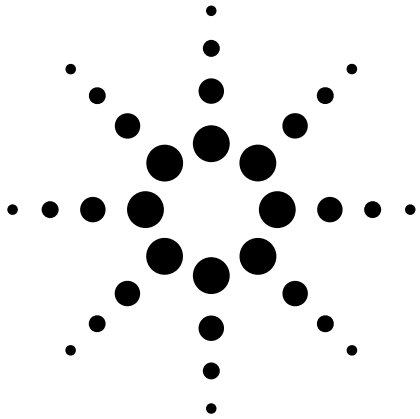

Agilent
3577A
Network Analyzer, 5 Hz to 200 MHz

Programming Notes

Part Number 03577-90001

Agilent Technologies

About this Manual

We've added this manual to the Agilent website in an effort to help you support your product. This manual is the best copy we could find; it may be incomplete or contain dated information. If we find a more recent copy in the future, we will add it to the Agilent website.

Support for Your Product

Agilent no longer sells or supports this product. Our service centers may be able to perform calibration if no repair parts are needed, but no other support from Agilent is available. You will find any other available product information on the Agilent Test & Measurement website, www.tm.agilent.com.

HP References in this Manual

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard's former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. We have made no changes to this manual copy. In other documentation, to reduce potential confusion, the only change to product numbers and names has been in the company name prefix: where a product number/name was HP XXXX the current name/number is now Agilent XXXX. For example, model number HP8648A is now model number Agilent 8648A.

Appendix A
3577A HP-IB Programming Notes

COMMAND SUMMARY

3577A HP-IB COMMAND LIST

**These commands may be used to display the menu shown, but are not required in normal programming.*

Data entry commands are denoted by (entry), and must be followed by a data value and suffix.

DISPLAY FORMAT

Function	HP-IB code
TRACE 1	TR1
TRACE 2	TR2
INPUT	**INP ***
Input = R	INR
Input = A	INA
Input = B	INB
Input = A/R	IAR
Input = B/R	IBR
Input = D1	ID1
Input = D2	ID2
Input = D3	ID3
Input = D4	ID4
Return	RET *
User Defined Input	UDI
Input = S_{11}	I11
Input = S_{21}	I21
Input = S_{12}	I12
Input = S_{22}	I22
Copy Input	CPI
Test Set Forward	TSF
Test Set Reverse	TSR
DISPLAY FUNCTION	**DSF ***
Log Magnitude	DF7
Linear Magnitude	DF6
Phase	DF5
Polar	DF4
Real	DF3
Imaginary	DF2
Delay	DF1
Trace Off	DF0
Delay Aperture menu	DAP *
Aperture .5% of span	AP1
Aperture 1% of span	AP2
Aperture 2% of span	AP3
Aperture 4% of span	AP4
Aperture 8% of span	AP5
Aperture 16% of span	AP6
Return	RET *

SCALE	SCL *
AutoscaLe	ASL
Reference Level (entry)	REF
Scale /DIV (entry)	DIV
Reference Position (entry)	RPS
Reference Line Off	RL0
Reference Line On	RL1
Copy Scale	CPS
Phase Slope (entry)	PSL
Phase Slope Off	PS0
Phase Slope On	PS1
Polar Full Scale (entry)	PFS
Polar Phase Ref (entry)	PPR
Smith Chart Off	GT0
Smith Chart On	GT1
MARKER	**MKR ***
Marker Position (entry)	MKP
Marker Off	MR0
Marker On	MR1
Zero Marker	ZMK
Marker Offset Off	MO0
Marker Offset On	MO1
Marker Offset (entry)	MKO
Marker Offset Freq (entry)	MOF
Marker Offset Amp (entry)	MOA
Marker Coupling Off	CO0
Marker Coupling On	CO1
Polar Mag Offset (entry)	PMO
Polar Phase Offset (entry)	PPO
Polar Real Offset (entry)	PRO
Polar Imag Offset (entry)	PIO
Polar Marker Units (Re/Im)	MRI
Polar Marker Units (Mg/Ph)	MMP

