

Supra MODEM Commands and Docs

COLLABORATORS

	<i>TITLE :</i> Supra MODEM Commands and Docs		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY		April 16, 2022	

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

Contents

1	Supra MODEM Commands and Docs	1
1.1	Supra MODEM Commands and Docs	1

Chapter 1

Supra MODEM Commands and Docs

1.1 Supra MODEM Commands and Docs

NOTE: This file includes commands, result codes, and display codes NOT AVAILABLE on all models and revisions. Some commands are new or were omitted from Reference Manual. NOT ALL commands are available or functional in all modes and states. This document is provided for reference only and is NOT certified to be free from errors. This document is produced and maintained by Supra's Technical Support Staff as a customer service.

144_LIST.TXT Rev 1.1 (PHM 2/15/94) from Supra BBS (503)967-2444

This document covers the following SupraFAXModem products:

SupraFAXModem v.32bis (Ext)	sn: 14E165501 (and later)
SupraFAXModem 144i	sn: 0051400 (and later)
SupraFAXModem 144LC	sn: LCE038462 (and later)
SupraFAXModem 144PB	All units
SupraCOMcard 144	All units

The command string buffer on the SupraFAXModem is limited to 254 characters.

DIRECT Commands (Commands NOT preceded by other characters)

A/ Re-execute Last Command
nnn Escape Code per setting in register S2 (Default is ANSI character 43, the "+" symbol) (This command must be preceded and followed by a minimum period of no transmission set is register S12.)
<CR> (A carriage return) - Terminate connection attempt in progress during the dialing or protocol neg. process.

DIALING Commands (Commands that follow ATD)

-()i These symbols and spaces are ignored (or invalid and therefore ignored) and maybe be used in the dialing string.
0-9 DTMF code for the given number
A-D DTMF code for the given letter
L Dial the last dialing string (limited to the first 40 characters).
P Pulse dial the following digits
R Accepted, but no action occurs.

Sn Use dialing string stored in register n (0 to 3)
 T Tone dial the following digits
 W Wait for dialtone
 * DTMF code for "star"
 # DTMF code for "gate"
 @ Wait for "quiet answer" (A 5 second silence.)
 , Pause (time set in S8) before finishing dialing string
 ! Hook flash (go on-hook for 700ms)
 ^ Turn on 1300Hz call originating pulse
 ; Return to command state without going "on-hook"

AT Commands (Commands that follow AT)

=x Write value x to the last S register viewed.
 ? Displays current setting for the last S register accessed.
 A Answer Phone Line
 Bn BELL/V.2x mode switches for 300 & 1200 bps {varies by model}
 B0=V.21 (300 bps) & v.22 (1200 bps)
 B1=BELL 103 (300 bps) & Bell 212A (1200 bps) (default in NA)
 B0=v.22 (1200 bps)
 B1=Bell 212A (1200 bps) (default in NA)
 B15=V.21 (300 bps)
 B16=Bell 103 (300 bps) (default in NA)
 C1 Carrier Control Selection
 Provided for backward compatibility only. Does nothing but return "OK"
 D Dial Command
 Dials any mixed string of dialing commands. (See Dialing Commands)
 En Command Echo
 E0=not echo
 E1=do echo (default)
 Fn Line Select Modulation (Use either ATFn or a combination of ATS37=n
 and ATN0, but DO NOT try to USE BOTH at the same time.)
 F0 AutoMode Selection (Same as N1)
 F1 300 bps only (Same as N0S37=1, uses protocol in Bn setting
 S31 bit 1 set to 0 and S37=1)
 F2 Not Used (returns "OK")
 F3 v.23 only 75TX/1200RX (originate) or 1200TX/75RX (answer)
 (Same as N0S37=7, S31 bit 1 set to 0 and S37=1)
 F4 1200 bps only (protocol according to Bn setting)
 (Same as N0S37=5, S31 bit 1 set to 0 and S37=5)
 F5 2400 bps only (v.22bis)
 (Same as N0S37=6, S31 bit 1 set to 0 and S37=6)
 F6 4800 bps only (v.32/v.32bis)
 (Same as N0S37=8, S31 bit 1 set to 0 and S37=8)
 F7 7200 bps only (v.32bis)
 (Same as N0S37=12, S31 bit 1 set to 0 and S37=12)
 F8 9600 bps only (v.32/v.32bis)
 (Same as N0S37=9, S31 bit 1 set to 0 and S37=9)
 F9 12000 bps only (v.32bis)
 (Same as N0S37=10, S31 bit 1 set to 0 and S37=10)
 F10 14400 bps only (v.32bis)
 (Same as N0S37=11, S31 bit 1 set to 0 and S37=11)
 Hn Hook Control
 H0=On-Hook (Hang Up)
 H1=Off-Hook (pick up phone line) for the time period set in S7.
 In Identification Codes

I0=SupraFAXModem product ID code
 I1=ROM checksum
 I2=Test Checksum (OK if correct, ERROR if not)
 I3=ROM revision code
 I4=Encrypted report of supported protocols
 I5=Supra Copyright info.
 I6=Country Code for country PSTN Signals are Configured for.
 I7=DSP Model & Version Code
 I10=Supported Features (encoded - see end of text for listing)
 I99=Electronic Serial Number

Ln Speaker Volume
 L0,L1 Low
 L2 Medium (default)
 L3 High

L+n Increase Total Volume Gain n units (1-32) (Not the same as Ln)
 (This command currently only in use on PowerBook models.)

L-n Decrease Total Volume Gain n units (1-32) (Not the same as Ln)
 (This command currently only in use on PowerBook models.)

