



ผลการตรวจสอบเครื่องวัดทางไฟฟ้า

8.1 การตรวจสอบมัลติมิเตอร์ (HP3455A)

1) แจ้งข้อมูลรายละเอียดการตรวจสอบ HP3455A ภายในแฟ้มมีข้อมูลที่ใช้สำหรับ  
การตรวจสอบ HP3455A ดังต่อไปนี้

H, "HP3455A OPERATIONAL VERIFICATION TESTS"  
M, DCA, "DC Accuracy Test", "Please set address of HP3455A to 4,\ and  
set address of 5440B to 12.\ \ Press any key when ready..."  
M, ACV, "AC Voltmeter Accuracy Test", "Please set address of HP3455A to  
4,\ and set address of 5200A to 13.\ \ Press any key when ready..."  
M, OHM, "OHMS Accuracy Test", "Please set address of HP3455A to 4,\ and  
set address of 5450A to 3.\ \ Press any key when ready..."  
  
E, inst, dev4, 12, "HP3455A Digital Voltmeter"  
E, ref1, dev12, 12, "5440B Direct Volts Calibrators"  
E, ref2, dev3, 12, "5450A Resistance Calibrators"  
E, ref3, dev13, 12, "5200A Programmable AC Calibrator"  
  
P, DCA, 001, "Step Level Range High Res. High Limit Low Limit  
Reading Test"  
D, DCA, 001, " 0.1V 0.1V OFF (P) ", " .100011 ", " .099989 ""  
, "\ GUARD ON\  
D, DCA, 002, " 1V 1V ON (P) ", " 1.000064 ", " 0.999936 ""  
D, DCA, 003, " 1V 10V ON (P) ", " 1.00008 ", " 0.99992 ""  
D, DCA, 004, " 5V 10V ON (P) ", " 5.00028 ", " 4.99972 ""  
D, DCA, 005, " 10V 10V ON (P) ", " 10.00053 ", " 9.99947 ""  
D, DCA, 006, " 10V 10V OFF (P) ", " 10.0006 ", " 9.9994 ""  
D, DCA, 007, " -0.1V 0.1V OFF (N) ", " -.099989 ", " -1.00011 ""  
, "\ GUARD OFF; connect the 3455A GUARD terminal to the High INPUT  
terminal,\ Reverse the 3455A INPUT connection to negative\ Press any  
key when ready..."  
D, DCA, 008, " -1V 1V ON (N) ", " -0.999936 ", " -1.000064 ""  
D, DCA, 009, " -1V 10V ON (N) ", " -0.99992 ", " -1.00008 ""  
D, DCA, 010, " -5V 10V ON (N) ", " -4.99972 ", " -5.00028 ""  
D, DCA, 011, " -10V 10V ON (N) ", " -9.99947 ", " -10.00053 ""  
D, DCA, 012, " -10V 10V OFF (N) ", " -9.9994 ", " -10.0006 ""  
D, DCA, 013, " 100V 100V ON (P) ", " 100.0073 ", " 99.9927 ""  
D, DCA, 014, " 1000V 1000V ON (P) ", " 1000.073 ", " 999.927 ""  
, "\ GUARD OFF\

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T, DCA, 001, devclr(inst); delays(1); send(inst,"F1R1HOA1T1");, " "
T, DCA, 001, devclr(ref1); delays(3); send(ref1,"SOUT 0.1; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 002, send(inst,"F1R2H1A1T1"); send(ref1,"SOUT 1; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 003, send(inst,"F1R3H1A1T1"); send(ref1,"SOUT 1; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 004, send(inst,"F1R3H1A1T1"); send(ref1,"SOUT 5; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 005, send(inst,"F1R3H1A1T1"); send(ref1,"SOUT 10; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 006, send(inst,"F1R3HOA1T1"); send(ref1,"SOUT 10; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 007, send(inst,"F1R1HOA1T1"); send(ref1,"SOUT -0.1; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 008, send(inst,"F1R2H1A1T1"); send(ref1,"SOUT -1; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 009, send(inst,"F1R3H1A1T1"); send(ref1,"SOUT -1; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 010, send(inst,"F1R3H1A1T1"); send(ref1,"SOUT -5; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 011, send(inst,"F1R3H1A1T1"); send(ref1,"SOUT -10; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 012, send(inst,"F1R3HOA1T1"); send(ref1,"SOUT -10; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 013, send(inst,"F1R4H1A0"); send(ref1,"SOUT 100; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 014, send(inst,"F1R5H1A0"); send(ref1,"SOUT 1000; OPER");
delays(3); receive(inst); send(ref1,"STBY");
T, DCA, 014, local(inst); local(ref1);

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P, ACV, 001, "Step Freq. Level Range Func. High Limit Low Limit  
Reading Test"

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D, ACV, 001, " 30Hz 1V 1V ACV ", " 1.00100 ", " 0.99900 "
, " GUARD ON and Connect the output of AC \ Caribrator to the 3455A
front panel \ INPUT. \ \ Press any key when ready..."
D, ACV, 002, " 100kHz 1V 1V ACV ", " 1.00600 ", " 0.99400 "
D, ACV, 003, " 100kHz 1V 1V FAST ", " 1.00600 ", " 0.99400 "
D, ACV, 004, " 350kHz 5V 10V ACV ", " 5.3000 ", " 4.7000 "
D, ACV, 005, " 350kHz 5V 10V FAST ", " 5.3000 ", " 4.7000 "
D, ACV, 006, " 30Hz 5V 10V ACV ", " 5.0075 ", " 4.9925 "
D, ACV, 007, " 100kHz 5V 10V ACV ", " 5.0350 ", " 4.9650 "
D, ACV, 008, " 100kHz 5V 10V FAST ", " 5.0350 ", " 4.9650 "
D, ACV, 009, " 1MHz 1V 1V ACV ", " 1.09100 ", " 0.90900 "
D, ACV, 010, " 1MHz 1V 1V FAST ", " 1.09100 ", " 0.90900 "
D, ACV, 011, " 1MHz 5V 10V ACV ", " 5.6100 ", " 4.3900 "
D, ACV, 012, " 1MHz 5V 10V FAST ", " 5.6100 ", " 4.3900 "
D, ACV, 013, " 30Hz 10V 10V ACV ", " 10.0100 ", " 9.9900 "
D, ACV, 014, " 20kHz 10V 10V ACV ", " 10.0100 ", " 9.9900 "
D, ACV, 015, " 20kHz 10V 10V FAST ", " 10.0100 ", " 9.9900 "
D, ACV, 016, " 100kHz 10V 10V ACV ", " 10.0600 ", " 9.9400 "
D, ACV, 017, " 100kHz 10V 10V FAST ", " 10.0600 ", " 9.9400 "
D, ACV, 018, " 30Hz 100V 100V ACV ", " 100.100 ", " 99.900 "
D, ACV, 019, " 100kHz 100V 100V ACV ", " 100.600 ", " 99.400 "
D, ACV, 020, " 100kHz 100V 100V FAST ", " 100.600 ", " 99.400 "

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D, ACV, 021, " 30Hz 1000V 1000V ACV ", " 1002.50 ", " 997.50 "
, " Disconnect output of 5200A from hp3455A \connect output of 5205A to
hp3455A\Observe connect it propely\Becareful HIGH VOLTAGE"
D, ACV, 022, " 10kHz 1000V 1000V ACV ", " 1002.50 ", " 997.50 "
D, ACV, 023, " 10kHz 1000V 1000V FAST ", " 1002.50 ", " 997.50 "

T, ACV, 001, devclr(inst); delays(1); send(inst,"F2R2");, " "
T, ACV, 001, devclr(ref3); send(ref3,"1V30HN"); delays(2); receive(inst);
send(ref3,"S");
T, ACV, 002, send(inst,"F2R2"); send(ref3,"1V1E+5HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 003, send(inst,"F3R2"); send(ref3,"1V1E+5HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 004, send(inst,"F2R3"); send(ref3,"5V3.5E+5HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 005, send(inst,"F3R3"); send(ref3,"5V3.5E+5HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 006, send(inst,"F2R3"); send(ref3,"5V30HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 007, send(inst,"F2R3"); send(ref3,"5V1E+5HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 008, send(inst,"F3R3"); send(ref3,"5V1E+5HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 009, send(inst,"F2R2"); send(ref3,"1V1E+6HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 010, send(inst,"F3R2"); send(ref3,"1V1E+6HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 011, send(inst,"F2R3"); send(ref3,"5V1E+6HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 012, send(inst,"F3R3"); send(ref3,"5V1E+6HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 013, send(inst,"F2R3"); send(ref3,"10V30HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 014, send(inst,"F2R3"); send(ref3,"10V2E+4HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 015, send(inst,"F3R3"); send(ref3,"10V2E+4HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 016, send(inst,"F2R3"); send(ref3,"10V1E+5HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 017, send(inst,"F3R3"); send(ref3,"10V1E+5HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 018, send(inst,"F2R4"); send(ref3,"100V30HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 019, send(inst,"F2R4"); send(ref3,"100V1E+5HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 020, send(inst,"F3R4"); send(ref3,"100V1E+5HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 021, send(inst,"F2R5"); send(ref3,"1000V30HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 022, send(inst,"F2R5"); send(ref3,"1000V1E+4HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 023, send(inst,"F3R5"); send(ref3,"1000V1E+4HN"); delays(3);
receive(inst); send(ref3,"S");
T, ACV, 023, local(inst); local(ref3);

