Errata

Title & Document Type: 8568A Spectrum Analyzer Operation Verification

Manual Part Number: 08568-90011

Revision Date:1978-12-01

HP References in this Manual

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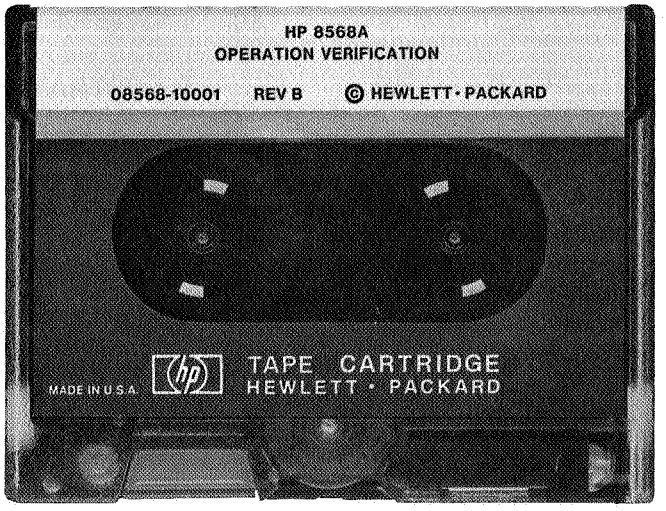
OPERATION AND INFORMATION

8568A SPECTRUM ANALYZER OPERATION VERIFICATION

REV B



DECEMBER 1978

1400 FOUNTAIN GROVE PARKWAY, SANTA ROSA, CALIFORNIA, U.S.A.

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OPERATION AND INFORMATION

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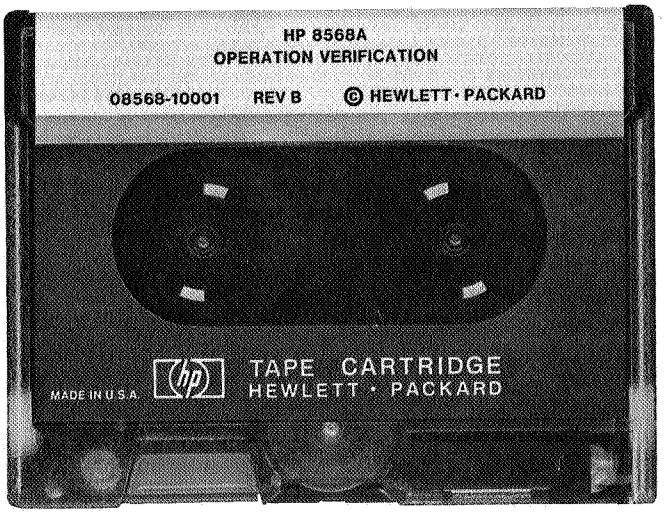

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TABLES

8568A SPECTRUM ANALYZER OPERATION VERIFICATION

1. INTRODUCTION

2. Electrical operation of the HP 8568A Spectrum Analyzer is checked using a semi-automatic test procedure contained on a magnetic tape cartridge. Additional tapes may be ordered through your nearest HP office by ordering HP Part No. 08568-60002, which includes this Operation and Information manual.

3. This test procedure is intended to check operation of the instrument's main functions. It is not intended to check all of the specifications of the instrument. A complete list of functions checked is contained in Table 1 along with the equipment required to perform each of the tests. Approximate time to perform all tests (Test Number 0) is 30 minutes. A more detailed test of instrument specifications may be performed by referring to the Performance Tests in Section IV of the Operating and Service Manual.

4. Annotated program listings for the individual tests contained in the program are shown in Figures 6 through 19. At the end of each of the listings is a check sum number. This number is a code representing the sum of the key strokes involved in each page of the program. If, after listing your program, the check sum numbers on your listing differ from those contained in this listing, you have a different Operation Verification Program than the one illustrated here. Table 2 is a listing of the program contents indicating where on the tape each portion of the program is located.

5. EQUIPMENT REQUIRED

6. In addition to the test equipment listed in Table 1, an HP 9825A Desk Top Computer, HP 98210A String-Advanced Programming Plug-In, HP 98216A Plotter-General I/O-Extended I/O Plug-In, and an HP 98034A HP-IB Interface are needed for performing the Operation Verification Program. The HP 9866B Printer and HP 98032A 16-Bit Interface are optional for added convenience.

7. A permanent record of test results may be obtained by use of the HP 9866B Printer. Test results are printed during the test thus providing a permanent record for comparison in future testing. It must be noted, however, that a change in data values for each test is to be expected over a period of time and that Hewlett-Packard warrants the specification range and not the repeatability of the data for any given specification.

8. If an HP 9866B Printer is not used, either "PASSED" or "Out Of Tolerance" is printed on the HP 9825A Internal Strip Printer. Refer to Paragraph 39 for instructions concerning action to be taken if printed results indicate "Out of Tolerance".

9. PROCEDURE

10. Equipment Connections

11. Install the HP 98034A HP-IB Interface in the HP 9825A Desk top Computer and connect the cable on the HP-IB Interface to the HP 8568A rear-panel HP-IB connector, A13J1. If using an HP 9866B Printer, connect it to the HP 9825A through the HP 98032A 16-Bit Interface. Do not connect any other instruments to the HP-IB cable at this time.

NOTE

If any instrument connected to the HP-IB cable is not energized, the Bus is held LOW and no data transfer can take place on the Bus.

Table 1. Tests Performed With Equipment Required

Test No.	Test Title	Equipment Required*
0	All Tests	All equipment listed
1	Input Attenuator Switching Uncertainty	HP 3330B
2	Amplitude Fidelity (linear)	HP 3330B
3	Amplitude Fidelity (log)	HP 3330B
4	Log Scale Switching	HP 3330B
5	IF Gain Uncertainty	HP 3330B
6	Frequency Span Accuracy	HP 3330B
7	Sweep Time Accuracy	None
8	Resolution Bandwidths	None
9	Residual FM	None
10	Line Related Sidebands	None
11	RF Gain Uncertainty	None
12	Average Noise Level	HP 11593A
13	Residual Response	HP 11593A
14	Frequency Response	HP 8444A, Opt H59 HP 436A, Opt 022 HP 11667A HP 8482A

* HP-IB Addresses (Refer to Table 2-1)
HP 3330B-Listen Address-"$" (Decimal 04)
HP 436A-Listen Address-"-", Talk Address-"M" (Decimal 13)
If use of different addresses is desired, refer to Paragraph 21.

12. Equipment Warm-Up

13. Turn the HP 8568A and the HP 9866B Printer LINE power ON and allow for a 1-hour warm-up. Also turn on all other equipment to be used and allow sufficient warm-up time as indicated in the Operating and Service manuals for that equipment. After specified warm-up time, turn HP 9825A power OFF.

14. Tape Cartridge Loading

15. Insert the Operation Verification Program tape cartridge into the HP 9825A Desk Top Computer. Refer to the HP 9825A Operating and Programming manual for instructions on loading the cartridge. Turn the HP 9825A LINE switch ON. No further operating of the controller is necessary; all further inputs are made from the front panel of the HP 8568A Spectrum Analyzer. All instructions for proper operation of the program are indicated on the HP 8568A CRT display.

16. PROGRAM OPERATION

17. Instructions

18. If an HP 9866B Printer is used, the first display on the HP 8568A CRT asks the operator if instructions are desired. These instructions include general information for the program, required test equipment and a list of the tests which may be performed. If a YES response is entered, these instructions are printed on the HP 9866B Printer. If the HP 9866B Printer is not used, the first CRT display refers the operator to the Operating and Service Manual for instructions.

19. Equipment Required

20. The next display lists the model numbers and HP-IB addresses of the test equipment required to perform all of the tests contained in the program.

21. HP-IB Addresses

22. If HP-IB addresses other than those specified are to be used, it is necessary to change the program to accomodate the different addresses. The program may be changed at this time by keying in, on the HP 9825A, [STOP] [FETCH] [2] [EXECUTE]. Line 2 of the program (FILE 0) is now visible on the HP 9825A display. This line reads as follows:

2: dev "8568", 718, "osc", 704, "mtr", 713; cfg

The address for the HP 8568A is 18, for the HP 3330B is 04, and for the HP 436A is 13. The 7 preceding each of the instrument addresses is the address for the HP 98034A HP-IB Interface. Refer to Remote Operation in Section III (Page 1.4, Addressing the Spectrum Analyzer) for more detailed explanation of HP-IB addressing.

23. Refer to Table 2-1 in the Operating and Service Manual for list of available HP-IB addresses. Paragraph 2-14 provides instructions for changing the HP-IB address of the HP 8568A. Refer to Operating and Service manuals for the HP 3330B and HP 436A for instructions on selecting or changing the HP-IB addresses of those instruments. It is important to note that each instrument connected on the HP-IB bus must have a different HP-IB address.

24. Once the desired HP-IB address has been selected on each of the instruments, these numbers can be entered into the Operation Verification Program, replacing those presently there. Locate the decimal equivalent of the selected HP-IB address in Table 2-1; this is the number to be entered into the program.

25. To change the addresses in the program, press the CHARACTER [BACK] key on the HP 9825A and hold it down until the cursor on the HP 9825A display is directly over the character to be replaced. (Refer to HP 9825A Operating and Programming manual for details on use of the editing keys.) Press the number keys corresponding to the HP-IB address selected. If more than one of the addresses is to be changed, press [FWD] or [BACK] to place the cursor over the next characters to be replaced.

26. After all desired changes have been made, press [STORE]. The new addresses are now entered into the program stored in the HP 9825A memory and will remain until the HP 9825A is turned OFF or [ERASE] is pressed. The tape cartridge itself has not been changed, and should not be, therefore, it is necessary to perform this change each time the Operation Verification Program is used. To continue with the Operation Verification Program, press [RUN] on the HP 9825A.

27. Serial Number and Date Information

28. The next display asks the operator if serial number and date information of the instrument to be tested is desired as part of the test record to be printed on the HP 9866B Printer or the HP 9825A Strip Printer. If a NO response is entered, the instructions for the entry of this information are not displayed. If a YES response is entered, the next five displays ask the operator to enter the serial number data for each of the instrument sections and the current data for the test record.

29. Pre-Adjustment Routine

30. The next two displays are equipment setup diagrams for amplitude and frequency calibration of the HP 8568A. These adjustment routines are contained in the internal firmware of the instrument and can also be accessed by keying in [RECALL] 8 for amplitude calibration and [RECALL] 9 for frequency calibration. These routines are described in more detail in Section III. The next two displays ask the operator to perform the adjustments by adjusting the front panel AMPD CAL and FREQ ZERO con-

trols to set the CRT trace to designated levels on the CRT. Amplitude and frequency calibration must be within specified limits before program will advance.

31. Test Listing

32. The next display is a complete listing, "menu", of the tests contained in the Operation Verification Program. This list is also contained in Table 1 along with the equipment required for each test.

33. Test Selection

34. All tests. All tests can be performed as one continuous test by entering [0] [Hz µV µsec] on the HP 8568A keyboard as indicated by the instructions on the CRT display. This test requires approximately 30 minutes for completion.

35. Single Tests. Individual functions may be checked by entering the indicated test number. These tests may be performed once or repetitively as desired, by terminating the entry with the proper key as stated in the instructions on the CRT display. The [Hz µV µsec] key is used to perform a test once. When the test is completed, the HP 9866B Printer (if used) prints the specifications of the function tested and the test results obtained. If the results obtained are out of tolerance, a double asterisk (**) is placed next to the recorded data which is out of tolerance. If not using the HP 9866B Printer, either "PASSED" or "Out Of Tolerance" is printed on the HP 9825A Desk Top Computer Strip Printer. The CRT display returns to the test listing and a YES or NO indication is displayed adjacent to the test performed indicating that the instrument either "PASSED" the test or part of the data obtained was "Out Of Tolerance".

36. Repetitive Testing. Any test may be performed repetitively by terminating the test number entry with the [kHz mV msec] key. When the test is completed, the HP 9866B Printer (if used) prints the data the same as for a single test and then the test is immediately performed again. Each time the test is completed, the test results are printed. To stop (abort) this repetitive test loop, it is necessary to press the [MHz -dBm sec] key. The test loop is stopped and, at the end of the test currently being performed, the CRT display returns to the test listing. If the HP 9866B Printer is not used, "PASSED" or "Out Of Tolerance" is printed on the HP 9825A Strip Printer at the end of each test.

37. Equipment Connections

38. At the begining of each test being performed, the CRT display indicates the equipment connections necessary for the performance of the test. After the equipment is connected as shown and the test continued as instructed, no further operator assistance is required. The test or tests are performed automatically and results printed until testing is complete or aborted by operator.

39. Test Results

40. If the printed test results indicate an out of tolerance indication for any test performed by the Operation Verification Program, refer to Section IV in Volume 2 of the Operating and Service Manual. Perform the Performance Test in Section IV with the same title as the Operation Verification test. If the instrument does not pass the Performance Test, refer to Adjustments in Section V. Perform all Adjustments related to the function which did not pass, then perform the Performance Test again. If the instrument still does not pass, refer to Section VIII and Section IX for troubleshooting information to correct the malfunction.

NOTE

The validity of the measurements in the Operation Verification program are based in part on the accuracy of the test equipment used to perform the test. Therefore, proper calibration of the test equipment must be verified before instrument operation can be checked using the Operation Verification Program.

Table 2. Program Tape Organization

Test No.	File No.	Description	Program Size	File Size
--	0	Operating Instructions	2454	2500
--	1	Program Driver (Subroutines)	7928	10000
1	2	Input Attenuator Switching Uncertainty	1508	2000
2	3	Amplitude Fidelity (linear)	1396	2000
3	4	Amplitude Fidelity (log)	2384	2500
4	5	Log Scale Switching	1490	2000
5	6	IF Gain Uncertainty	2628	3000
6	7	Frequency Span Accuracy	2266	3000
7	8	Sweep Time Accuracy	1754	2000
8	9	Resolution Bandwidths	3664	4000
9	10	Residual FM	1790	2000
10	11	Line Related Sidebands	1694	2000
11	12	RF Gain Uncertainty	1088	2000
12	13	Average Noise Level	1472	2000
13	14	Residual Response	1674	2000
14	15	Frequency Response	3526	4000
--	16	Pre-cal Routine	1304	1600
--	17	Tape Copy Program	470	500

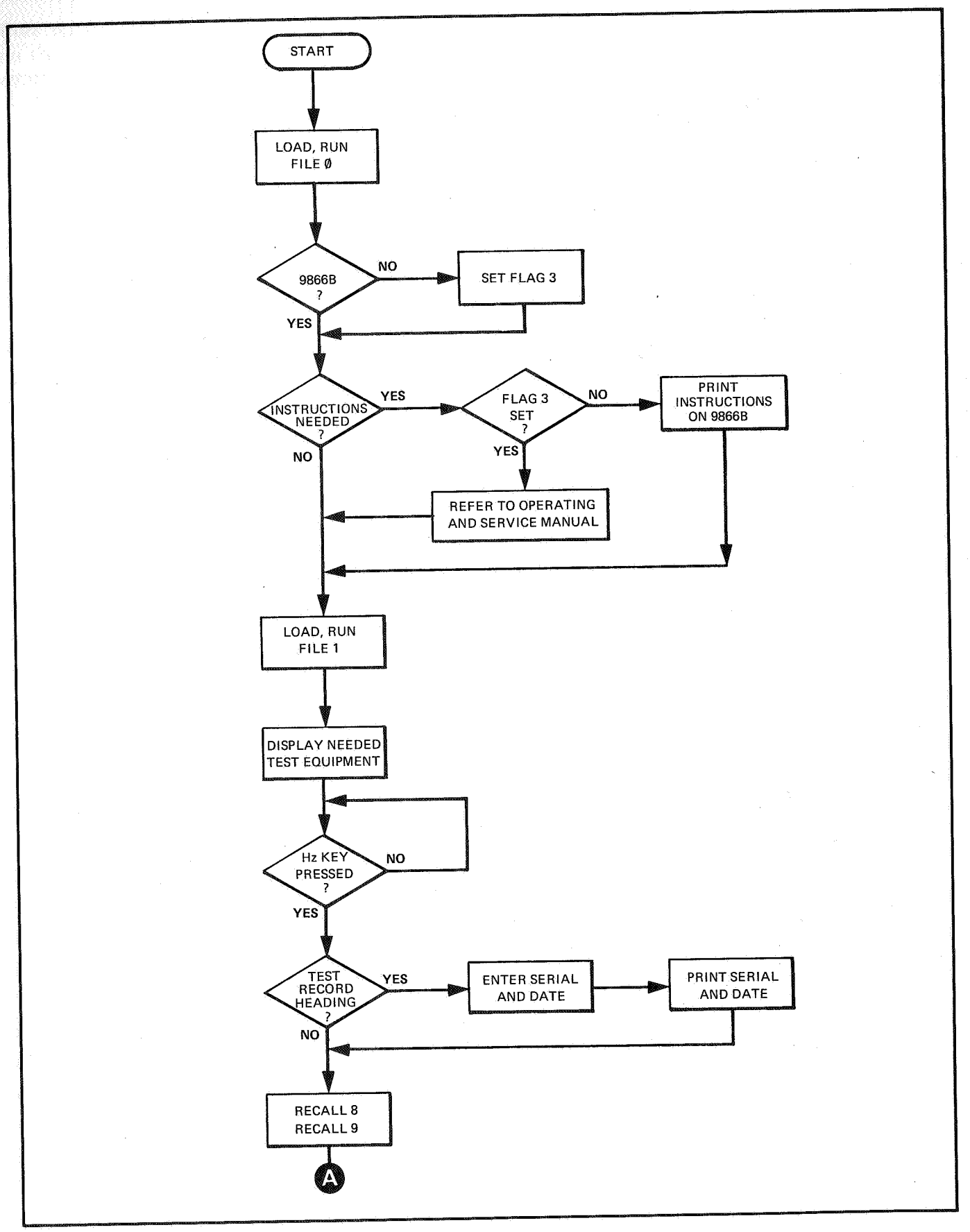


Figure 1. Simplified Flow Chart of Operation Verification Program (1 of 2)