Mn Speaker Control
 M0 OFF
 M1 On until carrier is received (default)
 M2 Always On
 M3 On when answering/On only after dialing & until carrier detect

Nn AutoMode Selection (Carrier Rate when Originating Call)
 N0=Connect ONLY at rate set in S37 register
 (N0S37=0 forces the modem to dial at the current serial port rate.)
 N1=Connect Normally (default)

On Return from COMMAND MODE to ONLINE state
 O0=Return to ONLINE state
 O1=Request a retrain & Return to ONLINE state

P Set dialing mode to PULSE (Sets S14 bit 5 to 1)

Qn Result Code Mode
 Q0=Enabled (Default)
 Q1=Disabled
 Q2=Enabled when Originating, Disabled when answering

Sr? Reports value in S register r

SCr? Reports value in SC register r

Sr=n Write value n into S register r

SCr=n Write value n into SC register r

T Set dialing mode to TONE (Sets S14 bit 5 to 0)

Vn Result Code mode select
 V0=Numeric
 V1=Verbose (default)

Wn Error Correction Result Code Selection
 W0=CONNECT XXXX (DTE rate) (default)
 W1=Report Error Correction Mode
 W2=CONNECT XXXX (DCE rate)

Xn Dialing mode/CONNECT result codes
 X0=Blind Dial (ignore Dialtone & Busy), send CONNECT
 X1=Blind Dial, send CONNECT XXXX
 X2=follow Dialtone, but ignore Busy, send CONNECT XXXX
 X3=follow Busy, but ignore Dialtone, send CONNECT XXXX or BUSY
 X4=send CONNECT XXXX, BUSY, or NO DIALTONE (default)

Yn Long Space Disconnect
 Y0=Not active (default, S27 bit7 set to 0)
 Y1=Active (S27 bit7 set to 1, see manual for function)

Zn Soft reset and Load Stored profile n (last functional command on line)

Z0=resets modem & loads stored profile 0
 Z1=resets modem & loads stored profile 1

&Cn DCD (RLSD) signal control
 &C0=DCD always on
 &C1=DCD follows carrier state (ON when carrier present)

&Dn Modem reaction to DTR on to off transition greater than S25 setting
 a b c (Settings of &Qn)
 &D0= N 2 1
 &D1= 3 3 1
 &D2= 1 1 1
 &D3= 4 4 1

List of modem reactions:

N=No Action
 1=Hang up if off-hook & auto-answer is disabled
 2=Hang up if off-hook & auto-answer not disabled
 3=Switch to asynchronous command state
 4=Perform soft reset (like ATZ and profile is set by &Y setting)

List of &Q states:

a. &Q0,&Q5,&Q6
 b. &Q1,&Q4
 c. &Q2,&Q3

&Fn Load Factory Default Configuration
 &F0 No flow control, No error correction, No data compression
 &F1 MAC hardware flow control, correction & compression active
 &F2 Hardware flow control, correction & compression active
 (&F2 is default for DOS, WINDOWS, AMIGA, & STAND ALONE units.)

&Gn Guard Tone Selection
 &G0 Do Not generate guard tones (US Default)
 &G1 Generate 550Hz guard tone (not supported)
 &G2 Generate 1800Hz guard tone (World Wide support models only)

&Jn Phone Jack Selection
 &J0 Select RJ-11, RJ-41, & RJ-45S (Default)
 &J1 Select RJ-12 & RJ-13 (not supported)

&Kn Serial Port Flow Control
 &K0=None
 &K3=Bidirectional Hardware (RTS/CTS)
 &K4=Software (XON/XOFF)
 &K5=Transparent Software flow control
 &K6=Software (XON/XOFF) & Hardware (RTS/CTS) flow control

&Ln Line Type Selection
 &L0 Dial-up line (Default)
 &L1 Leased Line (not supported)

&Mn Same function as &Q(0-3) settings.

&Pn Pulse dialing MAKE/BREAK ratio
 &P0 39%/61% make/break ratio at 10PPS {US/CANADA} (Default)
 &P1 33%/67% make/break ratio at 10PPS {UK/Hong Kong}
 &P2 39%/61% make/break ratio at 20PPS
 &P3 33%/67% make/break ratio at 20PPS {Japan}

&Qn Asynchronous/Synchronous Mode Selection
 &Q0 Asynchronous Direct mode
 &Q1 * Synchronous Mode 1 (Terminal must support both modes.)
 Call placed Async, modem switches to Sync. When DTR is dropped
 modem returns to Async.

&Q2 * Synchronous Mode 2 Modem dials number in stored location 0 when DTR goes from LOW to HIGH.

&Q3 * Synchronous Mode 3 Dial number manually on a telephone, and then bring DTR high to let the modems connect.

* CAUTION! Be VERY careful when issuing these commands! Once you enter &Q(1-3) and save it to memory, there are only three known ways to return to Asynchronous Mode:

1. Issue AT &Q(0,5-9) &W from a Synchronous Terminal to restore the modem to Asynchronous Mode.
2. Connect modem to an Asynchronous Terminal with the DTR signal (line 20) disabled (a "break-out" box works very nicely for this) and issue the configuration you want or AT &Q(0,5-9) &W to return the modem to Asynchronous Mode.
3. Send the modem in to our repair department.

&Q4 Not Used

&Q5 Asynchronous Reliable Mode (most common default)

&Q6 Asynchronous Normal Mode

&Rn RTS Synchronous Mode
(In Asynchronous mode CTS is always ON unless &K3 is set.)

&R0 CTS responds to RTS (default)

&R1 CTS always on unless &K3 is set

&Sn DSR Action Select

&S0 Always on (default)

&S1 Follows EIA specification (Active following carrier tone, and until carrier is lost.)

&Tn Modem test modes for trained technicians (you must set the serial port at 2400 or 9600, set the modem with AT&F0, and set S18 between 1 and 255 if you wish the tests to stop on their own.)