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P, OHM, 001, "Step Resistor Range Func. High Limit Low Limit Reading Test"
D, OHM, 001, " 100 KOHM 100 2-Wire ", " 100004.5 ", " 99995.5 "
, "\ Two-Wire Ohms \"
D, OHM, 002, " 100 OHM 0.1 4-Wire ", " 100.010 ", " 99.990 "
, "\ Four-Wire Ohms \"
D, OHM, 003, " 1 KOHM 1 4-Wire ", " 1000.040 ", " 999.960 "
D, OHM, 004, " 10 KOHM 10 4-Wire ", " 10000.65 ", " 9999.35 "
D, OHM, 005, " 100 KOHM 100 4-Wire ", " 100004.1 ", " 99995.9 "
D, OHM, 006, " 1 MOHM 1 k 4-Wire ", " 1000140 ", " 999860 "
D, OHM, 007, " 10 MOHM 10 k 4-Wire ", " 10010050 ", " 9989950 "

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T, OHM, 001, devclr(inst); delays(1); send(inst, "F4R4H1");, " "
T, OHM, 001, devclr(ref2);delays(3);send(ref2, "6");delays(3);receive(inst);
T, OHM, 002, send(inst, "F5R1H0"); send(ref2, "3"); delays(3); receive(inst);
T, OHM, 003, send(inst, "F5R2H1"); send(ref2, "4"); delays(3); receive(inst);
T, OHM, 004, send(inst, "F5R3H1"); send(ref2, "5"); delays(3); receive(inst);
T, OHM, 005, send(inst, "F5R4H1"); send(ref2, "6"); delays(3); receive(inst);
T, OHM, 006, send(inst, "F5R5H1"); send(ref2, "7"); delays(3); receive(inst);
T, OHM, 007, send(inst, "F5R6H1"); send(ref2, "8"); delays(3); receive(inst);
T, OHM, 007, devclr(inst); devclr(ref2); local(inst); local(ref2);

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## 2) ผลการตรวจสอบ

### (1) การตรวจสอบความถูกต้องในการวัดโพตรง

#### HP3455A OPERATIONAL VERIFICATION TESTS DC Accuracy Test

DATE : 08/21/92

TIME : 10:21:28

PAGE 1

Step	Level	Range	High Res.	High Limit	Low Limit	Reading	Test
001	0.1V	0.1V	OFF (P)	.100011	.099989	+0.099997	Pass
002	1V	1V	ON (P)	1.000064	0.999936	+0.999915	Fail
003	1V	10V	ON (P)	1.00008	0.99992	+0.999980	Pass
004	5V	10V	ON (P)	5.00028	4.99972	+5.000060	Pass
005	10V	10V	ON (P)	10.00053	9.99947	+10.000980	Fail
006	10V	10V	OFF (P)	10.0006	9.9994	+10.000100	Pass
007	-0.1V	0.1V	OFF (N)	-.099989	-.100011	-0.100045	Fail
008	-1V	1V	ON (N)	-0.999936	-1.000064	-1.000021	Pass
009	-1V	10V	ON (N)	-0.99992	-1.00008	-0.999990	Pass
010	-5V	10V	ON (N)	-4.99972	-5.00028	-5.001260	Fail
011	-10V	10V	ON (N)	-9.99947	-10.00053	-9.999920	Pass
012	-10V	10V	OFF (N)	-9.9994	-10.0006	-10.000100	Pass
013	100V	100V	ON (P)	100.0073	99.9927	+91.163800	Fail
014	1000V	1000V	ON (P)	1000.073	999.927	+999.952000	Pass

## (2) การตรวจสอบความถูกต้องในการวัดโวลต์สลับ

## HP3455A OPERATIONAL VERIFICATION TESTS

AC Voltmeter Accuracy Test

DATE : 08/21/92

TIME : 10:26:07

PAGE 1

Step	Freq.	Level	Range	Func.	High Limit	Low Limit	Reading	Test
001	30Hz	1V	1V	ACV	1.00100	0.99900	+0.999170	Pass
002	100kHz	1V	1V	ACV	1.00600	0.99400	+0.994190	Pass
003	100kHz	1V	1V	FAST	1.00600	0.99400	+0.994200	Pass
004	350kHz	5V	10V	ACV	5.3000	4.7000	+5.001000	Pass
005	350kHz	5V	10V	FAST	5.3000	4.7000	+5.001000	Pass
006	30Hz	5V	10V	ACV	5.0075	4.9925	+5.001540	Pass
007	100kHz	5V	10V	ACV	5.0350	4.9650	+5.009230	Pass
008	100kHz	5V	10V	FAST	5.0350	4.9650	+5.010700	Pass
009	1MHz	1V	1V	ACV	1.09100	0.90900	+0.958500	Pass
010	1MHz	1V	1V	FAST	1.09100	0.90900	+1.005700	Pass
011	1MHz	5V	10V	ACV	5.6100	4.3900	+4.906630	Pass
012	1MHz	5V	10V	FAST	5.6100	4.3900	+4.782500	Pass
013	30Hz	10V	10V	ACV	10.0100	9.9900	+9.995040	Pass
014	20kHz	10V	10V	ACV	10.0100	9.9900	+9.995720	Pass
015	20kHz	10V	10V	FAST	10.0100	9.9900	+9.990480	Pass
016	100kHz	10V	10V	ACV	10.0600	9.9400	+10.01340	Pass
017	100kHz	10V	10V	FAST	10.0600	9.9400	+10.05270	Pass
018	30Hz	100V	100V	ACV	100.100	99.900	+99.98300	Pass
019	100kHz	100V	100V	ACV	100.600	99.400	+99.66500	Pass
020	100kHz	100V	100V	FAST	100.600	99.400	+99.65700	Pass
021	30Hz	1000V	1000V	ACV	1002.50	997.50	+1000.900	Pass

## (3) การตรวจสอบความถูกต้องในการวัดความต้านทาน

## HP3455A OPERATIONAL VERIFICATION TESTS

OHMS Accuracy Test

DATE : 08/21/92

TIME : 10:57:01

PAGE 1

Step	Resistor	Range	Func.	High Limit	Low Limit	Reading	Test
001	100 KOHM	100	2-Wire	100004.5	99995.5	+1.000336E+005	Fail
002	100 OHM	0.1	4-Wire	100.010	99.990	+100.003000	Pass
003	1 KOHM	1	4-Wire	1000.040	999.960	+1000.004000	Pass
004	10 KOHM	10	4-Wire	10000.65	9999.35	+9999.950000	Pass
005	100 KOHM	100	4-Wire	100004.1	99995.9	+1.000339E+005	Fail
006	1 MOHM	1 k	4-Wire	1000140	999860	+1.000014E+006	Pass
007	10 MOHM	10 k	4-Wire	10010050	9989950	+9.981820E+007	Fail

## 8.2 การตรวจสอบเครื่องกำเนิดสัญญาณ (HP8656B)

### 1) พิมพ์ข้อมูลรายละเอียดการตรวจสอบ HP8656B ภายใตพิมพ์มีข้อมูลดังต่อไปนี้

H, "HP8656B PERFORMANCE TESTS"  
 M, RF1, "Output Level & Flatness ( 10 MHz)", "Please set address of HP8656B to 14,\ and set address of HP8902A to 13.\ \ Press any key when ready..."  
 M, RF2, "Output Level & Flatness (123 MHz)", "Please set address of HP8656B to 14,\ and set address of HP8902A to 13.\ \ Press any key when ready..."  
 M, RF3, "Output Level & Flatness (124 MHz)", "Please set address of HP8656B to 14,\ and set address of HP8902A to 13.\ \ Press any key when ready..."  
 M, RF4, "Output Level & Flatness (990 MHz)", "Please set address of HP8656B to 14,\ and set address of HP8902A to 13.\ \ Press any key when ready..."  
 M, MAM, "Modulation Test (AM Accuracy)", "Please set address of HP8656B to 14,\ and set address of HP8902A to 13.\ \ Press any key when ready..."  
 M, MIP, "Incidental Phase Modulation Test", "Please set address of HP8656B to 14,\ and set address of HP8902A to 13.\ \ Press any key when ready..."  
 M, AMD, "AM Distortion Test", "Please set address of HP8656B to 14,\ and set address of HP8902A to 13.\ \ Press any key when ready..."  
 M, FMI, "FM Indicator Accuracy Test", "Please set address of HP8656B to 14,\ and set address of HP8902A to 13.\ \ Press any key when ready..."