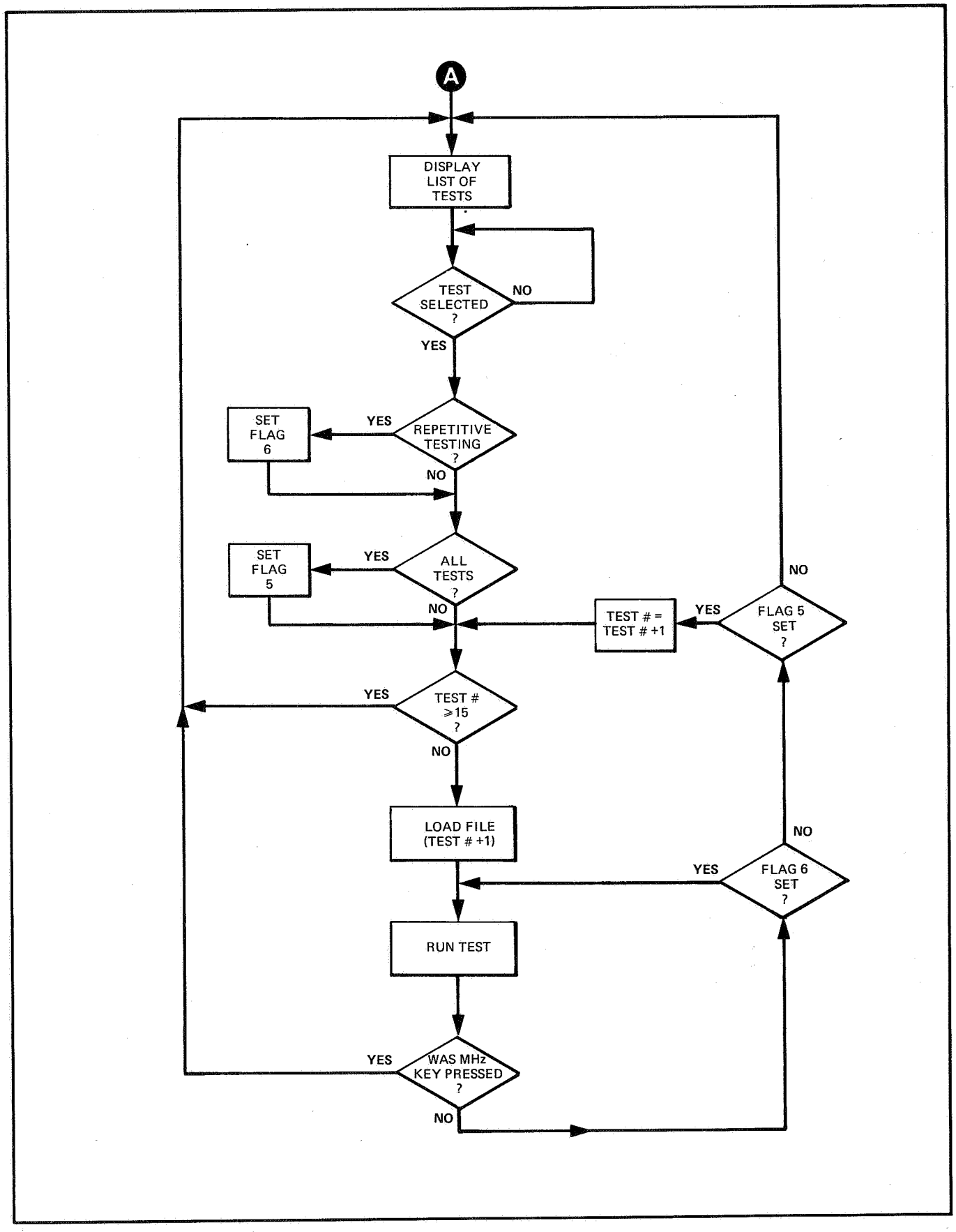


Figure 2. Simplified Flow Chart of Operation Verification Program (2 of 2)

FILE 0

Variables		Flags	
I	For/Next Loop Counter	1	Error
J	For/Next Loop Counter	2	Counter
K	Counter	3	No 9866B Printer
X(*)	Display PASS/FAIL indicator	4	Counter
A$	Instructions	5	All tests (TEST 0) selected
D	Keyboard Entry	6	Repetitive testing selected

```
0: "   8568A OPERATION VERIFICATION PROGRAM          3 APRIL 1978":
1: "      Copyright by Hewlett-Packard   APRIL 1978":
2: dev "8568",718,"osc",704,"mtr",713;cfg
3: "8568A OPERATION VERIFICATION INSTRUCTIONS    03/04/78":
4: if rds(6)=0;sfg 3
5: dim A$[43,72]
6: wrt "8568","IP A4 B1 B4 KSm KSo D3 DT@"
7: if flg3;gto 30
8: wrt "8568","PUPA100,350LBDO YOU NEED INSTRUCTIONS ?"
9: wrt "8568",""
10: wrt "8568",""
11: wrt "8568","       YES     PUSH GHz KEY ON 8568A"
12: wrt "8568",""
13: wrt "8568","       NO      PUSH  Hz KEY ON 8568A@"
14: wrt "8568","R1R4EE"
15: if bit(1,rds("8568"))#1;jmp 0
16: wrt "8568","OA";red "8568",D
17: wrt "8568","EMKSiEM"
18: if D=1;ldp 1,3,0
19: if D#1e9;gto -13
20: wrt "8568","PUPA96,320LBINSTRUCTIONS ARE BEING PRINTED"
21: wrt "8568","      ON 9866 PRINTER@"
22: for J=0 to 2;0+K;trk 1;ldf J,A$
23: for I=1 to 43
24: if not flg2;if A$[I]=" ";wrt 6;wait 2000;sfg 2;next I
25: fmt 1,6x,c;wrt 6.1,A$[I];if A$[I]#" ";cfg 2;0+K
26: if flg2 and A$[I]=" ";1+K+K;if K>6;gto +2
27: next I
28: next J;cfg 2
29: fmt 1,/,80" ",/;wrt 6.1
30: wtb "8568","EMKSiEMDA1024D3PUPA100,350LBTo CONTINUE, push Hz",3
31: if flg3;wrt "8568","DT@D3PUPA100,450LBFOR OPERATING INSTRUCTIONS SEE"
32: if flg3;wrt "8568","SECTION II OF OPERATING AND SERVICE MANUAL@"
33: wrt "8568","R1R4"
34: if bit(1,rds("8568"))#1;jmp 0
35: rew;trk 0;ldp 1,3,0
36:
37: "specs ?":
38:
39: fmt 8,15/,80" ",3/;wrt 6.8
40: if max(X[*])>1;gto +3
41: wrt 6,"******* 8568A HAS PASSED THE OPERATION VERIFICATION TEST *******"
42: gto "test select";wrt 6
43: wrt 6,"** THE INSTRUMENT HAS NOT PASSED THE FOLLOWING OPERATION"
44: wrt 6,"   VERIFICATION TEST(S). THE ERROR IS INDICATED BY DOUBLE "
45: wrt 6,"   ASTERISK(**) IN THE TEST RECORD";wrt 6
46: wrt 6,"   REFER TO THE OPERATING AND SERVICE MANUAL SECTION IV "
47: wrt 6,"   PERFORMANCE TEST(S) FOR:"
48: for I=2 to 15
49: if X[I]<=1;next I;gto "test select"
50: jmp I-1
51: wrt 6,"    1. INPUT ATTENUATOR SWITCHING UNCERTAINTY";gto "end"
52: wrt 6,"    2. AMPLITUDE FIDELITY (linear)";gto "end"
53: wrt 6,"    3. AMPLITUDE FIDELITY (log)";gto "end"
54: wrt 6,"    4. LOG SCALE SWITCHING UNCERTAINTY";gto "end"
55: wrt 6,"    5. IF GAIN UNCERTAINTY";gto "end"
56: wrt 6,"    6. FREQUENCY SPAN ACCURACY";gto "end"
57: wrt 6,"    7. SWEEP TIME ACCURACY";gto "end"
58: wrt 6,"    8. RESOLUTION BANDWIDTH";gto "end"
59: wrt 6,"    9. RESIDUAL FM";gto "end"
60: wrt 6,"   10. LINE RELATED SIDEBANDS";gto "end"
61: wrt 6,"   11. RF GAIN UNCERTAINTY";gto "end"
62: wrt 6,"   12. AVERAGE NOISE LEVEL";gto "end"
63: wrt 6,"   13. RESIDUAL RESPONSES";gto "end"
64: wrt 6,"   14. FREQUENCY RESPONSE"
65: "end":wrt 6;next I
66: gto "test select"
*14619
```

0: Title and date.
1: Copyright and date.
2: HP-IB Addresses of equipment used.
3: Title and date.
4: If an HP 9866B Printer is not used, set flag 3.
5:
6: Set 8568A controls as shown.
7: If not using an HP 9866B Printer, go to Line 30.
8: Label on CRT as shown.
9:
10:
11: Label on CRT as shown.
12:
13: Label on CRT as shown.
14: Enable 8568A Keyboard.
15: Wait for Keyboard Units entry before proceeding.
16:
17:
18: If Hz entered, Load and Run File 1.
19: If GHz not entered, go to Line 6.
20: Label on CRT as shown.
21: Label on CRT as shown.
22: Load instructions from File 0, 1, or 2 on Track 1.
23: Initialize for/next loop to count from 1 to 43 by 1.
24:
25: Print string.
26:
27: Increment counter for line number.
28: Increment.
29:
30: Erase previous stored information and label on CRT as shown.
31: If not using an HP 9866B Printer, label on CRT as shown.
32: If not using an HP 9866B Printer, label on CRT as shown.
33: Enable 8568A Keyboard.
34: Wait for Keyboard Units entry before proceeding.
35: Load and Run File 1.
36:
37: Subroutine title.
38:
39:
40: If any test performed contains out of tolerance data, go forward three lines.
41: Print on 9866B Printer as shown.
42: Go to test listing. If using an HP 9866B Printer, print as shown.
43: Print on 9866B Printer as shown.
44: Print on 9866B Printer as shown.
45: Print on 9866B Printer as shown.
46: Print on 9866B Printer as shown.
47: Print on 9866B Printer as shown.
48: For files 2 to 15.
49:
50: Go to line with test title of test containing out of tolerance data.
51: Print on 9866B as shown. Go to "end" subroutine.
52: Print on 9866B as shown. Go to "end" subroutine.
53: Print on 9866B as shown. Go to "end" subroutine.
54: Print on 9866B as shown. Go to "end" subroutine.
55: Print on 9866B as shown. Go to "end" subroutine.
56: Print on 9866B as shown. Go to "end" subroutine.
57: Print on 9866B as shown. Go to "end" subroutine.
58: Print on 9866B as shown. Go to "end" subroutine.
59: Print on 9866B as shown. Go to "end" subroutine.
60: Print on 9866B as shown. Go to "end" subroutine.
61: Print on 9866B as shown. Go to "end" subroutine.
62: Print on 9866B as shown. Go to "end" subroutine.
63: Print on 9866B as shown. Go to "end" subroutine.
64: Print on 9866B as shown. Go to "end" subroutine.
65: Subroutine title. Space 9866B. Next file number.
66: Go to test listing.
* check sum number.

Figure 3. File ∅ Annotated Listing

FILE 1

A	Marker Amplitude	1	Error
B	Ref. Level in Linear	2	Counter
D	Keyboard Entry	3	No 9866B Printer
I	For/Next Loop Counter	4	Counter
M	Binary Y or Blank	5	All tests (TEST 0) selected
O	Binary E or N	6	Repetitive testing selected
P	Binary S or O		
R	Log Ref. Level		
V	3330B Amplitude		

A(*) Serial No. and Date Infor.
B(*) Dimensioned for other files
C(*) Dimensioned for other files
D(*) Dimensioned for other files
X(*) Display PASS/FAIL indicator
r4 Selected Test Number

```
0: "8568A OPERATION VERIFICATION DRIVER PROGRAM   04/03/1978":                    0:  Title and date.
1: dim A[10],B[5,12],C[2,0:81],D[2,34],X[16]                                     1:
2: if rds(6)=0;sfg 3                                                             2:
3: on err "error";gto "start"                                                    3:
4: "error":if rds(6)#32;gto +4                                                   4:
5: wtb "8568","KSiEMD3PUPA176,352LB",17,"PRINTER IS OUT OF PAPER,",18,10,13     5:  Label on CRT as shown.
6: wtb "8568",10,13," LOAD PAPER AND PRESS 9825A ""CONTINUE"" KEY",3;stp         6:  Label on CRT as shown.
7: gto 3                                                                         7:  Go forward three lines.
8: beep;wait 100;dsp "HP-IB ERROR CHECK TEST SET-UP";beep;stp                    8:  9825A beeps and displays as shown.
9: on err "error";gto "test select"                                              9:
10: "SET-UP":                                                                    10: Subroutine title.
11: wrt "8568","EM KSi EM A4 KSo KSm DF@"                                        11: Set 8568A controls as shown.
12: fmt 1,c,b,c,f2.0,b,c                                                         12:
13: if r4#0;wrt "8568.1","D3PUPA224,32LB",17,"Test Number ",r4,18,"@"           13: Display test number selected on CRT.
14: if r4#0;wrt "8568","D3PUPA100,64LBTo SELECT ANOTHER TEST, push MHz@"         14: Label on CRT as shown.
15: wrt "8568","D3PUPA100,100LBTo CONTINUE, push Hz@"                            15: Label on CRT as shown.
16: wrt "8568","D2PUPA550,650"                                                   16:
17: wrt "8568","PDPR 0,300,400,0,0,-300,-400,0"                                  17:
18: wrt "8568","PUPR10,155 PDPR 0,130,140,0,0,-130,-140,0"                       18:  Draw and label 8568A on CRT.
19: wrt "8568","PU PR -10,-10PDPR400,0PU-220,-65LB8568A@"                        19:
20: wrt "8568","PUPR-233,-55PDPR380,0PU-20,-15PD0,0PU-40,0PD0,0PU-240,0"         20:
21: wrt "8568","PD0,0,PU-90,-10";ret                                             21:
22: "RSBW":                                                                      22: Subroutine title.
23: wrt "8568","PUPR90,10PD0,-50,280,0,0,50PU5,-5"                               23:
24: wrt "8568","PD10,-80PU-40,-30PDLBSIGNAL@"                                    24:
25: wrt "8568","PUPR-80,-30LBINPUT 2@"                                           25:
26: wrt "8568","PUPR-362,145,PD-80,-40PU-30,-20PDLBCAL@"                         26:  Draw connection cable from CAL OUTPUT to SIGNAL INPUT 2.
27: wrt "8568","PUPR-50,-40PDLBOUTPUT@PUPR-31,91"                                27:
28: wrt "8568","D3PUPA125,200LBCONNECT BNC CABLE FROM CAL OUTPUT@"               28:
29: wrt "8568","D3PUPA125,160PDLBTO SIGNAL INPUT 2@DW1044";ret                   29:
30: "LOAD":                                                                      30: Subroutine title.
31: wrt "8568","D2PUPR360,10PD20,0,0,-10,-5,0,0,-15,5,0,0,-20,-20,0"             31:
32: wrt "8568","0,20,5,0,0,15,-5,0,0,10"                                         32:
33: wtb "8568","PUPR20,-45PD-80,-40PU-30,-30PDLB50",250,"@"                      33:  Draw 50-ohm load connected to SIGNAL INPUT 2.
34: wrt "8568","PUPR-40,-30LB Load@PUPR-326,135"                                 34:
35: wrt "8568","D3PUPA96,300LBCONNECT 50 ohm LOAD TO SIGNAL INPUT 2@"            35:
36: wrt "8568","DW1044";ret                                                      36:
37: "syn":                                                                       37: Subroutine title.
38: wrt "8568","PUPR-50,-100PD0,200,-400,0,0,-200,400,0PU-400,160PD400,0"        38:
39: wrt "8568","PUPR-240,-60PDLB3330B@"                                          39:
40: wrt "8568","PUPR145,-60PD0,0PU-5,-5PD-150-80PU-40,-30"                       40:
41: wrt "8568","PDLBOUTPUT@,PUPR115,115,PD0,0"                                   41:
42: wrt "8568","PDPR450,0,0,70PU5,-5PD40,-80PU-40,-30"                           42:  Draw 3330B Synthesizer and connection cables on CRT.
43: wrt "8568","PDLBSIGNAL@PUPR-80,-30PDLBINPUT 2@PUPR-470,135"                  43:
44: wrt "8568","D2PUPR0,215PD-400,0,0,-115PU25,0PD0,85,375,0,PU0,-185"           44:
45: wrt "8568","D2PUPR-300,200LBHP-IB CABLE@,PUPR140,-200"                       45:
46: wtb "8568","D3PUPA100,200LB",18,"CONNECT 3330B TO 8568A AS SHOWN"            46:
47: wtb "8568",3,"DW1044";ret                                                    47:
48: "R1R4":eir 7,0;wrt "8568","R1R4EE"                                           48: Subroutine title. Enable Keyboard.
49: if bit(1,rds("8568"))#1;jmp 0                                                49: Wait for Keyboard entry.
50: wrt "8568","OA";red "8568",D;wrt "8568","EMKSiEM";ret                        50: Return value of Keyboard entry.
51: "entry":wtb "8568","DW1035,3008,DA3008,D3PUPA16,400LB    ",3;ret              51: Subroutine title. Display Keyboard entry on CRT.
52: "synthesizer":                                                               52: Subroutine title.
53: conv 46,58                                                                   53: Converts decimal point (.) to colon (:).
54: fmt 2,fz6.2,c,fz6.2;fmt 3,fz6.2                                              54:
55: if p2<0;wrt "osc.2","^L",p1,"?W",abs(p2),"<"                                 55: If amplitude is negative, set 3330B frequency and amplitude.
56: if p2=0 or p2>0;wrt "osc.2","^L",p1,"?W",p2,";"                              56: If amplitude is 0 or positive, set 3330B frequency and amplitude.
57: if p3#0;wrt "osc.3","O",abs(p3),"<"                                          57: If AmptdStpSize not 0, set Amplitude Step Size.
58: wait 200;conv ;ret                                                           58:
59: "syn up/down":                                                               59: Subroutine title.
60: if p1=1;wrt "osc",")";wait 500                                               60: If transferred value is 1, step amplitude up.
61: if p1=0;wrt "osc","(";wait 500                                               61: If transferred value is 0, step amplitude down.
62: ret                                                                          62: Return.
63: "top lin":                                                                   63: Subroutine title.
64: wrt "8568","LG TS RLOA";red "8568",V                                         64: Measure reference level in dB.
65: wrt "8568","LN TS RLOA";red "8568",B                                         65: Measure reference level in Volts.
66: cll 'synthesizer'(10,V)                                                      66: Set 3330B output (Cntr Freq. Amptd) using transferred values (P1, P2).
67: wrt "8568","M2 TS MA";red "8568",A                                           67: Measure signal amplitude.
68: if A>B/1.001 and A<1.001B;ret                                                68: If amplitude is within 1% of reference level, return.
69: if A>0;V-20log(A/B)→V;gto -3                                                 69: Change signal amplitude.
70: gsb "top log"                                                                70: Go to "top log"subroutine.
71: gto -8                                                                       71: Go back eight lines.
72: "top log":                                                                   72: Subroutine title.
73: wrt "8568","M1 LG TS RLOA";red "8568",V;V→R                                  73: Measure reference level.
74: cll 'synthesizer'(10,V)                                                      74: Set 3330B output (Cntr Freq. Amptd).
75: wrt "8568","M2 TS MA";red "8568",A                                           75: Measure signal amplitude.
76: if abs(A-R)<.1;ret                                                           76: If amplitude is within .1 dB of reference level, return.
77: V-(A-R)→V;if V>13;-10→V                                                      77: Change signal amplitude.
78: gto -4                                                                       78: Go back four lines.
79: "on interrupt":if not flg5 and not flg6;ret                                  79: Subroutine title.
80: oni 7,"interrupt";wrt "8568","DT@R1R4";eir 7                                 80:
81: wrt "8568","D3PUPA50,150LBTO ABORT a repetitive TEST, push MHz"              81:
82: wrt "8568","     (wait for end of TEST)@";ret                                82:
83: "interrupt":rds("8568")→A;cfg 5,6;iret                                       83: Subroutine title.
84: "start":                                                                     84: Title.
```