AT&T0 Terminate test in progress

AT&T1 Local Analog Loopback (+++ then &T0 to stop)

AT&T2 Returns ERROR

AT&T3 Local Digital Loopback for remote modem

AT&T4 Grant request for Remote Digital Loopback (default)

AT&T5 Prohibit request for Remote Digital Loopback

AT&T6 Remote Digital Loopback

AT&T7 Remote Digital Loopback with self-test

AT&T8 Local Analog Loopback with self-test (+++ then &T0 to stop)

&V Display Configuration Profiles

&Wn Write ACTIVE Profile to Stored Profile n

&W0 Writes to profile 0

&W1 Writes to profile 1

&Xn Synchronous Transmit Clock Source

&X0=Modem generated (default)

&X1=DTE supplied

&X2=Derived from the data carrier received from the remote modem.

&Yn Select Configuration Loaded at power-up

&Y0=Load profile 0 (default)

&Y1=Load profile 1

&Zx=n Write telephone number n into register number x (0-3).

\An Maximum MNP Block Size for Stream Links

\A0 64 characters

\A1 128 characters

\A2 192 characters

\A3 256 characters (default)

\Bn Transmit Break of length n x 100ms where n is 1 to 9 in non-error correction state. (Sends Link Attention in MNP mode)

\F Display Telephone Directory (As stored via AT&Zn)


```

\Gn      Modem-to-Modem XON/XOFF flow control (Normal and Direct Mode Only)
         \G0=Disabled (default)
         \G1=Enabled
\Jn      Enable DTE Auto Rate Adjustment
         \J0      Disabled
         \J1      DTE rate is adjusted to match carrier rate.
\Kn      Break Processing Control (controls remote modem during MNP mode)
         When received from local DTE & Modem is in Data Transfer Mode:
         \K0,\K2,\K4      Enter command state without sending BREAK to remote
         \K1              Clear Modem & Terminal Buffers & send BREAK to remote
         \K3              Don't clear Buffers, but send BREAK to remote
         \K5(default)     Send BREAK to remote in sequence with any transmitted
                           data (default)
         In Escape (Online Command) mode:
         \K0,\K1          Clear data buffers and sends break to remote modem.
         \K2,\K3          Send break to remote modem immediately.
         \K4,\K5(default) Send break to remote modem in sequence with data.
         When received from remote modem in non-error correction mode:
         \K0,\K1          Clear data buffers and sends break to DTE
         \K2,\K3          Send break to DTE immediately.
         \K4,\K5(default) Send break in sequence with received data to DTE.
\Ln      MNP Block Transfer Control
         \L0      Use Stream Mode for MNP Links (default)
         \L1      Use Block Mode for MNP Links
\N       Operating Mode
         \N0      Normal Mode (carrier and port rate may differ - No MNP or V42,
                           forces &Q6)
         \N1      Direct Mode (carrier rate "matches" port rate - No MNP or V42,
                           forces &Q0)
         \N2      Reliable Mode (a V42 or MNP connection must be made or the
                           modem will hang up, forces &Q5 S36=4 S48=7)
         \N3      AutoReliable Mode (default mode where ALL connection are
                           supported, forces &Q5 S36=7 S48=7)
         \N4      LAPM Mode (a V42 connection must be made or the modem will
                           hang up, forces &Q5 S48=0)
         \N5      MNP Mode (a MNP connection must be made or the modem will
                           hang up, forces &Q5 S36=4 S48=128)
\S       Report Active Configuration
\W       Split-Speed Operation (v.23)
         \W0      Disable split-speed mode (default)
         \W1      Enable split-speed mode v.23 (forces F3)
%Cn      Data Compression Enable/Disable
         %C0      Disabled
         %C1      MNP5 Enabled
         %C2      V.42bis (BTLZ) Enabled
         %C3      MNP5 & V.42bis (BTLZ) Enabled
%En      Auto Retrain & Fallback/Fall Forward based on line quality monitoring
         %E0=Disabled (Default)
         %E1=Enable Auto Retrain based on line quality
         %E2=Enable Fallback/Fall Forward based on line quality
         %E3=Undefined
%Fn      Split-Speed Direction Select
         %F1      75TX/1200RX
         %F2      1200TX/75RX
         %F3      v.23 Half-Duplex (independent of \W)
%Gn      Rate Renegotiation based on line monitor readings
         %G0=Disabled

```

```

    %G1=Enabled (Default)
%L    Reports Received Signal Level (at connection to DSP) nnn in -dBm.
      nnn=9 or stronger          reports as 9
      nnn=10 to 42              reports as value directly
      nnn=43 or weaker         reports as 43
%Q    Report Received signal Quality (nnn range 0 to 127)
      nnn=1 to 8 current signal quality excellent (higher rate may be used)
      nnn=9 to 20 current signal good (best carrier rate for line condition)
      nnn=20 to 30 current signal poor (lower carrier rate should be used)
      nnn=31 to 127 signal very bad (or gone), try forcing a lower rate
      NOTE: Modem uses 8 and 20 as rate renegotiation watermarks.
%TTnn PTT Testing Utilities
      (Set S10=255 to transmit data in the absence of a received signal)
00-09  DTMF tone dial digits 0 to 9
0A     DTMF digit *
0B     DTMF digit A
0C     DTMF digit B
0D     DTMF digit C
0E     DTMF digit #
0F     DTMF digit D
10     v.21 channel #1 mark (originate) symbol
11     v.21 channel #2 mark symbol
12     v.23 backward channel mark symbol
13     v.23 forward channel mark symbol
14     v.22 originate signalling at 600 bps
15     v.22 originate signalling at 1200 bps
16     v.22bis originate signalling at 2400 bps
17     v.22 answer signalling (guard tone if PTT required)
18     v.22bis answer signalling (guard tone if required)
19     v.21 channel #1 space symbol
1A     v.21 channel #2 space symbol
1B     v.23 backward channel space symbol
1C     v.23 forward channel space symbol
1D     v.27ter carrier
1E     v.29 carrier
20     v.32 @9600 bps
21     v.32bis @14400 bps
22     v.17 @14400 bps
30     Silence (on-line) - i.e. go off-hook
31     v.25 answer tone
32     1800 Hz guard tone
33     v.25 calling tone (1300Hz)
34     Fax calling tone (1100Hz)
*B    Return Blacklisted Numbers
      Displays a numbered chart of currently BLACKLISTED numbers {Except
      permanently forbidden numbers based on country setting} "OK" is
      returned if no temporary numbers are BLACKLISTED.
*C    Remote Password Configuration (for MNP connections ONLY)
      Gives ENTER PASSWORD prompt and accepts a 6 to 12 character
      alphanumeric string. (Default is QWERTY)
*D    Return Delayed Numbers
      Displays a numbered chart of DELAYED numbers and the length of delay
      in the format HH:MM:SS "OK" is returned if no numbers are delayed.
*E    Exit Remote Configuration Mode
*Hn   Link Negotiation Speed (MNP 10)
      *H0    Link negotiation occurs at highest supported rate (Default)
      *H1    Link negotiation occurs at 1200 bps.