E, inst, dev14, 12, "HP8656B Signal Generator"  
 E, ref, dev13, 14, "HP8902A Moduration Analyzer"

P, RF1, 001, "Step Reading	RF Output Test"	Frequency	Max.(dBm)	Min.(dBm)	
D, RF1, 001, "		10 MHz	," +14.5	," +11.5	"
D, RF1, 002, "		10 MHz	," +9.5	," +6.5	"
D, RF1, 003, "		10 MHz	," +4.5	," +1.5	"
D, RF1, 004, "		10 MHz	," -0.5	," -3.5	"
D, RF1, 005, "		10 MHz	," -5.5	," -8.5	"
D, RF1, 006, "		10 MHz	," -10.5	," -13.5	"
D, RF1, 007, "		10 MHz	," -15.5	," -18.5	"
D, RF1, 008, "		10 MHz	," -20.5	," -23.5	"
D, RF1, 009, "		10 MHz	," -25.5	," -28.5	"
D, RF1, 010, "		10 MHz	," -30.5	," -33.5	"
D, RF1, 011, "		10 MHz	," -35.5	," -38.5	"
D, RF1, 012, "		10 MHz	," -40.5	," -43.5	"
D, RF1, 013, "		10 MHz	," -45.5	," -48.5	"
D, RF1, 014, "		10 MHz	," -50.5	," -53.5	"
D, RF1, 015, "		10 MHz	," -55.5	," -58.5	"
D, RF1, 016, "		10 MHz	," -60.5	," -63.5	"
D, RF1, 017, "		10 MHz	," -65.5	," -68.5	"
D, RF1, 018, "		10 MHz	," -70.5	," -73.5	"
D, RF1, 019, "		10 MHz	," -75.5	," -78.5	"
D, RF1, 020, "		10 MHz	," -80.5	," -83.5	"
D, RF1, 021, "		10 MHz	," -85.5	," -88.5	"
D, RF1, 022, "		10 MHz	," -90.5	," -93.5	"
D, RF1, 023, "		10 MHz	," -95.5	," -98.5	"
D, RF1, 024, "		10 MHz	," -100.5	," -103.5	"
D, RF1, 025, "		10 MHz	," -105.5	," -108.5	"

D, RF1, 026, "	10 MHz	","-110.5	","-113.5	"
D, RF1, 027, "	10 MHz	","-115.5	","-118.5	"
D, RF1, 028, "	10 MHz	","-120.5	","-123.5	"
D, RF1, 029, "	10 MHz	","-125.5	","-128.5	"

T, RF1, 001, devclr(ref); delays(3); send(ref,"M4 LG"); devclr(inst);  
 delays(3);, " "  
 T, RF1, 001, send(inst,"FR 10 MZ"); send(inst,"AP 13 DM"); delays(1);  
 T, RF1, 001, send(inst,"AP IS 5 DM S4"); delays(3); receive(ref);  
 T, RF1, 002, send(ref,"S4"); send(inst,"AP DN"); send(ref,"C1");  
 delays(10); receive(ref);  
 T, RF1, 003, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 004, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 005, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 006, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 007, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 008, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 009, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 010, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 011, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 012, send(inst,"AP DN"); send(ref,"C1"); delays(10); receive(ref);  
 T, RF1, 013, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 014, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 015, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 016, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 017, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 018, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 019, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 020, send(inst,"AP DN"); send(ref,"C1"); delays(12); receive(ref);  
 T, RF1, 021, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 022, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 023, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 024, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 025, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 026, send(inst,"AP DN"); delays(3); receive(ref);  
 T, RF1, 027, send(inst,"AP DN"); delays(5); receive(ref);  
 T, RF1, 028, send(inst,"AP DN"); delays(5); receive(ref);  
 T, RF1, 029, send(inst,"AP DN"); delays(15); receive(ref);  
 T, RF1, 029, devclr(inst); devclr(ref); local(inst); local(ref);

P, RF2, 001, "Step	RF Output Frequency	Max.(dBm)	Min.(dBm)	
Reading	Test"			
D, RF2, 001, "	123 MHz	"," +14.5	"," +11.5	"
D, RF2, 002, "	123 MHz	"," +9.5	"," +6.5	"
D, RF2, 003, "	123 MHz	"," +4.5	"," +1.5	"
D, RF2, 004, "	123 MHz	"," -0.5	"," -3.5	"
D, RF2, 005, "	123 MHz	"," -5.5	"," -8.5	"
D, RF2, 006, "	123 MHz	"," -10.5	"," -13.5	"
D, RF2, 007, "	123 MHz	"," -15.5	"," -18.5	"
D, RF2, 008, "	123 MHz	"," -20.5	"," -23.5	"
D, RF2, 009, "	123 MHz	"," -25.5	"," -28.5	"
D, RF2, 010, "	123 MHz	"," -30.5	"," -33.5	"
D, RF2, 011, "	123 MHz	"," -35.5	"," -38.5	"
D, RF2, 012, "	123 MHz	"," -40.5	"," -43.5	"
D, RF2, 013, "	123 MHz	"," -45.5	"," -48.5	"
D, RF2, 014, "	123 MHz	"," -50.5	"," -53.5	"

D, RF2, 015, "	123 MHz	"," -55.5	"," -58.5	"
D, RF2, 016, "	123 MHz	"," -60.5	"," -63.5	"
D, RF2, 017, "	123 MHz	"," -65.5	"," -68.5	"
D, RF2, 018, "	123 MHz	"," -70.5	"," -73.5	"
D, RF2, 019, "	123 MHz	"," -75.5	"," -78.5	"
D, RF2, 020, "	123 MHz	"," -80.5	"," -83.5	"
D, RF2, 021, "	123 MHz	"," -85.5	"," -88.5	"
D, RF2, 022, "	123 MHz	"," -90.5	"," -93.5	"
D, RF2, 023, "	123 MHz	"," -95.5	"," -98.5	"
D, RF2, 024, "	123 MHz	"," -100.5	"," -103.5	"
D, RF2, 025, "	123 MHz	"," -105.5	"," -108.5	"
D, RF2, 026, "	123 MHz	"," -110.5	"," -113.5	"
D, RF2, 027, "	123 MHz	"," -115.5	"," -118.5	"
D, RF2, 028, "	123 MHz	"," -120.5	"," -123.5	"
D, RF2, 029, "	123 MHz	"," -125.5	"," -128.5	"

T, RF2, 001, devclr(ref); delays(3); send(ref,"M4 LG"); devclr(inst);  
delays(3); " "

T, RF2, 001, send(inst,"FR 123 MZ"); send(inst,"AP 13 DM"); delays(1);

T, RF2, 001, send(inst,"AP IS 5 DM S4"); delays(3); receive(ref);

T, RF2, 002, send(ref,"S4"); send(inst,"AP DN"); send(ref,"C1");  
delays(10); receive(ref);

T, RF2, 003, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 004, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 005, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 006, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 007, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 008, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 009, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 010, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 011, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 012, send(inst,"AP DN"); send(ref,"C1"); delays(10); receive(ref);

T, RF2, 013, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 014, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 015, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 016, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 017, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 018, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 019, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 020, send(inst,"AP DN"); send(ref,"C1"); delays(10); receive(ref);

T, RF2, 021, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 022, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 023, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 024, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 025, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 026, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 027, send(inst,"AP DN"); delays(5); receive(ref);

T, RF2, 028, send(inst,"AP DN"); delays(3); receive(ref);

T, RF2, 029, send(inst,"AP DN"); delays(15); receive(ref);

T, RF2, 029, devclr(inst); devclr(ref); local(inst); local(ref);

P, RF3, 001, "Step	RF Output Frequency	Max.(dBm)	Min.(dBm)	
Reading	Test"			
D, RF3, 001, "	124 MHz	"," +14.5	"," +11.5	"
D, RF3, 002, "	124 MHz	"," +9.5	"," +6.5	"
D, RF3, 003, "	124 MHz	"," +4.0	"," +1.0	"