Figure 4. File 1 Annotated Listing (1 of 3)

```
85: wrt "8568","IP KSi EM A4 KSm KSo DI@"
86: wrt "8568","D3PUPA0,670LB        REQUIRED TEST EQUIPMENT      "
87: wrt "8568","";wrt "8568",""
88: wrt "8568"," SYNTHESIZER ..................... HP3330B"
89: wrt "8568",""
90: wrt "8568","     (HP-IB address listen-""$"")"
91: wrt "8568",""
92: wrt "8568"," TRACKING GENERATOR ..... HP8444A opt.058"
93: wrt "8568",""
94: wrt "8568"," POWER METER ............. HP436A opt.022"
95: wrt "8568",""
96: wrt "8568","     (HP-IB address-listen""-"",talk""4"")"
97: wrt "8568",""
98: wrt "8568"," POWER SENSOR ..................... HP8482A"
99: wrt "8568",""
100: wrt "8568"," POWER SPLITTER ................. HP11667A"
101: wrt "8568",""
102: wrt "8568"," 50 OHM LOAD ..................... HP11593A@"
103: wrt "8568","D3PUPA100,50PDLBTo CONTINUE, push Hz@"
104: gsb "R1R4"
105: wrt "8568","EMKSiEM"
106: wrt "8568","D3PUPA32,320LBDO YOU WANT SERIAL NUMBER AND DATE "
107: wrt "8568","  INFORMATION PRINTED ON TEST RECORD"
108: wrt "8568",""
109: wrt "8568","   YES     push GHz KEY"
110: wrt "8568","   NO      push  Hz KEY@"
111: gsb "R1R4"
112: if D<1e8;gto -6;if D=1;gto "pre-cal"
113: wrt "8568","EMKSiEM"
114: wrt "8568","DA1024,D3PUPA100,550LBenter 8568 serial number?@"
115: wtb "8568","PUPA100,520LB",17,"  (IF-DISPLAY SECTION)",18,3
116: wrt "8568","PUPA100,480LB  (enter last 5 digits only)@"
117: wrt "8568","PUPA100,450LB  (for example:  enter→ 00123Hz)@"
118: wrt "8568","D3PUPA100,100LBTo CONTINUE, push Hz@"
119: gsb "entry"
120: gsb "R1R4"
121: D→A[1];if D>99999;gto -7
122: wrt "8568","DA1024,D3PUPA100,550LBenter 8568 serial number?@"
123: wtb "8568","PUPA100,520LB",17,"  (RF SECTION)",18,3
124: wrt "8568","PUPA100,480LB  (enter last 5 digits only)@"
125: wrt "8568","PUPA100,450LB  (for example:  enter→ 00456Hz)@"
126: wrt "8568","D3PUPA100,100LBTo CONTINUE, push Hz@"
127: gsb "entry"
128: gsb "R1R4"
129: D→A[2];if D>99999;gto -7
130: wtb "8568","DA1024PUPA100,500PDLBenter month ",17,"(number)      ",18,3
131: wrt "8568","D3PUPA100,100LBTo CONTINUE, push Hz@"
132: gsb "entry"
133: gsb "R1R4"
134: D→A[3];if D>12 or D<1;gto -4
135: wtb "8568","DA1024PUPA100,500PDLBenter ",17,"day ",18,"of the month",3
136: wrt "8568","D3PUPA100,100LBTo CONTINUE, push Hz@"
137: gsb "entry"
138: gsb "R1R4"
139: D→A[4];if D>31 or D<1;gto -4
140: wtb "8568","DA1024PUPA100,500PDLBenter ",17,"year",18," (19XX)     ",3
141: wrt "8568","D3PUPA100,100LBTo CONTINUE, push Hz@"
142: gsb "entry"
143: gsb "R1R4"
144: D→A[5];if D<77 or D>2000;gto -4
145: if not flg3;gto +6
146: prt "     8568A          OPERATION       VERIFICATION  "
147: fmt 1,/,2fz2.0,f4.0,/;wrt 16.1,"Date:",A[3],"/",A[4],"/",A[5]
148: fmt 1,c,fz5.0;wrt 16.1,"I.F.-Display";wrt 16.1," serial no.",A[1]
149: fmt 1,c,fz5.0;wrt 16.1,"R.F. Section";wrt 16.1," serial no.",A[2]
150: fmt 6,16"-",/;wrt 16.6;gto +7
151: fmt 2,2/,21x,c;wrt 6.2,"***8568A OPERATION VERIFICATION DATA***"
152: fmt 3,2/,7x,c,47x,c;wrt 6.3,"Serial #'s","Date :"
153: fmt 1,9x,fz5.0,c,30x,2fz2.0,f4.0
154: wrt 6.1,A[1],"(IF-DISPLAY SECTION)",A[3],"/",A[4],"/",A[5]
155: fmt 7,9x,fz5.0,c;fmt 8,5/,10x,60"-",2/
156: wrt 6.7,A[2],"(RF SECTION)";wrt 6.8
157: "pre-cal":ldf 16,203,203
158: "test select":
159: if flg5;r4+1→r4;gto +10
160: if flg6;gto 203
161: wrt "8568","EMKSiEMKSmKSoA4";wait 50
162: cll 'menu'
163: wrt "8568","DA1024,DW1090";eir 7,0
164: wrt "8568","R1R4EE"
165: if bit(1,rds("8568"))#1;jmp 0
166: wrt "8568","OA";red "8568",r4
167: wtb "8568","DA1701LB",17,"LOADING TEST",18,3,"HD"
168: if r4>999;sfg 6;r4/1e3→r4
169: if r4>14;cfg 5,6;gto -8
170: 0→X[r4+1];if r4=0;sfg 5;1→r4
171: ldf r4+1,203,203
172: "menu":
173: wrt "8568","DA1024,PS,D3PUPA160,640,LB8568A Test Listing   "
174: wrt "8568"," "
175: wrt "8568"," OK  No.   TEST        OK  No.   TEST        "
176: wrt "8568","      0. All Tests          8. Bandwidth     "
177: wrt "8568","      1. Input Atten.       9. Residual FM   "
178: wrt "8568","      2. Linear Fidel.     10. Line Related  "
179: wrt "8568","      3. Log Fidel.        11. RF Gain       "
180: wrt "8568","      4. Log Switch.       12. Noise Level   "
181: wrt "8568","      5. IF Gain           13. Residuals     "
182: wrt "8568","      6. Freq.Span         14. Freq. Resp.   "
183: wrt "8568","      7. Sweep Time                          "
184: wrt "8568","                                             "
185: wrt "8568",""
186: wtb "8568"," Enter Test Number on 8568A DATA KEYBOARD",10,13
```

85: Set 8568A controls as shown.
86: Label on CRT as shown.
87:
88: Label on CRT as shown.
89:
90: Label on CRT as shown.
91:
92: Label on CRT as shown.
93:
94: Label on CRT as shown.
95:
96: Label on CRT as shown.
97:
98: Label on CRT as shown.
99:
100: Label on CRT as shown.
101:
102: Label on CRT as shown.
103: Label on CRT as shown.
104: Go to "R1R4" subroutine.
105: Erase 8568A memory.
106: Label on CRT as shown.
107: Label on CRT as shown.
108:
109: Label on CRT as shown.
110: Label on CRT as shown.
111: Go to "R1R4" subroutine.
112: If entry was MHz, kHz, go back six lines. If entry was Hz, go to "pre-cal".
113: Erase 8568A memory.
114: Label on CRT as shown.
115: Label on CRT as shown.
116: Label on CRT as shown.
117: Label on CRT as shown.
118: Label on CRT as shown.
119: Go to "entry" subroutine.
120: Go to "R1R4" subroutine.
121:
122: Label on CRT as shown.
123: Label on CRT as shown.
124: Label on CRT as shown.
125: Label on CRT as shown.
126: Label on CRT as shown.
127: Go to "entry" subroutine.
128: Go to "R1R4" subroutine.
129: If entry is greater than 99999, go back seven lines.
130: Label on CRT as shown.
131: Label on CRT as shown.
132: Go to "entry subroutine.
133: Go to "R1R4" subroutine.
134: If entry is greater than 12 or less than 1, go back four lines.
135: Label on CRT as shown.
136: Label on CRT as shown.
137: Go to "entry" subroutine.
138: Go to "R1R4" subroutine.
139: If entry is greater than 31 or less than 1, go back four lines.
140: Label on CRT as shown.
141: Label on CRT as shown.
142: Go to "entry" subroutine.
143: Go to "R1R4" subroutine.
144: If entry is less than 77 or greater than 2000, go back four lines.
145: If using an HP 9866B Printer, go forward six lines.
146: Print on strip printer as shown.
147: Print date entered on strip printer.
148: Print IF-Display Section serial number entered on strip printer.
149: Print RF Section serial number entered on strip printer.
150: Print dividing line on strip printer. Space. Go forward seven lines.
151: Print on 9866B Printer as shown.
152: Print on 9866B Printer as shown.
153: Format statement for next line.
154: Print IF-Display Section serial number and date on 9866B.
155: Format statements for next line.
156: Print RF Section serial number on 9866B.
157: Subroutine title. Load file 16 and execute line 203.
158: Subroutine title.
159: If all tests (TEST 0) is selected, advance test count one and go forward 10 lines.
160: If repetitive testing is selected, go to line 203.
161: Erase 8568A memory and blank CRT.
162: Go to "menu" subroutine.
163: Unblank CRT.
164: Enable Keyboard and label entry on CRT.
165: Wait for Keyboard entry.
166: Output and read test number entered.
167: Label on CRT as shown.
168: If kHz entered, set flag 6. Divide entry number by 1000.
169: If test count is greater than 14, clear flag 5 and go back eight lines.
170: Initialize error flag. If TEST 0 selected, set flag 5 and select test 1.
171: Load file test number selected plus one and begin at line 203.
172: Subroutine title.
173: Label on CRT as shown.
174: Label on CRT as shown.
175: Label on CRT as shown.
176: Label on CRT as shown.
177: Label on CRT as shown.
178: Label on CRT as shown.
179: Label on CRT as shown.
180: Label on CRT as shown.
181: Label on CRT as shown.
182: Label on CRT as shown.
183: Label on CRT as shown.
184: Label on CRT as shown.
185: Label on CRT as shown.
186: Label on CRT as shown.

Figure 4. File 1 Annotated Listing (2 of 3)

```
187: wrt "8568",""
188: wrt "8568"," To run Test once,          PUSH  Hz KEY"
189: wrt "8568"," To run Test repetitively,  PUSH KHz KEY"
190: wrt "8568",""
191: wtb "8568"," To ABORT a repetitive Test,PUSH MHz KEY",3
192: wtb "8568","PUPA224,0LB                 ",3
193: wtb "8568","DW1035,3008,DA3008,D3PUPA16,32LB",3
194: for I=0 to 7
195: 121→M;101→O;115→P;if X[I+1]>1;110→M;111→O;32→P
196: if X[I+1]>0;wrt "8568","DA",1103+47I,"DW",M,O,P
197: 121→M;101→O;115→P;if X[I+9]>1;110→M;111→O;32→P
198: if X[I+9]>0;wrt "8568","DA",1125+47I,"DW",M,O,P
199: next I;ret
200:
201:
202:
203:
*8987
```

187: Label on CRT as shown.
188: Label on CRT as shown.
189: Label on CRT as shown.
190: Label on CRT as shown.
191: Label on CRT as shown.
192: Label on CRT as shown.
193: Reserve space on CRT for test number display.
194: }
195: }
196: } Checks to see if test has been performed, then places YES or NO in variables
197: } M, O, and P for use in display. (1=YES, 2=NO.)
198: }
199: Return
200: }
201: } Intentionally left blank.
202: }
203: }
* Check sum number.

Figure 4. File 1 Annotated Listing (3 of 3)

FILE 16

```
0: "PRE-TEST AND ADJUSTMENT ROUTINE       04/27/1978":
1: gsb "SET-UP"
2: gsb "pwr mtr"
3: gsb "R1R4"
4: gsb "SET-UP"
5: gsb "RSBW"
6: gsb "R1R4"
7: wrt "8568","IP DT@ KSi EM RC8"
8: wrt "8568","D3PUPA100,360LBADJUST ""AMPTD CAL"" FOR@"
9: wrt "8568","PUPA100,320LBA MARKER AMPLITUDE READING @"
10: wtb "8568","PUPA100,290LBOF -10.00dBm ",171,"0.01dB@"
11: wrt "8568","PUPA100,100LBTo CONTINUE, push Hz@ M2"
12: gsb "R1R4"
13: wrt "8568","MA";red "8568",A;if abs(A+10)>.5;gto -9
14: wrt "8568","IP KSi EM DT@ RC9"
15: wrt "8568","D3PUPA100,360LBADJUST ""FREQ ZERO"" FOR A@"
16: wrt "8568","PUPA100,320LBMAXIMUM SIGNAL LEVEL ON DISPLAY@"
17: wrt "8568","PUPA100,100LBTo CONTINUE, push Hz@HD"
18: gsb "R1R4"
19: gto "test select"
20:
21: "pwr mtr":
22:
23: wrt "8568","PU-180,-20PD0,150,-150,0"
24: wrt "8568","0,-150,150,0PU0,100PD-150,0"
25: wrt "8568","PU120,-70LBO@PUPR-80,80LB436A@"
26: wrt "8568","PUPR35,-80PD0,-220,300,0,0,80"
27: wrt "8568","15,0,0,80,-5,0,0,15,-15,0,0,-15,-5,0,0,-80,15,0"
28: wrt "8568","PU-170,80LBCAL@PUPR-32,-32LBOUTPUT@"
29: wrt "8568","PUPR10,16PD60,60"
30: wrt "8568","PUPR60,-80LBPOWER@PUPR-64,-32LBSENSOR@"
31: wrt "8568","D3PUPA96,224LBCONNECT POWER METER TO CAL OUTPUT"
32: wtb "8568","     AND VERIFY LEVEL IS -10dBm ",171," 0.2dB.",10,13
33: wrt "8568","       IF NOT REFER TO SECTION V OF"
34: wtb "8568","    OPERATING AND SERVICE MANUAL.",3,10,13;ret
*29696
```

0: Test title and date.
1: Go to "SET-UP" subroutine.
2: Go to "pwr mtr" subroutine.
3: Go to "R1R4" subroutine.
4: Go to "SET-UP" subroutine.
5: Go to "RSBW" subroutine.
6: Go to "R1R4" subroutine.
7: Set 8568A controls as shown including RECALL 8.
8: Label adjustment instructions on CRT as shown.
9: Label adjustment instructions on CRT as shown.
10: Label adjustment instructions on CRT as shown.
11: Label instructions on CRT as shown.
12: Go to "R1R4" subroutine.
13: Read marker amplitude: if amplitude plus 10 is greater than .5, go back 9 lines.
14: Set 8568A controls as shown including RECALL 9.
15: Label adjustment instructions on CRT as shown.
16: Label adjustment instructions on CRT as shown.
17: Label adjustment instructions on CRT as shown.
18: Go to "R1R4" subroutine.
19: Go to "test select" subroutine.
20:
21: Subroutine title.
22:
23: Draw power meter on CRT.
24: Draws power meter on CRT.
25: Labels model number on power meter.
26: Draws connecting cable.
27: Draws 8482A Power Sensor.
28: Labels 8568A CAL OUTPUT connector.
29:
30: Labels power sensor.
31: Labels connection instructions on CRT.
32: Labels connection instructions on CRT.
33: Label operating instructions on CRT.
34: Label operating instructions on CRT.
*: Check sum number.

