=?
+CBC: (0,1),(0-100)
OK
```

+CGMI Request mobile phone manufacturer identification

Description: Returns the manufacturer identification for the mobile phone.

Execute command: **+CGMI**

Example:
```
AT+CGMI
ERICSSON
OK
```

Test command: **+CGMI=?**

Example:
```
AT+CGMI=?
OK
```

+CGMM Request mobile phone model identification

Description: Returns the model identification of the mobile phone.

Execute command: **+CGMM**

Example:
```
AT+CGMM
1100801
OK
```

Test command: **+CGMM=?**

Example:
```
AT+CGMM=?
OK
```

.

S2 Escape sequence character

Description: Defines the character to be used as the escape sequence character when switching from on-line data mode to on-line command mode. The response to the command is modified to reflect the change.

Set command: **S2=**[<ESC>]

Options: <ESC>

0 - 127	The ASCII value of the escape sequence character. Default = **43**.
128-255	Setting S2 to a value in this range will disable switching.

Example:
```
ATS2=43
OK
```

Read command: **S2?** Returns the current setting.

Example:
```
ATS2?
43
OK
```

Test command: **S2=?** Always returns **(0-255)**.

Example:
```
ATS2=?
S2: (0-255)
OK
```

+CGMR Request mobile phone revision identification

Description: Returns the revision identification of the mobile phone.

Execute command: **+CGMR**

Example:
```
AT+CGMR
9709091055
OK
```

Test command: **+CGMR=?**

Example:
```
AT+CGMR=?
OK.
```

+CPAS Mobile phone activity status

Description: Returns the activity status of the mobile phone.

Execute command: **+CPAS**

Returns: +CPAS: <pas>

<pas>

0	Ready.
1	Unavailable.
2	Status unknown.
3	Ringing.
4	Call in progress.
5	Asleep.

Example:
```
AT+CPAS
+CPAS: 0
OK
```

. Test command: **+CPAS=?** Always returns **(0-5)**.

Example:
```
AT+CPAS=?
+CPAS: (0-5)
OK
```

+CSQ ***Mobile phone signal quality***

Description: Returns the signal strength and channel bit error rate at the mobile phone.

Execute command: **+CSQ**

Returns: +CSQ: <rssi>,<ber>

<rssi>	**0**	-113 dBm or less.
	1	-111 dBm.
	2-30	-109 dBm to -53 dBm.
	31	-51 dBm or greater.
<ber>	**99**	

Example:

```
AT+CSQ
+CSQ: 19,255     TBA310
OK
```

. Test command: **+CSQ=?** Always returns **(0-31),(99)**.

Example:

```
AT+CSQ=?
+CSQ: (0-31),(99)
OK
```

+GCAP Request Infrared Modem capabilities list

Description: Returns a list of valid Infrared Modem command prefixes.

Execute command: **+GCAP**

Returns:

+DS:	Data compression commands.
+FCLASS:	Fax class 1 and 2 commands.
+CGSM:	GSM commands.
+ES:	Error correction commands.
+MS:	Modem modulation commands.

Example:

```
AT+GCAP
+GCAP: +FCLASS,+CGSM
OK
```

. Test command: **+GCAP=?**

Example:

```
AT+GCAP=?
OK
```

+GMI Request Infrared Modem manufacturer identification

Description: Returns the manufacturer identification for the Infrared Modem.

Execute command: **+GMI**

Example:
```
AT+GMI
ERICSSON
OK
```

Test command: **+GMI=?**

Example:
```
AT+GMI=?
OK
```

+GMM Request Infrared Modem model identification

Description: Returns the model identification of the Infrared Modem.

Execute command: **+GMM**

Example:
```
AT+GMM
1100801
OK
```

Test command: **+GMM=?**

Example:
```
AT+GMM=?
OK
```

+GMR Request Infrared Modem revision identification

Description: Returns the revision identification of the Infrared Modem.

Execute command: **+GMR**

Example:
```
AT+GMR
971022 1434 PRGCXC125123
OK
```

Test command: **+GMR=?**

Example:
```
AT+GMR=?
OK
```

I *Request Infrared Modem identification value*

Description: This command provides compatibility with Microsoft Windows 95.

Execute command: **I=**[<n>] or **I**[<n>]

Options:

<n>	**0**	Return the model identification.
	1	Returns the revision identification.
	5	Returns active settings and stored profiles. Default = **0**.
		All other numbers up to 255 return OK. Other numbers return ERROR.

Examples:

```
ATI0
1100801
OK

ATI1
971022 1434 PRGCXC125123
OK

ATI5
ACTIVE SETTINGS
E:1 Q:0 V:1 X:$ &C:1 &D:0
S0:000 S2:043 S3:013 S4:010 S5:008
S7:050
+CBST:0,0,1 +CRLP:61,61,48,6
+CPMS:"SM","SM", +CPBS:"SM"
+CR:0 +CRC:0 +CMEE:0
+DR:1 +DS:3,0,2048,32

OK
```

4.2 DTE-DCE interface commands

&C Circuit 109 (DCD) control

Description: Determines the behaviour of the carrier detect. Further information is available from the *I109 command.

TBA303

Set command: **&C=**[<n>] or **&C**[<n>]

Options: <n>

0	DCD always on.
1	DCD follows the connection. Default = **1**.

Example:
```
AT&C1
0K
```

&D Circuit 108 (DTR) response

Description: Controls all actions initiated by data terminal ready from DTE.

Set command: **&D=**[<nea>] or**&D**[<nea>]

Options: <nea> for DTR On to Off transitions:

0	Ignore.
1	When in on-line data mode then switch to on-line command mode. All other states, as for nea = 2.
2	Disconnect and switch to off-line command mode. Default = **0**.

Example:
```
AT&D2
0K
```

E *Command echo*

Description: Enables or disables the command line echo.

Set command: **E=**[<n>] or **E**[<n>]

Options:

<n>	**0**	No echo of command mode characters.
	1	Echo command mode characters.
		Default = **1**.

Examples:

```
ATE
OK

ATE=1
OK
```

Read command: **E?** Returns the current setting.

Example:

```
ATE?
E: 1
OK
```

Test command: **E=?** Always returns **(0,1)**.

Example:

```
ATE=?
E: (0,1)
OK
```

+IFC DTE-DCE local flow control

Description: Defines the flow control between the Infrared Modem and the computer when in on-line data mode. No flow control is enabled in any of the command modes.

Set command: **+IFC=**[<by_te>,[<by_ta>]]

Options:

<by_te>
- **0** No flow control on DTE.
- **1** Xon/Xoff flow control on DCE. Control characters are removed by the DCE interface.
- **2** RTS flow control on DCE.
- **3** Xon/Xoff flow control on DCE. Control characters are passed to the remote DCE/DTE.

Default = **2**.

<by_ta>
- **0** No flow control on DCE.
- **1** Xon/Xoff flow control on DTE.
- **2** CTS flow control on DCE.

Default = **2**.

Example:
```
AT+IFC=2,2
OK
```

Read command: **AT+IFC?** Returns the current setting.

Example:
```
AT+IFC?
+IFC: 2,2
OK
```

Test command: **AT+IFC=?** Always returns **(0-3),(0-2)**.

Example:
```
AT+IFC=?
+IFC: (0-3),(0-2)
OK
```

S3 Command line termination character

Description: Defines the character to be used as the line termination character. This is used both for the detection of an end of command and in formatting of responses. The response to the command is modified to reflect the change.

Set command: **S3=**[<cr>]

Options: <cr> **0 - 127** The ASCII value of the Command Line Termination Character.
Default = **13**.

Example:
```
ATS3=13
OK
```

Read command: **S3?** Returns the current setting.

Example:
```
ATS3?
013
OK
```

Test command: **S3=?** Always returns **(0-127)**.

Example:
```
ATS3=?
S3: (0-127)
OK
```

S4 Response formatting character

Description: Defines the character to be used as the line formatting character. The response to the command is modified to reflect the change.

Set command: **S4=**[<lf>]

Options: <lf> **0 - 127** The ASCII value of the line formatting character. Default = **10**.

Example:
```
ATS4=10
OK
```

Read command: **S4?** Returns the current setting.

Example:
```
ATS4?
010
OK
```

Test command: **S4=?** Always returns **(0-127)**.

Example:
```
ATS4=?
S4: (0-127)
OK
```

S5 Command line editing character

Description: Defines the character to use as command line editing character.

Set command: **S5=**[<bs>]

Options: <bs> **0 - 127** The ASCII value of the Line Editing Character.
Default = **8**.

Example:
```
ATS5=8
OK
```

Read command: **S5?** Returns the current setting.

Example:
```
ATS5?
008
OK
```

Test command: **S5=?** Always returns **(0-127)**.

Example:
```
ATS5=?
S5: (0-127)
OK.
```

4.3 Modulation control commands

+CR Service reporting control

Description: Enables or disables display of intermediate bearer capability reports during the handshake phase.

Set command: **+CR=**[<mode>]

Options: <mode> **0** Disable reporting.
1 Enable reporting.
Default = **0**.

Example:
```
AT+CR=0
OK
```

Read command: **+CR?** Returns the current setting.

Example:
```
AT+CR?
+CR: 0
OK
```

Test command: **+CR=?** Always returns **(0,1)**.

Example:
```
AT+CR=?
+CR: (0,1)
OK.
```

4.4 Result and error code control

+CEER Extended error report

Description: Returns the text description of the last error encountered in an unsuccessful connection.

Execute command: **+CEER**

Returns: “<report>” Text string containing reason of last call clearing or unsuccessful call set-up (originating or answering).

Example:
```
AT+CEER
+CEER: Phone failure
OK
```

.Test command: **+CEER=?**

Example:
```
AT+CEER=?
OK
```

+CMEE Report mobile phone failure

Description: Enables or disables mobile phone failure reporting.

Set command: **+CMEE=**[<n>]

Options: <n>
- **0** Disable +CMEE error reporting.
- **1** Enable +CMEE error reporting.

Default = **0**.

Example:
```
AT+CMEE=0
OK
```

Read command: **+CMEE?** Returns the current setting.

Example:
```
AT+CMEE?
+CMEE: 0
OK
```

Test command: **+CMEE=?** Always returns **(0,1)**.

Example:
```
AT+CMEE=?
+CMEE: (0,1)
OK
```

+CRC Cellular result codes

Description: Determines whether or not the extended format of report for an incoming call should be used.

Set command: **+CRC=**[<mode>]

Options: <mode> **0** Disable extended result codes.
1 Enable extended result codes.
Default = **0**.

Example:
```
AT+CRC=0
OK
```

Read command: **+CRC?** Returns the current setting.

Example:
```
AT+CRC?
+CRC: 0
OK
```

Test command: **+CRC=?** Always returns **(0,1)**.

Example:
```
AT+CRC=?
+CRC: (0,1)
OK
```

Q *Result code suppression*

Description: Enables or disables the display of result codes. When the result code is disabled, the Infrared Modem does not issue any final result codes but continues to provide normal text in response to commands.

Set command: **Q=**[<n>] or **Q**[<n>]

Options: <n>

0	Enable result codes.
1	Disable result codes.

Default = **0**.

Examples:

```
ATQ0
OK

ATQ
OK
```

Read command: **Q?** Returns the current setting.

Example:

```
ATQ?
Q: 0
OK
```

Test command: **Q=?** Always returns **(0,1)**.

Example:

```
ATQ=?
Q: (0,1)
OK
```

V *Result code format*

Description: Select either verbose or numeric response codes.

Set command: **V=**[<n>] or **V**[<n>]

Options: <n>

0	Display numeric result codes.
1	Display verbose result codes.

Default = **1**.

Example:
```
ATV1
OK
```

Read command: **V?** Returns the current setting.

Example:
```
ATV?
V: 1
OK
```

Test command: **V=?** Always returns **(0,1)**.

Example:
```
ATV=?
V: (0,1)
OK
```

4.5 Data compression commands

+DR Data compression reporting

Description: Determines if intermediate data compression reports are displayed during the protocol handshake phase.

Set command: **+DR=**[<n>]

Options: <n>

0 No intermediate compression mode reporting.

1 Intermediate compression mode reporting with the Answer (A) and Dial (D) commands.

Default = **0**.

Example:

```
AT+DR=1
OK
```

Read command: **+DR?** Returns the current setting.

Example:

```
AT+DR?
+DR: 1
OK
```

Test command: **+DR=?** Always returns **(0,1)**.

Example:

```
AT+DR=?
+DR: (0,1)
OK
```

+DS Data compression mode

Description: Defines the compression parameters and negotiation used for V.42bis and MNP5 connections.

Set command: **+DS=**[<dir>,[<neg>,[<md>,[<ms>]]]]

Options:

<dir>	**0**	Disable V.42bis compression.
	1	Enable V.42bis compression on transmitted data.
	2	Enable V.42bis compression on received data.
	3	Enable V.42bis compression on received and transmitted data. Default = **3**.
<neg>	**0**	Connect even if the compression protocol does not comply with that specified by dir.
	1	Disconnect if compression protocol does not comply with dir. Default = **0**.
<md>	**512 - 4096**	Defines the maximum dictionary size. This value will be amended automatically to comply with any memory constraints. Default = **2048**.

	<ms>	**6 - 250**	Defines the maximum string length. Default = **32**.

Example:

```
AT+DS=3,0,2048,32
OK
```

Read command: **+DS?** Returns the current setting.

Example:

```
AT+DS?
+DS: 3,0,2048,32
OK
```

Test command: **+DR=?** Always returns **(0-3),(0,1),(512-4096),(6-250)**.

Example:

```
AT+DR=?
+DS: (0-3),(0,1),(512-4096),(6-250)
OK
```

4.6 Miscellaneous commands

+CFUN ***Set mobile phone functionality***

Description: Sets the power status of the mobile phone to either on or off.

Set command: **+CFUN=**<fun>

Options: <fun> **0** Switch off the mobile phone.
1 Switch on the mobile phone.
Default = **1**.

Example:
```
AT+CFUN=0
OK
```

Read command: **+CFUN?** Returns the current setting.

Example:
```
AT+CFUN?
+CFUN: 1
OK
```

Test command: **+CFUN=?** Always returns **(0,1)**.

Example:
```
AT+CFUN=?
+CFUN: (0,1)
OK
```

Note that when the keylock is activated on the phone, you cannot turn it off by means of the +CFUN command.

+CPBR Read mobile phone phonebook entries

Description: Returns the phonebook entries, index1 to index2.

Set command: **+CPBR=**<index1>,[<index2>]

Options:

<index1>	First entry to be read.
<index2>	Last entry to be read. This option is only entered when a range of numbers is required.

Example:

```
AT+CPBR=1,2
+CPBR: 1. “046193000“,145,“ERICSSON“
+CPBR: 2. “046193500“,145,“ERICSSON FAX“
OK
```

Test command: **+CPBR=?** Always returns **(1-100),20,18**.

Example:

```
AT+CPBR=?
+CPBR: (1-100),20,18
OK
```

+CPBS Select mobile phone phonebook memory storage

Description: Define the location of the phonebook memory storage used by the phonebook commands.

Set command: **+CPBS=**“<storage>”

Options: <storage> **“ME”** Mobile phone phonebook.
“SM” SIM card phonebook.
Default = **“SM”**.

Example:
```
AT+CPBS="SM"
OK
```

Read command: **+CPBS?** Returns the current setting.

Example:
```
AT+CPBS?
+CPBS: "SM"
OK
```

Test command: **+CPBS=?** Always returns **(ME,SM)**.

Example:
```
AT+CPBS=?
+CPBS: ("ME","SM")
OK
```

+CPBW Write mobile phone phonebook entries

Description: Store entries in the phonebook.

Set command: **+CPBW=**[<index>],[<"number">,[<type>,[<"text">]]]

Options:

<index>		Location number for the storage of the phone details. If omitted then the first free location is assigned.
<"number">		Phone number.
<type>	**128-255**	Type of ISDN/Phone numbering plan:
	129	Nationality unknown.
	145	International.
	161	National.
		If a '+' is included in the phone number <number> then a default of **145** is used, in all other cases a default value of **129** is applied.
<"text">		Name or description of the phone number.

Examples:

```
AT+CPBW=10,"046193000",129,"Ericsson"
OK
```

The new entry overwrites position 10 in the phonebook.