MARKER →	*MKG **
MKR→Reference Level	*MTR*
MKR→Start Frequency	*MTA*
MKR→Stop Frequency	*MTB*
MKR→Center Frequency	*MTC*
MKR Offset→Span	*MOS*
MKR→Max	*MTX*
MKR→Min	*MTN*
MARKER SEARCH menu	***MSM ****
MKR Target Value (entry)	*MTV*
MKR→Right for Target	*MRT*
MKR→Left for Target	*MLT*
Return	*RET **
MKR→Full Scale	*MTP*
MKR→Polar Phase Ref	*MPF*
STORE DATA	***STO ****
Store in register D1	*SD1*
Store in register D2	*SD2*
Store in register D3	*SD3*
Store in register D4	*SD4*
Store and Display	*STD*
User defined store	*UDS*
Store to D1	*TD1*
Store to D2	*TD2*
Store to D3	*TD3*
Store to D4	*TD4*
MEASUREMENT CALIBRATION	***CAL ****
Normalize	*NRM*
Normalize (Short)	*NRS*
Calibrate, Partial	*CPR*
Calibrate, Full	*CFL*
Continue Calibration	*CGO*
DEFINE MATH	***DFN ****
Constant K1, Real	*KR1*
Constant K1, Imaginary	*KI1*
Constant K2, Real	*KR2*
Constant K2, Imaginary	*KI2*
Constant K3, Real	*KR3*
Constant K3, Imaginary	*KI3*
Define Function	*DFC **
Function F1	*UF1*
Function F2	*UF2*
Function F3	*UF3*
Function F4	*UF4*
Function F5	*UF5*
Math term for input R	*R*
Math term for input A	*A*
Math term for input B	*B*
Math term for storage reg	*D*
Math term for constant	*K*
Math term for function	*F*
Math bracket	*(*
Math function plus	*+*
Math function minus	*−*
Math function multiply	***
Math function divide	*/*
Math bracket	*)*
Return	*RET **

DATA ENTRY SECTION COMMANDS	
Increment (up arrow)	*IUP*
Decrement (down arrow)	*IDN*
Continuous Entry (knob) Off	*CE0*
Continuous Entry (knob) On	*CE1*
Hold	*HLD*
DISPLAY FORMAT SUFFIX UNITS	
dBm	*DBM*
dBV (rms)	*DBV*
dB relative	*DBR*
Volt (rms)	*V*
milli-Volt (rms)	*MV*
micro-Volt (rms)	*UV*
nano-Volt (rms)	*NV*
degrees	*DEG*
degrees/span	*DSP*
radians	*RAD*
radians/span	*RSP*
seconds	*SEC*
milliseconds	*MSC*
microseconds	*USC*
nanoseconds	*NSC*
percent	*%*
MHz	*MHZ*
kHz	*KHZ*
Hz	*HZ*
exponent	*E*

SOURCE

Function	HP-IB code
SWEEP TYPE	**STY ***
Linear Sweep	ST1
Alternate Sweep	ST2
Log Sweep	ST3
Amplitude Sweep	ST4
CW	ST5
Sweep Direction Up	SUP
Sweep Direction Down	SDN
SWEEP MODE	**SMD ***
Continuous	SM1
Single Sweep	SM2
Manual Sweep	SM3
Manual Frequency (entry)	MFR
Manual Amplitude (entry)	MAM
Marker ->Manual	MTM
SWEEP TIME	**STM ***
Sweep Time (entry)	SWT
Step Time (entry)	SMT
Sample Time (entry)	MSR
FREQUENCY	**FRQ ***
Source Frequency (entry)	SFR
Start Frequency (entry)	FRA
Stop Frequency (entry)	FRB
Center Frequency (entry)	FRC
Frequency Span (entry)	FRS
Center Freq Step size (entry)	CFS
Sweep Resolution menu	SRL *
Freq Sweep Res 51 pts/span	RS1
Freq Sweep Res 101 pts/span	RS2
Freq Sweep Res 201 pts/span	RS3
Freq Sweep Res 401 pts/span	RS4
Return	RET *
Full Sweep	FSW
Freq Step Size (entry)	FST
AMPLITUDE	**AMP ***
Source Amplitude (entry)	SAM
Amp Step Size (entry)	AST
Clear Trip, Source	CTS
Start Amplitude (entry)	AMA
Stop Amplitude (entry)	AMB
Steps/Sweep menu	NST *
Number of steps = 6	NS1
Number of steps = 11	NS2
Number of steps = 21	NS3
Number of steps = 51	NS4
Number of steps = 101	NS5
Number of steps = 201	NS6
Number of steps = 401	NS7
Return	RET *
Full Sweep	FSW
TRIGGER MODE	**TRM ***
Free Run	TG1
Line Trigger	TG2
External Trigger	TG3
SWEEP TRIGGER	**TRG**
SWEEP RESET	**RST**

SOURCE SUFFIX UNITS

dBm	DBM
dBV (rms)	DBV
Volt (rms)	V
milli-Volt (rms)	MV
micro-Volt (rms)	UV
nano-Volt (rms)	NV
seconds	SEC
milliseconds	MSC
MHz	MHZ
kHz	KHZ
Hz	HZ
exponent	E