Figure 5. Pre-test and Adjustment Routine Annotated Listing

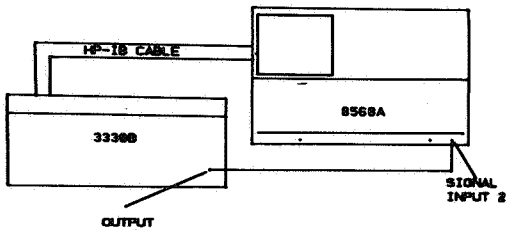
1. INPUT ATTENUATOR SWITCHING UNCERTAINTY

SPECIFICATION:

±1.0 dB over 10 to 70 dB Range

DESCRIPTION:

A signal source of known amplitude is input to the spectrum analyzer and the analyzer adjusted for a reference. The input attenuator is stepped down from 10 dB to 70 dB, the reference level stepped up from —50 dB to +10 dB, and the signal source stepped up from —53 dB to +7 dB. This maintains the signal peak at the same approximate location on the CRT display. The amplitude of the signal is measured at each step using the marker function on the analyzer.




```
CONNECT 3330B TO 8568A AS SHOWN

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
        Test Number  1
```

EQUIPMENT:

Automatic Synthesizer ..... HP 3330B

PROCEDURE:

1. Connect equipment as shown in figure above.
2. Select test no. 1 by keying in 1 [Hz μV μsec] ([kHz mV msec] if continuous testing is desired) on the 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 6. Input Attenuator Switching Uncertainty Test Annotated Listing (1 of 2)

FILE 2

Variables		Flags	
A	Marker Amptd or Error indicator	1	Error
D	Keyboard Entry	2	Counter
I	For/Next Loop Counter	3	No 9866B Printer
A(*)	Data	4	Counter
X(*)	Display PASS/FAIL indicator	5	All tests (TESTS 0) selected
		6	Repetitive testing selected

```
0: "INPUT ATTENUATOR SWITCHING UNCERTAINTY    04/27/1978":
1: "input atten":
2:
3: if flg6 and X[2]>0;gto +5
4: gsb "SET-UP"
5: gsb "syn"
6: gsb "R1R4"
7: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
8: wrt "8568","IPKSiEM"
9: wtb "8568","DA1024D3PUPA176,592LBINPUT ATTENUATOR ACCURACY",3
10: cll 'on interrupt'
11:
12: "test":
13:
14: wrt "8568","CF10MZ SP100KZ RB10KZ RL-50DM S2"
15: cll 'synthesizer'(10,-53,10)
16: wait 1000;wrt "8568","LN KSA E1 TS E1 MA";red "8568",A
17: if A<-56.5;gto -13
18: wrt "8568","M3"
19: for I=2 to 7
20: fmt 1,c,f3.0,c;wrt "8568.1","AT",I10,"DB"
21: wrt "8568.1","RL",(I-1)10-50,"DM"
22: cll 'syn up/down'(1)
23: wait 1000;wrt "8568","TSE1MA";red "8568",A[I-1];next I
24:
25: "print out":
26:
27: if flg3;gto +9
28: wrt 6;if flg5;fmt 3,5/;wrt 6.3
29: wtb 6,10,13,"          1. INPUT ATTENUATOR SWITCHING UNCERTAINTY",10,13
30: fmt 5,24x,c,/;wrt 6.5,"(Referenced to 10dB Attenuation)"
31: wrt 6,"          SPECIFICATION: +/-1.0dB Maximum (uncorrected)";wrt 6
32: wrt 6,"          MEASURED:"
33: fmt 5,20x,c,15x,c;wrt 6.5,"Input Atten","Input Atten"
34: wrt 6.5,"Setting (dB)","Deviation"
35: fmt 5,/,24x,c,23x,c;wrt 6.5,"10","(ref)"
36: for I=1 to 6;32→A
37: if abs(A[I])>1;42→A;sfg 1
38: if flg3;next I;gto +4
39: fmt 2,24x,f2.0,20x,f7.1,b,b
40: wrt 6.2,(I+1)10,A[I],A,A;next I;wrt 6
41: gto +6;if flg5;fmt 3,4/;wrt 6.3
42: prt "   TEST NO. 1   input attenuator"
43: spc ;if not flg1;prt "     PASSED     ";gto +3
44: prt "out of tolerance";spc
45: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV";spc
46: fmt 6,16"-",/;wrt 16.6
47: 1+flg1→X[2];cfg 1
48: gto "test select"
*29928
```

0: Title and date.
1: Title.
2:
3: If repetitive testing and not first time through, go forward five lines.
4: Go to "SET-UP" subroutine.
5: Go to "syn" subroutine.
6: Go to "R1R4" subroutine.
7: If entry is kHz or GHz, go back 3 lines. If entry is MHz, go to "test select".
8: Preset 8568A, blank graticule, and erase memory.
9: Label test title on CRT.
10: Go to 'on interrupt' subprogram.
11:
12: Title.
13:
14: Set 8568A controls as shown.
15: Go to 'synthesizer' subprogram and enter values as shown (Cntr Freq. Ampl. AmplStpS).
16: Set 8568A controls as shown and read marker amplitude.
17: If marker amplitude is less than −56.5, go back thirteen lines.
18: Select Marker Delta.
19: Initialize for/next loop to count from 2 to 7 by 1.
20: Set attenuation in 10 dB steps from 20 to 70 dB.
21: Set reference level in 10 dB steps from −40 to +10 dBm.
22: Go to 'syn up/down' subprogram and step amplitude up.
23: Sweep and read marker amplitude for each setting in lines 20 and 21.
24:
25: Title.
26:
27: If not using an HP 9866B, go forward nine lines.
28: If all tests (TEST 0) selected, space eight lines on 9866B.
29: Print test number and title on 9866B.
30: Print on 9866B as shown.
31: Print specification on 9866B.
32: Print on 9866B as shown.
33: Print on 9866B as shown.
34: Print on 9866B as shown.
35: Print on 9866B as shown.
36: Store blanks in measured data indicators.
37: If measured data is out of tolerance, place asterisk(*) in indicator; set flag 1.
38: If not using a 9866B Printer, go forward four lines.
39: Format statement for next line.
40: Print measured data and asterisks (**) if applicable, on 9866B.
41: If all tests (TEST 0) selected, space four lines on 9866B. Go forward six lines.
42: Print test number and title on strip printer.
43: If flag 1 is not set, print "PASSED" on strip printer and go forward three lines.
44: Print "out of tolerance" on strip printer.
45: Print on strip printer as shown.
46: Print dividing line on strip printer.
47: Add one to flag 1 value, place in YES/NO indicator, and clear flag 1.
48: Go to "test select" subroutine.
*: Check sum number.

Figure 6. Input Attenuator Switching Uncertainty Test Annotated Listing (2 of 2)

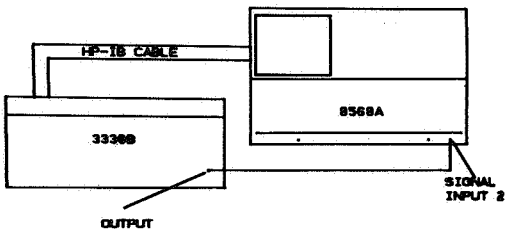
2. AMPLITUDE FIDELITY (linear)

SPECIFICATION:

±3% of Reference level

DESCRIPTION:

A signal source of known amplitude is input to the spectrum analyzer and the analyzer adjusted for a reference. The signal source is stepped down from —10 dB to —30 dB in 10 dB steps and the amplitude of the displayed signal measured using the marker function. This measured value is used to calculate the percent error from the reference level established.




```
CONNECT 3330B TO 8568A AS SHOWN

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
        Test Number  2
```

EQUIPMENT:

Automatic Synthesizer ..... HP 3330B

PROCEDURE:

1. Connect equipment as shown in figure above.
2. Select test no.2 by keying in 2 (Hz μV μsec) ((kHz mV msec) if continuous testing is desired) on the 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 7. Amplitude Fidelity (Linear) Test Annotated Listing (1 of 2)

FILE 3

Variables		Flags	
A	Marker Amptd or error indicator	1	Error
B	Marker Amptd or error indicator	2	Counter
C	Marker Amplitude	3	No 9866B Printer
D	Keyboard Entry	4	Counter
A(*)	Data	5	All tests (TEST 0) selected
X(*)	Display PASS/FAIL indicator	6	Repetitive testing selected

```
0: "AMPLITUDE FIDELITY (linear)   04/03/1978":
1: "lin check":
2:
3: if flg5;gto +7
4: if flg6 and X[3]>0;gto +6
5: gsb "SET-UP"
6: gsb "syn"
7: gsb "R1R4"
8: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
9:
10: "test":
11:
12: wrt "8568","IP CF10MZ SP0HZ RB3KZ LN AT0DB S2 TS"
13: cll 'synthesizer'(10,-10,10)
14: wrt "8568","E1 MA";red "8568",A;if A<.02;gto -9
15: gsb "top lin"
16: wtb "8568","DA1024,D3PUPA256,592LBLINEAR FIDELITY",3
17: cll 'on interrupt'
18: wrt "8568","M2 TS MA";red "8568",A
19: cll 'syn up/down'(0)
20: wrt "8568","TS MA";red "8568",B
21: cll 'syn up/down'(0)
22: wrt "8568","TS MA";red "8568",C
23: 100(B/A-.316)→A[1];100(C/A-.1)→A[2]
24:
25: "print out":
26:
27: 32→A→B
28: if abs(A[1])>3;42→A;sfg 1
29: if abs(A[2])>3;42→B;sfg 1
30: fmt 3,28x,f13.2,b,b;if not flg3;gto +7
31: prt "   TEST NO. 2   linear fidelity ";if not flg1;gto +4
32: spc ;prt "out of tolerance";spc
33: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
34: spc ;gto +2
35: spc ;prt "     PASSED     ";spc
36: fmt 6,16"-",/;wrt 16.6;gto +10
37: wtb 6,10,10,13,"          2. AMPLITUDE FIDELITY (Linear)",10,13
38: wrt 6
39: wrt 6,"          SPECIFICATION:    3.0% of Reference Level";wrt 6
40: wrt 6,"          MEASURED:"
41: fmt 5,29x,c;wrt 6.5,"dB Down          Error in %"
42: fmt 5,29x,c,/;wrt 6.5,"From Ref          of Reference"
43: wrt 6.3,"   10 dB   ",A[1],A,A
44: wrt 6.3,"   20 dB   ",A[2],B,B;wrt 6
45: if flg5;fmt 8,5/,80"_",5/;wrt 6.8
46: 1+flg1→X[3];cfg 1
47: gto "test select"
*27702
```

0: Test title and date.
1: Title.
2:
3: If all tests (TEST 0) selected, go forward seven lines.
4: If repetitive testing and not first time through, go forward six times.
5: Go to "SET-UP" subroutine.
6: Go to "syn" subroutine.
7: Go to "R1R4" subroutine.
8: If kHz or GHz entered, go back three lines. If MHz entered, go to "test select".
9:
10: Title.
11:
12: Set 8568A controls as shown.
13: Go to 'synthesizer' subprogram and enter values as shown (Cntr Freq. Ampl. AmplStpS).
14: Read marker amplitude; if less than .02, go back nine lines.
15: Go to "top lin" subroutine.
16: Label test title on CRT.
17: Go to 'on interrupt' subprogram.
18: Select marker normal and read amplitude.
19: Go to 'syn up/down' subprogram and step amplitude down.
20: Sweep and read marker amplitude.
21: Go to 'syn up/down' subprogram and step amplitude down.
22: Sweep and read marker amplitude.
23: Calculate percent error for each step.
24:
25: Title.
26:
27: Place blanks in measured data indicators.
28: If measured data is out of tolerance, place asterisk (*) in indicator; set flag 1.
29: If measured data is out of tolerance, place asterisk (*) in indicator; set flag 1.
30: If using a 9866B Printer, go forward seven lines.
31: Print test number and title on strip printer. If flag 1 is not set, go forward 4 lines.
32: Print "out of tolerance" on strip printer.
33: Print on strip printer as shown.
34: Space on strip printer. Go forward two lines.
35: Space and print "PASSED" on strip printer.
36: Print dividing line on strip printer. Go forward ten lines.
37: Print test number and title on 9866B.
38: Space on 9866B.
39: Print specification on 9866B.
40: Print on 9866B as shown.
41: Print on 9866B as shown.
42: Print on 9866B as shown.
43: Print percent error for 10 dB down measurement.
44: Print percent error for 20 dB down measurement.
45: If all tests (TEST 0) selected, space five times, print dividing line on 9866B.
46: Add one to flag 1 value, place in YES/NO indicator, and clear flag 1.
47: Go to "test select" subroutine.
* Check sum number.

Figure 7. Amplitude Fidelity (Linear) Test Annotated Listing (2 of 2)

3. AMPLITUDE FIDELITY (log)

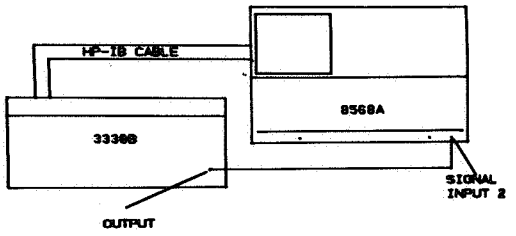
SPECIFICATION:

±1.0 dB max over 0 to 80 dB display.
±1.5 dB max over 0 to 90 dB display.

DESCRIPTION:

The specification listed is for cumulative error. Only cumulative error is measured in this procedure.

A signal source of known amplitude is input to the spectrum analyzer and the analyzer adjusted for a reference. The signal source is stepped down in 2 dB steps and the displayed signal amplitude on the analyzer measured at each step. This measurement is performed in both the 3 kHz and 300 kHz bandwidths.




```
CONNECT 3330B TO 8568A AS SHOWN

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
        Test Number  3
```

EQUIPMENT:

Automatic Synthesizer ..... HP 3330B

PROCEDURE:

1. Connect equipment as shown in figure above.
2. Select test no. 3 by keying in 3 (Hz μV μsec) ((kHz mV msec) if continuous testing is desired) on the 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 8. Amplitude Fidelity (Log) Test Annotated Listing (1 of 2)

