AT FAX COMMANDS

This faxmodem implements the following commands and functions associated
with its fax capability. Class 1 fax commands are listed first, followed by
Class 2 fax commands.

The information in the rest of this chapter is very technical, but you will
never need to use these commands; your fax software takes care of all of
this. These technical details are presented here for those who may be inter-
ested.

For those interested in fax software development, more detailed descriptions
of the commands shown in the following section and other important
information relating to control of the fax hardware can be obtained from the
Telecommunications Industry Association, located at 1722 I Street N.W.,
Suite 440, Washington, D.C. 20006.

For information about Class 1 fax standards, ask about EIA-578. For Class 2,
ask for "Electronic Industries Association and Telecommunications Industry
Association TIA Project Number 2388, Asynchronous Facsimile DCE Control
Standard, Service Class 2, TR-29.2 Committee Letter Ballot."

TABLE 9-1 CLASS 1 AT FAX COMMANDS (All default values are listed with *.)

COMMAND	FUNCTION
+FAEn	Data/fax auto-answer. Allow DTE to either restrict answering to Class 1, or auto-detect whether the caller is a Class 1 fax or a modem, and answer accordingly * n=0 Disable data/fax auto-answer. Faxmodem answers as a fax. n=1 Enable data/fax auto-answer mode.
+FCLASS=n	Select service class. * n=0 Data mode n=1 Fax class 1 n=2 Fax class 2
+FRH=n	Receive data with HDLC framing and the modulation defined below. Off-hook use only. n=3 V.21 Channel 2 300 bps n=24 V.27ter 2400 bps n=48 V.27ter 4800 bps n=72 V.29 7200 bps n=73 V.17 7200 bbs long n=74 V.17 7200 bbs short n=96 V.29 9600 bps n=97 V.17 9600 bps long n=98 V.17 9600 bps short n=121 V.17 12000 bps long n=122 V.17 12000 bps short n=145 V.17 14400 bps long n=146 V.17 14400 bps short
+FRM=n	Receive data using the modulation defined below. Off-

	hook use only. n=3 V.21 Channel 2 300 bps n=24 V.27ter 2400 bps n=48 V.27ter 4800 bps n=72 V.29 7200 bps n=73 V.17 7200 bbs long n=74 V.17 7200 bbs short n=96 V.29 9600 bps n=97 V.17 9600 bps long n=98 V.17 9600 bps short n=121 V.17 12000 bps long n=122 V.17 12000 bps short n=145 V.17 14400 bps long n=146 V.17 14400 bps short
+FRS=n	Receive silence. Off-hook use only. Causes faxmodem to respond with OK after n 10 ms intervals of silence have been detected on the line.
+FTH=n	Transmit data with HDLC framing and the modulation defined below. Off-hook use only. n=3 V.21 Channel 2 300 bps n=24 V.27ter 2400 bps n=48 V.27ter 4800 bps n=72 V.29 7200 bps n=73 V.17 7200 bbs long n=74 V.17 7200 bbs short n=96 V.29 9600 bps n=97 V.17 9600 bps long n=98 V.17 9600 bps short n=121 V.17 12000 bps long n=122 V.17 12000 bps short n=145 V.17 14400 bps long n=146 V.17 14400 bps short
+FTM=n	Transmit data using the modulation defined below. Off-hook use only. n=3 V.21 Channel 2 300 bps n=24 V.27ter 2400 bps n=48 V.27ter 4800 bps n=72 V.29 7200 bps n=73 V.17 7200 bbs long n=74 V.17 7200 bbs short n=96 V.29 9600 bps n=97 V.17 9600 bps long n=98 V.17 9600 bps short n=121 V.17 12000 bps long n=122 V.17 12000 bps short n=145 V.17 14400 bps long n=146 V.17 14400 bps short
+FTS=n	Stop transmission and wait. Off-hook use only. After n 10 ms intervals, modem responds with OK.
+F<command>=?	Report operating capabilities for a given command. Typical responses are: +FAE? 0,1

