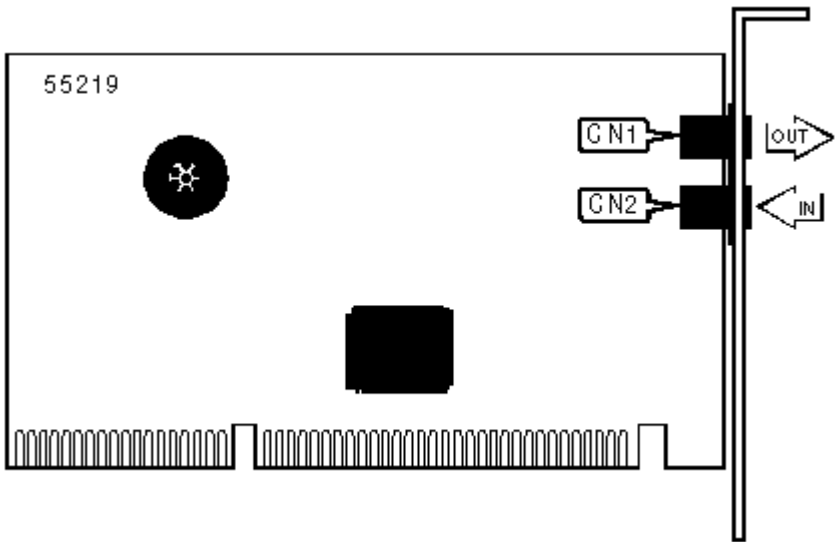


COMMWAVE 56K PNP (REV.1.0)

Card Type	Modem (synchronous/asynchronous), Voice
Chipset	PCtel
Maximum Modem Rate	56.0Kbps
Maximum Fax Rate	14.4Kbps
Fax Class	Class I & II
Modem Modulation Protocol	Bell 103A/212A
	ITU-T V.21, V.22, V.22bis, V.23, V.32, V.32bis, V.34
Fax Modulation Protocol	ITU-T V.17, V.21 CH2, V.27ter, V.29
Error Correction/Compression	MNP5, V.42, V.42bis
Data Bus	16-bit ISA



CONNECTIONS

Function	Label	Function	Label
Line out	CN1	Line in	CN2

SUPPORTED COMMAND SET

Basic AT Commands

- AT, A/
- A, E, H, M, O, P, Q, T, V, W, X, Y, Z
- &C, &F, &G, &P, &W, &Z

Extended AT Commands

- \A, \B, \G, \K, \L, \N
- %C, %L, %Q

S Registers

S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S18, S25, S30, S32, S33, S38, S91

Special Commands

#CID

Voice Commands

#BDR, #MDL?, #MFR?, #REV?, #SPK, #TL, #VBQ?, #VBT, #VCI?, #VLS, #VRA, #VRN, #VRX

#VSD, #VSK, #VSP, #VSS, #VTD, #VTS, #VTX

Note: See MHI Help File for full command documentation.

Proprietary AT Command Set

AUTO-MODE DETECTION

Type:	Configuration
Format:	AT [cmds] Nn [cmds]
Description:	Selects various options for the automatic detection and negotiation of protocols during the handshake process if the modem is communicating with a remote modem of dissimilar speed.
Command	Function
N0	Auto-mode detection disabled. Handshake begins at line speed designated by the S37 register
N1	Auto-mode detection enabled. Handshake conducted according to highest available line speed

COMMUNICATION PROTOCOLS

Type:	Configuration
Format:	AT [cmds] Bn [cmds]
Description:	Selects the communication protocol for data calls

Note: The B command allows the simultaneous selection of more than one suffix, enabling multiple protocols. Originate mode will transmit at 75bps and receive at 1200bps; answer mode will transmit at 1200bps and receive at 75bps

Command	Protocol
B0	ITU-T V.22
■ B1	Bell 212A
B2	ITU-T V.23

CONFIGURATION PROFILES

Type:	Immediate
Format:	AT [cmds] &V [cmds]
Description:	Displays active and stored configuration profiles

Command	Function
&V0	Display active profile
&V1	Display stored profiles
&V2	Display stored telephone numbers