FILE 4

Variables		Flags	
A	Marker Amptd or Error Indicator	1	Error
B	Marker Amptd or Error Indicator	2	Counter
D	Keyboard Entry	3	No 9866B Printer
I	For/Next Loop Counter	4	Counter
C(*)	Data	5	All tests (TEST 0) is selected
X(*)	Display PASS/FAIL indicator	6	Repetitive testing selected

```
0: "AMPLITUDE FIDELITY (log)     04/03/1978":
1: "fidel":
2:
3: if flg5;gto +6
4: if flg6 and X[4]>0;gto +5
5: gsb "SET-UP"
6: gsb "syn"
7: gsb "R1R4"
8: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
9: wrt "8568","IP KSi EM"
10: wtb "8568","DA1024D3PUPA272,592LBLOG FIDELITY",3
11: cll 'on interrupt'
12:
13: "test":
14:
15: wrt "8568","CF10MZ SP0HZ RB3KZ RL10DM AT30DB S2"
16: cll 'synthesizer'(10,10,2)
17: wrt "8568","TS E1 MA";red "8568",A;if A<2;gto -12
18: gsb "top log"
19: 0→B;wrt "8568","M3 KSM TS"
20: for I=0 to 45
21: if I=35;wrt "8568","VB30HZ TS"
22: if I=42;wrt "8568","VB3HZ TS"
23: wrt "8568","TS MA";red "8568",A;if I=0;0→A
24: A-B+2*I→C[2,I];2I→C[1,I]
25: if I=10;wrt "8568","AT20DB TS MA";red "8568",B;B-A→B
26: cll 'syn up/down'(0)
27: next I
28: wrt "8568","RB300KZ AT30DB TS"
29: cll 'synthesizer'(10,10,2)
30: gsb "top log"
31: 0→B;wrt "8568","VB30HZ M3 KSM TS"
32: for I=0 to 35
33: wrt "8568","TS MA";red "8568",A;if I=0;0→A
34: A-B+2*I→C[2,I+46]
35: 2I→C[1,I+46]
36: if I=10;wrt "8568","AT20DB TS MA";red "8568",B;B-A→B
37: cll 'syn up/down'(0)
38: next I
39:
40: "print out":
41:
42: if flg3;gto +9
43: wtb 6,"          3. AMPLITUDE FIDELITY (Log)",10,10,13
44: fmt 5,/,10x,c,7x
45: wrt 6.5,"SPECIFICATION: Cumulative Error  +/-1.0dB","0-80dB"
46: fmt 5,43x,c,7x,c,/;wrt 6.5,"+/-1.5dB","0-90dB"
47: wrt 6,"          MEASURED:"
48: fmt 5,25x,c;wrt 6.5,"3 kHz Bandwidth"
49: fmt 5,18x,c;wrt 6.5,"dB Down       Cumulative"
50: fmt 5,18x,c;wrt 6.5,"From Ref      Error in dB"
51: for I=0 to 4
52: 32→A→B;1→r1
53: if abs(C[2,I])>r1;42→A;sfg 1
54: if flg3;gto +3
55: fmt 3,10x,f15.1,f17.1,b,b,f15.1,b,b
56: wrt 6.3,C[1,I],C[2,I],A,A
57: next I
58: for I=5 to 45 by 5
59: 32→A→B;1→r1
60: if I>31;1.5→r1
61: if abs(C[2,I])>r1;42→A;sfg 1
62: if flg3;next I;gto +6
63: wrt 6.3,C[1,I],C[2,I],A,A
64: next I
65: fmt 5,b,b,25x,c,b,b;wrt 6.5,10,13,"300 kHz Bandwidth",10,13
66: fmt 5,18x,c;wrt 6.5,"dB Down       Cumulative"
67: fmt 5,18x,c;wrt 6.5,"From Ref      Error in dB"
68: for I=46 to 50
69: 32→A→B;1→r1
70: if abs(C[2,I])>r1;42→A;sfg 1
71: if flg3;gto +2
72: wrt 6.3,C[1,I],C[2,I],A,A
73: next I
74: for I=51 to 81 by 5
75: 32→A→B;1→r1
76: if abs(C[2,I])>r1;42→A;sfg 1
77: if flg3;next I;gto +3
78: wrt 6.3,C[1,I],C[2,I],A,A
79: next I;wrt 6;gto +7
80: prt "   TEST NO. 3     log fidelity  ";if not flg1;gto +4
81: spc ;prt "out of tolerance";spc
82: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
83: spc ;gto +2
84: spc ;prt "     PASSED     ";spc
85: fmt 6,16"-",/;wrt 16.6
86: 1+flg1→X[4];cfg 1
87: gto "test select"
*18493
```

```
0:  Test title and date.
1:  Title.
2:
3:  If all tests (TEST 0) selected, go forward six lines.
4:  If repetitive testing and not first time through, go forward five lines.
5:  Go to "SET-UP" subroutine.
6:  Go to "syn" subroutine.
7:  Go to "R1R4" subroutine.
8:  If entry was kHz or GHz, go back three lines. If entry was MHz, go to "test select".
9:  Preset 8568A , blank CRT, and erase memory.
10: Label test title on CRT.
11: Go to 'on interrupt' subprogram.
12:
13: Title.
14:
15: Set 8568A controls as follows.
16: Go to 'synthesizer' subprogram and enter the values shown (Cntr Freq. Ampl. AmplStpS).
17: Sweep and read marker amplitude, if amplitude is less than 2, go back twelve lines.
18: Go to "top log" subroutine.
19: Clear variable B, select marker delta, and sweep.
20: Initialize for/next loop to count from 0 to 45 by 1.
21: If count is 35, select 30 Hz Video Bandwidth.
22: If count is 42, select 3 Hz Video Bandwidth.
23: Sweep and read marker amplitude. If count is 0, clear variable A.
24:
25: If count is 10, set input attenuation to 20 dB, sweep, and read marker amplitude.
26: Go to 'syn up/down' subprogram and step down amplitude.
27: Continue loop.
28: Set 8568A controls as shown.
29: Go to 'synthesizer' subprogram and enter values shown (Cntr Freq. Ampl. AmplStpS).
30: Go to "top log" subroutine.
31: Clear variable B. Set 8568A controls as shown.
32: Initialize for/next loop to count from 0 to 35 by 1.
33: Sweep and measure marker amplitude; if count is 0, clear variable A.
34:
35:
36: If count is 10, set input attenuation to 20 dB, sweep, and measure marker amplitude.
37: Go to 'syn up/down' subprogram and step down amplitude.
38: Continue loop.
39:
40: Title.
41:
42: If not using a 9866B, go forward nine lines.
43: Print test title and number on 9866B.
44: Format statement for next line.
45: Print specification on 9866B.
46: Print specification on 9866B.
47: Print on 9866B as shown.
48: Print on 9866B as shown.
49: Print on 9866B as shown.
50: Print on 9866B as shown.
51: Initialize for/next loop to count from 0 to 4 by 1.
52: Place blanks in variables A and B. Place 1 in variable r1.
53: If measured data (variable A) is out of tolerance, place asterisk (*) in A and set flag 1.
54: If not using a 9866B, go forward three lines.
55: Format statement for next line.
56: Print measured data and asterisks (**) if applicable on 9866B.
57: Continue loop.
58: Initialize for/next loop to count from 5 to 45 by 5.
59: Place blanks in variables A and B. Place 1 in variable r1.
60: If count is greater than 31, place 1.5 in variable r1.
61: If measured data is out of tolerance, place asterisk (*) in A and set flag 1.
62: If not using a 9866B, continue loop, and go forward six lines.
63: Print measured data and asterisks (**) if applicable, on 9866B.
64: Continue loop.
65: Format statement for next line.
66: Print on 9866B as shown.
67: Print on 9866B as shown.
68: Initialize for/next loop to count from 46 to 50 by 1.
69: Place blanks in variables A and B. Place 1 in variable r1.
70: If measured data is out of tolerance, place asterisk (*) in A and set flag 1.
71: If not using a 9866B, go forward two lines.
72: Print measured data and asterisks (**) if applicable, on 9866B.
73: Continue loop.
74: Initialize for/next loop to count from 51 to 81 by 5.
75: Place blanks in variables A and B. Place 1 in variable r1.
76: If measured data is out of tolerance, place asterisk(*) in A and set flag 1.
77: If not using a 9866B, continue loop and go forward three lines.
78: Print measured data and asterisks (**) if applicable, on 9866B.
79: Continue loop. Space 9866B. Go forward seven lines.
80: Print test number and title on strip printer. If flag 1 is not set, go forward 4 lines.
81: Print "out of tolerance" on strip printer.
82: Print on strip printer as shown.
83: Space. Go forward two lines.
84: Space. Print "PASSED" on strip printer. Space.
85: Print dividing line on strip printer.
86: Add one to flag 1 value and place in YES/NO indicator. Clear flag 1.
87: Go to "test select" subroutine.
*   Check sum number.
```

Figure 8. Amplitude Fidelity (Log) Annotated Listing (2 of 2)

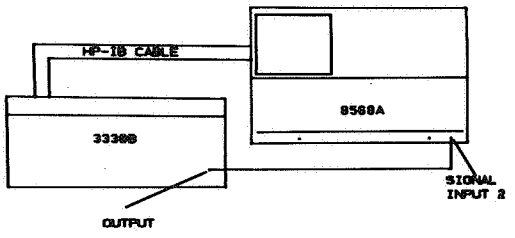
4. LOG SCALE SWITCHING

SPECIFICATION:

±0.5 dB

DESCRIPTION:

A signal source of known amplitude is input to the spectrum analyzer and the analyzer adjusted for a reference in LOG 1 dB/Division. The analyzer is then switched to each of the other LOG scales (2 dB, 5 dB, and 10 dB) and to LINEAR and the amplitude of the signal peak is measured at each setting.



CONNECT 3330B' TO 8568A AS SHOWN

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
Test Number 4

EQUIPMENT:

Automatic Synthesizer ..... HP 3330B

PROCEDURE:

1. Connect equipment as shown in figure above.
2. Select test no. 4 by keying in 4 [Hz μV μsec] ([kHz mV msec] if continuous testing is desired) on the 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 9. Log Scale Switching Test Annotated Listing (1 of 2)

FILE 5

Variables		Flags	
A	Marker Amptd or Error indicator	1	Error
B	Error Indicator	2	Counter
C	Error Indicator	3	No 9866B Printer
D	Keyboard Entry	4	Counter
F	Amplitude Reference	5	All tests (TEST 0) selected
V	3330B Amplitude	6	Repetitive testing selected
A(*)	Data		
X(*)	Display PASS/FAIL indicator		

```
0: "LOG SCALE SWITCHING UNCERTAINTY     04/03/1978":
1: "offsets":
2:
3: if flg5;gto +6
4: if flg6 and X[5]>0;gto +5
5: gsb "SET-UP"
6: gsb "syn"
7: gsb "R1R4"
8: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
9: wrt "8568","IP CF10MZ SP0HZ RB3KZ LG1DB RL-5DM S2 TS"
10: cll 'synthesizer'(10,-7,0)
11: wrt "8568","TS E1 MA";red "8568",A;if A<-13;gto -6
12: wtb "8568","DA1024,D3PUPA256,592LBLOG SWITCHING",3
13: cll 'on interrupt'
14:
15: "test":
16:
17: gsb "top log"
18: V→F
19: wrt "8568","LG2DB TS";gsb "top log"
20: V-F→A[1]
21: wrt "8568","LG5DB TS";gsb "top log"
22: V-F→A[2]
23: wrt "8568","LG10DB TS";gsb "top log"
24: V-F→A[3]
25:
26: "print out":
27:
28: if flg3;gto +6
29: wtb 6,10,10,13,"          4. LOG SCALE SWITCHING UNCERTAINTY",10,13
30: fmt 5,15x,c,/;wrt 6.5,"Log Scale Switching Uncertainty (Ref to 1dB/div)"
31: wtb 6,10,13,"          SPECIFICATION: +/-0.5dB (uncorrected)",10,10,13
32: wrt 6,"          MEASURED:"
33: fmt 5,14x,c,14x,c;wrt 6.5,"Log Scale","Error in dB"
34: 32→A→B→C
35: if abs(A[1])>.5;42→A;sfg 1
36: if abs(A[2])>.5;42→B;sfg 1
37: if abs(A[3])>.5;42→C;sfg 1
38: if flg3;gto +6
39: fmt 3,10x,f22.2,b,b
40: wrt 6.3,"     2dB/div",A[1],A,A
41: wrt 6.3,"     5dB/div",A[2],B,B
42: wrt 6.3,"    10dB/div",A[3],C,C;wrt 6
43: gto +7;if flg5;fmt 8,3/,80"_",3/;wrt 6.8
44: prt "   TEST NO. 4    log switching  ";spc ;if not flg1;gto +4
45: prt "out of tolerance";spc
46: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
47: spc ;gto +2
48: prt "    PASSED";spc
49: fmt 6,16"-",/;wrt 16.6;gto +1
50: 1+flg1→X[5];cfg 1
51: gto "test select"
*26733
```

0: Test title and date.
1: Title.
2:
3: If all tests (TEST 0) selected, go forward six lines.
4: If repetitive testing and not first time through, go forward five lines.
5: Go to "SET-UP" subroutine.
6: Go to "syn" subroutine.
7: Go to "R1R4" subroutine.
8: If kHz or GHz entered, go back three lines. If MHz entered, go to "test select".
9: Set 8568A controls as shown.
10: Go to 'synthesizer' subprogram and enter values shown (Cntr Freq. Ampl. AmplStpS).
11: Sweep and measure marker amplitude; if less than −13, go back six lines.
12: Label test title on CRT.
13: Go to 'on interrupt' subprogram.
14:
15: Title.
16:
17: Go to "top log"subroutine.
18: Enter variable V into variable F.
19: Set 8568A for 2 dB log, sweep, and go to "top log" subroutine.
20:
21: Set 8568A for 5 dB log, sweep, and go to "top log" subroutine.
22:
23: Set 8568A for 10 dB log, sweep, and go to "top log" subroutine.
24:
25:
26: Title.
27:
28: If not using a 9866B, go forward six lines.
29: Print test number and title on 9866B.
30: Print on 9866B as shown.
31: Print specification on 9866B.
32: Print on 9866B as shown.
33: Print on 9866B as shown.
34: Place blanks in variables A, B, and C.
35: If measured data is out of tolerance, place asterisk (*) in A and set flag 1.
36: If measured data is out of tolerance, place asterisk (*) in B and set flag 1.
37: If measured data is out of tolerance, place asterisk (*) in C and set flag 1.
38: If not using a 9866B, go forward six lines.
39: Format statement for next three lines.
40: Print measured data on 9866B.
41: Print measured data on 9866B.
42: Print measured data on 9866B.
43: Go forward seven lines. If all tests selected, print dividing line on 9866B.
44: Print test number and title on strip printer. If flag 1 is not set, go forward 4 lines.
45: Print "out of tolerance" on strip printer.
46: Print on strip printer as shown.
47: Space. Go forward two lines.
48: Print "PASSED" on strip printer. Space.
49: Print dividing line on strip printer.
50: Add one to flag 1 value and enter into YES/NO indicator. Clear flag 1.
51: Go to "test select" subroutine.
*: Check sum number.

Figure 9. Log Scale Switching Test Annotated Listing (2 of 2)

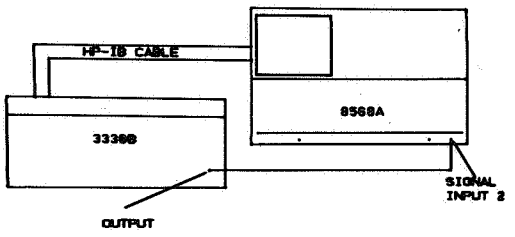
5. IF GAIN UNCERTAINTY

SPECIFICATION:

0.0 dBm to —55.9 dBm; ±0.6 dB
—56.0 dBm to —129.9 dBm; ±1.0 dB

DESCRIPTION:

A signal source of known amplitude is input to the spectrum analyzer and the analyzer is adjusted for a reference level. The amplitude of the signal peak is measured in .1 dB steps from —0.1 dB to —0.9 dB, in 1 dB steps from —1.0 dB to —9.0 dB, in 10 dB steps from —10 dB to—50 dB, and also in 10 dB steps from —10 dB to —70 dB. Next, the log offset amplifiers (LG10, LG20-1, and LG20-2) are checked.




```
CONNECT 3330B TO 8568A AS SHOWN

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
        Test Number  5
```

EQUIPMENT:

Automatic Synthesizer . . . . . HP 3330B

PROCEDURE:

1. Connect equipment as shown in figure above.
2. Select test no. 5 by keying in 5 (Hz μV μsec) ((kHz mV msec) if continuous testing is desired) on the 8568A Keyboard.
3. Follow the instruction as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 10. IF Gain Uncertainty Test Annotated Listing (1 of 3)

FILE 6

Variables

A	Marker Amptd or Error Indicator
B	Error Indicator
D	Keyboard Entry
I	For/Next Loop Counter
L	Reference Level
R	Reference Level Error
D(*)	Data
X(*)	Display PASS/FAIL indicator
r1	Specification