```

```

    *H2    Link negotiation occurs at 4800 bps.
*L      Display Secure Access Directory
        Displays a numbered chart (0-19) of all secure access (callback)
        directory entries in the following format: #-Password:Callback_Number
        If no callback number is set then the colon is omitted.
*NCnn   Country Select
        Sets country PSTN parameters to the code number specified.
        ERROR is returned if the country selected is not currently supported.
*Px:p:n Store/Delete a Password/Phone Number Pair
        *Px(0-19):p(password of 6 to 12 characters):n(0 to 40 dialing codes)
        If the last colon and dialing codes are omitted then password check
        occurs, but no call-back occurs.
*R      Request Remote Configuration Mode (during MNP mode connection ONLY)
        If successful, a REMOTE PASSWORD prompt is display, and you should
        issue the 6 to 12 character password currently set.  If the password
        is accepted, a !AT prompt will be displayed and a limited set of
        commands can then be issued with the "AT" header omitted.  Exit this
        mode with the *E command.
*Zn     Change Dialing Codes (Used in countries like NORWAY that support two
        methods of pulse dialing.)
        *Z0    Use dial code 0 (default)
        *Z1    Use dial code 1
#CID?   Displays current CallerID mode (0-2)
#CID=n  Caller ID Mode
        #CID=0 Disable Caller ID (Default)
        #CID=1 Enable Formatted Caller ID Mode
        Result code syntax is as follows:
        DATE=MMDD (where MM is month number 01-12 & DD is day 01-31)
        TIME=HHMM (where HH is hour 00-23 & MM is minute 00-59)
        "Single Page Mode"
        NMBR= number code or statement*
        * The NUMBER CODE is normally either the subscriber's area code,
        local exchange, and subscriber loop number, OR a code unique to
        that individual subscriber. STATEMENTS are used for calls from
        non Caller ID Areas and subscribers requesting no display.
        NAME= listed subscriber name <this is an option not always supported>
        "Multiple Page Mode"
        MSG= formatted number string * **
        * Here is an example string: 030A35303339363732343030
        The string uses this code: CCLL#0#1#2#3#4#5#6#7#8#9
        CC (03) is the code meaning this is "Multiple Page" Caller ID
        LL is the hexadecimal length of the data in the string.
        (in this case 0A hex - 10 decimal)
        #n's are the ASCII digits dialed (in hexadecimal)
        A neat trick to convert these to decimal is to note that
        the first digit is always a number "3" and the second digit
        is the decimal number dialed, so the formatted string:
        030A35303339363732343030 converts directly to 5039672400
        ** At the time of this printing, conversion of "Multiple Page"
        Caller ID string coversion is not supported in the modem,
        so the data is displayed in the raw hexadecimal format.
        #CID=2 Enable Raw (ASCII printable HEX number) Mode
        #CID=? Returns Caller ID Modes supported.
)M      Cellular Power Level Adjustments (MNP 10)
        )M0    Power not adjusted during MNP 10 link negotiation (Default)
        )M1    Power level adjusted during MNP 10 link negotiation.
-Kn     MNP Extended Services (MNP 10)

```

```

-K0    Disable v.42 LAPM to MNP 10 connection
-K1    Enable v.42 LAPM to MNP 10 connection
-Qn    Fallback to v.22bis/v.22 in MNP10 mode
-Q0    Disabled (Fallback only allowed to 4800 bps)
-Q1    Enabled (Fallback allowed to v.22bis/v.22) (Default)

```

V.25bis Commands / Indications

Commands

```

CIC    Connect Incoming Call (goes off-hook to answer call, if no call is
       present INV is returned)
CNL    Local Configuration (in Async. mode this command allows AT Command to
       be used - CNLS0=3) {Extended V.25bis}
CRI    Call Request with Number and Identification (same as CRN, but a ";"
       character can be inserted and followed by a code, which the
       modem will ignore.)
CRN    Call Request with Number (goes off-hook and attempts to dial the string
       issued with the command)
       These characters are accepted in the string:
0-9    Digits 0-9
*      "Star" digit (Tone dial only)
#      "Gate" digit (Tone dial only)
T      Select TONE dialing
P      Select PULSE dialing
<      Pause (Length set via S8)
=      Pauses for twice the period set in S8
:      Wait for dialtone
&      Flash (Goes ON-Hook for the period set in S29)
^      Enable calling tone
CRS    Call Request with Memory Address (same as CRN, but dials string stored
       in dialing memory locations 0-19)
DIC    Disregard Incoming Call (Ignores incoming call, returns INV if no call
       is present or autoanswer is not enabled)
PRI    Program Identification (Just returns VAL)
PRN    Program Number (stores dialing string into the select dialing string
       memory location) PRN (0-19);(dialing string)
RLD    List Request of Delayed Call Numbers (Display a numbered chart of
       delayed numbers and the delay periods)
RLF    List Request of Forbidden Numbers (Lists numbers blacklisted during
       modem operations according to country setting procedures)
RLI    List Request of Identification Numbers
RLN    List Request of Stored Numbers (Dialing Strings)

