



Agilent
3577A
Network Analyzer, 5 Hz to 200 MHz

Programming Notes

Part Number 03577-90001

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HP References in this Manual

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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 *	SCALE	SCL *
Input = R	INR	Autoscale	ASL
Input = A	INA	Reference Level (entry)	REF
Input = B	INB	Scale /DIV (entry)	DIV
Input = A/R	IAR	Reference Position (entry)	RPS
Input = B/R	IBR	Reference Line Off	RLO
Input = D1	ID1	Reference Line On	RL1
Input = D2	ID2	Copy Scale	CPS
Input = D3	ID3	Phase Slope (entry)	PSL
Input = D4	ID4	Phase Slope Off	PSO
Return	RET *	Phase Slope On	PS1
User Defined Input	UDI	Polar Full Scale (entry)	PFS
Input = S ₁₁	I11	Polar Phase Ref (entry)	PPR
Input = S ₂₁	I21	Smith Chart Off	GTO
Input = S ₁₂	I12	Smith Chart On	GT1
Input = S ₂₂	I22	MARKER	MKR *
Copy Input	CPI	Marker Position (entry)	MKP
Test Set Forward	TSF	Marker Off	MRO
Test Set Reverse	TSR	Marker On	MR1
DISPLAY FUNCTION	DSF *	Zero Marker	ZMK
Log Magnitude	DF7	Marker Offset Off	MOO
Linear Magnitude	DF6	Marker Offset On	MO1
Phase	DF5	Marker Offset (entry)	MKO
Polar	DF4	Marker Offset Freq (entry)	MOF
Real	DF3	Marker Offset Amp (entry)	MOA
Imaginary	DF2	Marker Coupling Off	COO
Delay	DF1	Marker Coupling On	CO1
Trace Off	DF0	Polar Mag Offset (entry)	PMO
Delay Aperture menu	DAP *	Polar Phase Offset (entry)	PPO
Aperture .5% of span	AP1	Polar Real Offset (entry)	PRO
Aperture 1% of span	AP2	Polar Imag Offset (entry)	PIO
Aperture 2% of span	AP3	Polar Marker Units (Re/Im)	MRI
Aperture 4% of span	AP4	Polar Marker Units (Mg/Ph)	MMP
Aperture 8% of span	AP5		
Aperture 16% of span	AP6		
Return	RET *		

MARKER →	MKG *	DATA ENTRY SECTION COMMANDS	
<i>MKR → Reference Level</i>	<i>MTR</i>	<i>Increment (up arrow)</i>	<i>IUP</i>
<i>MKR → Start Frequency</i>	<i>MTA</i>	<i>Decrement (down arrow)</i>	<i>IDN</i>
<i>MKR → Stop Frequency</i>	<i>MTB</i>	<i>Continuous Entry (knob) Off</i>	<i>CEO</i>
<i>MKR → Center Frequency</i>	<i>MTC</i>	<i>Continuous Entry (knob) On</i>	<i>CE1</i>
<i>MKR Offset → Span</i>	<i>MOS</i>	<i>Hold</i>	<i>HLD</i>
<i>MKR → Max</i>	<i>MTX</i>		
<i>MKR → Min</i>	<i>MTN</i>	DISPLAY FORMAT SUFFIX UNITS	
MARKER SEARCH menu	MSM *	<i>dBm</i>	<i>DBM</i>
<i>MKR Target Value (entry)</i>	<i>MTV</i>	<i>dBV (rms)</i>	<i>DBV</i>
<i>MKR → Right for Target</i>	<i>MRT</i>	<i>dB relative</i>	<i>DBR</i>
<i>MKR → Left for Target</i>	<i>MLT</i>	<i>Volt (rms)</i>	<i>V</i>
<i>Return</i>	<i>RET *</i>	<i>milli-Volt (rms)</i>	<i>MV</i>
<i>MKR → Full Scale</i>	<i>MTP</i>	<i>micro-Volt (rms)</i>	<i>UV</i>
<i>MKR → Polar Phase Ref</i>	<i>MPF</i>	<i>nano-Volt (rms)</i>	<i>NV</i>
STORE DATA	STO *	<i>degrees</i>	<i>DEG</i>
<i>Store in register D1</i>	<i>SD1</i>	<i>degrees/span</i>	<i>DSP</i>
<i>Store in register D2</i>	<i>SD2</i>	<i>radians</i>	<i>RAD</i>
<i>Store in register D3</i>	<i>SD3</i>	<i>radians/span</i>	<i>RSP</i>
<i>Store in register D4</i>	<i>SD4</i>	<i>seconds</i>	<i>SEC</i>
<i>Store and Display</i>	<i>STD</i>	<i>milliseconds</i>	<i>MSC</i>
<i>User defined store</i>	<i>UDS</i>	<i>microseconds</i>	<i>USC</i>
<i>Store to D1</i>	<i>TD1</i>	<i>nanoseconds</i>	<i>NSC</i>
<i>Store to D2</i>	<i>TD2</i>	<i>percent</i>	<i>%</i>
<i>Store to D3</i>	<i>TD3</i>	<i>MHz</i>	<i>MHZ</i>
<i>Store to D4</i>	<i>TD4</i>	<i>kHz</i>	<i>KHZ</i>
MEASUREMENT CALIBRATION	CAL *	<i>Hz</i>	<i>HZ</i>
<i>Normalize</i>	<i>NRM</i>	<i>exponent</i>	<i>E</i>
<i>Normalize (Short)</i>	<i>NRS</i>		
<i>Calibrate, Partial</i>	<i>CPR</i>		
<i>Calibrate, Full</i>	<i>CFL</i>		
<i>Continue Calibration</i>	<i>CGO</i>		
DEFINE MATH	DFN *		
<i>Constant K1, Real</i>	<i>KR1</i>		
<i>Constant K1, Imaginary</i>	<i>KI1</i>		
<i>Constant K2, Real</i>	<i>KR2</i>		
<i>Constant K2, Imaginary</i>	<i>KI2</i>		
<i>Constant K3, Real</i>	<i>KR3</i>		
<i>Constant K3, Imaginary</i>	<i>KI3</i>		
<i>Define Function</i>	<i>DFC *</i>		
<i>Function F1</i>	<i>UF1</i>		
<i>Function F2</i>	<i>UF2</i>		
<i>Function F3</i>	<i>UF3</i>		
<i>Function F4</i>	<i>UF4</i>		
<i>Function F5</i>	<i>UF5</i>		
<i>Math term for input R</i>	<i>R</i>		
<i>Math term for input A</i>	<i>A</i>		
<i>Math term for input B</i>	<i>B</i>		
<i>Math term for storage reg</i>	<i>D</i>		
<i>Math term for constant</i>	<i>K</i>		
<i>Math term for function</i>	<i>F</i>		
<i>Math bracket</i>	<i>(</i>		
<i>Math function plus</i>	<i>+</i>		
<i>Math function minus</i>	<i>-</i>		
<i>Math function multiply</i>	<i>*</i>		
<i>Math function divide</i>	<i>/</i>		
<i>Math bracket</i>	<i>)</i>		
<i>Return</i>	<i>RET *</i>		