Flags

1	Error
2	Counter
3	No 9866B Printer
4	Counter
5	All tests (TEST 0) selected
6	Repetitive testing selected

```
0: "IF GAIN UNCERTAINTY     04/27/1978":
1: "IF Gain":
2:
3: if flg5;gto +7
4: if flg6 and X[6]>0;gto +6
5: gsb "SET-UP"
6: gsb "syn"
7: gsb "R1R4"
8: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
9:
10: "test":
11:
12: wrt "8568","IP CF10MZ AT10DB RB3KZ RL0DM"
13: wrt "8568","SP1KZ VB300HZ LN KSA TS S2"
14: cll 'synthesizer'(10,-3,0)
15: wrt "8568","KSI TS E1E2 TS MA";red "8568",A
16: if A<-9;gto -11
17: wtb "8568","DA1024,D3PUPA224,592LBIF GAIN UNCERTAINTY",3
18: cll 'on interrupt'
19: gto +6
20: "measure step":L-D→L
21: cll 'synthesizer'(10,L-3)
22: wrt "8568","RL",L,"DM"
23: wtb "8568","TS MA";red "8568",A;if I=1 or I=28;A-L→R;ret
24: A-R-L→D[2,I-1];L→D[1,I-1];ret
25: .1→L;.1→D
26: for I=1 to 11
27: if I=4;.2→D
28: gsb "measure step"
29: next I
30: -1→L;1→D
31: for I=12 to 19
32: gsb "measure step"
33: next I
34: 0→L;10→D
35: wrt "8568","VB30HZ"
36: for I=20 to 24
37: gsb "measure step"
38: next I
39: 10→L;10→D;wrt "8568","RB1KZ TS E1"
40: for I=28 to 35
41: if I=35;wrt "8568","VB10HZ TS E1"
42: gsb "measure step"
43: next I
44: "log offset amps":
45: -50→L;cll 'synthesizer'(10,-48,0)
46: wrt "8568","KSq SP50KZ RB3KZ AT10DB LG10DB RL-50DM VB30HZ"
47: wrt "8568","S2 CT TS E1E2 SP3KZ TS E1 MA";red "8568",B
48: for I=25 to 27
49: wrt "8568","RLDN";L-10→L;if I=27;wrt "8568","RLDN";L-10→L
50: wrt "8568","TS MA";red "8568",A;A-B+D[2,23]→D[2,I-1]
51: L→D[1,I-1]
52: next I
53:
54: "print out":
55:
56: if flg3;gto +12
57: wtb 6,"          5. IF GAIN UNCERTAINTY",10,10,13
58: fmt 5,/,10x,c
59: wrt 6.5,"SPECIFICATION: Reference Level (uncorrected)"
60: fmt 5,/,25x,c;wrt 6.5,"Range          Error"
61: fmt 5,19x,c;wrt 6.5,"0.0 to  -55.9dBm      +/-0.6dB"
62: fmt 5,19x,c,/;wrt 6.5,"-56 to -129.9dBm      +/-1.0dB"
63: wrt 6,"          MEASURED:  (attenuator set at 10dB)"
64: fmt 5,/,23x,c;wrt 6.5,"3kHz Bandwidth";wrt 6
65: fmt 5,15x,c;wrt 6.5,"Reference          Error in dB"
66: fmt 2,17x,"Level",15x,"(Ref to",/,17x,"(dBm)",13x,f7.2,"dBm)",/
67: wrt 6.2,0;.6→r1
68: for I=1 to 26;32→A
69: if I>22;1→r1
70: if abs(D[2,I])>r1;42→A;sfg 1
71: if flg3;next I;gto +8
72: if I=24;fmt 5,/,24x,c,/;wrt 6.5,"Log Offsets"
73: fmt 3,10x,f12.1,f20.2,b,b
74: wrt 6.3,D[1,I],D[2,I],A,A
75: next I
76: fmt 5,/,23x,c,/;wrt 6.5,"1kHz Bandwidth"
77: fmt 5,15x,c;wrt 6.5,"Reference          Error in dB"
78: wrt 6.2,0;.6→r1
79: for I=28 to 34;32→A
80: if I>30;1→r1
81: if abs(D[2,I])>r1;42→A;sfg 1
82: if flg3;next I;gto +4
83: wrt 6.3,D[1,I],D[2,I],A,A
84: next I;wrt 6
85: gto +7;if flg5;fmt 8,2/,80"_",5/;wrt 6.8
```

```
0:  Test title and date.
1:  Title.
2:
3:  If all tests (TEST 0) selected, go forward seven lines.
4:  If repetitive testing and not first time through, go forward six lines.
5:  Go to "SET-UP" subroutine.
6:  Go to "syn" subroutine.
7:  Go to "R1R4" subroutine.
8:  If kHz or GHz entered, go back three lines. If MHz selected, go to "test select".
9:
10: Title.
11:
12: Set 8568A controls as shown.
13: Set 8568A controls as shown.
14: Go to 'synthesizer' subprogram and enter values shown (Cntr Freq. Ampl. AmplStpS).
15: Sweep and read marker amplitude.
16: If marker amplitude is less than -9, go back 11 lines.
17: Label test title on CRT.
18: Go to 'on interrupt' subprogram.
19: Go forward six lines.
20: Subroutine title. Subtract variable D from variable L and enter into variable L.
21: Go to 'synthesizer' subprogram and enter values shown (Cntr. Freq. Ampl).
22: Set 8568A reference level to value of variable L.
23: Sweep and read marker amplitude. If count is 1 or 28, subtract L from A and place in R.
24:
25: Enter .1 in variable L and variable D.
26: Initialize for/next loop to count from 1 to 11 by 1.
27: If count is 4, place .2 in variable D.
28: Go to "measure step" subroutine.
29: Continue loop.
30: Place -1 in variable L and 1 in variable D.
31: Initialize for/next loop to count from 12 to 19 by 1.
32: Go to "measure step" subroutine.
33: Continue loop.
34: Place 0 in variable L and 10 in variable D.
35: Set 8568A Video Bandwidth to 30 Hz.
36: Initialize for/next loop to count from 20 to 24 by 1.
37: Go to "measure step" subroutine.
38: Continue loop.
39: Place 10 in variable L and variable D. Set 8568A controls as shown.
40: Initialize for/next loop to count from 28 to 35 by 1.
41: If count is 35, set 8568A Video Bandwidth to 3 Hz.
42: Go to "measure step" subroutine.
43: Continue loop.
44: Title.
45: Place -50 in variable L. Go to 'synthesizer' subprogram and enter values (Ctr Freq,A,SS).
46: Set 8568A controls as shown.
47: Set 8568A controls as shown and read marker amplitude.
48: Initialize for/next loop to count from 25 to 27 by 1.
49: Step reference level down; subtract 10 from L. If count is 27; repeat.
50: Sweep and read marker amplitude.
51:
52: Continue loop.
53:
54: Title.
55:
56: If not using a 9866B, go forward twelve lines.
57: Print test number and title on 9866B.
58: Format statement for next line.
59: Print specification on 9866B.
60: Print specification on 9866B.
61: Print specification on 9866B.
62: Print specification on 9866B.
63: Print on 9866B as shown.
64: Print on 9866B as shown.
65: Print on 9866B as shown.
66: Print on 9866B as shown.
67: Place .6 into variable r1.
68: Initialize for/next loop to count from 1 to 26 by 1. Place blank in variable A.
69: If count is greater than 22, enter 1 into variable r1.
70: If measured data is out of tolerance, place asterisk (*) in A and set flag 1.
71: If not using a 9866B, continue loop then go forward eight lines.
72: If count is 24 print "Log Offsets" on 9866B.
73: Format statement for next line.
74: Print measured data and asterisks (**) if applicable, on 9866B.
75: Continue loop.
76: Print on 9866B as shown.
77: Print on 9866B as shown.
78: Place .6 into variable r1.
79: Initialize for/next loop to count from 28 to 34 by 1. Place blank in variable A.
80: If count is greater than 30, enter 1 into variable r1.
81: If measured data is out of tolerance, place asterisk (*) in A and set flag 1.
82: If not using a 9866B, continue loop then go forward four lines.
83: Print measured data and asterisks (**) if applicable, on 9866B.
84: Continue loop. Space a line on 9866B.
85: Go forward seven lines. If all tests selected, print dividing line on 9866B.
```

Figure 10. IF Gain Uncertainty Test Annotated Listing (2 of 3)

```
86: prt "   TEST NO. 5      I.F. gains   ";if not flgl;gto +4
87: spc ;prt "out of tolerance";spc
88: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
89: spc ;gto +2
90: spc ;prt "     PASSED     ";spc
91: fmt 6,16"-",/;wrt 16.6
92: 1+flgl→X[6];cfg 1
93: gto "test select"
*14449
```

86: Print test number and title on strip printer. If flag 1 is not set, go forward 4 lines.
87: Print "out of tolerance" on strip printer.
88: Print on strip printer as shown.
89: Space. Go forward two lines.
90: Space. Print "PASSED" on strip printer. Space.
91: Print dividing line on strip printer.
92: Add 1 to flag 1 value and enter into YES/NO indicator then clear flag 1.
93: Go to "test select" subroutine.
* Check sum number.

Figure 10. IF Gain Uncertainty Test Annotated Listing (3 of 3)

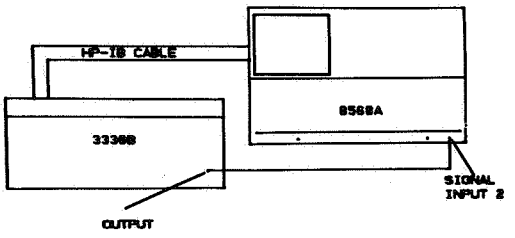
6. FREQUENCY SPAN ACCURACY

SPECIFICATION:

For spans >1 MHz; ±(2% of the actual frequency separation, +0.5% of span setting).
For spans ≤1 MHz; ±(5% of the actual frequency separation, +0.5% of span setting).

DESCRIPTION:

A stable signal source is input to the spectrum analyzer and the analyzer center frequency and span set to measure spans of 10 MHz, 1 MHz, and 100 kHz.




```
CONNECT 3330B TO 8568A AS SHOWN

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
        Test Number  6
```

EQUIPMENT

Automatic Synthesizer ..... HP 3330B

PROCEDURE:

1. Connect equipment as shown in figure above.
2. Select test no. 6 by keying in 6 (Hz μV μsec) ((kHz mV msec) if continuous testing is desired) on the 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 11. Frequency Span Accuracy Test Annotated Listing (1 of 2)

FILE 7

Variables

A	Error Indicator
B	Error Indicator
C	Error Indicator
D	Keyboard Entry
F	For/Next Loop Counter
I	For/Next Loop Counter
J	For/Next Loop Counter
Z	Marker Amplitude
A(*)	Data
X(*)	Display PASS/FAIL indicator
r5–r13	Data
r14–r16	Specification

Flags

1	Error
2	Counter
3	No 9866B Printer
4	Counter
5	All tests (TEST 0) selected
6	Repetitive testing selected

```
0: "FREQUENCY SPAN ACCURACY       04/03/1978":
1: "span accuracy":
2:
3: if flg5 or flg6 and X[7]>0;gto +5
4: gsb "SET-UP"
5: gsb "syn"
6: gsb "R1R4"
7: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
8: wrt "8568","IP KSi EM"
9: wtb "8568","DA1024D3PUPA192,592LBFREQUENCY SPAN ACCURACY",3
10: cll 'on interrupt'
11:
12: "test":
13:
14: 32→A→B→C
15: "10 MHz span":'span'(6,10)→A[1];if flg1;42→A
16: "1 MHz span":'span'(10,1)→A[2];if flg1;42→B
17: "100 KHz span":'span'(10,.1)→A[3];if flg1;42→C
18: if max(A,B,C)=42;sfg 1
19: if max(A[1],A[2],A[3])=0;gto -15
20: gto "print out"
21:
22: "span":
23: fmt 9,c,f.0,c,f.1,c;cfg 1
24: wrt "8568.9","CF",p1,"MZ SP",p2,"MZ"
25: wrt "8568","RBDN";0→I
26: for F=p1-.4p2 to p1+.4p2 by .1p2
27: cll 'synthesizer'(F,-10,0)
28: wrt "8568","TS E1 MF";red "8568",r(5+I);r(5+I)/1e6→r(5+I)
29: if I=0;wrt "8568","MA";red "8568",Z;if Z<-60;0→p3;ret p3
30: I+1→I;next F;wrt "8568","CR"
31: 0→p3;for I=0 to 7
32: for J=I+1 to 7
33: .1(J-I)p2→p4
34: if p2>1;if abs(r(5+J)-r(5+I)-p4)>p3;.02p4+.005p2→r14
35: if p2=1;if abs(r(5+J)-r(5+I)-p4)>p3;.05p4+.005p2→r15
36: if p2<1;if abs(r(5+J)-r(5+I)-p4)>p3;.05p4+.005p2→r16
37: max(abs(r(5+J)-r(5+I)-p4),p3)→p3
38: cfg 4;next J;next I
39: if p2>1;if p3>r14;sfg 1
40: if p2=1;if p3>r15;sfg 1
41: if p2<1;if p3>r16;sfg 1
42: ret p3*1e3
43:
44: "print out":
45:
46: if flg3;gto +14
47: wtb 6,"          6. FREQUENCY SPAN ACCURACY",10,10,13
48: wrt 6,"          SPECIFICATION: Spans >1MHz, +/-(2% of actual frequency"
49: fmt 5,17x,c;wrt 6.5," separation +0.5% of total span)"
50: wrt 6;wrt 6.5,"Spans <=1MHz, +/-(5% of actual frequency"
51: fmt 5,17x,c,/;wrt 6.5," separation +0.5% of total span)"
52: wrt 6,"          MEASURED:"
53: fmt 5,16x,c;wrt 6.5,"Frequency Span      Max Freq          Max Freq"
54: wrt 6.5,"   Setting       Error Measured    Error Allowed"
55: wrt 6.5,"     (MHz)            (kHz)             (kHz)"
56: fmt 2,20x,f4.1,11x,f7.1,b,b,10x,f7.1
57: wrt 6.2,10,A[1],A,A,r14*1e3
58: wrt 6.2,1,A[2],B,B,r15*1e3
59: wrt 6.2,.1,A[3],C,C,r16*1e3;wrt 6;gto +7
60: prt "   TEST NO. 6    frequency span ";if not flg1;gto +4
61: spc ;prt "out of tolerance";spc
62: prt "REFER TO       OPERATING AND   SERVICE MANUAL  SECTION IV"
63: spc ;gto +2
64: spc ;prt "    PASSED";spc
65: fmt 6,16"-",/;wrt 16.6
66: 1+flg1→X[7];cfg 1;gto "test select"
*12144
```

0: Test title and date.
1: Title.
2:
3: If all tests selected or repetitive testing and not first time, go forward five lines.
4: Go to "SET-UP" subroutine.
5: Go to "syn" subroutine.
6: Go to "R1R4" subroutine.
7: If entry was kHz or GHz, go back 3 lines. If entry was MHz, go to "test select".
8: Preset 8568A, blank CRT, and erase memory.
9: Label title on CRT.
10: Go to 'on interrupt' subprogram.
11:
12: Title.
13:
14: Place blanks in variables A, B, and C.
15: Subroutine title. Place value from subprogram "span" into variable.
16: Subroutine title. Place value from subprogram "span" into variable.
17: Subroutine title. Place value from subprogram "span" into variable.
18:
19:
20: Go to "print out".
21:
22: Subroutine title.
23: Format statement for next line. Clear flag 1.
24: Label Center Frequency and Frequency Span on CRT.
25: Step Resolution Bandwidth down. Place 0 in variable I.
26: Initialize for/next loop to count from p1-.4p2 to p1+.4p2 by .1p2.
27: Go to 'synthesizer' subprogram and enter value shown (Cntr Freq. Ampl. AmplStpS).
28:
29: If count is 0, read marker amplitude; if less than −60, place 0 in variable p3.
30: Add one to variable I, continue loop, and couple Resolution Bandwidth.
31: Place 0 in variable p3. Initialize for/next loop to count form 0 to 7 by 1.
32: Initialize for/next loop to count from I+1 to 7.
33: Place .1 (J-I) p2 in variable p4.
34: Check spans greater than 1 MHz.
35: Check 1 MHz span.
36: Check spans less than 1 MHz.
37:
38: Clear flag 4. Continue loops.
39: If variable p2 is greater than 1 and p3 is greater than r14, set flag 1.
40: If variable p2 equals 1 and p3 is greater than r15, set flag 1.
41: If variable p2 is less than 1 and p3 is greater than r16, set flag 1.
42: Return p3 value times 1000 to subroutine.
43:
44: Title.
45:
46: If not using a 9866B, go forward fourteen lines.
47: Print test number and title on 9866B.
48: Print specification on 9866B.
49: Print specification on 9866B.
50: Print specification on 9866B.
51: Print specification on 9866B.
52: Print on 9866B as shown.
53: Print on 9866B as shown.
54: Print on 9866B as shown.
55: Print on 9866B as shown.
56: Format statement for next three lines.
57: Print measured data and asterisks (**) if applicable, on 9866B.
58: Print measured data and asterisks (**) if applicable, on 9866B.
59: Print measured data and asterisks (**) if applicable, on 9866B. Go forward 7 lines.
60: Print test number and title on strip printer. If flag 1 is not set, go forward 4 lines.
61: Print "out of tolerance" on strip printer.
62: Print on strip printer as shown.
63: Space. Go forward two lines.
64: Print "PASSED" on strip printer.
65: Print dividing line on strip printer.
66: Add 1 to flag 1 value, place in YES/NO indicator; clear flag 1; go to "test select".
* Check sum number.

Figure 11. Frequency Span Accuracy Test Annotated Listing (2 of 2)

7. SWEEP TIME ACCURACY

SPECIFICATION:

Sweeptime $\leq$ 100 sec; $\pm$ 10%
Sweeptime $>$ 100 sec; $\pm$ 20%

DESCRIPTION:

An internal measurement function is used to measure the sweeptime at 20 msec, 100 msec, 750 msec, 5 sec, 30 sec, 200 sec, and 1500 sec. These sweeptimes were chosen so as to check all of the sweeptime multipliers in the Sweep Generator Current Source circuit (A22 Frequency Control). Sweep start-up time (offset) is measured and subtracted from the measured sweeptime. The measured sweeptime is compared to the selected sweeptime and the percent error calculated.

EQUIPMENT:

No equipment required.

PROCEDURE:

1. Select test no. 7 by keying in 7 [Hz μV μsec] ([kHz mV msec] if continuous testing is desired) on the 8568A Keyboard.

2. Follow the instructions as they appear on the 8568A CRT display.

3. The following is an annotated listing of the test procedure.

Figure 12. Sweep Time Accuracy Test Annotated Listing (1 of 2)

FILE 8

Variables		Flags	
A	Sweep Start Reference or Error Indicator	1	Error
B	Measured Sweep Time	2	Counter
C	Sweep Time Unit	3	No 9866B Printer
D	Sweep Time Unit	4	Counter
E	Sweep Time Unit	5	All tests (TEST 0) selected
I	For/Next Loop Counter	6	Repetitive testing selected
J	Sweep Time Multiplier		
B(*)	Data		
X(*)	Display PASS/FAIL indicator		
rl	Specification		

```
0: "SWEEP TIME ACCURACY     04/03/1978":
1: "sweep time":
2:
3: wrt "8568","IPKSiEM"
4: wtb "8568","DA1024D3PUPA224,592LBSWEEP TIME ACCURACY",3
5: cll 'on interrupt'
6:
7: "test":
8:
9: for I=0 to 30 by 5
10: if I<30;gto +3
11: wtb "8568","D3PUPA172,352LB",17,"TESTING 1500 sec SWEEP TIME",18,3
12: wtb "8568","D3PUPA172,320LBMEASUREMENT TIME ",185," 100sec",3
13: wrt "8568","M2 0HZ KSu KSu KSu KSF OA"
14: red "8568",A
15: if I<13;wrt "8568","M2 1500MZ";1→J
16: if I>12 and I<19;wrt "8568","M2 301MZ";5→J
17: if I>18 and I<24;wrt "8568","M2 151MZ";10→J
18: if I>23;wrt "8568","M2 31MZ";50→J
19: wrt "8568","ST OA"
20: red "8568",B[1,I/5+1]
21: wrt "8568","KSF OA"
22: red "8568",B;J(B-A)→B[2,I/5+1]
23: 100(J(B-A)-B[1,I/5+1])/B[1,I/5+1]→B[3,I/5+1]
24: wrt "8568","ST UP UP UP UP";if I>1;wrt "8568","ST UP"
25: next I
26:
27: "print out":
28:
29: if flg3;gto +8
30: wtb 6,10,10,13,"          7. SWEEP TIME ACCURACY",10,10,13
31: wrt 6;wrt 6,"          SPECIFICATION: Sweep Time <=100sec, +/-10%"
32: fmt 3,37x,">100sec, +/-20%",/;wrt 6.3
33: wrt 6,"          MEASURED:";wrt 6
34: fmt 1,16x,c,9x,c,9x,c
35: wrt 6.1,"Sweep Time","Sweep Time","Sweep Time"
36: wrt 6.1," setting  "," measured "," % error";wrt 6
37: for I=1 to 7;32→A
38: 109→B;115→C;101→D;99→E;if I>3;32→B
39: if I<4;B[2,I]*1e3→B[2,I]
40: if I<4;B[1,I]*1e3→B[1,I]
41: 10→rl;if I>5;20→rl
42: if abs(B[3,I])>rl;42→A;sfg 1
43: if flg3;next I;gto +4
44: fmt 2,14x,f8.0,b,b,b,b,5x,f10.2,b,b,b,b,5x,f10.1,"%",b,b
45: wrt 6.2,B[1,I],B,C,D,E,B[2,I],B,C,D,E,B[3,I],A,A
46: next I;wrt 6;gto +7
47: prt "   TEST NO. 7      sweep time";spc
48: if not flg1;gto +3
49: prt "out of tolerance";spc
50: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV";gto +2
51: prt "     PASSED";spc
52: fmt 3,16"-",/;wrt 16.3
53: 1+flg1→X[8];cfg 1
54: gto "test select"
*12171
```