```

Indications

```

CFI    Call Failure Indication (Sends message followed by coded failure reason)
AB     No Dialtone or call abort timer expired.
CB     Local Circuit busy (phone off-hook)
ET     BUSY (engaged) tone detected
FC     Requested number on Forbidden call list (no call attempted)
NT     Ringback detected or stopped & call abort timer expired
RT     Ringback detected & call abort timer expired
CNX    Connect (maybe be followed by a code to show speed of connection)
DLC    Delayed Call (returns code with length of call delay)
INC    Incoming Call (sent when ring signal is detected)
INV    Invalid Command (issued if command is invalid or unable to be executed)

```

LSD List of Delayed Call Numbers (returned in response to RLD)
 LSF List of Forbidden Numbers (returned in response to RLF)
 LSI List of Identification Numbers (returned in response to RLI)
 VAL Valid Command (sent if command is executed & no other response occurs)

S Registers

S0 Number of Rings to Auto Answer (0 to 255) (0 is disable & default)
 S1 Number of Rings before last answer.
 S2 Escape Code character (0 to 255) (default is 43 "+")
 S3 Carriage Return character (0-127) (default is 13)
 S4 Line Feed character (0-127) (default is 10)
 S5 Backspace character (0-32) (default is 8)
 S6 Time to Wait before Blind Dial (2-255 seconds) (default is 2)
 (Applies only in X,X1, or X3 dialing mode)
 S7 Time to Wait for Carrier (1-255 seconds) (default is 50)
 S8 Pause Time for Comma Dial Command (0-255 seconds) (default is 2)
 S9 Time to Wait Before Recognizing Carrier (1-255 1/10 seconds)
 (Default is 6)
 S10 Delay from Lost Carrier to Hang Up (1-255 1/10 seconds) (Default is 14,
 Modem assumes carrier always present if set to 255)
 S11 DTMF Tone Duration/Spacing (35 to 102 1/100 seconds) (Default is 95)
 S12 Escape Code Guard Time (0 to 255 1/50 seconds) (0 to disable, the
 default is 50)
 S13 Reserved
 S14 Bit Mapped Option Status Codes
 Bit(Dec)
 0 (1) Reserved
 1 (2) Command echo (En)
 0 Disabled (E0)
 1 Enabled (E1 default)
 2 (4) Quiet Mode (Qn)
 0 Send result codes (Q0 default)
 1 No result codes (Q1)
 3 (8) Result codes (Vn)
 0 Numeric (V0)
 1 Verbose (V1 default)
 4 (16) Reserved
 5 (32) Dial Mode
 0 Tone (T default)
 1 Pulse (P)
 6 (64) Reserved
 7 (128) Carrier Mode
 0 Answer
 1 Originate
 S15 Reserved
 S16 Diagnostic Test Mode setting -Bit Mapped (default 0)
 0 &T1 0 Disable 1 Enable
 1 Not Used
 2 &T3 0 Disable 1 Enable
 3 &T4/&T5 0 Off 1 In progress
 4 &T6 0 Disable 1 Enable
 5 &T7 0 Disable 1 Enable
 6 &T8 0 Disable 1 Enable
 7 Not Used
 S17 Reserved

S18 Test Mode Timer (0-255 seconds, 0=Runs endlessly)
S19 Reserved
S20 Reserved
S21 Bit Mapped Option Status Codes
Bit(Dec)
0 (1) Set by &Jn command but ignored otherwise
0 &J0 (default)
1 &J1
1 (2) Reserved
2 (4) CTS Mode (&Rn)
0 CTS always on (&R0)
1 CTS follows RTS (&R1 default)
3 (8) & 4 (16) DTR behavior (&Dn)
0,0 &D0 (default)
1,0 &D1
0,1 &D2
1,1 &D3
5 (32) DCD (RLSD) behavior (&Cn)
0 &C0 (Default)
1 &C1
6 (64) DSR behavior (&Sn)
0 &S0 (Default)
1 &S1
7 (128) Long space diconnect (Yn)
0 Y0 (Default)
1 Y1
S22 Bit Mapped Option Status Codes
Bit(Dec)
0 (1) & 1 (2) Speaker volume (Ln)
0,0 Low (L0)
1,0 Low (L1)
0,1 Medium (L2 default)
1,1 High (L3)
2 (4) & 3 (8) Speaker control (Mn)
0,0 Disabled (M0)
1,0 On until carrier (M1 default)
0,1 ON Always (M2)
1,1 On during handshake (M3)
4 (16), 5 (32), & 6 (64) Dialing Mode / Result Codes (Xn)
0,0,0 X0
1,0,0 Reserved
0,1,0 Reserved
1,1,0 Reserved
0,0,1 X1
1,0,1 X2
0,1,1 X3
1,1,1 X4 (Default)
7 (128) Reserved
S23 Bit Mapped Option Status Codes
Bit(Dec)
0 (1) Grant RDL
0 RDL not allowed (&T5)
1 RDL allowed (&T4 default)
1 (2), 2 (4), & 3 (8) Assumed DTE Rate
0,0,0 0-300 bps
1,0,0 600 bps
0,1,0 1200 bps

```

        1,1,0 2400 bps (Default)
        0,0,1 4800 bps
        1,0,1 9600 bps
        0,1,1 19200 bps
        1,1,1 Reserved
4 (16) & 5 (32) Assumed DTE parity
        0,0 Even
        1,0 Reserved
        0,1 Odd
        1,1 None (default)
6 (64) & 7 (128) Guard tone (&Gn)
        0,0 None (&G0 Default)
        1,0 550 Hz (&G1)
        0,1 1800 Hz (&G2)
        1,1 Reserved
S24 Sleep Inactivity Timer (0-255 seconds 0 default/disable)
    Number of seconds before modem enters sleep mode without either DTE or
    phone line activity.
S25 Delay to DTR (0-255 1/100 seconds, 5 default)
S26 RTS/CTS Delay (0-255 1/100 seconds, 1 default) (Sync mode only)
S27 Bit Mapped Option Status
    Bit(Dec)
        0 (1), 1 (2), 3 (8) Sync/Async Mode Selection (&Mn/&Qn)
            0,0,0 &M0/&Q0
            1,0,0 &M1/&Q1
            0,1,0 &M2/&Q2
            1,1,0 &M3/&Q3
            0,0,1 &Q4
            1,0,1 &Q5 (Default)
            0,1,1 &Q6
        2 (4) Leased line control (&Ln)
            0 Dial-up line (&L0 default)
            1 Leased line (&L1)
        4 (16) & 5 (32) Internal Sync clock select (&Xn)
            0,0 Internal (&X0 default)
            1,0 External (&X1)
            0,1 Slave (&X2)
        6 (64) CCITT/Bell Mode (Bn)
            0 CCITT (B0)
            1 Bell (B1 US default)
        7 (128) Reserved
S28 Bit Mapped Options
    Bit(Dec)
        0 (1) V.23 split screen (\Wn)
            0 Disabled (\W0 default)
            1 Enabled (\W1)
        1 (2) V.23 split screen direction
            0 75Tx (%F0 default)
            1 1200Tx (%F1 default)
        2 (4) V.23 half-duplex
            0 Disabled
            1 Enabled (%F3)
        3 (8) & 4 (16)
            Pulse dialing mode (&Pn)
                0,0 &P0 (Default)
                1,0 &P1
                0,1 &P2