SOURCE	Function	HP-IB code	SWEEP TRIGGER	TRG
	SWEEP TYPE	STY *	SWEEP RESET	RST
	Linear Sweep	ST1	dBm	DBM
	Alternate Sweep	ST2	dBV (rms)	DBV
	Log Sweep	ST3	Volt (rms)	V
	Amplitude Sweep	ST4	milli-Volt (rms)	MV
	CW	ST5	micro-Volt (rms)	UV
	Sweep Direction Up	SUP	nano-Volt (rms)	NV
	Sweep Direction Down	SDN	seconds	SEC
	SWEEP MODE	SMD *	milliseconds	MSC
	Continuous	SM1	MHz	MHZ
	Single Sweep	SM2	kHz	KHZ
	Manual Sweep	SM3	Hz	HZ
	Manual Frequency (entry)	MFR	exponent	E
	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		

SOURCE SUFFIX UNITS**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 M Ω	IR2
Impedance A = 50 Ω	IA1
Impedance A = 1 M Ω	IA2
Impedance B = 50 Ω	IB1
Impedance B = 1 M Ω	IB2
Clear Trip, Receiver	CTR

LENGTH	LEN *	SAVE INSTRUMENT STATE	SAV *
Length R (entry)	LNR	Save state in register 1	SV1
Length R Off	LRO	Save state in register 2	SV2
Length R On	LR1	Save state in register 3	SV3
Length A (entry)	LNA	Save state in register 4	SV4
Length A Off	LAO	Save state in register 5	SV5
Length A On	LA1		
Length B (entry)	LNB	RECALL INSTRUMENT STATE	RCL *
Length B Off	LBO	Recall old (last) state	RLS
Length B On	LB1	Recall register 1	RC1
Length Step Size (entry)	LNS	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 *
RECEIVER SUFFIX UNITS			
meters	MET		
centimeters	CM		
seconds	SEC		
milliseconds	MSC		
microseconds	USC		
nanoseconds	NSC		
exponent	E		
INSTRUMENT STATE	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	BPO		
Beeper on	BP1		
Service Diagnostics menu	SDG *		
Source Leveling off	SLO		
Source Leveling on	SL1		
Settling Time off	SEO		
Settling Time on	SE1		
Synthesizer Diagnostics off	SYO		
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	SPO		
S-Parameters On	SP1		

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	GRO
Graticule on	GR1
Characters off	CHO
Characters on	CH1
Annotation off	ANO
Annotation on	AN1
Annotation Clear	ANC
Menu off	MNO
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	BDO
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	ERO
Error Reporting mode 1	ER1
Error Reporting mode 2	ER2
Error reporting mode 3	ER3
Send SRQ	SRQ