0: Test title and date.
1: Title
2:
3: Preset 8568A, blank CRT, and erase memory.
4: Label test title on CRT.
5: Go to 'on interrupt' subprogram.
6:
7: Title.
8:
9: Initialize for/next loop to count from 0 to 30 by 5.
10: } Labels on CRT as shown for 1500 sec sweeptime.
11: }
12: }
13: Set 8568A controls as shown.
14: Read measured sweep time, start-up error.
15: If count is less than 13, place marker at 1500 MHz and place 1 in variable J.
16: If count is greater than 12 but less than 19, place marker at 301 MHz and 5 into J.
17: If count is greater than 18 but less than 24, place marker at 151 MHz and 10 into J.
18: If count is greater than 23, place marker at 31 MHz and 50 into J.
19: Output sweep time setting.
20: Read sweep time setting.
21: Measure actual sweep time and output same.
22: Read measured sweep time; subtract start-up error.
23: Compute percent error.
24: Step sweep time up four steps. If count is less than 1, step sweep time up.
25: Continue loop.
26:
27: Title.
28:
29: If not using a 9866B, go forward eight lines.
30: Print test number and title on 9866B.
31: Print specification on 9866B.
32: Print specification on 9866B.
33: Print on 9866B as shown.
34: Format statement for next two lines.
35: Print on 9866B as shown.
36: Print on 9866B as shown.
37: Initialize for/next loop to count from 1 to 7 by 1. Place blank in variable A.
38: Place "m" in B, "s" in C, "c" in D, and "c" in E. If count greater than 3, blank in B.
39: } Scale sweep time to milliseconds.
40: }
41: Place 10 in rl. If count is greater than 5; 20 in rl.
42: If measured data is out of tolerance, place asterisk (*) in A and set flag 1.
43: If not using a 9866B, continue loop then go forward four lines.
44: Format statement for next line.
45: Print measured data and asterisks (**) if applicable, on 9866B.
46: Continue loop then go forward seven lines.
47: Print test number and title on strip printer.
48: If flag 1 is not set, go forward three lines.
49: Print "out of tolerance" on strip printer.
50: Print on strip printer as shown.
51: Print "PASSED" on strip printer.
52: Print dividing line on strip printer.
53: Add one to flag 1 value and place in YES/NO indicator.
54: Go to "test select" subroutine.
* Check sum number.

Figure 12. Sweep Time Accuracy Test Annotated Listing (2 of 2)

8. RESOLUTION BANDWIDTHS

SPECIFICATION:

Bandwidth: 3 MHz to 10 Hz; ±20%
1 MHz to 3 kHz; ±10%

Amplitude: 3 MHz to 10 Hz; ±1.0 dB
1 MHz to 30 Hz; ±0.5 dB

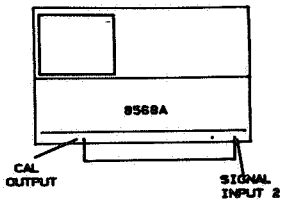
Selectivity: (60 dB/3 dB Ratio)
3 MHz to 100 kHz; <15:1
30 kHz to 10 kHz; <13:1
3 kHz to 30 Hz; <11:1
10 Hz; <100 Hz separation of 60 dB points

DESCRIPTION:

The spectrum analyzer CAL OUTPUT signal is connected to the analyzer input. The analyzer steps through the bandwidths from 3 MHz to 10 Hz, centers the signal, sets signal peak to near the reference level, and measures the frequency of the 3-dB points for each bandwidth. The 3-dB bandwidth is then calculated by determining the difference in frequency between the 3-dB points.

Next, the analyzer steps through the bandwidths from 3 MHz to 10 Hz, centers the signal, sets signal peak to near the reference level, and measures the frequency of the 60-dB points of each bandwidth. The 60-dB bandwidth is then calculated by determining the frequency difference between the 60-dB points.

The shape factor is then calculated by dividing the 60-dB bandwidth by the 3-dB bandwidth.




```
CONNECT BNC CABLE FROM CAL OUTPUT
TO SIGNAL INPUT 2

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
        Test Number  8
```

EQUIPMENT:

No equipment required.

PROCEDURE:

1. Connect cable as shown in Figure above.
2. Select test no. 8 by keying in 8 (Hz μV μsec) ((kHz mV msec) if continuous testing is desired) on the 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 13. Resolution Bandwidth Test Annotated Listing (1 of 3)

FILE 9

Variables		Flags	
A	Display Memory Data or Error Indicator	1	Error
B	Error Indicator	2	Counter
C	1/2 Bandwidth or Error Indicator	3	No 9866B Printer
D	Keyboard Entry/Utility Variable	4	Counter
E	Temporary Variable	5	All tests (TEST 0) selected
F	Center Frequency	6	Repetitive testing selected
I	For/Next Loop Counter		
K	Counter		
N	+ or – indicator		
S	Frequency Span		
X	Display Address		
Z	Temporary Variable		
B(*)	Data		
X(*)	Display PASS/FAIL indicator		
r1	Specification (%)		
r2	Specification (Amptd)		

```
0: "RESOLUTION BANDWIDTH       04/27/1978":
1: "3dB bandwidth":
2:
3: if flg6 and X[9]>0;gto +6
4: gsb "SET-UP"
5: gsb "RSBW"
6: gsb "R1R4"
7: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
8:
9: "test":
10:
11: wrt "8568","IPKSiEM";cfg 2
12: wrt "8568","CF20MZ LN RL-8DM KSA KST S2 RB3KZ"
13: wtb "8568","DA1024,D3PUPA224,592LBRESOLUTION BANDWIDTH",3
14: cll 'on interrupt'
15: for I=1 to 11
16: 0→K;if I=9;sfg 2
17: wrt "8568","RBOA";red "8568",B[1,I];max(100,2B[1,I])→S
18: wrt "8568","SP",S,"HZ"
19: wrt "8568","TS E1 MA";red "8568",B[3,I];if B[3,1]<-17;gto -15
20: wrt "8568","MF";red "8568",B[4,I]
21: wrt "8568","CFOA";red "8568",F
22: if abs(B[4,I]-F)>S/5;wrt "8568","E2 TS E1";gto -2
23: 1→N;if not flg2;wrt "8568","M3"
24: B[1,I]/2.5→C
25: if not flg2;wrt "8568","MF",C,"HZ";wrt "8568","MA";red "8568",D
26: if flg2;gsb "dig"
27: if abs(D+3)<.1;gto +4
28: K+1→K;if K>50;gto +3
29: 12→Z;if I=11;25→Z
30: NB[1,I](D+3)/Z+C→C;gto -5
31: if N=1;-1→N;C→E;-C→C;0→K;gto -6
32: E-C→B[2,I];wrt "8568","M1 RBDN";next I
33: gto +5
34: "dig":
35: 1000(B[4,I]-F)/S+500+100JC/S→X
36: wrt "8568","DA",X,"DR";red "8568",A
37: A-B[3,I]→D;ret
38: "shape factor":
39: wrt "8568","IP CF20MZ ATODB RL-8DM RB100KZ KST S2 TS"
40: wtb "8568","DA1024,D3PUPA208,592LBBANDWIDTH SELECTIVITY",3
41: cll 'on interrupt'
42: cfg 2;10→B[1,12];B[4,11]→B[4,12]
43: for I=4 to 12
44: if I=6;7→I;wrt "8568","RB3KZ"
45: if I>7;12→I;wrt "8568","RB10HZ"
46: B[1,I]*18→S
47: wrt "8568","SP",S,"HZ TS"
48: wrt "8568","CFOA";red "8568",F
49: if abs(B[4,I]-F)>S/10;wrt "8568","E2TS";gto -1
50: 1→N;wrt "8568","E1 M3"
51: B[1,I]5→C
52: wrt "8568","MF",C,"HZ";wrt "8568","MA";red "8568",D
53: if abs(D+60)<.2;gto +3
54: K+1→K;if K>20;gto +2
55: NB[1,I](D+60)/8+C→C;gto -3
56: if N=1;-1→N;C→E;-C→C;0→K;gto -4
57: E-C→B[5,I];wrt "8568","M1 RBDN"
58: next I
59:
60: "print out":
61:
62: if flg3;gto +17
63: wtb 6,10,10,13,"        8. RESOLUTION BANDWIDTH",10,10,13
64: wrt 6,"          SPECIFICATION:"
65: wtb 6,10,10,"                Bandwidth     3MHz-10Hz  +/-20%",10,13
66: fmt 5,16x,c;wrt 6.5,"Accuracy      1MHz-3kHz  +/-10%"
67: fmt 5,b,b,16x,c;wrt 6.5,10,10,"Amplitude    (ref to 1MHz amplitude)"
68: fmt 5,16x,c;wrt 6.5,"(switching     3MHz-10Hz  +/-1.0dB"
69: fmt 5,16x,c,3/;wrt 6.5," uncertainty)  1MHz-30Hz  +/-0.5dB"
70: fmt 5,15x,c;wrt 6.5,"60dB/3dB RATIO  3MHz-100kHz  <15:1"
71: fmt 5,31x,c;wrt 6.5,"30kHz-10kHz  <13:1"
72: fmt 5,31x,c;wrt 6.5,"3kHz - 30Hz  <11:1"
73: fmt 5,31x,c,/;wrt 6.5,"10Hz  <100Hz between 60dB points"
74: if flg5;fmt 8,2/,80" ",2/;wrt 6.8
75: wrt 6,"          MEASURED:"
76: wrt 6,"             Res BW       Res BW       Res BW      Amplitude"
77: wrt 6,"            Setting      Reading      %Error      Deviation"
78: wrt 6
79: B[3,2]→D
80: for I=1 to 11
```

0: Test title and date.
1: Title.
2:
3: If all tests selected or repetitive and not first time, go forward six lines.
4: Go to "SET-UP" subroutine.
5: Go to "RSBW" subroutine.
6: Go to "R1R4" subroutine.
7: If kHz or GHz entered, go back three lines. If MHz entered, go to "test select".
8:
9: Title.
10:
11: Preset 8568A, blank CRT, erase memory, and clear flag 2.
12: Set 8568A controls as shown.
13: Label test title on CRT.
14: Go to 'on interrupt' subprogram.
15: Initialize for/next loop to count from 1 to 11 by 1.
16: Place 0 in variable K. If count is 9, set flag 2.
17: Read Resolution Bandwidth setting.
18: Set Frequency Span to value of variable S.
19: Sweep and read marker amplitude.
20: Read marker frequency.
21: Read Center Frequency setting.
22: If signal is not within 2 div. of center, change center freq. to mkr freq, go back 2 lines.
23: Place 1 in variable N. If flag 2 is not set, select Marker Delta.
24: Place B[1,I]/2.5 in variable C.
25: If flag 2 is not set, set marker frequency to value of C and read marker amplitude.
26: If flag 2 is set, go to "dig" subroutine.
27: If marker amplitude is 3 dB ±0.1 dB, go forward 4 lines.
28: Place K+1 in K. If K is greater than 50, go forward three lines.
29: Place 12 in Z. If count is 11, place 25 in Z.
30: Increment C in small amount in direction needed.
31: If N is 1, change to –1. Place C in E. Place –C in C. Place 0 in K. Go back 6 lines.
32: Place difference of C and E in B[2,I], step Resolution Bandwidth down, continue loop.
33: Go forward five lines.
34: Subroutine title.
35: Compute 8568A Display Address.
36: Read amplitude of display at computed address.
37: Place A–B[3,I] in D and return to subroutine.
38: Title.
39: Set 8568A controls as shown.
40: Label test title on CRT.
41: Go to 'on interrupt' subprogram.
42: Clear flag 2.
43: Initialize for/next loop to count from 4 to 12 by 1.
44: If count is 6, advance to 7 and set Resolution Bandwidth to 3 kHz.
45: If count is greater than 7, advance to 12 and set Resolution Bandwidth to 10 Hz.
46: Place B[1,I] times 18 into S.
47: Set Frequency Span to value of variable S and sweep.
48: Read Center Frequency setting.
49: If signal is not within 1 div. of center, set center freq. to mkr freq, go back 2 lines.
50: Place 1 in variable N. Select Marker Delta.
51: Place B[1,I] times 5 into variable C.
52: Set marker frequency to value of variable C. Read marker amplitude.
53: If marker amptd is 60 dBm ±.2 dB, go forward 3 lines.
54: Place K+1 in variable K. If K is greater than 20, go forward two lines.
55: Increment C in small amount in direction needed.
56: If N is 1, change to –1. Place C in E. Place –C in C. Place O in K. Go back four lines.
57: Place E–C in B[5,I]. Turn marker off and step Resolution Bandwidth down.
58: Continue loop.
59:
60: Title.
61:
62: If not using a 9866B, go forward seventeen lines.
63: Print test number and title on 9866B.
64: Print specification on 9866B.
65: Print specification on 9866B.
66: Print specification on 9866B.
67: Print specification on 9866B.
68: Print specification on 9866B.
69: Print specification on 9866B.
70: Print specification on 9866B.
71: Print specification on 9866B.
72: Print specification on 9866B.
73: Print specification on 9866B.
74: If all tests selected, print dividing line on 9866B.
75: Print measured headings on 9866B.
76: Print measured headings on 9866B.
77: Print measured headings on 9866B.
78: Space on 9866B.
79: Place B(3,2) in variable D.
80: Initialize for/next loop to count from 1 to 11 by 1.

Figure 13. Resolution Bandwidth Test Annotated Listing (2 of 3)

```
81: 32→A→B
82: B[5,I]/B[2,I]→B[5,I]
83: 100(B[2,I]-B[1,I])/B[1,I]→B[4,I]
84: B[3,I]-D→B[3,I]
85: 10→r1;.5→r2
86: if 1=I or I>7;20→r1
87: if abs(int(B[4,I]))>r1;42→A;sfg 1
88: if abs(B[3,I])>r2;42→B;sfg 1
89: if flg3;next I;gto +4
90: fmt 2,10x,f9.0,4x,f9.0,f9.0," %",b,b
91: wrt 6.2,B[1,I],B[2,I],B[4,I],A,A,B[3,I],B,B
92: next I
93: 32→A→B→C→D;if abs(int(B[5,4]+.5))>15;42→A;sfg 1
94: if abs(int(B[5,5]+.5))>13;42→B;sfg 1
95: if abs(int(B[5,7]+.5))>11;42→C;sfg 1
96: if abs(int(B[5,12]+.5))>100;42→D;sfg 1
97: if flg3;gto +7
98: wrt 6;wrt 6;fmt 2,13x,c,f3.0,c,b,b,c
99: wrt 6.2,"60dB/3dB RATIO   100KHz BW --- ",B[5,4],":1",A,A
100: wrt 6.2,"                 30KHz BW --- ",B[5,5],":1",B,B
101: wrt 6.2,"                  3KHz BW --- ",B[5,7],":1",C,C
102: wrt 6.2,"   at 60dB points  10Hz BW --- ",B[5,12],"Hz",D,D
103: wrt 6;gto +7
104: prt "   TEST NO. 8      bandwidths   ";if not flg1;gto +4
105: spc ;prt "out of tolerance";spc
106: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
107: spc ;gto +2
108: spc ;prt "    PASSED";spc
109: fmt 6,16"-",/;wrt 16.6
110: 1+flg1→X[9];cfg 1
111: gto "test select"
*1586
```

81: Place blanks in variables A and B.
82: Compute 60 dB/3 dB ratio.
83: Compute percent bandwidth error.
84: Compute amplitude error.
85: Place 10 in variable r1 and .5 in variable r2.
86: If count is 1 or greater than 7, place 20 in variable r1.
87: If percent bandwidth error is out of tolerance, place * in A and set flag 1.
88: If amplitude data is out of tolerance, place * in B and set flag 1.
89: If not using a 9866B, continue loop then go forward four lines.
90: Format statement for next line.
91: Print measured data and asterisks (**) if applicable, on 9866B.
92: Continue loop.
93: Place blanks in variables A, B, C, and D. If measured data is out of tolerance, * in A.
94: If measured data is out of tolerance, place asterisk (*) in B and set flag 1.
95: If measured data is out of tolerance, place asterisk (*) in C and set flag 1.
96: If measured data is out of tolerance, place asterisk (*) in D and set flag 1.
97: If not using a 9866B, go forward seven lines.
98: Format statement for next four lines.
99: Print measured data and asterisks (**) if applicable, on 9866B.
100: Print measured data and asterisks (**) if applicable, on 9866B.
101: Print measured data and asterisks (**) if applicable, on 9866B.
102: Print measured data and asterisks (**) if applicable, on 9866B.
103: Space on 9866B. Go forward seven lines.
104: Print test number and title on strip printer. If flag 1 is not set, go forward 4 lines.
105: Print "out of tolerance" on strip printer.
106: Print on strip printer as shown.
107: Space on strip printer. Go forward two lines.
108: Print "PASSED" on strip printer.
109: Print dividing line on strip printer.
110: Add one to flag 1 value and place in YES/NO indicator. Clear flag 1.
111: Go to "test select" subroutine.
* Check sum number.

Figure 13. Resolution Bandwidth Test Annotated Listing (3 of 3)

9. RESIDUAL FM

SPECIFICATION:

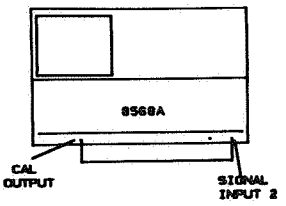
<3 Hz peak-to-peak for sweep time ≤10 sec; span <100 kHz; resolution bandwidth ≤30 Hz, video bandwidth ≤30 Hz.