```

```

        1,1 &P3
    5 (32) Reserved
    6 (64) Reserved
    7 (128) Reserved
S29 Flash Dial Modifier Time
S30 Inactivity Timer (0-255 Unit 10 ms, 0=disable {default})
    In Reliable mode any data transfer resets timer.
    In Normal mode only sent data resets timer.
S31 Bit Mapped Options
    Bit(Dec)
    0 (1) Reserved
    1 (2) Auto Mode Selection
        0 Disabled (N0)
        1 Enabled (N1 default)
    2 (4), 3 (8) Error Correction Result Code (Wn)
        0,0 DTE Speed only (W0 default)
        1,0 Full Reporting (W1)
        0,1 DCE Speed only (W2)
    4 (16) Reserved
    5 (32) Reserved
    6 (64) Reserved
    7 (128) Reserved
S32 XON Charactor (0-255, Default 17)
S33 XOFF Charactor (0-255, Default 19)
S36 Negotiation Failure Treatment (0-7 7 is default)
    Fallback options when S48=128 or error correction link fails:
    Bits 0-2
    2 1 0 (Dec)
    0,0,0 (0) Disconnect
    0,0,1 (1) Establish Direct connection
    0,1,0 (2) Undefined
    0,1,1 (3) Establish Normal connection
    1,0,0 (4) Establish MNP connection if possible, else Disconnect
    1,0,1 (5) Establish MNP connection if possible, else Direct Mode
    1,1,0 (6) Undefined
    1,1,1 (7) Establish a MNP connection if possible, else Normal Mode
    Bits 3-5 Reserved
    Bits 6-7 Same as S110 setting
    1 0 (Dec)
    0,0 (0) V.32 mode
    0,1 (64) V.32bis mode
    1,0 (128) V.32bis with fallback
    1,1 (192) V.32/V.32bis mode forced start at lowest carrier in
        S109 and fall forward and fall back using rates set
        in S109.
S37 Forced Single Carrier Rate (0-1,5-12 0 is default)
    0 Carrier Rate at the rate the last AT command was issued.
        (If rate is above highest carrier rate, then the highest
        carrier rate the modem supports is used.)
    1 300 bps
    2-4 Undefined
    5 1200 bps
    6 2400 bps
    7 1200/75 bps (v.23 mode)
    8 4800 bps
    9 9600 bps
    10 12000 bps

```

```

    11      14400 bps
    12      7200 bps
S38  Delay Before Forced Disconnect (0-255 seconds, default 20)
    0-254  Delay in seconds from H command, or DTR toggle ON or OFF (if
           modem is set to follow DTR), before modem disconnects.
    255    Modem send data out of buffer until completed or connection
           is lost.
S39  Flow Control
    0      None &K0
    3      RTS/CTS &K3
    4      XON/XOFF &K4
    5      Transparent XON/XOFF &K5
    6      RTS/CTS & XON/XOFF &K6
S40  Bit Mapped Option Status Codes
    Bit(Dec)
    0 (1)  MNP Extended Services (-Kn)
           0 Disable (-K0)
           1 Enable (-K1)
    1 (2)  Power Level Adj. for Cellular Use []Mn]
           0 Auto Adj. []M0 default
           1 Force Adj. []M1]
    2 (4)  MNP Link negotiation speed (*Hn)
           0 At highest rate (*H0 default)
           1 At 1200 bps (*H1)
    3 (8), 4 (16), & 5 (32) Break Handling (\Kn)
           0,0,0 \K0
           1,0,0 \K1
           0,1,0 \K2
           1,1,0 \K3
           0,0,1 \K4
           1,0,1 \K5
    6 (64) & 7 (128) MNP Block size (\An)
           0,0 64 (\A0)
           1,0 128 (\A1)
           0,1 196 (\A2)
           1,1 256 (\A3)
S41  Bit Mapped Option Status Codes
    Bit(Dec)
    0 (1) & 1 (2) Compression Selection (%Cn)
           0,0 Disabled (%C0)
           1,0 MNP 5 (%C1)
           0,1 V.42bis (%C2)
           1,1 MNP 5 & V.42bis (%C3)
    2 (4)  Auto Retrain (%En)
           0 Disable (%E0 default)
           1 Enable (%E1)
    3 (8)  Modem to Modem Flow Control (\Gn)
           0 Disable (\G0 default)
           1 Enable (\G1)
    4 (16) Block mode control (\Ln)
           0 Stream (\L0 default)
           1 Block (\L1)
    5 (32) Reserved
    6 (64) Reserved
    7 (128) Reserved
S46  Protocol Selection (136 or 138) (Affects v.42/v.42bis mode)
    136    Disable Compression