D, RF3, 004, "	124 MHz	," +1.0	," -3.0	"
D, RF3, 005, "	124 MHz	," -6.0	," -8.0	"
D, RF3, 006, "	124 MHz	," -11.5	," -13.0	"
D, RF3, 007, "	124 MHz	," -16.0	," -18.0	"
D, RF3, 008, "	124 MHz	," -21.0	," -23.0	"
D, RF3, 009, "	124 MHz	," -26.0	," -28.0	"
D, RF3, 010, "	124 MHz	," -31.0	," -33.0	"
D, RF3, 011, "	124 MHz	," -36.0	," -38.0	"
D, RF3, 012, "	124 MHz	," -41.0	," -43.0	"
D, RF3, 013, "	124 MHz	," -46.0	," -48.0	"
D, RF3, 014, "	124 MHz	," -51.0	," -53.0	"
D, RF3, 015, "	124 MHz	," -56.0	," -58.0	"
D, RF3, 016, "	124 MHz	," -61.0	," -63.0	"
D, RF3, 017, "	124 MHz	," -66.0	," -68.0	"
D, RF3, 018, "	124 MHz	," -71.0	," -73.0	"
D, RF3, 019, "	124 MHz	," -76.0	," -78.0	"
D, RF3, 020, "	124 MHz	," -81.0	," -83.0	"
D, RF3, 021, "	124 MHz	," -86.0	," -88.0	"
D, RF3, 022, "	124 MHz	," -91.0	," -93.0	"
D, RF3, 023, "	124 MHz	," -96.0	," -98.0	"
D, RF3, 024, "	124 MHz	," -101.0	," -103.0	"
D, RF3, 025, "	124 MHz	," -106.0	," -108.0	"
D, RF3, 026, "	124 MHz	," -111.0	," -113.0	"
D, RF3, 027, "	124 MHz	," -116.0	," -118.0	"
D, RF3, 028, "	124 MHz	," -121.0	," -123.0	"
D, RF3, 029, "	124 MHz	," -125.5	," -128.5	"

T, RF3, 001, devclr(ref); delays(3); send(ref,"M4 LG"); devclr(inst); delays(3); , " "

T, RF3, 001, send(inst,"FR 124 MZ"); send(inst,"AP 13 DM"); delays(1);

T, RF3, 001, send(inst,"AP IS 5 DM S4"); delays(3); receive(ref);

T, RF3, 002, send(ref,"S4"); send(inst,"AP DN"); send(ref,"C1"); delays(10); receive(ref);

T, RF3, 003, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 004, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 005, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 006, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 007, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 008, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 009, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 010, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 011, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 012, send(inst,"AP DN"); send(ref,"C1"); delays(10); receive(ref);

T, RF3, 013, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 014, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 015, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 016, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 017, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 018, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 019, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 020, send(inst,"AP DN"); send(ref,"C1"); delays(10); receive(ref);

T, RF3, 021, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 022, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 023, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 024, send(inst,"AP DN"); delays(3); receive(ref);

T, RF3, 025, send(inst,"AP DN"); delays(3); receive(ref);