RECEIVER

Function	HP-IB code
RESOLUTION BW	**RBW ***
Resolution BW 1 Hz	BW1
Resolution BW 10 Hz	BW2
Resolution BW 100 Hz	BW3
Resolution BW 1 kHz	BW4
Auto Bandwidth Off	AU0
Auto Bandwidth On	AU1
AVERAGE	**AVE ***
Averaging Off	AV0
N = 4	AV1
N = 8	AV2
N = 16	AV3
N = 32	AV4
N = 64	AV5
N = 128	AV6
N = 256	AV7
ATTENUATION	**ATT ***
Attenuation R = 0 dB	AR1
Attenuation R = 20 dB	AR2
Attenuation A = 0 dB	AA1
Attenuation A = 20 dB	AA2
Attenuation B = 0 dB	AB1
Attenuation B = 20 dB	AB2
Impedance R = 50 Ω	IR1
Impedance R = 1 MΩ	IR2
Impedance A = 50 Ω	IA1
Impedance A = 1 MΩ	IA2
Impedance B = 50 Ω	IB1
Impedance B = 1 MΩ	IB2
Clear Trip, Receiver	CTR

	LENGTH	**LEN ***
	Length R (entry)	LNR
	Length R Off	LR0
	Length R On	LR1
	Length A (entry)	LNA
	Length A Off	LA0
	Length A On	LA1
	Length B (entry)	LNB
	Length B Off	LB0
	Length B On	LB1
	Length Step Size (entry)	LNS
RECEIVER SUFFIX UNITS	meters	MET
	centimeters	CM
	seconds	SEC
	milliseconds	MSC
	microseconds	USC
	nanoseconds	NSC
	exponent	E

INSTRUMENT STATE	**Function**	**HP-IB Code**
	SPECIAL FUNCTIONS	**SPC ***
	Confidence (self) test menu	SLF *
	Self test channel R	STR
	Self test channel A	STA
	Self test channel B	STB
	Return	RET *
	Beeper off	BP0
	Beeper on	BP1
	Service Diagnostics menu	SDG *
	Source Leveling off	SL0
	Source Leveling on	SL1
	Settling Time off	SE0
	Settling Time on	SE1
	Synthesizer Diagnostics off	SY0
	Synthesizer Diagnostics on	SY1
	Display Test Pattern	DTP
	Trace Memory Test	TMT
	Fast Processor Test	FPT
	I/O port test	PRT
	More Service Diagnostics menu	MOR *
	Display Memory Test	DST
	Software Revision message	SRV
	Return	RET *
	S-Parameters Off	SP0
	S-Parameters On	SP1

SAVE INSTRUMENT STATE	**SAV ***
Save state in register 1	SV1
Save state in register 2	SV2
Save state in register 3	SV3
Save state in register 4	SV4
Save state in register 5	SV5
RECALL INSTRUMENT STATE	**RCL ***
Recall old (last) state	RLS
Recall register 1	RC1
Recall register 2	RC2
Recall register 3	RC3
Recall register 4	RC4
Recall register 5	RC5
INSTRUMENT PRESET	**IPR**
PLOT MENU	**PLM ***
Plot all	PLA
Plot trace 1	PL1
Plot trace 2	PL2
Plot graticule	PLG
Plot characters	PLC
Plot trace 1 marker	PM1
Plot trace 2 marker	PM2
Configure Plot menu	CPT *
Trace 1 linetype (entry)	T1L
Trace 2 linetype (entry)	T2L
Trace 1 pen number (entry)	T1P
Trace 2 pen number (entry)	T2P
Graticule pen no. (entry)	PGP
Pen speed fast (max)	PNM
Pen speed slow	PNS
Set plot config to default	PLD
Return	RET *

HP-IB ONLY COMMANDS

Function	HP-IB code
Settling Time Entry	**STE**
Dump register A	DRA
Dump register B	DRB
Dump register R	DRR
Dump register D1	DD1
Dump register D2	DD2
Dump register D3	DD3
Dump register D4	DD4
Dump trace 1	DT1
Dump trace 2	DT2
Dump marker 1	DM1
Dump marker 2	DM2
Dump marker 1 position	MP1
Dump marker 2 position	MP2
Dump state (learn mode out)	LMO
Dump status	DMS
Dump average number	DAN
Dump key or knob	DKY
Dump characters	DCH
Load register A	LRA
Load register B	LRB
Load register R	LRR
Load register D1	LD1
Load register D2	LD2
Load register D3	LD3
Load register D4	LD4
Load state (learn mode in)	LMI
Graticule off	GR0
Graticule on	GR1
Characters off	CH0
Characters on	CH1
Annotation off	AN0
Annotation on	AN1
Annotation Clear	ANC
Menu off	MN0
Menu on	MN1
Menu clear	MNC
ASCII data format	FM1
64 bit IEEE data format	FM2
32 bit HP 3577A binary	FM3
Bus diagnostics mode off	BD0
Bus diagnostics on, fast	BD1
Bus diagnostics on, slow	BD2
Enter Menu (user defined)	ENM
Enter Annotation	ENA
Enter Graphics	ENG
Clear Keyboard Buffer	CKB
Take Measurement	TKM
Set SRQ Mask	SQM
Error Reporting mode 0	ER0
Error Reporting mode 1	ER1
Error Reporting mode 2	ER2
Error reporting mode 3	ER3
Send SRQ	SRQ