```

- 138 Enable Compression (default)
- S48 v.42 Negotiation (0,7,128)
- 0 Disable Negotiation, proceed with LAPM
 - 7 Enable Negotiation (default)
 - 128 Disable Negotiation, fallback per S36 setting
- S80 Soft-Switch Functions (Bit Mapped Options)
- Bit 0 V.25bis / AT command mode
 - 0 AT
 - 1 V.25bis
 - Bit 1 Remote Configuration
 - 0 Not Permitted
 - 1 Permitted
 - Bit 2 Call Back Security
 - 0 Disabled
 - 1 Enabled
 - Bit 3 Originate/Answer Mode select
 - 0 Originate
 - 1 Answer
 - Bits 4-7 Reserved
- S82 LAPM Break Handling Options (3,7,128)
- 3 Expedited: Modem sends break immediately & data integrity is maintained before and after break.
 - 7 Destructive: Modem sends break immediately & data being processed by each modem at that time is destroyed.
 - 128 In sequence: Modem sends break in sequence with transmitted data & data integrity is maintained before and after the break
- S86 Report Connection Failure Cause Code
- 0 Normal disconnect
 - 1-3 Undefined Error Code
 - 4 Carrier loss
 - 5 No error correction at other end
 - 6 No response to feature negotiation
 - 7 This modem is ASYNC only, other is SYNC
 - 8 No framing technique in common
 - 9 No protocol in common
 - 10 Bad response to feature negotiation
 - 11 No sync information from remote
 - 12 Normal hangup initiated by remote
 - 13 Retransmission limit reached
 - 14 Protocol violation occurred
 - 15-255 Undefined Error Code
- S95 Extended Result Code Control (default sum is 0)
- Each bit set high in this register enables the corresponding result code regardless of the W command setting.
- Bit (Decimal Value)
- 0 (1) CONNECT XXXX result code gives DCE to DCE rate instead of local DTE to DCE rate.
 - 1 (2) Append /ARQ to verbose CONNECT result code if protocol is NONE
 - 2 (4) Enable CARRIER XXXX result code
 - 3 (8) Enable PROTOCOL XXXX result code
 - 4 (16) Undefined
 - 5 (32) Enable COMPRESSION result code
 - 6 (64) Undefined
 - 7 (128) Undefined
- S109 v.32/v.32bis Negotiation Rate Selection (default sum is 62)
- Each bit set high in this register enables the corresponding rate as
-

a valid rate to be used during rate negotiation.

Bit (Decimal Value)

0 (1) Unused
 1 (2) 4800 bps
 2 (4) 7200 bps
 3 (8) 9600 bps
 4 (16) 12000 bps
 5 (32) 14400 bps
 6 (64) Unused
 7 (128) Unused

S110 v.32/v.32bis Mode & Rate Negotiation Control

0 Normal v.32 mode (no v.32bis support)
 1 Normal v.32bis mode
 2 v.32bis mode with automatic rate renegotiation (default)
 3 v.32bis mode with automatic rate renegotiation starting with the lowest rate set in S109 and working up one defined rate at a time toward the highest rate set in S109 (based on %Q level at each rate prior to stepping up.) (If the modem steps back down, it will also follow the S109 settings.)

S202 Remote Access Escape Character (0-255, Default 170)

SCn=n BUSY Detect Watermark Controls

Each register "pair" holds the value for each setting. To set a value, divide the setting by 256. The integer goes in the second register, while the remainder goes in the first. (A setting of 516 would convert to 2 Remainder 4, and could be set by sending ATSC0=4SC1=2 to the modem.) Settings are in 1/100ths of a second.

Default values:

Minimum BUSY ON Time

SC0=30

SC1=0

Maximum BUSY ON Time

SC2=75

SC3=0

Minimum BUSY OFF Time

SC4=30

SC5=0

Maximum BUSY OFF Time

SC6=75

SC7=0

(Defaults support FCC Spec. BUSY signal. Setting SC0=25 & SC4=25 allows FAST BUSY to also be detected as BUSY.)

SC8=n Set number of valid BUSY Pulses before reporting BUSY (4 is default)

FAX commands of special interest to Supra Users:

+FAE=n (CLASS 1 Only) Adaptive Answer / Silent Answer Mode Control

0 Disable Both

1 Adaptive Answer ONLY

2 Adaptive Answer & Silent Answer

3 Silent Answer ONLY

+FAA=n (CLASS 2 Only) Adaptive Answer / Silent Answer Mode Control

0 Disable Both

1 Adaptive Answer ONLY

2 Adaptive Answer & Silent Answer

3 Silent Answer ONLY

Connection Result Codes:

Numeric Verbose

0	OK	
1	CONNECT	(300 bps)
2	RING	
3	NO CARRIER	
4	ERROR	
5	CONNECT 1200	
6	NO DIALTONE	
7	BUSY	
8	NO ANSWER	
9	CONNECT 0600	
10	CONNECT 2400	
11	CONNECT 4800	
12	CONNECT 9600	
13	CONNECT 7200	
14	CONNECT 12000	
15	CONNECT 14400	
16	CONNECT 19200	
17	CONNECT 38400	
18	CONNECT 57600	
19	CONNECT 115200	(Not Currently Supported on MOST models)
22	CONNECT 1200/75	(Models with v.23 support only)
23	CONNECT 75/1200	(Models with v.23 support only)
24	DELAYED	
32	BLACKLISTED	
33	FAX	
35	DATA	
40	CARRIER 300	
44	CARRIER 1200/75	(Models with v.23 support only)
45	CARRIER 75/1200	(Models with v.23 support only)
46	CARRIER 1200	
47	CARRIER 2400	
48	CARRIER 4800	
49	CARRIER 7200	
50	CARRIER 9600	
51	CARRIER 12000	
52	CARRIER 14400	
66	COMPRESSION: CLASS 5	(MNP 5)
67	COMPRESSION: V.42BIS	(BTLZ)
69	COMPRESSION: NONE	
70	PROTOCOL: NONE	
77	PROTOCOL: LAP-M	(V.42)
80	PROTOCOL: ALT	(MNP)
81	PROTOCOL: ALT - CELLULAR	(MNP 10)
+FC	+FCERROR	