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T, RF3, 026, send(inst,"AP DN"); delays(3); receive(ref);
T, RF3, 027, send(inst,"AP DN"); delays(3); receive(ref);
T, RF3, 028, send(inst,"AP DN"); delays(3); receive(ref);
T, RF3, 029, send(inst,"AP DN"); delays(15); receive(ref);
T, RF3, 029, devclr(inst); devclr(ref); local(inst); local(ref);
```

P, RF4, 001, "Step Reading	RF Output Frequency Test"	Max.(dBm)	Min.(dBm)	
D, RF4, 001, "	990 MHz	," +14.5	," +11.5	"
D, RF4, 002, "	990 MHz	," +9.5	," +6.5	"
D, RF4, 003, "	990 MHz	," +4.0	," +1.0	"
D, RF4, 004, "	990 MHz	," +1.0	," -3.0	"
D, RF4, 005, "	990 MHz	," -6.0	," -8.0	"
D, RF4, 006, "	990 MHz	," -11.5	," -13.0	"
D, RF4, 007, "	990 MHz	," -16.0	," -18.0	"
D, RF4, 008, "	990 MHz	," -21.0	," -23.0	"
D, RF4, 009, "	990 MHz	," -26.0	," -28.0	"
D, RF4, 010, "	990 MHz	," -31.0	," -33.0	"
D, RF4, 011, "	990 MHz	," -36.0	," -38.0	"
D, RF4, 012, "	990 MHz	," -41.0	," -43.0	"
D, RF4, 013, "	990 MHz	," -46.0	," -48.0	"
D, RF4, 014, "	990 MHz	," -51.0	," -53.0	"
D, RF4, 015, "	990 MHz	," -56.0	," -58.0	"
D, RF4, 016, "	990 MHz	," -61.0	," -63.0	"
D, RF4, 017, "	990 MHz	," -66.0	," -68.0	"
D, RF4, 018, "	990 MHz	," -71.0	," -73.0	"
D, RF4, 019, "	990 MHz	," -76.0	," -78.0	"
D, RF4, 020, "	990 MHz	," -81.0	," -83.0	"
D, RF4, 021, "	990 MHz	," -86.0	," -88.0	"
D, RF4, 022, "	990 MHz	," -91.0	," -93.0	"
D, RF4, 023, "	990 MHz	," -96.0	," -98.0	"
D, RF4, 024, "	990 MHz	," -101.0	," -103.0	"
D, RF4, 025, "	990 MHz	," -106.0	," -108.0	"
D, RF4, 026, "	990 MHz	," -111.0	," -113.0	"
D, RF4, 027, "	990 MHz	," -116.0	," -118.0	"
D, RF4, 028, "	990 MHz	," -121.0	," -123.0	"
D, RF4, 029, "	990 MHz	," -125.5	," -128.5	"

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T, RF4, 001, devclr(ref); delays(3); send(ref,"M4 LG"); devclr(inst);
delays(3);, " "
T, RF4, 001, send(inst,"FR 990 MZ"); send(inst,"AP 13 DM"); delays(1);
T, RF4, 001, send(inst,"AP IS 5 DM S4"); delays(3); receive(ref);
T, RF4, 002, send(ref,"S4"); send(inst,"AP DN"); send(ref,"C1");
delays(10); receive(ref);
T, RF4, 003, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 004, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 005, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 006, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 007, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 008, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 009, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 010, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 011, send(inst,"AP DN"); send(ref,"C1"); delays(10); receive(ref);
T, RF4, 012, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 013, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 014, send(inst,"AP DN"); delays(3); receive(ref);
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T, RF4, 015, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 016, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 017, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 018, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 019, send(inst,"AP DN"); send(ref,"C1"); delays(10); receive(ref);
T, RF4, 020, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 021, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 022, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 023, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 024, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 025, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 026, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 027, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 028, send(inst,"AP DN"); delays(3); receive(ref);
T, RF4, 029, send(inst,"AP DN"); delays(15); receive(ref);
T, RF4, 029, devclr(inst); devclr(ref); local(inst); local(ref);

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P,	MAM,	001,"Step Test"	AM Depth	Frequency	Maximum	Minimum	Actual
D,	MAM,	001, "	10%	100 MHz	", " 12.4%	", " 7.6%	"
D,	MAM,	002, "	30%	100 MHz	", " 33.2%	", " 26.8%	"
D,	MAM,	003, "	70%	100 MHz	", " 74.8%	", " 65.2%	"
D,	MAM,	004, "	90%	100 MHz	", " 95.6%	", " 84.4%	"
D,	MAM,	005, "	10%	240 MHz	", " 12.4%	", " 7.6%	"
D,	MAM,	006, "	30%	240 MHz	", " 33.2%	", " 26.8%	"
D,	MAM,	007, "	70%	240 MHz	", " 74.8%	", " 65.2%	"
D,	MAM,	008, "	90%	240 MHz	", " 95.6%	", " 84.4%	"
D,	MAM,	009, "	10%	400 MHz	", " 12.4%	", " 7.6%	"
D,	MAM,	010, "	30%	400 MHz	", " 33.2%	", " 26.8%	"
D,	MAM,	011, "	70%	400 MHz	", " 74.8%	", " 65.2%	"
D,	MAM,	012, "	90%	400 MHz	", " 95.6%	", " 84.4%	"
D,	MAM,	013, "	10%	990 MHz	", " 12.4%	", " 7.6%	"
D,	MAM,	014, "	30%	990 MHz	", " 33.2%	", " 26.8%	"
D,	MAM,	015, "	70%	990 MHz	", " 74.8%	", " 65.2%	"
D,	MAM,	016, "	90%	990 MHz	", " 95.6%	", " 84.4%	"

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T, MAM, 001, devclr(ref); send(ref,"IP"); delays(1); send(ref,"M1 D1 H2
L2 PO AU");, " "
T, MAM, 001, devclr(inst); delays(1); send(inst,"FR 100 MZ"); delays(1);
T, MAM, 001, send(inst,"AP 7 DM"); delays(1); send(inst,"S3 AM 10%");
delays(3); receive(ref);
T, MAM, 002, send(inst,"AM 30%"); delays(3); receive(ref);
T, MAM, 003, send(inst,"AM 70%"); delays(3); receive(ref);
T, MAM, 004, send(inst,"AM 90%"); delays(3); receive(ref);
T, MAM, 005, send(inst,"FR 240 MZ"); delays(1); send(inst,"AM 10%");
delays(3); receive(ref);
T, MAM, 006, send(inst,"AM 30%"); delays(3); receive(ref);
T, MAM, 007, send(inst,"AM 70%"); delays(3); receive(ref);
T, MAM, 008, send(inst,"AM 90%"); delays(3); receive(ref);
T, MAM, 009, send(inst,"FR 400 MZ"); delays(1); send(inst,"AM 10%");
delays(3); receive(ref);
T, MAM, 010, send(inst,"AM 30%"); delays(3); receive(ref);
T, MAM, 011, send(inst,"AM 70%"); delays(3); receive(ref);
T, MAM, 012, send(inst,"AM 90%"); delays(3); receive(ref);
T, MAM, 013, send(inst,"FR 990 MZ"); delays(1); send(inst,"AM 10%");
delays(3); receive(ref);

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T, MAM, 014, send(inst,"AM 30%"); delays(3); receive(ref);  
 T, MAM, 015, send(inst,"AM 70%"); delays(3); receive(ref);  
 T, MAM, 016, send(inst,"AM 90%"); delays(3); receive(ref);  
 T, MAM, 016, devclr(inst); devclr(ref); local(inst); local(ref);

P	MIP	Step	Sig.Gen.Frequency	Maximum	Actual	Test"
D	MIP	001	150 kHz	" 0.3	" "	
D	MIP	002	250 kHz	" 0.3	" "	
D	MIP	003	350 kHz	" 0.3	" "	
D	MIP	004	450 kHz	" 0.3	" "	
D	MIP	005	550 kHz	" 0.3	" "	
D	MIP	006	650 kHz	" 0.3	" "	
D	MIP	007	750 kHz	" 0.3	" "	
D	MIP	008	850 kHz	" 0.3	" "	
D	MIP	009	950 kHz	" 0.3	" "	
D	MIP	010	10 MHz	" 0.3	" "	
D	MIP	011	20 MHz	" 0.3	" "	
D	MIP	012	30 MHz	" 0.3	" "	
D	MIP	013	40 MHz	" 0.3	" "	
D	MIP	014	50 MHz	" 0.3	" "	
D	MIP	015	110 MHz	" 0.3	" "	
D	MIP	016	120 MHz	" 0.3	" "	
D	MIP	017	130 MHz	" 0.3	" "	
D	MIP	018	140 MHz	" 0.3	" "	
D	MIP	019	150 MHz	" 0.3	" "	
D	MIP	020	950 MHz	" 0.3	" "	
D	MIP	021	960 MHz	" 0.3	" "	
D	MIP	022	970 MHz	" 0.3	" "	
D	MIP	023	980 MHz	" 0.3	" "	
D	MIP	024	990 MHz	" 0.3	" "	

T, MIP, 001, devclr(ref); delays(1); send(ref,"IP"); delays(1);  
 send(ref,"M3 H2 L2 D1");, " "  
 T, MIP, 001, devclr(inst); delays(1); send(inst,"FR 150 KZ"); delays(1);  
 T, MIP, 001, send(inst,"AP 7 DM"); delays(1); send(inst,"S3 AM 30%");  
 delays(3); receive(ref);  
 T, MIP, 002, send(inst,"FR 250 KZ"); delays(3); receive(ref);  
 T, MIP, 003, send(inst,"FR 350 KZ"); delays(3); receive(ref);  
 T, MIP, 004, send(inst,"FR 450 KZ"); delays(3); receive(ref);  
 T, MIP, 005, send(inst,"FR 550 KZ"); delays(3); receive(ref);  
 T, MIP, 006, send(inst,"FR 650 KZ"); delays(3); receive(ref);  
 T, MIP, 007, send(inst,"FR 750 KZ"); delays(3); receive(ref);  
 T, MIP, 008, send(inst,"FR 850 KZ"); delays(3); receive(ref);  
 T, MIP, 009, send(inst,"FR 950 KZ"); delays(3); receive(ref);  
 T, MIP, 010, send(inst,"FR 10 MZ"); delays(3); receive(ref);  
 T, MIP, 011, send(inst,"FR 20 MZ"); delays(3); receive(ref);  
 T, MIP, 012, send(inst,"FR 30 MZ"); delays(3); receive(ref);  
 T, MIP, 013, send(inst,"FR 40 MZ"); delays(3); receive(ref);  
 T, MIP, 014, send(inst,"FR 50 MZ"); delays(3); receive(ref);  
 T, MIP, 015, send(inst,"FR 110 MZ"); delays(3); receive(ref);  
 T, MIP, 016, send(inst,"FR 120 MZ"); delays(3); receive(ref);  
 T, MIP, 017, send(inst,"FR 120 MZ"); delays(3); receive(ref);  
 T, MIP, 018, send(inst,"FR 140 MZ"); delays(3); receive(ref);  
 T, MIP, 019, send(inst,"FR 150 MZ"); delays(3); receive(ref);  
 T, MIP, 020, send(inst,"FR 950 MZ"); delays(3); receive(ref);  
 T, MIP, 021, send(inst,"FR 960 MZ"); delays(3); receive(ref);

T, MIP, 022, send(inst,"FR 970 MZ"); delays(3); receive(ref);  
 T, MIP, 023, send(inst,"FR 980 MZ"); delays(3); receive(ref);  
 T, MIP, 024, send(inst,"FR 990 MZ"); delays(3); receive(ref);  
 T, MIP, 024, devclr(inst); devclr(ref); local(inst); local(ref);

P, AMD, 001,	"Step	AM Depth	Frequency	Maximum	Actual	Test"
D, AMD, 001,	"	30%	100 MHz	"," 1.5%	"," "	
D, AMD, 002,	"	70%	100 MHz	"," 3.0%	"," "	
D, AMD, 003,	"	90%	100 MHz	"," 4.0%	"," "	
D, AMD, 004,	"	30%	240 MHz	"," 1.5%	"," "	
D, AMD, 005,	"	70%	240 MHz	"," 3.0%	"," "	
D, AMD, 006,	"	90%	240 MHz	"," 4.0%	"," "	
D, AMD, 007,	"	30%	400 MHz	"," 1.5%	"," "	
D, AMD, 008,	"	70%	400 MHz	"," 3.0%	"," "	
D, AMD, 009,	"	90%	400 MHz	"," 4.0%	"," "	
D, AMD, 010,	"	30%	990 MHz	"," 1.5%	"," "	
D, AMD, 011,	"	70%	990 MHz	"," 3.0%	"," "	
D, AMD, 012,	"	90%	990 MHz	"," 4.0%	"," "	

T, AMD, 001, devclr(ref); delays(1); send(ref,"S2 H2 L2 D5");, " "  
 T, AMD, 001, devclr(inst); delays(1); send(inst,"FR 100 MZ"); delays(1);  
 T, AMD, 001, send(inst,"AP 7 DM"); delays(1); send(inst,"S3 AM 30%");  
 delays(3); receive(ref);  
 T, AMD, 002, send(inst,"AM 70%"); delays(3); receive(ref);  
 T, AMD, 003, send(inst,"AM 90%"); delays(3); receive(ref);  
 T, AMD, 004, send(inst,"FR 240 MZ"); delays(1); send(inst,"S3 AM 30%");  
 delays(3); receive(ref);  
 T, AMD, 005, send(inst,"AM 70%"); delays(3); receive(ref);  