DATA SET READY (DSR)

Type:	Configuration
Format:	AT [cmds] &Sn [cmds]
Description:	Selects DSR options

Command	Function
■ &S0	DSR forced high
&S1	DSR high only while modem is handshaking or connected

DATA TERMINAL READY (DTR)

Type:	Configuration
Format:	AT [cmds] &Dn [cmds]
Description:	Selects modem response to DTR

Command	Function
■ &D0	DTR forced high
&D1	DTR drop causes online command mode
&D2	DTR drop causes hang-up
&D3	DTR drop causes reset. &Y determines power-up profile

DIAL

Type:	Immediate
Format:	AT [cmds] D<#> [cmds]
Description:	Dials telephone number according to any modifiers included in the string
Note:	Any combination of modifiers can be used to produce the desired dial functions in sequence.

Command	Function
DL	Re-dial last number
DSn	Dial stored telephone number <i>n</i>
DW	Dialing resumed following dial tone detection
D,	Dialing paused for amount of time specified in S8 register
D@	Wait for Quiet Answer function enabled. Modem waits until a "quiet answer," a ring-back signal followed by 5 seconds of silence
D!	Flash function initiated. Modem commanded to go off-hook for specified time before returning on-hook.
D;	Modem returned to idle state after dialing. The semicolon can only be placed at the end of the dial command.

FLOW CONTROL

Type:	Configuration
Format:	AT [cmds] &K <i>n</i> [cmds]
Description:	Enables flow control options

Command	Function
&K0	Flow control disabled
&K3	RTS/CTS flow control enabled
&K4	XON/XOFF flow control enabled
&K5	Transparent XON/XOFF flow control enabled
&K6	RTS/CTS & XON/XOFF flow control enabled

REPORT INFORMATION

Type:	Immediate
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Format: AT [cmds] Ln [cmds]

Description: Displays information requested

Command	Function
I0	Reports product code
I1	Reports hardware variation
I2	Reports internal code
I3	Reports software revision number
I4	Reports product feature listing

SPEAKER VOLUME

Type: Configuration

Format: AT [cmds] Ln [cmds]

Description: Controls speaker volume. Hardware currently limits speaker settings to on/off

Command	Function
L0	Speaker disabled
■ L1	Low volume setting
L2	Low volume setting
L3	Low volume setting

TEST MODES

Type: Immediate

Format: AT [cmds] &Tn

Description: Selects test options

Command	Function
&T0	End current test
&T1	Begin local analog loopback test

TRELLIS CODING

Type:	Configuration
Format:	AT [cmds] &Un [cmds]
Description:	Enables/disables trellis coding

Command	Function
■&U0	V.32 trellis coding enabled
&U1	V.32 trellis coding disabled

EXTENDED AT COMMAND SET

AUTO-RETRAIN - AUTO-FALLBACK/FALL-FORWARD

Type:	Configuration
Format:	AT [cmds] %En [cmds]
Description:	Controls auto-retrain mode and fallback/fall-forward

Command	Function
%E0	Auto-retrain disabled
%E1	Auto-retrain enabled
■ %E2	Auto-retrain & fallback enabled
%E3	Auto-retrain & fast hang-up enabled

COUNTRY SELECT

Type:	Configuration
Format:	AT [cmds] %ln [cmds]
Description:	Selects country parameters. %l queries settings

Command	Function
%l0	United States
%l2	France

%l3	Germany
%l4	Italy
%l5	Swedan
%l6	United Kingdom
%l7	Japan
%l8	Australia
%l9	Spain
%l10	Taiwan
%l11	Singapore
%l12	Korea
%l13	Switzerland
%l14	Norway
%l15	Netherlands
%l16	Belgium
%l17	Canada
%l18	Ireland
%l19	Portugal
%l20	Poland
%l21	Hungary
%l22	Finland
%l23	Denmark

DYNAMIC CPU LOADING

Type:	Configuration
Format:	AT [cmds] %Nn [cmds]
Description:	Selects maximaum allowable percentage for CPU loading