```
AT+CPBW=10
OK

AT+CPBW=,"046193000",129,"Ericsson"
OK
```

Test command:	**+CPBW=?**	Always returns **(1-100),20,(128-255),18**

Example:

```
AT+CPBW=?
+CPBW: (1-100),20,(128-255),18
OK
```

TBA306

+CSCS Select terminal character set

Description: Defines the character set to be used.

Set command: **+CSCS=**[“<chset>”]

Options: “<chset>” **“GSM”** Default **GSM** alphabet.

Example:
```
AT+CSCS="GSM"
OK
```

Read command: **+CSCS?** Returns the current setting.

Example:
```
AT+CSCS?
+CSCS: "GSM"
OK
```

Test command: **+CSCS=?** Always returns **(“GSM”)**.

Example:
```
AT+CSCS=?
+CSCS: ("GSM")
OK
```

&F Set to factory configuration

Description: Reset the active profile to the predefined factory configurations. Configurations which would adversely effect an open connection or a current data transmission are not loaded until the connection ceases.

Command: **&F=**[<pr>] or **&F**[<pr>]

Options:

<pr>	**0**	Set profile parameters to factory default settings.

Example:

```
AT&F=0
OK

AT&F
OK
```

Test command: **&F=?** Always returns **(0)**.

Example:

```
AT&F=?
&F: (0)
OK
```

Z *Reset to user defined configuration*

Description: Perform a 'soft reset', i.e. terminate any ongoing operation and connection and restore one of the configurations stored in nonvolatile memory as the active profile.

Set command: **Z=**[<pr>] or **Z**[<pr>]

Options:

<pr>	**0**	Read parameters stored in profile 0.

Examples:

```
ATZ=0
OK

ATZ
OK
```

Test command: **Z=?** Always returns **(0)**.

Example:

```
ATZ=?
Z: (0)
OK
```

4.7 Command mode

O ***Return to on-line data mode***

Description: Switch to the on-line data mode from the on-line command mode during an active call.

Set command: **O=**[<n>] or **O**[<n>]

Options:

<n>	**0**	Switch from on-line command mode to on-line data mode.

Examples:

```
ATO
CONNECT 9600
```

Test command: **O=?** Always returns **(0)**.

Example:

```
ATO=?
O: (0)
OK
```

4.8 Call control

A ***Answer***

Description: Answer and initiate connection to an incoming call. If the command is used during speech connection, a fax connection is established (teleservice 61, speech then fax).

Execute command: **A**

Examples:

```
ATA
CONNECT 9600
```

D ***Dial***

Description: Initiate a phone connection which may be data, facsimile (+FCLASS>0) or voice (phone number terminated by semicolon). The phone number used to establish the connection will consist of digits and modifiers, a stored number specification or a password table look-up command.

Execute command:	**D**	Dial the phone number entered on the phone display.
Other options:	**D**<n>	Dial the phone number specified in the command as <n>.
	D=ME<i>	Dial the phone number stored in the mobile phone which is located by the index <i>.
	D=SIM<i>	Dial the phone number stored in the SIM card which is located by the index <i>.
	DL	Redial the last phone number dialled.
Modifiers:	**W**	Inserts a delay in the dialling of the phone number to enable a new dial tone to be established. Since the Infrared Modem can not detect a new dial tone, it is assumed the delay time is sufficient to initiate the secondary dial tone.
	,	Inserts a delay in the dialling of the phone number.

	;	Terminates a voice dial command.
Dial examples:	ATD046194427 <response>	See below for possible responses.
	ATD=ME1 <response>	Dial the number stored in index 7 of the mobile phone.
	ATD=SIM1 <response>	Dial the number stored in index 5 of the SIM card.
	ATD046193000;	Voice dial, immediately returns OK.
	ATDL	Redial the last number dialled.
Responses:	OK	Dial command is terminated.
	CONNECT <speed>	Data connection established at the rate given in <speed>.
	NO CARRIER	Unable to establish a connection.
	ERROR	Incoming call detected, or a password look-up failed.
	NO DIALTONE	Unable to establish contact with the phone system.
	BUSY	The phone number called is engaged.

H ***Hook control***

Description: Terminates a connection.

Execute command: **H=**[<n>] or **H**[<n>]

Options: <n> **0** Disconnect data connection.

Examples:
```
ATH
NO CARRIER
```

Test command: **H=?** Always returns **(0)**.

Example:
```
ATH=?
H: (0)
OK
```

P ***Select pulse dialling***

Description: Causes the prior D command to assume that pulse dialling is to be used unless otherwise specified. This command is ignored by the Infrared Modem and is only included for compatibility.

Set command: **P**

Example:
```
ATP
0K
```

Test command: **P=?**

Example:
```
ATP=?
0K
```

T ***Select tone dialling***

Description: Causes the prior D command to assume that tone dialling is to be used unless otherwise specified. This command is ignored by the Infrared Modem and is only included for compatibility.

Set command: **T**

Example:
ATT
0K

Test command: **T=?**

Example:
ATT=?
0K

X *Call progress monitoring control*

Description: Define whether the dial tone detection and busy tone detection are to be used during a call setup.

Set command: **X=**[<n>] or **X**[<n>]

Options: <n>

0	Busy and dial tone detection off. No line speed reported on connection.
1	Busy and dial tone detection off. Report line speed on connection.
2	Busy detection on and dial tone detection off. Report line speed on connection.
3	Busy detect off and dial tone detection on. Report line speed on connection.
4	Busy detect and dial tone detection on. Report line speed on connection. Default = **4**.

Examples:

```
ATX4
OK
```

Read command: **X?** Returns the current setting.

Example:

```
ATX?
X: 4
0K
```

Test command: **X=?** Always returns **(0-4)**.

Example:

```
ATX=?
X: (0-4)
OK
```

4.9 Line interface

+CBST ***Select bearer service type***

Description: Define the type of bearer service (name), data rate (speed) and connection element (ce) used when initiating a call.

To configure the Infrared Modem to operate with an ISDN connection, the speed value must be 68 or greater.

Set command: **+CBST=**[<speed>,[<name>,[<ce>]]]

Options:

<speed>	**0**	Auto selection of baud setting.
	4	2400bps V22bis.
	6	4800bps V32.
	7	9600bps V32.
	68	2400bps V.110 (ISDN).
	70	4800bps V.110 (ISDN).
	71	9600bps V.110 (ISDN). Default = **0**.
<name>	**0**	Asynchronous connection.
<ce>	**1**	Non transparent.

Example:

```
AT+CBST=0,0,1
OK
```

Read command: **+CBST?** Returns the current setting.

Example:

```
AT+CBST?
+CBST: 0,0,1
OK
```

Test command: **+CBST=?** Always returns **(0,4,6,7,68,70,71),(0),(1)**

Example:

```
AT+CBST=?
+CBST: (0,4,6,7,68,70,71),(0),(1)
OK
```

+CRLP Radio link protocol

Description: Define the Radio Link Protocol parameters.

Set command: **+CRLP=**[<iws>,[<mws>,[<t1>,[<n2>]]]]

Options:

<iws>	**0 - 61**	IWF to MS window size. Default = **61**.
<mws>	**0 - 61**	MS to IWF window size. Default = **61**.
<t1>	**38 - 255**	Acknowledgement timer in units of 10ms. Default = **48**.
<n2>	**0 - 255**	Retransmission attempts. Default = **6**.

Example:

```
AT+CRLP=61,61,48,6
OK
```

Read command: **+CRLP?** Returns the current setting.

Example:

```
AT+CRLP?
+CRLP: 61,61,48,6
OK
```

Test command: **+CRLP=?** Always returns **(0,61),(0,61),(38-255),(0-255)**

Example:

```
AT+CRLP=?
+CRLP: (0,61),(0,61),(38-255),(0-255)
OK
```

S0 Automatic answer control

Description: Defines the automatic answering feature of the Infrared Modem. A non-zero value specifies the number of rings before the call is answered.

Note that a bypass operation can modify the behaviour of the automatic answer procedure if implemented.

Set command: **S0=**[<rcnt>]

Options: <rcnt>
- **0** Disable automatic answer.
- **1 - 7** Answer after the specified number of rings.

Default = **0**.

Example:
```
ATS0=0
OK
```

Read command: **S0?** Returns the current setting.

Example:
```
ATS0?
000
OK
```

Test command: **S0=?** Always returns **(0-7)**

Example:
```
ATS0=?
S0: (0-7)
OK
```

S6 Blind dial delay control

Description: Defines the number of seconds wait before call addressing when a dial-tone is not detected. This command is ignored by the Infrared Modem and is only included for compatibility.

Set command: **S6=**[<dly>]

Options: <dly> **2 - 255**

Example:
```
ATS6=2
OK
```

Read command: **S6?** Returns the current setting.

Example:
```
ATS6?
002
OK
```

Test command: **S6=?** Always returns **(2-255)**

Example:
```
ATS6=?
S6: (2-255)
OK
```

S7 Connection completion timeout

Description: Defines the maximum time allowed between completion of dialling and the connection being established. If this time is exceeded then the connection is aborted.

Set command: **S7=**[<tmo>]

Options: <tmo> **1 - 255** Timeout value in seconds. Default = **50**.

Example:
```
ATS7=50
OK
```

Read command: **S7?** Returns the current setting.

Example:
```
ATS7?
050
OK
```

Test command: **S7=?** Always returns **(1-255)**

Example:
```
ATS7=?
S7: (1-255)
OK
```

S8 Comma dial modifier delay control

Description: Defines the number of seconds for DCE to pause during signalling of call addressing information when a ',' (comma) or 'W' dial modifier is encountered in the dial string.

Set command: **S8=**[<dly>]

Options: <dly> **1 - 255** The value of the dial modifier delay in seconds. Default = **2**.

Example:
```
ATS8=2
OK
```

Read command: **S8?** Returns the current setting.

Example:
```
ATS8?
002
OK
```

Test command: **S8=?** Always returns **(1-255)**

Example:
```
ATS8=?
S8: (1-255)
OK
```

S10 Automatic disconnect delay control

Description: This parameter specifies the amount of time that the DCE will remain connected to the line after the absence of received line signal. This command is ignored by the Infrared Modem and is only included for compatibility.

Set command: **S10=**[<val>]

Options: <val> **1-254**

Example:
```
ATS10=2
OK
```

Read command: **S10?**

Example:
```
ATS10?
002
OK
```

Test command: **S10=?** Always returns **(1-254)**

Example:
```
ATS10=?
S10: (1-254)
OK
```

L Monitor speaker loudness control

Description: Set the volume of the speaker. This command is ignored by the Infrared Modem and is only included for compatibility.

Set command: **L=**[<vol>]

Options: <vol> **0-3**

Examples:
```
ATL0
OK
```

Read command: **L?**

Example:
```
ATL?
L: 0
OK
```

Test command: **L=?** Always returns **(0-3)**

Example:
```
ATL=?
L: (0-3)
OK
```

M *Monitor speaker control*

Description: Define the activity of the speaker. This command is ignored by the Infrared Modem and is only included for compatibility.

Set command: **M=**[<speaker>]

Options: <speaker> **0-3**

Examples:
```
ATM0
OK
```

Read command: **M?**

Example:
```
ATM?
M: 0
OK
```

Test command: **L=?** Always returns **(0-3)**

Example:
```
ATM=?
M: (0-3)
OK
```

TBA306 - not clear what maximum length of entries can be.

TBA310 - The value 255 if from the off-screen sample but this value should be 99?

5 Short message service commands

+CMGD Delete SMS message

Description: Delete the message stored at the memory location index.

Set command: **+CMGD=**<index>

Options: <index> Memory location.

Example:
```
AT+CMGD=1
OK
```

Test command: **CMGD=?**

Example:
```
AT+CMGD=?
OK.
```

+CMGF SMS Message format

Description: Configure the format to be used to send, list, read and write messages.

Set command: **+CMGF=**[<mode>]

Options: <mode> **0** PDU mode.

Example:
```
AT+CMGF=0
OK
```

Read command: **CMGF?** Returns the current setting.

Example:
```
AT+CMGF?
+CMGF: 0
OK
```

Test command: **CMGF=?** Always returns **(0)**.

Example:
```
AT+CMGF=?
+CMGF: (0)
OK
```

+CMGL List SMS messages

Description: Returns those messages from memory storage 1 which conform to the specified status (stat).

Set command: **+CMGL=**[<stat>] or **+CMGL**[<stat>]

Options:

<stat>	**0**	Received unread messages.
	1	Received read messages.
	2	Stored unsent messages.
	3	Stored sent messages.
	4	All messages.

Examples:

```
AT+CMGL=4
+CMGL: 1,3,154
<PDU>
OK

AT+CMGL
OK
```

Test command: **CMGL=?** Always returns **(0-4)**.

Example:

```
AT+CMGL=?
+CMGL: (0-4)
OK.
```

+CMGR Read SMS messages

Description: Returns the message held in the specified memory location together with the status of the message and entire message data unit <pdu>.

Set command: **+CMGR=**<index>

Options: <index> Memory location.

Returns: message

<status>	**0**	Received unread**.**
	1	Received read.
	2	Stored unsent.
	3	Stored sent.
<pdu>		The message in pdu format.

Example:
```
AT+CMGR=1
+CMGR: 3,154
OK
```

Test command: **CMGR=?**

Example:
```
AT+CMGR=?
OK
```

+CMGS Send SMS messages

Description: Sends a message to the phone network. On successful delivery a message reference number is returned. Sending can be cancelled by sending the **ESC** character.

Set command: **+CMGS=**<length><**CR**><message><**CTRL-Z**/**ESC**>

Options:

<length>	The number of octets coded in the TP layer data unit. Terminated by **CR** character.
message	The message in PDU format. Terminate by **CTRL-Z** to send the message. Terminate by **ESC** to cancel the message.

Example:

```
AT+CMGS=35
  > <PDU> <CTRL-Z>
+CMGS: 13
OK
```

Test command: **CMGS=?**

Example:

```
AT+CMGS=?
OK
```

+CMGW Write SMS messages to storage

Description: Store a message in the memory store 2. On storing the message the location index number is returned.

Set command: **+CMGW=**<length>,[<stat>],<**CR**><message><**CTRL-Z**>

Options:			
	<length>		The number of octets coded in the TP layer data unit.
	<stat>	**2**	Store unsent messages.
	<message>		The message in PDU format. Terminated by the CTRL-Z character.
Returns:	<index>		The memory location of the stored message.

Example:
```
AT+CMGW=35
  > <PDU> <CTRL-Z>
+CMGW: 13
OK
```

Test command: **CMGW=?**

Example:
```
AT+CMGW=?
OK.
```

+CMSS Send SMS message from storage

Description: Sends a message from the memory storage 2 to the phone network. On successful delivery a message reference number is returned.

Set command: **+CMSS=**<index>

Options: <index> Memory location.

Returns <mr> Message reference.

Example:
```
AT+CMSS=1
+CMSS: 14
OK
```

Test command: **CMSS=?**

Example:
```
AT+CMSS=?
OK
```

+CMTI SMS Message received indication

Description: An unsolicited result indicating that a message has been received. The function must first be enabled using the +CNMI command.

Unsolicited result: **+CMTI:** “<mem>”,<index>

Options:	mem	“ME”	Mobile phone message storage.
		“SM”	SIM card message storage.
	<index>		Memory location.
Example:	+CNMI = 2,1,0,0,0		Before using +CMTI, switch on the options to forward result codes to the computer and provide indication of SMS delivery. (See +CNMI command)
	`+CMTI:"ME",212`		Unsolicited result.

+CNMI New SMS message indicator

Description: Configures the message communication between the Infrared Modem and the computer.

Set command: **+CNMI=**[<mode>,[<mt>,[<bm>,[<ds>,[<bfr>]]]]]

Options:	<mode>	**0**	Buffer result codes in Infrared Modem.
		1	Discard indication when Infrared Modem-computer link is reserved. Otherwise, forward to the computer.
		2	Buffer result codes when Infrared Modem-computer link is reserved and flush to computer after reservation. Otherwise, forward to the computer. Default = **0**.
	<mt>	**0**	No SMS-DELIVER are forwarded to the computer.
		1	Indication of SMS-DELIVER is forwarded to the computer. Default = **0**.
	bm	**0**	No CBM indications are forwarded to the computer.
	ds	**0**	No SMS-STATUS-REPORTS are forwarded to the computer.

	bfr	**0**	When in mode 1 or 2 the result codes are flushed to the computer.
		1	When in mode 1 or 2 the result codes are cleared. Default = **0**.

Example:
```
AT+CNMI=0,0,0,0,0
OK
```

Read command: **+CNMI?** Returns the current setting.

Example:
```
AT+CNMI?
+CNMI: 0,0,0,0,0
OK
```

Test command: **+CNMI=?** Always returns **(0-2),(0,1),(0),(0),(0,1)**.

Example:
```
AT+CNMI=?
+CNMI: (0-2),(0,1),(0),(0),(0,1)
OK.
```

+CPMS Preferred SMS message storage

Description: Defines the message storage areas and returns the functionality of the message storage in the form:

+CPMS=<used1>,<total1>,<used2>,<total2>

Where:

<used1>	Number of messages in 1.
<total1>	Number of locations in 1.
<used2>	Number of messages in 2.
<total2>	Number of locations in 2.

Memory 1 storage is used to list, read and delete messages (+CMGL, +CMGR and +CMGD) whilst memory 2 is used to write and send messages (+CMGW and +CMSS).

Set command: **+CPMS=**"<mem1>",["<mem2>"]

Options:

<mem1>	"ME"	Mobile phone message storage 1.
	"SM"	SIM card message storage 1.
<mem2>	"ME"	Mobile phone message storage 2.
	"SM"	SIM card message storage 2.

Example:

```
AT+CPMS="SM","SM"
+CPMS: 1,15,1,15
OK
```

Read command: **CPMS?** Returns the current setting.

Example:

```
AT+CPMS?
+CPMS: "SM","SM"
OK
```

Test command: **CPMS=?** Always returns **(ME,SM),(ME,SM)**.

Example:
```
AT+CPMS=?
+CPMS: ("ME","SM"),("ME","SM")
OK
```

+CSCA SMS service centre address

Description: Updates the SMSC address which is used to originate mobile Short Message Service transmissions.

Set command: **+CSCA=**"<sca>",[<tosca>]

Options:

<sca> Telephone number.

<tosca> **128 - 255** Type of phone numbering plan:

129 Nationality unknown.

145 International.

161 National.

If a '+' is included in the phone number (number) then a default of 145 is used. In all other cases a default value of 129 is applied.

Example:

```
AT+CSCA="46705008999",145
OK
```

Read command: **+CSCA?** Returns the current setting.

Example:

```
AT+CSCA?
+CSCA: "46705008999",145
OK
```

Test command: **+CSCA=?** Always returns **(128-255)**.

Example:

```
AT+CSCA=?
+CSCA: (128-255)
OK
```

+CSMS Select SMS message service

Description: Defines the message service and returns the functionality of the message service in the form:

Unsolicited result: **+CSMS:**<mt>,<mo>,<bm>

Where:			
	<mt>	1	mobile terminated support.
	<mo>	1	mobile originated support.
	<bm>	1	Broadcast message support.

Set command: **+CSMS=**<service>

Options:			
	<service>	**0**	GSM 03.40 and 03.41 specific.

Example:
```
AT+CSMS=0
CSMS: 1,1,0
OK
```

Read command: **+CSMS?** Returns the current setting.

Example:
```
AT+CSMS?
+CSMS: 0,1,1,0   TBA311
OK
```

Test command: **+CSMS=?** Always returns **(0)**.

Example:
```
AT+CSMS=?
+CSMS: (0)
OK.
```

6 Fax commands

6.1 General fax AT commands

+FCLASS Capabilities Identification and Control

Description: Sets the service class.

Set command: **+FCLASS=**<class>

Options:

<class>	**0**	Data modem
	1	Service Class 1 fax modem
	2	Service Class 2 fax modem

Example:
```
AT+FCLASS=1
OK
```

Read command: **+FCLASS?** Returns the current service class setting.

Example:
```
AT+FCLASS?
1
OK
```

Test command: **+FCLASS=?** Provides the service classes available as a list of comma separated values.

Example:
```
AT+FCLASS=?
(0,1,2)
OK
```

6.2 Fax Service Class 1 commands

+FTS Stop transmission and wait

Description: Stops the transmission for the specified period.

Set command: **+FTS=**<time>

Options: <time> **0 - 255** The silence period in units of 10ms.

Example:
```
AT+FTS=56
OK
```

Test command: **+FTS=?** Always returns **(0-255)**.

Example:
```
AT+FTS=?
(0-255)
OK
```

+FRS ***Receive silence***

Description: Waits for silence on the line for the specified period.

Set command: **+FRS=**<time>

Options:

<time>	**0 - 255**	The silence period in units of 10ms. Entering a character will abort the silence period.

Example:

```
AT+FRS=122
OK
```

Test command: **+FRS=?** Always returns **(0-255)**.

Example:

```
AT+FRS=?
(0-255)
OK
```

+FTM ***Facsimile transmit***

Description: Set the facsimile transmit speed.

Set command: **+FTM=**<speed>

Options:

<speed>	**24**	V.27ter2400 bit/s
	48	V.27ter4800 bit/s
	72	V.297200 bit/s
	96	V.299600 bit/s

Example:

```
AT+FTM=96
CONNECT
```

Test command: **+FTM=?** Always returns **(24,48,72,96)**.

Example:

```
AT+FTM=?
(24,48,72,96)
OK
```

+FRM ***Facsimile receive***

Description: Set the facsimile receive speed.

Set command: **+FRM=**<speed>

Options:

<speed>	**24**	V.27ter2400 bit/s
	48	V.27ter4800 bit/s
	72	V.297200 bit/s
	96	V.299600 bit/s

Example:

```
AT+FRM=72
CONNECT
```

Test command: **+FRM=?** Always returns **(24,48,72,96)**.

Example:

```
AT+FRM=?
(24,48,72,96)
OK
```

+FTH ***Transmit HDLC***

Description: HDLC transmit speed.

Set command: **+FTH=**<speed>

Options: <speed> **3** V.21 Ch2300 bit/s.

Example:
```
AT+FTH=3
OK
```

Test command: **+FTH=?** Always returns **(3)**.

Example:
```
AT+FTH=?
(3)
OK
```

+FRH Receive HDLC

Description: HDLC receive speed.

Set command: **+FRH=**<speed>

Options: <speed> **3** V.21 Ch2300 bit/s.

Example:
```
AT+FRH=3
CONNECT
```

Test command: **+FRH=?** Always returns **3**.

Example:
```
AT+FRH=?
(3)
OK
```

+FMI Request manufacturer's identification

Description: Request manufacturer identification.

Read command: **+FMI?**

Example:
```
AT+FMI?
ERICSSON
OK
```

+FMM Request product identification

Description: Request model identification.

Read command: **+FMM?**

Example:
```
AT+FMM?
1050601
OK
```

+FMR Request version

Description: Request model revision.

Read command: **+FMR?**

Example:
```
AT+FMR?
971022 1434 PRGCXC125123
OK
```

6.3 Fax Service Class 2 commands

+FAA ***Fax auto answer setting***

Description: Used to determine if the fax setting is selected by auto answer or by the setting in +FCLASS.

Set command: **+FAA=**<setting>

Options: <setting> **0** Answer according to settings in FCLASS only.

Example:
```
AT+FAA=0
OK
```

Read command: **+FAA?** Returns the current setting.

Example:
```
AT+FAA?
0
OK
```

Test command: **+FAA=?** Always returns **(0)**.

Example:
```
AT+FAA=?
(0)
OK
```

+FAXERR Request hang-up cause code

Description: Returns the code of the error which caused the last hang-up.

Read command: **+FAXERR?**

Example:
```
AT+FAXERR?
0
OK
```

Test command: **+FAXERR=?** Always returns **(0-255)**.

Example:
```
AT+FAXERR=?
(0-255)
OK
```

+FBADLIN Number of consecutive bad lines to accept

Description: Sets the maximum acceptable number of consecutive bad lines.

Set command: **+FBADLIN=**<number>

Options: <number> **0**

Example:
```
AT+FBADLIN=0
OK
```

Read command: **+FBADLIN?** Returns the current setting.

Example:
```
AT+FBADLIN?
0
OK
```

Test command: **+FBADLIN=?** Always returns **(0)**.

Example:
```
AT+FBADLIN=?
(0)
OK
```

+FBADMUL Bad line multiplier parameter

Description: Sets the maximum acceptable percentage of bad lines per page multiplication value.

Set command: **+FBADMUL=**<number>

Options: <number> **0**

Example:
```
AT+FBADMUL=0
OK
```

Read command: **+FBADMUL?** Returns the current setting.

Example:
```
AT+FBADMUL?
0
OK
```

Test command: **+FBADMUL=?** Always returns **(0)**.

Example:
```
AT+FBADMUL=?
(0)
OK
```

+FBOR Facsimile page transfer bit order parameter

Description: Set the bit order for negotiation (<bit n>) and facsimile page transfer (<bit f>).

Set command: **+FBOR=**<bit order>
<bit order> is the sum of <bit f> and <bit n> where:

<bit f> 0 = same bit order
1 = reverse bit order

<bit n> 0 = same bit order
2 = reverse bit order.

Options: <bit order>

0	bit f + bit n = 0
1	bit f + bit n = 1
2	bit f + bit n = 2
3	bit f + bit n = 3

Example: If bit f = 1 and bit n=2:

```
AT+FBOR=3
OK
```

Read command: **+FBOR?** Returns the current setting.

Example:
```
AT+FBOR?
3
OK
```

Test command: **+FBOR=?** Always returns **(0-3)**.

Example:
```
AT+FBOR=?
(0-3)
OK
```

+FBUF Buffer size report

Description: Request buffering parameters

Read command: **+FBUF?**

Returns: <bs>,<xoft>,<xont>,<bt>

<bs> = buffer size
<xoft> = XOFF threshold
<xont> = XON threshold
<bt> = current number of characters in buffer.

Example:
```
AT+FBUF?
256,0,0,0
OK
```

+FCQ Copy quality checking

Description: Copy quality checking.

Set command: **+FCQ=**<value>

Options: <value> **0** Do not perform quality checking.

Example:
```
AT+FCQ=0
OK
```

Read command: **+FCQ?** Returns the current setting.

Example:
```
AT+FCQ?
0
OK
```

Test command: **+FCQ=?** Always returns **(0)**.

Example:
```
AT+FCQ=?
(0)
OK
```

+FCR Capability to receive parameter

Description: Capability to receive.

Set command: **+FCR=**<setting>

Options:

<setting>	**0**	Can not receive fax but can be polled.
	1	Can receive fax.

Example:
```
AT+FCR=1
OK
```

Read command: **+FCR?** Returns the current setting.

Example:
```
AT+FCR?
1
OK
```

Test command: **+FCR=?** Always returns **(0,1)**.

Example:
```
AT+FCR=?
(0,1)
OK
```

+FCIG Local polling ID parameter

Description: Local polling ID.

Set command: **+FCIG**=”<string>”

Options: “<string>” String of 0 to 20 characters length.

Example:
```
AT+FCIG=”Ericsson Fax”
OK
```

Read command: **+FCIG?** Returns the current polling string.

Example:
```
AT+FCIG?
Ericsson Fax
OK
```

Test command: **+FCIG=?** Always returns **(20)(32-127)**.

Example:
```
AT+FCIG?
(20)(32-127)
OK
```

+FCTCRTY Continue to correct count during ECM

Description: Continue to correct count during ECM

Set command: **+FCTCRTY=**<value>

Options: <value> **0-255** <value> is in units of 4 retries.

Example:
```
AT+FCTCRTY=0
OK
```

Read command: **+FCTCRTY?** Returns the current setting.

Example:
```
AT+FCTCRTY?
0
OK
```

Test command: **+FCTCRTY=?** Always returns **(0-255)**.

Example:
```
AT+FCTCRTY=?
(0-255)
OK
```

+FDFFC Data format failure check

Description: Data format failure check.

Set command: **+FDFFC=**<value>

Options: <value> **0** Disable mismatch checking.

Example:
```
AT+FDFFC=0
OK
```

Read command: **+FDFFC?** Returns the current setting.

Example:
```
AT+FDFFC?
0
OK
```

Test command: **+FDFFC=?** Always returns **(0)**.

Example:
```
AT+FDFFC=?
(0)
OK
```

+FDCS Session results

Description: Current session results.

Read command: **+FDCS?**

Returns: <vr>,
,<wd>,<ln>,<df>,<ec>,<bf>,<st>

<vr> = vertical resolution

 = bit rate
<wd> = page width
<ln> = page length.
<df> = data compression format
<ec> =error correction
<bf> = binary file transfer
<st> = scan time per line.

Please refer to the +FDCC command for further information on these parameters.

Example:
```
AT+FDCS?
0,0,0,0,0,0,0,0
OK
```

Test command: **+FDCS=?** Always returns **(0-1),(0-3),(0-4),(0-2),(0-3),(0),(0),(0-7)**.

Example:
```
AT+FDCS=?
(0-1),(0-3),(0-4),(0-2),(0-3),(0),(0),(0-7)
OK
```

+FDIS Current session parameters

Description: Current session parameters.

Set command: **+FDIS=**<vr>,
,<wd>,<ln>,<df>,<ec>,<bf>,<st>

Options:			
	<vr>	**0**	Normal, 98 dpi
		1	Fine, 196 dpi
	 	0	2400 bps
		1	4800 bps
		2	7200 bps
		3	9600 bps
	<wd>		Page width
		0	1728 pixels in 215 mm
		1	2048 pixels in 255 mm
		2	2432 pixels in 303 mm
		3	1216 pixels in 151 mm
		4	364 pixels in 107 mm
	<ln>		Page length
		0	A4, 297 mm
		1	B4, 364 mm
		2	unlimited
	<df>		Data compression format
		0	1-D modified huffman
		1	2-D modified read
		2	2-D uncompressed mode
		3	2-D modified modified read
	<ec>		Error correction
		0	disable ECM
	<bf>		Binary file transfer
		0	disable BFT

	<st		Scan time per line
		0-7	0-40 ms depending on <vr> setting.

Example:

```
AT+FDIS=1,3
OK
```

Read command: **+FDIS?** Returns the current settings.

Example:

```
AT+FDIS?
1,3,0,2,0,0,0,0
OK
```

Test command: **+FDIS=?** Always returns **(0-1),(0-3),(0-4),(0-2),(0-3),(0),(0),(0-7)**.

Example:

```
AT+FDIS=?
(0-1),(0-3),(0-4),(0-2),(0-3),(0),(0),(0-7)
OK
```

+FECM Error correction mode

Description: Error correction mode.

Set command: **+FECM=0** Disable error correction mode

Example:
```
AT+FECM=0
OK
```

Read command: **+FECM?** Always returns **0**.

Example:
```
AT+FECM?
0
OK
```

Test command: **+FECM=?** Always returns **(0)**.

Example:
```
AT+FECM=?
(0)
OK
```

+FK Orderly fax abort

Description: Aborts fax transmission.

Execute command: **+FK**

Example:
```
AT+FK
OK
```

+FLID Local polling ID parameter

Description: Allows you to define the local ID string.

Set command: **+FLID=**”<string>”

Options: “<string>” String of 0 to 20 characters length.

Example:
```
AT+FLID="Ericsson Fax"
OK
```

Read command: **+FLID?** Returns the current polling string.

Example:
```
AT+FLID?
"Ericsson Fax"
OK
```

Test command: **+FLID=?** Always returns **(20)(32-127)**.

Example:
```
AT+FLID?
(20)(32-127)
OK
```

+FLNFC Page length format conversion parameter

Description: TBA111

Set command: **+FLNFC=**”<value>”

Options: <value> **0** Disable mismatch checking.

Example:
```
AT+FLNFC=0
OK
```

Read command: **+FLNFC?** Returns current settings.

Example:
```
AT+FLNFC?
0
OK
```

Test command: **+FLNFC=?** Always returns **(0)**.

Example:
```
AT+FLNFC=?
(0)
OK
```

+FLPL Document for polling parameter

Description: Used by the DTE to indicate to the DCE facsimile machine that it has a document ready for polling. This information is forwarded to the remote FAX

Set command: **+FLPL=**<setting>

Options: <setting> **0** No document to poll.

1 Document available for polling.

Example:
```
AT+FLPL=1
OK
```

Read command: **+FLPL?** Returns the current setting.

Example:
```
AT+FLPL?
1
OK
```

Test command: **+FLPL=?** Always returns **(0,1)**.

Example:
```
AT+FLPL=?
(0,1)
OK
```

+FMDL Request product identification

Description: Returns the product identification of a Class 2 fax machine.

Read command: **+FMDL?**

Example:
```
AT+FMDL?
1050601
OK
```

+FMFR Request manufacturer's identification

Description: Returns the manufacturer identification for a Class 2 fax machine.

Read command: **+FMFR?**

Example:
```
AT+FMFR?
ERICSSON
OK
```

+FMINSP Minimum facsimile page transfer speed parameter

Description: Set the minimum negotiable speed parameter.

Set command: **+FMINSP=**

Options:

 	0	2400 bps
	1	4800 bps
	2	7200 bps
	3	9600 bps

Example:
```
AT+FMINSP=0
OK
```

Read command: **+FMINSP?** Returns the current setting.

Example:
```
AT+FMINSP?
0
OK
```

Test command: **+FMINSP=?** Always returns **(0,3)**.

Example:
```
AT+FMINSP=?
(0,3)
OK
```

+FPHCTO ***Facsimile page transfer timeout parameter***

Description: Sets the period the Infrared Modem waits for another page from the PC before it assumes there are no more pages and aborts.

Set command: **+FPHCTO=**<time>

Options:

<time>	**0 - 255**	The timeout period in units of 100ms. The default value is 30.

Example:

```
AT+FPHCTO=60
OK
```

Read command: **+FPHCTO?** Returns the current setting.

Example:

```
AT+FPHCTO?
60
OK
```

Test command: **+FPHCTO=?** Always returns **(0-255)**.

Example:

```
AT+FPHCTO=?
(0-255)
OK
```

+FPTS Page transfer status parameter

Description: Post page response TBA111

Set command: **+FPTS=**<ppr>

Options: <ppr> Post page message
1 partial page errors
2 page good
3 page bad; retrain requested.

Example:
```
AT+FPTS=1
OK
```

Read command: **+FPTS?** Returns current settings.

Example:
```
AT+FPTS?
1
OK
```

Test command: **+FPTS=?** Always returns **(1-3)**.

Example:
```
AT+FPTS=?
(1-3)
OK
```

+FREV Request DCE revision

Description: Returns the version, revision level or other information related to a Class 2 device.

Read command: **+FREV?**

Example:
```
AT+FREV?
971022 1434 PRGCXC125123
OK
```

+FRBC Receive data block size

Description: Receive data block size

Set command:	**+FRBC=**<n>		
Options:	<n>	**0**	Block can only be set to a size of 0 bytes.
Example:	AT+FRBC=0 OK		
Read command:	**+FRBC?**	Returns the current setting.	
Example:	AT+FRBC? 0 OK		
Test command:	**+FRBC=?**	Always returns **(0)**.	
Example:	AT+FRBC=? (0) OK		

+FREL Facsimile page transfer EOL alignment parameter

Description: Received EOL alignment

Set command: **+FREL=**<n>

Options: <n> **0**

Example:
```
AT+FREL=0
OK
```

Read command: **+FREL?** Returns the current setting.

Example:
```
AT+FREL?
0
OK
```

Test command: **+FREL=?** Always returns **(0)**.

Example:
```
AT+FREL=?
(0)
OK
```

+FSPL Enable polling parameter

Description: Used to indicate if a PC wishes or is able to poll a document.

Set command: **+FSPL=**<setting>

Options: <setting> **0** Do not want to poll.

1 Can receive a polled document.

Example:
```
AT+FSPL=1
OK
```

Read command: **+FSPL?** Returns the current setting.

Example:
```
AT+FSPL?
1
OK
```

Test command: **+FSPL=?** Always returns **(0,1)**.

Example:
```
AT+FSPL=?
(0,1)
OK
```

+FTBC Fax page transfer data transmit byte count parameter

Description: Sets the size of the transmit data block

Set command:	**+FTBC=**<n>		
Options:	<n>	**0**	Block can only be set to a size of 0 bytes.
Example:	`AT+FTBC=0` `OK`		
Read command:	**+FTBC?**	Returns the current setting.	

Example:	`AT+FTBC?`
	`0`
	`OK`		

Test command:	**+FTBC=?**	Always returns **(0)**.	

Example:	`AT+FTBC=?`
	`(0)`
	`OK`		

+FVRFC Vertical resolution conversion parameter

Description: Disables mismatch checking.

Set command: **+FVRFC=**<n>

Options: <n> **0** Disable mismatch checking.

Example:
```
AT+FVRFC=0
OK
```

Read command: **+FVRFC?** Returns the current setting.

Example:
```
AT+FVRFC?
0
OK
```

Test command: **+FVRFC=?** Always returns **(0)**.

Example:
```
AT+FVRFC=?
(0)
OK
```

+FWDFC Page width conversion parameter

Description: Width format conversion checking.

Set command: **+FWDFC=**<n>

Options: <n> **0** Disable mismatch checking.

Example:
```
AT+FWDFC=0
OK
```

Read command: **+FWDFC?** Returns the current setting.

Example:
```
AT+FWDFC?
0
OK
```

Test command: **+FWDFC=?** Always returns **(0)**.

Example:
```
AT+FWDFC=?
(0)
OK
```

TBA111 - more information needed - Word document information not clear.

Glossary

Analog

A modulating signal, such as music or a human voice, can be carried across telephone lines. For transmission on these lines, the digital output from your computer must be converted to an analog signal.

ASCII

Acronym for American Standard Code for Information Interchange. A standard code used for transferring data between computers and associated equipment.

Asynchronous communication

Data communication in which data elements are NOT separated according to time. Instead, a special code such as a start bit and a stop bit is used. By using a code, in lieu of time, asynchronous communication is more tolerant of time variations. Complex timing circuits are not needed. The serial port and the COM port of a computer are associated with asynchronous communication, as is the RS-232-C interface. Also some end to end modem protocols are asynchronous.

AT

The characters AT stand for Attention and tells the Infrared Modem that a command follows. AT must be used at the beginning of a command line or dial string.

AT command set

The commands used to control the Infrared Modem.

Auto-answer mode

The state in which the Infrared Modem automatically answers the telephone when it rings.

Bps

Acronym for bits per second. A measure of speed at which bits are transmitted over the telephone lines.

Carrier

The frequency used by two connecting modems to transmit and receive data.

CCITT

Consultative Committee for International Telephony and Telegraphy. A European based advisory committee established by the United Nations to recommend international communication protocol standards.

CD

Carrier Detect. An EIA232 signal sent from the Infrared Modem to your computer, usually indicating that your Infrared Modem has detected a carrier signal over the communications line.

Command line

A line of alphanumeric characters sent to the Infrared Modem to instruct the Infrared Modem to perform the commands specified in the line of characters.

Off-line command mode

The operational state in which the Infrared Modem can accept typed commands.

COM (communications) port

The name allocated to the serial port through which digital signals are exchanged between the computer and a serial peripheral. For example COM1 and COM2.

CTS

Clear To Send. An EIA232 signal sent from a modem to the computer, usually indicating that the modem is ready to receive data.

Data compression

A technique that combines duplicate characters and re-codes characters based on the frequency and/or order in which they appear. Can increase throughput by 4 to 1.

On-line data mode

The state the Infrared Modem is in when transmitting or receiving data over the telephone line.

DCD

Data Carrier. See the AT Command, AT&C.

DCE

Data Communications Equipment. This term applies to modems and to other equipment that provide communication between data terminal equipment and the telephone line.

Default setting

A setting that the Infrared Modem will always use unless specified otherwise.

Digital transmission

Transmission where data is sent as a stream of electrical pulses. Each pulse is an off or on electrical current representing a 0 or 1 data bit. Computers use digital transmission. See analog.

DSR

Data Set Ready. An EIA232 signal sent from the Infrared Modem to the computer, usually indicating that the Infrared Modem is ready to establish a connection.

DTE

Data Terminal Equipment. The equipment that provides data, such as a computer or terminal.

DTR

Data Terminal Ready. An EIA232 signal sent from the computer to the Infrared Modem, usually indicating that the computer is ready to begin communication.

EIA

Electronics Industries Association. A U.S. based group that forms technical standards and coordinates ITU-TCCITT activities in the United States.

Escape code

A series of three consecutive characters (default is + + +) sent to the Infrared Modem, causing it to exit on-line data mode and enter on-line command mode.

Factory default settings

The profile configuration that is in effect when the Infrared Modem is shipped from the factory.

Flow control

The use of characters or EIA232 signals to start and stop the flow of data to avoid data loss during buffering.

Full duplex

Communication involving data transmitted in two directions simultaneously.

Half duplex

Communication involving data transmitted in two directions, but not at the same time.

ISDN

The term used to refer to the digital public switched telephone network

ITU-T

The ITU Telecommunication Standardization Sector (ITU-T), is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunication on a world wide basis

As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993.

Modem

Modulator-Demodulator. A device that converts digital signals to analog for transmission over telephone lines, then converts them back to digital at the other end of the line.

Off hook

The Infrared Modem state similar to picking up a telephone receiver. The Infrared Modem goes off hook to dial or answer, and remains off hook while connected.

On hook

The Infrared Modem state similar to hanging up a telephone receiver. You cannot enter the connect state when the Infrared Modem is on hook.

PIN

Personal identification number.

Protocols

The rules or procedures all modems must follow to communicate.

Result code

A message the Infrared Modem sends to the computer containing information about the state of the Infrared Modem.

RLP

Radio Link Protocol, an error correction protocol used during radio link connections.

RLSD

Received Line Signal Detect. See AT command &C.

RTS

Request To Send. An EIA232 signal sent from the computer to the Infrared Modem, usually indicating that the computer is ready to send data to the
Infrared Modem.

RS-232-C interface

A communication standard established by the Electronics Industry Association (Recommended Standard number 232, revision C). Originally established to standardize communication between computer and modem. It was later adapted to become a popular standard for communication between computer and any other peripheral equipment, including other computers.

Serial port

The port through which digital signals are exchanged between the Infrared Modem and the computer.

Short message service (SMS)

A text messaging service permitting the transmission of up to 160 characters to a facsimile, X400, telex and voice services or mobile phone.

Synchronous communication

V.22bis

ITU-T standard for 2400 bps.

V.27ter

ITU-T standard for 4800 bps full-duplex modems connected to switched telephone networks.

V.29

ITU-T standard for 9600 bps half-duplex modems included in FAX machines.

V.42bis

ITU-T standard for the compression of asynchronous data. V.42bis is based on a dictionary that looks up common strings and replaces the strings with code words. This reduces the amount of characters actually transmitted. V.42bis has been found to be most effective for file transfers that contain long strings of repetitive information and least effective for short strings of unique data. Require LAPM or MNP2, MNP3 or MNP4 as error correcting.

Index

A

AT class 1 fax commands 24
AT class 2 fax commands 24
AT commands 26, 127
    call control 59
    command mode 58
    data compression
        data compression AT commands 47
    DTE-DCE interface 35
    escape sequence character 28
    fax AT commands 91
    general fax commands 24
    Information commands 26
    line interface 67, 76
    list of AT commands 21
    miscellaneous 50
    modem information 31
    modulation control 41
    parameters 20
    result and error code control 42
    short message service 77
    standard format 17
    viewing set parameters 19
auto-answer mode 127

B

bits per second 128
bps 128
BUSY result code 8

C

call control AT commands 59

carrier 128
carrier detect 128
CCITT 128, 130, 131
CD 128
cellular result codes 12
class I fax commands, AT 24
class II fax commands,AT 24
codes,result and error codes 6
COM port 128
command line 128
command mode AT commands 58
command state 128
commands
    AT 26
    AT fax 91
    command line 17
configuring
    configuring software manually 4, 5
    for data communications 4
    for facsimile communications 5
    for V.25ter 4
CONNECT + SPEED result code 8
CONNECT result code 8
CTS 128

D

data compression 129
    reporting result codes 12
data,configuring for data 4
DCD 129
DCE 129
default setting 129
    factory default settings 130
digital transmission 129
drivers, installing software drivers 4
DSR 129

DTE 129
DTE-DCE interface AT commands 35
DTR 130

E

EIA 130
error code
    report 10
    service reporting control 11
error codes 6
    +CMS 10
    +CR 11
ERROR result code 7
escape code 130
escape sequence character AT command 28

F

facsimile
    configuring for facsimile 5
facsimile functions
    in Infrared modem 3
falf duplex 130
fax AT commands 91
Fax Class 1 commands 92
Fax Class 2 commands 99
fax commands,AT 91
flow control 130
full duplex 130

G

general fax commands, AT 24

I

Infrared modem
- configuring software manually 4, 5
- configuring the software 4
- data functions 3
- facsimile functions 3
- introduction to Infrared modem 3
- locating a driver 4
- mobile phone manager 3

init string 4
installing software drivers 4
introduction to Infrared modem 3
ISDN 130
ITU-T 131

L

line interface AT commands 67, 76

M

manual configuring for the Infrared modem 4
miscellaneous AT commands 50
mobile phone manager 3
modem 131
modem information AT commands 31
modulation control AT commands 41

N

NO CARRIER result code 8
NO DIALTONE result code 8

O

off hook 131
OK result code 6
on hook 131
On-line data mode 129

P

parameters
checking which are valid 20
viewing the settings 19
PIN 131
protocols 131

R

report error codes 10
result and error code control AT commands 42
result code 6, 131
+CRC 12
+DR 12
BUSY 8
cellular 12
CONNECT 8
data compression reporting 12
enabling/disabling 8
ERROR 7
format 8
from AT commands 6
from call connections 8
NO CARRIER 8
NO DIALTONE 8
OK 6
RING 8
verbose/numeric 8

RING result code 8
RLP 132
RLSD 132
RS-232-C interface 132
RTS 132

S

serial port 132
service reporting control error codes 11
setup string 4
short message service 3, 132
    AT commands 77
SMS 3
synchronous communication 132

V

V.22bis 133
V.25ter 4
V.27ter 133
V.29 133
V.42bis 133