 T, AMD, 006, send(inst,"AM 90%"); delays(3); receive(ref);  
 T, AMD, 007, send(inst,"FR 400 MZ"); delays(1); send(inst,"S3 AM 30%");  
 delays(3); receive(ref);  
 T, AMD, 008, send(inst,"AM 70%"); delays(3); receive(ref);  
 T, AMD, 009, send(inst,"AM 90%"); delays(3); receive(ref);  
 T, AMD, 010, send(inst,"FR 990 MZ"); delays(1); send(inst,"S3 AM 30%");  
 delays(3); receive(ref);  
 T, AMD, 011, send(inst,"AM 70%"); delays(3); receive(ref);  
 T, AMD, 012, send(inst,"AM 90%"); delays(3); receive(ref);  
 T, AMD, 012, devclr(inst); devclr(ref); local(inst); local(ref);

P, FMI, 001,	"Step	FM Deviation	Frequency	Maximum	Minimum	Actual
D, FMI, 001,	"	5.0 kHz	100 MHz	"," 5250	"," 4750	"
D, FMI, 002,	"	30.0 kHz	100 MHz	"," 31500	"," 28500	"
D, FMI, 003,	"	70.0 kHz	100 MHz	"," 73500	"," 66500	"
D, FMI, 004,	"	99.0 kHz	100 MHz	"," 103950	"," 94050	"

T, FMI, 001, devclr(ref); delays(1); send(ref,"M2 D1 H2 L1"); devclr(inst);  
 T, FMI, 001, delays(1); send(inst,"FR 100 MZ"); delays(1);  
 send(inst,"AP 7 DM"); delays(1);  
 T, FMI, 001, send(inst,"S3 FM 5 KZ"); delays(3); receive(ref);  
 T, FMI, 002, send(inst,"FM 30 KZ"); delays(3); receive(ref);  
 T, FMI, 003, send(inst,"FM 70 KZ"); delays(3); receive(ref);  
 T, FMI, 004, send(inst,"FM 99 KZ"); delays(3); receive(ref);  
 T, FMI, 004, devclr(inst); devclr(ref); local(inst); local(ref);

## 2) ผลการตรวจสอบ

## (1) การตรวจสอบความถูกต้องและความเรียบของสัญญาณที่ออกมา

HP8656B PERFORMANCE TESTS  
Output Level & Flatness ( 10 MHz)

DATE : 08/21/92      TIME : 15:32:13      PAGE 1

Step	RF Output Frequency	Max.(dBm)	Min.(dBm)	Reading	Test
001	10 MHz	+14.5	+11.5	+12.390000	Pass
002	10 MHz	+9.5	+6.5	+7.370000	Pass
003	10 MHz	+4.5	+1.5	+2.400000	Pass
004	10 MHz	-0.5	-3.5	-2.590000	Pass
005	10 MHz	-5.5	-8.5	-7.490000	Pass
006	10 MHz	-10.5	-13.5	-12.450000	Pass
007	10 MHz	-15.5	-18.5	-17.480000	Pass
008	10 MHz	-20.5	-23.5	-22.440000	Pass
009	10 MHz	-25.5	-28.5	-27.550000	Pass
010	10 MHz	-30.5	-33.5	-32.530000	Pass
011	10 MHz	-35.5	-38.5	-37.560000	Pass
012	10 MHz	-40.5	-43.5	-42.530000	Pass
013	10 MHz	-45.5	-48.5	-47.540000	Pass
014	10 MHz	-50.5	-53.5	-52.520000	Pass
015	10 MHz	-55.5	-58.5	-57.540000	Pass
016	10 MHz	-60.5	-63.5	-62.530000	Pass
017	10 MHz	-65.5	-68.5	-67.540000	Pass
018	10 MHz	-70.5	-73.5	-72.510000	Pass
019	10 MHz	-75.5	-78.5	-77.530000	Pass
020	10 MHz	-80.5	-83.5	-82.490000	Pass
021	10 MHz	-85.5	-88.5	-87.530000	Pass
022	10 MHz	-90.5	-93.5	-92.510000	Pass
023	10 MHz	-95.5	-98.5	-97.510000	Pass
024	10 MHz	-100.5	-103.5	-102.510000	Pass
025	10 MHz	-105.5	-108.5	-109.700000	Fail
026	10 MHz	-110.5	-113.5	-114.570000	Fail
027	10 MHz	-115.5	-118.5	-116.650000	Pass
028	10 MHz	-120.5	-123.5	-121.710000	Pass
029	10 MHz	-125.5	-128.5	-127.540000	Pass

HP8656B PERFORMANCE TESTS  
 Output Level & Flatness (123 MHz)  
 DATE : 08/21/92      TIME : 15:38:38

PAGE 1

Step	RF Output Frequency	Max.(dBm)	Min.(dBm)	Reading	Test
001	123 MHz	+14.5	+11.5	+12.230000	Pass
002	123 MHz	+9.5	+6.5	+7.230000	Pass
003	123 MHz	+4.5	+1.5	+2.350000	Pass
004	123 MHz	-0.5	-3.5	-2.520000	Pass
005	123 MHz	-5.5	-8.5	-7.630000	Pass
006	123 MHz	-10.5	-13.5	-12.500000	Pass
007	123 MHz	-15.5	-18.5	-17.620000	Pass
008	123 MHz	-20.5	-23.5	-22.490000	Pass
009	123 MHz	-25.5	-28.5	-27.620000	Pass
010	123 MHz	-30.5	-33.5	-32.490000	Pass
011	123 MHz	-35.5	-38.5	-37.590000	Pass
012	123 MHz	-40.5	-43.5	-42.460000	Pass
013	123 MHz	-45.5	-48.5	-47.580000	Pass
014	123 MHz	-50.5	-53.5	-52.450000	Pass
015	123 MHz	-55.5	-58.5	-57.660000	Pass
016	123 MHz	-60.5	-63.5	-62.530000	Pass
017	123 MHz	-65.5	-68.5	-67.660000	Pass
018	123 MHz	-70.5	-73.5	-72.520000	Pass
019	123 MHz	-75.5	-78.5	-77.660000	Pass
020	123 MHz	-80.5	-83.5	-82.540000	Pass
021	123 MHz	-85.5	-88.5	-87.670000	Pass
022	123 MHz	-90.5	-93.5	-92.540000	Pass
023	123 MHz	-95.5	-98.5	-97.660000	Pass
024	123 MHz	-100.5	-103.5	-102.530000	Pass
025	123 MHz	-105.5	-108.5	-109.040000	Fail
026	123 MHz	-110.5	-113.5	-114.050000	Fail
027	123 MHz	-115.5	-118.5	-116.250000	Pass
028	123 MHz	-120.5	-123.5	-121.010000	Pass
029	123 MHz	-125.5	-128.5	-127.630000	Pass

HP8656B PERFORMANCE TESTS  
 Output Level & Flatness (124 MHz)  
 TIME : 15:42:58

DATE : 08/21/92

PAGE 1

Step	RF Output Frequency	Max.(dBm)	Min.(dBm)	Reading	Test
001	124 MHz	+14.5	+11.5	+12.810000	Pass
002	124 MHz	+9.5	+6.5	+7.880000	Pass
003	124 MHz	+4.0	+1.0	+2.950000	Pass
004	124 MHz	+1.0	-3.0	-2.020000	Pass
005	124 MHz	-6.0	-8.0	-7.040000	Pass
006	124 MHz	-11.5	-13.0	-12.010000	Pass
007	124 MHz	-16.0	-18.0	-17.040000	Pass
008	124 MHz	-21.0	-23.0	-22.000000	Pass
009	124 MHz	-26.0	-28.0	-27.020000	Pass
010	124 MHz	-31.0	-33.0	-31.990000	Pass
011	124 MHz	-36.0	-38.0	-37.020000	Pass
012	124 MHz	-41.0	-43.0	-42.000000	Pass
013	124 MHz	-46.0	-48.0	-47.030000	Pass
014	124 MHz	-51.0	-53.0	-52.000000	Pass
015	124 MHz	-56.0	-58.0	-57.020000	Pass
016	124 MHz	-61.0	-63.0	-61.980000	Pass
017	124 MHz	-66.0	-68.0	-67.010000	Pass
018	124 MHz	-71.0	-73.0	-71.980000	Pass
019	124 MHz	-76.0	-78.0	-77.090000	Pass
020	124 MHz	-81.0	-83.0	-82.090000	Pass
021	124 MHz	-86.0	-88.0	-87.040000	Pass
022	124 MHz	-91.0	-93.0	-92.010000	Pass
023	124 MHz	-96.0	-98.0	-97.020000	Pass
024	124 MHz	-101.0	-103.0	-102.010000	Pass
025	124 MHz	-106.0	-108.0	-107.970000	Pass
026	124 MHz	-111.0	-113.0	-112.920000	Pass
027	124 MHz	-116.0	-118.0	-116.880000	Pass
028	124 MHz	-121.0	-123.0	-122.920000	Pass
029	124 MHz	-125.5	-128.5	-126.300000	Pass



HP8656B PERFORMANCE TESTS  
Output Level & Flatness (990 MHz)  
TIME : 15:47:33

DATE : 08/21/92

PAGE 1

Step	RF Output Frequency	Max.(dBm)	Min.(dBm)	Reading	Test
001	990 MHz	+14.5	+11.5	+12.380000	Pass
002	990 MHz	+9.5	+6.5	+7.610000	Pass
003	990 MHz	+4.0	+1.0	+2.850000	Pass
004	990 MHz	+1.0	-3.0	-2.130000	Pass
005	990 MHz	-6.0	-8.0	-7.140000	Pass
006	990 MHz	-11.5	-13.0	-12.130000	Pass
007	990 MHz	-16.0	-18.0	-17.120000	Pass
008	990 MHz	-21.0	-23.0	-22.100000	Pass
009	990 MHz	-26.0	-28.0	-27.100000	Pass
010	990 MHz	-31.0	-33.0	-32.110000	Pass
011	990 MHz	-36.0	-38.0	-37.110000	Pass
012	990 MHz	-41.0	-43.0	-42.110000	Pass
013	990 MHz	-46.0	-48.0	-47.120000	Pass
014	990 MHz	-51.0	-53.0	-52.120000	Pass
015	990 MHz	-56.0	-58.0	-57.110000	Pass
016	990 MHz	-61.0	-63.0	-62.100000	Pass
017	990 MHz	-66.0	-68.0	-67.120000	Pass
018	990 MHz	-71.0	-73.0	-72.130000	Pass
019	990 MHz	-76.0	-78.0	-77.050000	Pass
020	990 MHz	-81.0	-83.0	-82.040000	Pass
021	990 MHz	-86.0	-88.0	-87.040000	Pass
022	990 MHz	-91.0	-93.0	-92.060000	Pass
023	990 MHz	-96.0	-98.0	-97.050000	Pass
024	990 MHz	-101.0	-103.0	-102.070000	Pass
025	990 MHz	-106.0	-108.0	-108.740000	Fail
026	990 MHz	-111.0	-113.0	-113.880000	Fail
027	990 MHz	-116.0	-118.0	-115.960000	Pass
028	990 MHz	-121.0	-123.0	-121.060000	Pass
029	990 MHz	-125.5	-128.5	-126.830000	Pass

## (2) การตรวจสอบความถูกต้องของการผสมคลื่นทางแอมปลิจูด

HP8656B PERFORMANCE TESTS  
Modulation Test (AM Accuracy)

DATE : 08/21/92

TIME : 15:13:46

PAGE 1

Step	AM Depth	Frequency	Maximum	Minimum	Actual	Test
001	10%	100 MHz	12.4%	7.6%	+10.000000	Pass
002	30%	100 MHz	33.2%	26.8%	+29.930000	Pass
003	70%	100 MHz	74.8%	65.2%	+70.000000	Pass
004	90%	100 MHz	95.6%	84.4%	+90.300000	Pass
005	10%	240 MHz	12.4%	7.6%	+9.950000	Pass
006	30%	240 MHz	33.2%	26.8%	+29.870000	Pass
007	70%	240 MHz	74.8%	65.2%	+70.000000	Pass
008	90%	240 MHz	95.6%	84.4%	+90.300000	Pass
009	10%	400 MHz	12.4%	7.6%	+10.020000	Pass
010	30%	400 MHz	33.2%	26.8%	+29.880000	Pass
011	70%	400 MHz	74.8%	65.2%	+70.100000	Pass
012	90%	400 MHz	95.6%	84.4%	+90.200000	Pass
013	10%	990 MHz	12.4%	7.6%	+9.490000	Pass
014	30%	990 MHz	33.2%	26.8%	+28.580000	Pass
015	70%	990 MHz	74.8%	65.2%	+67.900000	Pass
016	90%	990 MHz	95.6%	84.4%	+88.200000	Pass

## (3) การตรวจสอบการผสมคลื่นทางเฟส

HP8656B PERFORMANCE TESTS  
Incidental Phase Modulation Test

DATE : 08/21/92

TIME : 15:15:03

PAGE 1

Step	Sig.Gen.Frequency	Maximum	Actual	Test
001	150 kHz	0.3	+0.047000	Pass
002	250 kHz	0.3	+0.050000	Pass
003	350 kHz	0.3	+0.060000	Pass
004	450 kHz	0.3	+0.060000	Pass
005	550 kHz	0.3	+0.060000	Pass
006	650 kHz	0.3	+0.060000	Pass
007	750 kHz	0.3	+0.060000	Pass
008	850 kHz	0.3	+0.060000	Pass
009	950 kHz	0.3	+0.060000	Pass
010	10 MHz	0.3	+0.054000	Pass
011	20 MHz	0.3	+0.040000	Pass
012	30 MHz	0.3	+0.100000	Pass
013	40 MHz	0.3	+0.055000	Pass
014	50 MHz	0.3	+0.058000	Pass
015	110 MHz	0.3	+0.041000	Pass
016	120 MHz	0.3	+0.037000	Pass
017	130 MHz	0.3	+0.037000	Pass
018	140 MHz	0.3	+0.027000	Pass
019	150 MHz	0.3	+0.026000	Pass
020	950 MHz	0.3	+0.038000	Pass
021	960 MHz	0.3	+0.041000	Pass
022	970 MHz	0.3	+0.036000	Pass
023	980 MHz	0.3	+0.038000	Pass
024	990 MHz	0.3	+0.037000	Pass

## (4) การตรวจสอบความเพี้ยนที่เกิดจากการผสมคลื่นทางแอมพลิจูด

HP8656B PERFORMANCE TESTS  
AM Distortion Test

DATE : 08/21/92

TIME : 15:55:11

PAGE 1

Step	AM Depth	Frequency	Maximum	Actual	Test
001	30%	100 MHz	1.5%	+1.270000	Pass
002	70%	100 MHz	3.0%	+2.880000	Pass
003	90%	100 MHz	4.0%	+3.470000	Pass
004	30%	240 MHz	1.5%	+1.370000	Pass
005	70%	240 MHz	3.0%	+2.690000	Pass
006	90%	240 MHz	4.0%	+2.880000	Pass
007	30%	400 MHz	1.5%	+1.220000	Pass
008	70%	400 MHz	3.0%	+2.510000	Pass
009	90%	400 MHz	4.0%	+3.790000	Pass
010	30%	990 MHz	1.5%	+1.400000	Pass
011	70%	990 MHz	3.0%	+2.760000	Pass
012	90%	990 MHz	4.0%	+3.280000	Pass

## (5) การตรวจสอบความถูกต้องของการผสมคลื่นทางความถี่

HP8656B PERFORMANCE TESTS  
FM Indicator Accuracy Test

DATE : 08/21/92

TIME : 15:18:00

PAGE 1

Step	FM Deviation	Frequency	Maximum	Minimum	Actual	Test
001	5.0 kHz	100 MHz	5250	4750	+5020.000000	Pass
002	30.0 kHz	100 MHz	31500	28500	+30000.000000	Pass
003	70.0 kHz	100 MHz	73500	66500	+70200.000000	Pass
004	99.0 kHz	100 MHz	103950	94050	+99200.000000	Pass

## 8.2 การตรวจสอบเครื่องนับความถี่ (HP5328A)

1) เพิ่มข้อมูลรายละเอียดการตรวจสอบ HP5328A ภายในเพิ่มมีข้อมูลที่ใช้สำหรับ  
การตรวจสอบ HP5328A ดังต่อไปนี้