V.32 & V.32BIS EXTERNAL DISPLAY CODES

Red LED's

OH	Off Hook
----	----------

RD Receiving Data
 SD Sending Data
 TR Terminal Ready (Follows DTR per &Dn setting)

Green LED Display PANEL

AA Auto Answer (RI displayed during ring)
 CD Carrier Detected
 DC Data Compression in use
 DI Dialing
 FX FAX MODE
 LP LAPM Error Correction in use.
 M2 MNP2 Error Correction in use.
 M3 MNP3 Error Correction in use.
 M4 MNP4 Error Correction in use.
 M5 MNP5 Data Compression in use.
 OK Modem Powered Up Correctly and Ready for Use.
 RE Receive Error while using LAPM or MNP mode.
 RI Ring Indicator
 RT Retrain in progress
 TE Transmit Error while using LPAM or MNP mode.
 TM Test Mode in use.
 3 300 bps connection
 12 1200 bps connection
 24 2400 bps connection
 48 4800 bps connection
 72 7200 bps connection
 96 9600 bps connection
 120 12000 bps connection
 144 14400 bps connection

Encoded Optional Feature List (ATi10)

NOTE -> These codes are being added to SupraFAXModem ROMs, but in some cases not all codes have been added that are supported by a given product, and codes have been assigned for features not yet available.

Code	Feature	Functions/Commands/Codes Added
101	Fax CLASS 1	Normal CLASS 1 FAX Command Set
104	Fax CLASS 2	Normal CLASS 2 FAX Command Set
105	Fax CLASS 2.0	Normal CLASS 2.0 FAX Command Set
115	CCITT v.17 (14.4 Fax)	Adds 12k & 14.4k fax operation
120	Worldwide PSTN Support	%TTnn PTT Cert. Test Signals *NC? Display Country Config. *NCn Change County Config. *Zn
121	CCITT v.23	%Fn (1-3) %F1 75T/1200R %F2 1200R/75T %F3 v.23 HALF DUPLEX Adds These Result Codes: Numeric Verbose 22 CONNECT 1200TX/75RX 23 CONNECT 75TX/1200RX 44 CARRIER 1200/75 45 CARRIER 75/1200
122	CCITT v.25bis	See list above

123	Blacklisting	*B	Display Blacklisted #'s
		*D	Display Delayed #'s
		Adds These Result Codes:	
		24	DELAYED
		32	BLACKLISTED
124	Access Security	*C	Enb. Sec. Acc. & Req.PW
		*E	Exit Sec. Access
		*L	List PW & CB directories
		*P	Stores PassWords
		*R	Request Sec. Acc. Mode
140	CCITT v.32bis (14.4 Data)	Adds 7200, 12k, & 14.k carriers	
141	Silent Answer	+FAE=n	
		+FAA=n > CLASS 2 units only <	
142	Caller ID	#CID=n	
143	MNP 10	-B	Forced FB to 1200
		-C	MNP10 Sync Mode
		-C1	MNP10 Async Mode
		-C2	MNP 2
		-C3	MNP 3
		-K	No LAPM to MNP10 Conv.
		-K1	Conv. LAPM to MNP10
		-Q	FB to v.22/v.22bis
		-Q1	No FB to v.22/v.22bis
		-Un	Tx Level Change during FF
		-U0	auto attn to -10dBm
		-U1	auto attn to -18dBm
		-U2	auto attn to -22dBm
		-U3	auto attn to -25dBm
		-U4	Force 2400 to -10dBm
		-U5	Force 2400 to -18dBm
		-U6	Force 2400 to -22dBm
		-U7	Force 2400 to -25dBm
)M	Tx fixed at -10dBm
)M1	Tx attempt Tx < -10dBm
		*H0	Link Neg. at Top Speed
		*H1	Link Neg. at 1200
		*H2	Link Neg. at 4800
144	MNP "Cellular"	In Docs if a Supported Feature	
145	AutoSync	In Docs if a Supported Feature	
146	Enhanced Configuration Display	\S	Enhanced Display Codes
160	Programable Voice	In Docs if a Supported Feature	
161	ADPCM	In Docs if a Supported Feature	
162	MACE	In Docs if a Supported Feature	
170	Handset Support	In Docs if a Supported Feature	
171	Headset Support	In Docs if a Supported Feature	
180	16b Buffer Emulation Mode	In Docs if a Supported Feature	
181	SupraSmart	In Docs if a Supported Feature	
182	SupraSmart 16b DMA	In Docs if a Supported Feature	
190	Flash ROM AMD	In Docs if a Supported Feature	
191	Flash ROM ATMEL	In Docs if a Supported Feature	
200	V.FC	In Docs if a Supported Feature	

144PB Current Load

ON----> @ 150mA Modem Port is open and modem is activity in use.
Sleep-> @ 55mA Modem Port is open, but modem is not processing any
commands and is not OFF-HOOK.

OFF---> 0mA Modem Port is closed.

*** WARNING ***

The following commands are accepted by some models, but are ONLY for internal use at Supra. (Supra's staff cannot assist you in regard to these commands, and under no case should you attempt use or adjust these settings.):

ATS91=x
ATS92=x
ATS99=x
AT! (x)

These commands are quite powerful and can cause unpredictable or total lack of operation. (In many cases, service at Supra would be required to restore normal operation.)