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|              |      +FCLASS   0,1,2                              |
```

TABLE 9-2 CLASS 2 AT FAX COMMANDS (All default values are listed with *.)

COMMAND	FUNCTION
A	Answer a call.
D	Originate a call.
+FCLASS=n	Select service class. * n=0 Data mode n=1 Fax class 1 n=2 Fax class 2
+FDR=	Begin or continue Phase C receive data.
+FDT	Transmit Phase C data.
+FET=n	Transmit page punctuation.
+FK	Terminate session.

When operating as a Class 2 fax, the faxmodem sends responses to the DTE.

TABLE 9-3 CLASS 2 FAX RESPONSES

COMMAND	FUNCTION
+FCFR +FCON +FCSI +FDCS +FDIS	Indicate confirmation to receive Facsimile connection response Report the called station ID Report current session Report remote identification
+FET +FHNG +FPTS +FTSI +FMFR?	Post page message response Call termination with status Page transfer status Reports the transmit station ID Identify manufacturer
+FMDL? +FREV? +FDCC= +FDIS= +FDCS=	Identify model Identify revision DCE capabilities parameters Current sessions parameters Current session results
+FLID +FCR +FPTS= +FCR= +FAA	Local ID string Capability to receive Page transfer status Capability to receive Adaptive answer
+FBUF? +PHOTO +FAXERR	Buffer size (read only) Phase C time out Fax error value

+FBOR	Phase C data bit order		

TABLE 9-5 CLASS 2 FAX T.30 SESSION SUBPARAMETER CODES

LABEL	FUNCTION	VALUE	DESCRIPTION	
VR	Vertical Resolution	0 1	Normal, 98 dpi Fine, 196 dpi	
BR	Bit rate*	0 1 2 3 **4 **5	2400 bps, V.27ter 4800 bps, V.27ter 7200 bps, V.29 or V.17 9600 bps, V.29 or V.17 12000 bps, V.33 or V.17 14400 bps, V.33 or V.17	
WD	Page width	0 1 2	1728 pixels in 215 mm 2048 pixels in 255 mm 2432 pixels in 303 mm	
LN	Page length	0	A4, 297 mm	
DF	Data Compression format	1 2	1--D modified Huffman 2--D modified Read	
EC	Error correction (Annex A/T.30)	0	Disable ECM	
BF	Binary file transfer	0	Disable BFT	
ST	Scan time/line		VR=normal	VR=fine
		0 1 2 3 4 5 6 7	0 ms 5 ms 10 ms 10 ms 20 ms 20 ms 40 ms 40 ms	0 ms 5 ms 10 ms 10 ms 20 ms 20 ms 40 ms 40 ms

* CCITT T.30 does not provide for the answering station to specify all speeds
  exactly using the DIS frame. Implementation of some BR codes (e.g., code 2)
  by an answering DCE is manufacturer-specific.

** V.32bis modem only.

TABLE 9-6   CLASS 2 FAX HANGUP STATUS CODES

CODE	CAUSE DESCRIPTION	

0-9
0
1
2
3
	CALL PLACEMENT AND TERMINATION
	        Normal and proper end of connection
	        Ring detect without successful handshake
	        Call aborted, from +FK or AN
	        No loop current	

```
| 10-19   | TRANSMIT PHASE A AND MISCELLANEOUS ERRORS
| 10      |          Unspecified Phases A error
| 11      |          No answer (T.30 T1 timeout)
| 20-39   | TRANSMIT PHASE B HANGUP CODES
| 20      |          Unspecified transmit Phase B error
| 21      |          Remote cannot receive or send
| 22      |          COMREC error in transmit Phase B
| 23      |          COMREC invalid command received
| 24      |          RSPEC error
| 25      |          DCS sent three times without response
| 26      |          DES/DTC received three times; DCS not recognized
| 27      |          Failure to train
| 28      |          RSPREC invalid response received
| 40-49   | TRANSMIT PHASE C HANGUP CODES
| 40      |          Unspecified transmit Phase C error
| 43      |          DTE to DCE data underflow
| 50-69   | TRANSMIT PHASE D HANGUP CODES
| 50      |          Unspecified transmit Phase D error
| 51      |          RSPREC error
| 52      |          No response to MPS repeated three times
| 53      |          Invalid response to MPS
| 54      |          No response to EOP repeated three times
| 55      |          Invalid response to EOP
| 56      |          No response to EOM repeated three times
| 57      |          Invalid response to EOM
| 58      |          Unable to continue after PIN or PIP
| 70-89   | RECEIVE PHASE B HANGUP CODES
| 70      |          Unspecified receive Phase B error
| 71      |          RSPREC error
| 72      |          COMREC error
| 73      |          T.30 T2 timeout, expected page not received
| 74      |          T.30 T1 timeout after EOM received
| 90-99   | RECEIVE PHASE C HANGUP CODES
| 90      |          Unspecified receive Phase C error
| 91      |          Missing EOL after five seconds
| 92      |          Unused code
| 93      |          DCE to DTE buffer overflow
| 94      |          Bad CRC or frame (ECM or BFT modes)
| 110-119 | RECEIVE PHASE D HANGUP CODES
| 100     |          Unspecified receive Phase D errors
| 101     |          RSPREC invalid response received
| 102     |          COMREC invalid response received
| 103     |          Unable to continue after PIN or PIP
| 120-255 | RESERVED CODES
```

(dtc-07/28/93)