```
H, "HP5328A/H99 PERFORMANCE TESTS"
M, SST, "Sensitivity Test", "Please set address of HP5328A to 1,\ and
  set address of 8656B to 14.\ \ Press any key when ready..."
M, PRD, "Period & Period Average Test", "Please set address of HP5328A
  to 1,\ and set address of 8656B to 14.\ \ Press any key when ready..."
M, RTO, "Ratio Test", "Please set address of HP5328A to 1,\ and set
  address of 8656B to 14.\ \ Press any key when ready..."
M, TIV, "Time Interval Test", "Please set address of HP5328A to 1,\ and
  set address of 8656B to 14.\ \ Press any key when ready..."

E, inst, dev1, 13, "HP5328A/H99 500 MHz Universal Counter"
E, ref1, dev14, 12, "HP8656B Signal Generator"
E, ref2, dev4, 13, "HP5328A/H99 500 MHz Universal Counter"

P, SST, 001, "Step Channel Frequency Coupling Maximum Minimum
  Reading      Test"
D, SST, 001, "      A      5 MHz      DC      ", "5.1E+6      ", "4.9E+6      "
  , "\ Please connect the line from 8656B \ output to channel A input.\ "
D, SST, 002, "      A      5 MHz      AC      ", "5.1E+6      ", "4.9E+6      "
D, SST, 003, "      A     20 MHz      DC      ", "2.1E+7      ", "1.9E+7      "
D, SST, 004, "      A     20 MHz      AC      ", "2.1E+7      ", "1.9E+7      "
D, SST, 005, "      A     90 MHz      DC      ", "9.5E+7      ", "8.5E+7      "
D, SST, 006, "      A     90 MHz      AC      ", "9.5E+7      ", "8.5E+7      "
D, SST, 007, "      B      5 MHz      DC      ", "5.1E+6      ", "4.9E+6      "
  , "\ 8656B output ----> Ch. B input\ Ch. B input ----> Ch. A (other 5328A)\ "
D, SST, 008, "      B      5 MHz      AC      ", "5.1E+6      ", "4.9E+6      "
D, SST, 009, "      B     90 MHz      DC      ", "9.1E+7      ", "8.9E+7      "
D, SST, 010, "      B     90 MHz      AC      ", "9.1E+7      ", "8.9E+7      "
D, SST, 011, "      C    200 MHz      ", "2.1E+8      ", "1.9E+8      "
  , "\ Please connect the line from 8656B \ output to channel C input.\ "