Command	Function
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%N0	Dynamic CPU loading disabled
%N1	Dynamic CPU loading not to exceed 10%
%N2	Dynamic CPU loading not to exceed 20%
%N3	Dynamic CPU loading not to exceed 30%
%N4	Dynamic CPU loading not to exceed 40%
%N5	Dynamic CPU loading not to exceed 50%
%N6	Dynamic CPU loading not to exceed 60%
■ %N7	Dynamic CPU loading not to exceed 70%
%N8	Dynamic CPU loading not to exceed 80%
%N9	Dynamic CPU loading not to exceed 90%

ENCODING

Type:	Configuration
Format:	AT [cmds] %An [cmds]
Description:	Selects encoding

Command	Function
%A0	■ - law encoding
%A1	A - law encoding

SPECIAL COMMANDS

INVALID TIES RESULT CODE

Type:	Configuration
Format:	AT [cmds] *Qn [cmds]
Description:	Controls the result code sent when an invalid TIES escape sequence is detected after OK response has been sent

Command	Function
■ *Q0	CONNECT xxxx result code sent when an invalid TIES escape sequence is detected after OK response has been sent
*Q1	xxxx result code sent when an invalid TIES escape sequence is detected after OK response has been sent

S(status) REGISTERS

BIT RATE

Type:	Register
Format	AT [cmds] S34= <i>n</i> [cmds]
Range:	0-32
Unit:	32000 + S34 * 2000bps
Description:	Sets maximum bit rate for 56Kbps

V.34 BAUD RATE

Type:	Register
Format	AT [cmds] S35= <i>n</i> [cmds]
Description:	Sets the maximum allowable baud rate for V.34 negotiation.

Command	Function
S35=0	2400bps
S35=1	2743bps
S35=2	2800bps
S35=3	3000bps
S35=4	3200bps
S35=5	3429bps

DCE LINE SPEED

Type:	Register
Format	AT [cmds] S37= <i>n</i> [cmds]
Description:	Sets the maximum allowable data exchange rate attempted during handshake process.

Command	Function
S37=0	Attempt to connect at highest possible speed
S37=3	300bps
S37=4	1200bps

S37=6	2400bps
S37=7	4800bps
S37=8	7200bps
S37=9	9600bps
S37=10	12.0Kbps
S37=11	14.4Kbps
S37=12	V.34
S37=13	56.0Kbps

CONNECTION FAILURE CODES

Type:	Register
Format	AT [cmds] S86? [cmds]
Description:	Reports codes which correspond to the possible causes of a connection failure

Value	Meaning
0	Normal hang up
4	Carrier signal lost
5	No error-control detected for remote modem during feature negotiation
6	Remote modem failed to respond to feature negotiation
9	No common protocol found
12	No failure - remote modem disconnected normally
13	Remote modem failed to respond after 10 re-transmissions same message
14	Violation of negotiated protocol caused failure
15	Loss of data compression caused failure
20	Long Space Disconnect (Y1) time limit reached

VOICE COMMANDS

MODE SELECTION

Type: Immediate

Format: AT [cmds] #CLS=*n* [cmds]

Description: Selects which mode the modem will operate in.

Command	Function
#CLS=0	Modem will operate in data mode.
#CLS=1	Modem will operate in fax class I mode.
#CLS=8	Modem will operate in voice mode.

RECORD GAIN

Type: Configuration

Format: AT [cmds] #RG=*hhh* [cmds]

Default: 7FFF

Range: 0000 - 7FFF

Unit: Unidentified (hexadecimal)

Description: Sets the record gain. #RG? queries value

VOICE SAMPLE QUALITY

Type: Configuration

Format: AT [cmds] #VBS=*n* [cmds]

Description: Selects the number of bits per sample that the modem records.

Note: Only 4 bits per sample compression ratio is supported, The #VBS? command will return 4.

Command	Function
■ #VBS=4	Modem records 4 bits per sample in ADPCM encoding.

VOICE SAMPLING RATE

Type: Configuration

Format: AT [cmds] #VSR=*n* [cmds]

Description: Sets the sampling rate used when recording voice signals.

Command	Function
#VSR=8000	Selects a sampling rate of 8000Hz