T, SST, 001, devclr(inst); devclr(ref1); delays(1);
  send(ref1, "FR 5 MZ AP 15 MV");, " "
T, SST, 001, delays(1); send(inst, "PF4G6S6A+000*A3A7A8S:T"); delays(3);
T, SST, 001, send(inst, "TS5"); delays(3); receive(inst); send(inst, "U");
T, SST, 002, send(inst, "F4G6S6A+000*A2A7A8S:T"); delays(5); receive(inst);
  send(inst, "U");
T, SST, 003, send(inst, "F4G6S6A+000*A3A7A8S:T");
  send(ref1, "FR 20 MZ AP 15 MV");
T, SST, 003, delays(5); receive(inst); send(inst, "U"); delays(1);
T, SST, 004, send(inst, "F4G6S6A+000*A2A7A8S:T"); delays(5); receive(inst);
  send(inst, "U");
T, SST, 005, send(inst, "F4G6S6A+000*A3A7A8S:T");
  send(ref1, "FR 90 MZ AP 35 MV");
T, SST, 005, delays(5); receive(inst); send(inst, "U");
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T, SST, 006, send(inst,"F4G6S6A+000*A3A7A8S:T"); delays(5); receive(inst);
send(inst,"U");
T, SST, 007, devclr(ref2); send(ref2,"PF4G6S6A+000*A3A7A8S:");
send(ref1,"FR 5 MZ AP 15 MV");
T, SST, 007, send(inst,"A8B+000*B7B3T"); delays(1); send(ref2,"TS5");
delays(5); receive(ref2);
T, SST, 008, send(inst,"A8B+000*B7B2T"); delays(5); receive(ref2);
send(ref2,"U");
T, SST, 009, send(ref1,"FR 90 MZ AP 35 MV"); send(inst,"A8B+000*B7B3T");
T, SST, 009, delays(5); receive(ref2); send(ref2,"U");
T, SST, 010, send(inst,"A8B+000*B7B2T"); delays(5); receive(ref2);
send(ref2,"U");
T, SST, 011, send(ref1,"FR 200 MZ AP 15 MV"); send(inst,"F>G3S6T");
delays(5); receive(inst);
T, SST, 011, send(inst,"U"); devclr(inst); devclr(ref1); devclr(ref2);
T, SST, 011, local(inst); local(ref1); local(ref2);

```

P, PRD, 001, "Step Test"	Description	Maximum	Minimum	Reading
D, PRD, 001, "	Period	","1.1E-6	","0.9E-6	"
	," The 1 MHz time base output from the rear panel of the 5328A drives the A channel input of the counter."			
D, PRD, 002, "	Period Average	","1.1E-6	","0.9E-6	"

```

T, PRD, 001, devclr(inst); delays(1); send(inst,"PF6G0A+000*A2A6A8T");
T, PRD, 001, delays(5); send(inst,"TS5"); delays(3); receive(inst);
send(inst,"U"); delays(2);
T, PRD, 002, send(inst,"F7G6A+000*A2A6A8T"); delays(5); receive(inst);
T, PRD, 002, send(inst,"U"); devclr(inst); local(inst);

```

P, RTO, 001, "Step Test"	Description	Maximum	Minimum	Reading
D, RTO, 001, "	RATIO B/A	"," 1.100	"," 0.900	"," The 1 MHz time base O/P from the rear panel of the 5328A drives the A and B input channels of the counter."
D, RTO, 002, "	RATIO C/A	"," 501.0	"," 499.0	"," Disconnect the ch.B I/P connect the 8656B O/P to Ch.C"

```

T, RTO, 001, devclr(inst); delays(1); send(inst,"PF9G3A+000*B+000*A2B2A9T");
T, RTO, 001, delays(5); send(inst,"TS5"); delays(3); receive(inst);
send(inst,"U");
T, RTO, 002, devclr(ref1); delays(2); send(ref1,"FR 500 MZ AP 15 MV");
send(inst,"F=A8T");
T, RTO, 002, delays(5); receive(inst); send(inst,"U");
T, RTO, 002, devclr(inst); devclr(ref1); local(inst); local(ref1);

```

P, TIV, 001, "Step Test"	Description	Maximum	Minimum	Reading
D, TIV, 001, "	TI A -> B	","0.75E-6	","0.25E-6	"
	," \ Please connect the line from 8656B output to channel A input. \ "			
D, TIV, 002, "	TI AVG A -> B, + to -	","546E-6	","454E-6	"
D, TIV, 003, "	TI AVG A -> B, - to +	","546E-9	","454E-9	"

```
T, TIV, 001, devclr(inst); devclr(ref1); delays(1);  
  send(ref1, "FR 1 MZ AP 500 MV");  
T, TIV, 001, send(inst, "F8G0A+000*B+000*A2B2A7B7A9"); delays(1);  
  send(inst, "A4B5T");  
T, TIV, 001, delays(5); send(inst, "TS5"); receive(inst); send(inst, "U");  
T, TIV, 002, send(inst, "F:G6T"); delays(5); receive(inst); send(inst, "U");  
T, TIV, 003, send(inst, "F:G6A5B4T"); delays(5); receive(inst);  
  send(inst, "U");  
T, TIV, 003, devclr(inst); devclr(ref1); local(inst); local(ref1);
```

## 2) ผลการตรวจสอบ

## (1) การตรวจสอบความไวในการวัด

HP5328A/H99 PERFORMANCE TESTS  
Sensitivity Test

DATE : 08/21/92

TIME : 14:05:12

PAGE 1

Step	Channel	Frequency	Couping	Maximum	Minimum	Reading	Test
001	A	5 MHz	DC	5.1E+6	4.9E+6	+5.000014E+006	Pass
002	A	5 MHz	AC	5.1E+6	4.9E+6	+5.000014E+006	Pass
003	A	20 MHz	DC	2.1E+7	1.9E+7	+1.874106E+007	Fail
004	A	20 MHz	AC	2.1E+7	1.9E+7	+2.000006E+007	Pass
005	A	90 MHz	DC	9.5E+7	8.5E+7	+9.903350E+007	Fail
006	A	90 MHz	AC	9.5E+7	8.5E+7	+9.484548E+007	Pass
007	B	5 MHz	DC	5.1E+6	4.9E+6	+5.000017E+006	Pass
008	B	5 MHz	AC	5.1E+6	4.9E+6	+5.000017E+006	Pass
009	B	90 MHz	DC	9.1E+7	8.9E+7	+9.003350E+007	Pass
010	B	90 MHz	AC	9.1E+7	8.9E+7	+9.084548E+007	Pass
011	C	200 MHz		2.1E+8	1.9E+8	+2.028610E+008	Pass

## (2) การตรวจสอบคาบเวลาและคาบเวลาเฉลี่ย

HP5328A/H99 PERFORMANCE TESTS  
Period & Period Average Test

DATE : 08/21/92

TIME : 13:41:44

PAGE 1

Step	Description	Maximum	Minimum	Reading	Test
001	Period	1.1E-6	0.9E-6	+0.000001	Pass
002	Period Average	1.1E-6	0.9E-6	+0.000001	Pass



(3) การตรวจสอบสัดส่วน

## HP5328A/H99 PERFORMANCE TESTS

## Ratio Test

DATE : 08/21/92

TIME : 13:53:18

PAGE 1

Step	Description	Maximum	Minimum	Reading	Test
001	RATIO B/A	1.100	0.900	+0.000000E+000	Fail
002	RATIO C/A	501.0	499.0	+0.000000E+000	Fail

(4) การตรวจสอบห้วงเวลาและห้วงเวลาเฉลี่ย

## HP5328A/H99 PERFORMANCE TESTS

## Time Interval Test

DATE : 08/21/92

TIME : 13:37:52

PAGE 1

Step	Description	Maximum	Minimum	Reading	Test
001	TI A->B	0.75E-6	0.25E-6	+0.000001	Pass
002	TI AVG A->B,+ to -	546E-9	454E-9	+0.000000	Pass
003	TI AVG A->B,- to +	546E-9	454E-9	+0.000001	Pass

หมายเหตุ ข้อมูลในเพิ่มข้อมูลเก็บรายละเอียดการตรวจสอบ ต้องพิมพ์ต่อเนื่องกันในแต่ละบรรทัด ไม่สามารถที่จะพิมพ์ต่อในบรรทัดถัดไป แต่รายละเอียดของเพิ่มข้อมูลที่ปรากฏในบทที่ 8 นี้ เป็นการแบ่งบรรทัดออกเป็น 2 บรรทัด ก็เพื่อความเบียบเรียบร้อย ในการจัดทำรูปเล่ม เช่น ในหน้า 88 บรรทัดที่ 1 และ 2 ในเพิ่มข้อมูลต้องนำ `send(inst, "U");` ในบรรทัดที่ 2 มาต่อท้าย `receive(inst);` ในบรรทัดที่ 1