DESCRIPTION:

The spectrum analyzer CAL OUTPUT signal is connected to the analyzer input and the required front-panel control settings made as stated in the specification.

The slope of the signal is measured to be used in calculating the residual FM.

The signal is adjusted to the center of the display and the peak-to-peak amplitude deviation of the signal measured. This amplitude deviation is converted to frequency deviation by dividing by the slope measured earlier in the test.




```
CONNECT BNC CABLE FROM CAL OUTPUT
TO SIGNAL INPUT 2

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
        Test Number  9
```

EQUIPMENT:

No equipment required.

PROCEDURE:

1. Connect cable as shown in figure above.
2. Select test no. 9 by keying in 9 (Hz μV μsec) ((kHz mV msec) if continuous testing is desired) on 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 14. Residual FM Test Annotated Listing (1 of 2)

FILE 10

Variables		Flags	
A	Marker Amptd or Error Indicator	1	Error
B	Marker Delta Amplitude	2	Counter
C	Reference	3	No 9866B Printer
D	Keyboard Entry	4	Counter
I	For/Next Loop Counter	5	All tests (TEST 0) selected
S	Slope	6	Repetitive testing selected
X(*)	Display PASS/FAIL indicator		

```
0: "RESIDUAL FM         04/03/1978":
1: "residual FM":
2:
3: if flg5;gto +6
4: if flg6 and X[10]>0;gto +5
5: gsb "SET-UP"
6: gsb "RSBW"
7: gsb "R1R4"
8: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
9: "start 9":0+I;3+C;cfg 2
10: wrt "8568","IP KSi EM"
11: wtb "8568","DA1024,D3PUPA288,592LBRESIDUAL FM",3
12: cll 'on interrupt'
13:
14: "test":
15:
16: wrt "8568","CF20MZ SP100HZ RB30HZ RL-10DM LG1DB S2 TS"
17: wrt "8568","E1 E2 TS E1 M3"
18: "calculate filter slope":
19: wrt "8568","MA";red "8568",A;if I>40;gto -14
20: if A+C>.2;I+1+I;fmt 8,f2.0,c;wrt "8568.8",I,"HZ";jmp -1
21: if not flg2;wrt "8568","M3M3";1+I;4+C;sfg 2;jmp -2
22: "measure slope detected residual FM":
23: abs(A/I)+S;cfg 2
24: wrt "8568","SS2HZ CF20.00002MZ SP0HZ RL-10DM ST2SC M1 M2 TS"
25: wrt "8568","TS MA";red "8568",A;if A<=-19.5;gto "adjust"
26: if 15+A>1;wrt "8568","CFUP";jmp -1
27: wrt "8568","TS MA";red "8568",A
28: if 15+A<-1;wrt "8568","CFDN";jmp -1
29: wrt "8568","ST20SC TS"
30: wrt "8568","DL0DB B1 BL EX C2 C1 B4"
31: wrt "8568","E1 EX M3 E1 L0 MA"
32: red "8568",B;B/S+A[1]
33: 32+A;if A[1]>3;42+A;sfg 1
34:
35: "print out":
36:
37: if flg3;gto +7
38: wtb 6,10,10,13,"          9. RESIDUAL FM",10,10,13
39: wrt 6,"          SPECIFICATION: <3HZ peak-to-peak";wrt 6
40: wrt 6,"          MEASURED:"
41: fmt 1,/,24x,f7.1,b,b,5/
42: wrt 6.1,A[1],"Hz peak-to-peak",A,A
43: gto +7
44: prt "  TEST NO.  9    residual F.M.  ";if not flg1;gto +4
45: spc ;prt "out of tolerance";spc
46: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
47: spc ;gto +2
48: spc ;prt "     PASSED     ";spc
49: fmt 6,16"-",/;wrt 16.6
50: 1+flg1+X[10];cfg 1
51: gto "test select"
52: "adjust":
53: wrt "8568","S1 RC9"
54: wrt "8568","DT@D3PUPA50,400LBADJUST SIGNAL LEVEL FOR A PEAK ON@"
55: wrt "8568","PUPA50,350LBDISPLAY WITH FREQ ZERO ADJUST@"
56: wrt "8568","PUPA100,100LBTO CONTINUE, push Hz@"
57: gsb "R1R4"
58: gto "measure slope detected residual FM"
*14670
```

```
0:  Test title and date.
1:  Title.
2:
3:  If all tests selected (TEST 0), go forward six lines.
4:  If repetitive testing and not first time through, go forward five lines.
5:  Go to "SET-UP" subroutine.
6:  Go to "RSBW" subroutine.
7:  Go to "R1R4" subroutine.
8:  If kHz or GHz entered, go back three lines. If MHz entered, go to "test select".
9:  Subroutine title. Place 0 in I. Place 3 in C. Clear flag 2.
10: Preset 8568A, blank CRT, and erase memory.
11: Label test title on CRT.
12: Go to 'on interrupt' subprogram.
13:
14: Title.
15:
16: Set 8568A controls as shown.
17: Set 8568A controls as shown.
18: Subroutine title.
19: Read marker amplitude; if greater than 40, go back fourteen lines.
20: If A+C is greater than .2, add 1 to I and set marker frequency to value of I. Go back 1.
21: If flag 2 is not set, reset Marker Delta, put 1 in I, 4 in C, set flag 2, and go back 2.
22: Subroutine title.
23: Compute signal slope.
24: Set 8568A controls as shown.
25: Sweep and read marker amplitude; if less than -19.5, go to "adjust" subroutine.
26: If 15+A is greater than .1, step Center Frequency up one step and go back 1 line.
27: Sweep and read marker amplitude.
28: If 15+A is greater than -1, step Center Frequency down one step and go back 1 line.
29: Set sweep time to 20 seconds and sweep.
30: Set 8568A controls as shown.
31: Set 8568A controls as shown.
32: Read p-p amptd of signal. Divide amptd by slope to compute FM.
33: Put blank in variable A. If data is out of tolerance, put asterisk (*) in A. Set flag 1.
34:
35: Title.
36:
37: If not using a 9866B, go forward seven lines.
38: Print test number and title on 9866B.
39: Print specification on 9866B.
40: Print measured heading on 9866B.
41: Format statement for next line.
42: Print measured data and asterisks (**) is applicable, on 9866B.
43: Go forward seven lines.
44: Print test number and title on strip printer. If flag 1 is not set, go forward 4 lines.
45: Print "out of tolerance" on strip printer.
46: Print on strip printer as shown.
47: Space on strip printer. Go forward two lines.
48: Print "PASSED" on strip printer.
49: Print dividing line on strip printer.
50: Add 1 to flag 1 value and put in YES/NO indicator. Clear flag 1.
51: Go to "test select" subroutine.
52: Subroutine title.
53: Set continuous sweep and RECALL 9 (Frequency Calibration).
54: Label on CRT as shown.
55: Label on CRT as shown.
56: Label on CRT as shown.
57: Go to "R1R4" subroutine.
58: Go to "measure slope detected residual FM" subroutine.
*   Check sum number.
```

Figure 14. Residual FM Test Annotated Listing (2 of 2)

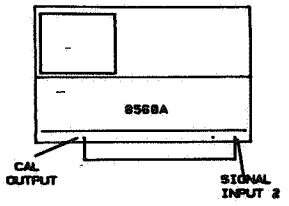
10. LINE RELATED SIDEBANDS

SPECIFICATION:

>85 dB below the peak of a CW signal. (Option 400: >75 dB.)

DESCRIPTION:

The spectrum analyzer CAL OUTPUT signal is connected to the analyzer input and the necessary front-panel control settings made for the test. The operator is asked to input the line frequency used by entering the value on the 8568A Keyboard. The multiples (harmonics) of the line frequency are calculated, the necessary front-panel control settings made to view the frequencies, and the amplitude of the signal measured at each of the frequencies.




```
CONNECT BNC CABLE FROM CAL OUTPUT
TO SIGNAL INPUT 2

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
        Test Number 10
```

EQUIPMENT:

No equipment required.

PROCEDURE:

1. Connect cable as shown in figure above.
2. Select test no. 10 by keying in 10 (Hz / µV / µsec) ((kHz / mV / msec) if continuous testing is desired) on 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 15. Line Related Sidebands Test Annotated Listing (1 of 2)

FILE 11

Variables		Flags	
A	Signal Amptd or Error Indicator	1	Error
B	Center Frequency or Error Indicator	2	Counter
C	Sideband Amptd or Error Indicator	3	No 9866B Printer
D	Keyboard Entry of Line Frequency	4	Counter
F	Two Times Line Frequency	5	All tests (TEST 0) selected
G	Temporary Variable	6	Repetitive testing selected
I	For/Next Loop Counter		
J	For/Next Loop Counter		
K	For/Next Loop Counter		
A(*)	Data		
X(*)	Display PASS/FAIL indicator		

```
0: "LINE RELATED SIDEBANDS          04/03/1978":
1: "line related sidebands":
2:
3: if flg5;gto +6
4: if flg6 and X[11]>0;gto +5
5: gsb "SET-UP"
6: gsb "RSBW"
7: gsb "R1R4"
8: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
9: wrt "8568","EAKSiEAA4B4KSoKSmDTQ"
10: wrt "8568","DA1024D3PUPA16,475LBENTER LINE FREQUENCY IN Hz@"
11: gsb "entry"
12: gsb "R1R4"
13: 2D→F;if D>100;D→F
14: wrt "8568","IP KSi EM"
15: wtb "8568","DA1024,D3PUPA192,592LBLINE RELATED SIDEBANDS",3
16: cll 'on interrupt'
17:
18: "test":
19:
20: wrt "8568","S2 CF20MZ SP100HZ TS E1 MA";red "8568",A
21: if A<-16;gto -16
22: wrt "8568","E2 E4 M1 CFOA";red "8568",B
23: wrt "8568","A1"
24: for J=2 to 4
25: J→G;if D>100;J-1→G
26: for K=-1 to 1 by 2
27: -120→A[J-1]
28: wrt "8568","CF",B+GKD+40,"HZ VB1HZ"
29: wrt "8568","CT M1 M2",B+GKD+10,"HZ KSu"
30: for I=1 to 20
31: wrt "8568","KSM M2",B+GKD+10-I,"HZ MA";red "8568",C
32: max(C+7.8-A,A[J-1])→A[J-1]
33: next I;next K;next J
34:
35: "print out":
36:
37: 32→A→B→C
38: 85→r1;if D>100;75→r1
39: if flg3;gto +6
40: wtb 6,10,10,13,"          10. LINE RELATED SIDEBANDS",10,10,13
41: fmt 2,10x,c,f2.0,c,/
42: wrt 6.2,"SPECIFICATION:  Line Related Sidebands   >",r1,"dB Down"
43: wrt 6;wrt 6,"          MEASURED:"
44: fmt 5,25x,c,12x,c;wrt 6.5,"Frequency","dB Down"
45: if A[1]>-r1;42→A;sfg 1
46: if A[2]>-r1;42→B;sfg 1
47: if A[3]>-r1;42→C;sfg 1
48: if flg3;gto +6
49: fmt 3,26x,f4.0,c,13x,f7.1,b,b
50: wrt 6.3,F,"Hz",A[1],A,A
51: wrt 6.3,D+F,"Hz",A[2],B,B
52: wrt 6.3,2D+F,"Hz",A[3],C,C;wrt 6;wrt 6
53: gto +7
54: prt "  TEST NO. 10    line sidebands ";if not flg1;gto +4
55: spc ;prt "out of tolerance";spc
56: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
57: spc ;gto +2
58: spc ;prt "     PASSED     ";spc
59: fmt 6,16"-",/;wrt 16.6
60: 1+flg1→X[11];cfg 1
61: gto "test select"
*26533
```

0: Test title and date.
1: Title
2:
3: If all tests (TEST 0) selected, go forward six lines.
4: If repetitive testing and not first time through, go forward five lines.
5: Go to "SET-UP" subroutine.
6: Go to "RSBW" subroutine.
7: Go to "R1R4" subroutine.
8: If kHz or GHz entered, go back three lines. If MHz entered, go to "test select".
9: Set 8568A controls as shown.
10: Label line frequency entry instructions on CRT.
11: Go to "entry" subroutine.
12: Go to "R1R4" subroutine. (Returns line frequency as variable D).
13: Put 2 times D in variable F. If D is greater than 100, put D in F.
14: Preset 8568A, blank CRT, and erase memory.
15: Label test title on CRT.
16: Go to 'on interrupt' subroutine.
17:
18: Title.
19:
20: Set 8568A controls as shown and read marker amplitude.
21: If marker amplitude is less than −16, go back sixteen lines.
22: Set 8568A controls as shown and read center frequency.
23: Clear-Write Trace A.
24: Initialize for/next loop to count from 2 to 4 by 1.
25: Put J in G. If D is greater than 100, put J−1 in G.
26: Initialize for/next loop to count from −1 to +1 by 2.
27: Put −120 in A(J−1).
28: Set Center Frequency to value of B+GKD+10−I and read marker amplitude.
29: Select Marker Normal and set marker frequency to value of B+GKD+10.
30: Initialize for/next loop to count from 1 to 20 by 1.
31: Set marker frequency to value of B+GKD+10−I and read marker amplitude.
32:
33: Continue loops.
34:
35: Title.
36:
37: Put blanks in variables A, B, and C.
38: Put 85 in r1. If D is greater than 100, put 75 in r1.
39: If not using a 9866B, go forward six lines.
40: Print test number and title on 9866B.
41: Format statement for next line.
42: Print specification on 9866B.
43: Print measured heading on 9866B.
44: Print headings on 9866B.
45: If measured data is out of tolerance, put asterisk (*) in A and set flag 1.
46: If measured data is out of tolerance, put asterisk (*) in B and set flag 1.
47: If measured data is out of tolerance, put asterisk (*) in C and set flag 1.
48: If not using a 9866B, go forward six lines.
49: Format statement for next three lines.
50: Print measured data and asterisks (**) if applicable, on 9866B.
51: Print measured data and asterisks (**) if applicable, on 9866B.
52: Print measured data and asterisks (**) if applicable, on 9866B.
53: Go forward seven lines.
54: Print test no. and title on strip printer. If flag 1 is not set, go forward 4 lines.
55: Print "out of tolerance" on strip printer.
56: Print on strip printer as shown.
57: Go forward two lines.
58: Print "PASSED" on strip printer.
59: Print dividing line on strip printer.
60: Add 1 to flag 1 value and put in YES/NO indicator. Clear flag 1.
61: Go to "test select" subroutine.
* Check sum number.

Figure 15. Line Related Sidebands Test Annotated Listing (2 of 2)

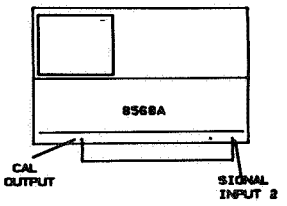
11. RF GAIN UNCERTAINTY

SPECIFICATION:

RF Gain Uncertainty Due to Second LO shift: ± 1.0 dB (uncorrected).

DESCRIPTION:

The CAL OUTPUT signal is connected to the SIGNAL INPUT connector of the analyzer and the analyzer front-panel controls set to view this 20 MHz signal. The 2nd LO is shifted down using the special shift key function. The marker is placed at the signal peak (in Marker Δ) then the 2nd LO is shifted up. The difference in the marker amplitude is measured which corresponds to the difference in the signal level between the 2nd LO shifted up and the 2nd LO shifted down.




```
CONNECT BNC CABLE FROM CAL OUTPUT
TO SIGNAL INPUT 2

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
        Test Number 11
```

EQUIPMENT:

No equipment required.

PROCEDURE:

1. Connect cable as shown in figure above.
2. Select test no. 11 by keying in 11 (Hz μV μsec) (kHz mV msec if continuous testing is desired) on 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 16. RF Gain Uncertainty Test Annotated Listing (1 of 2)

FILE 12

Variables		Flags	
A	Error Indicator	1	Error
D	Keyboard Entry	2	Counter
A(*)	Data	3	No 9866B Printer
X(*)	Display PASS/FAIL indicator	4	Counter
		5	All tests (TEST 0) selected
		6	Repetitive testing selected

```
0: "RF GAIN UNCERTAINTY      04/03/1978":
1: "RF Gain":
2:
3: if flg5;gto +6
4: if flg6 and X[12]>0;gto +5
5: gsb "SET-UP"
6: gsb "RSBW"
7: gsb "R1R4"
8: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
9: wrt "8568","IPKSiEM"
10: wtb "8568","DA1024D3PUPA224,592LBRF GAIN UNCERTAINTY",3
11: cll 'on interrupt'
12:
13: "test":
14:
15: wrt "8568","LN KSA CF20MZ SP1MZ RB300KZ VB3KZ RL-7DM"
16: wrt "8568","KST TS E1 M3";wait 500
17: wrt "8568","KSU TS E1 MA";red "8568",A[1]
18:
19: "print out":
20:
21: 32→A
22: if abs(A[1])>1;42→A;sfg 1
23: if flg3;gto +8
24: wtb 6,10,10,13,"          11. RF GAIN UNCERTAINTY",10,10,13
25: fmt 2,c,z;wrt 6.2,"          SPECIFICATION:"
26: wrt 6," RF Gain Uncertainty (due to 2nd LO shift)"
27: fmt 2,25x,c,2/;wrt 6.2,"+/- 1.0dB  (uncorrected)"
28: fmt 1,10x,c,f5.2,c,b,b,/;wrt 6.1,"MEASURED:       ",A[1],"dB",A,A
29: if flg5;fmt 8,4/,80"_",5/;wrt 6.8
30: gto +7
31: prt "  TEST NO. 11       RF gain";if not flg1;gto +4
32: spc ;prt "out of tolerance";spc
33: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
34: spc ;gto +2
35: spc ;prt "     PASSED";spc
36: fmt 3,16"-",/;wrt 16.3
37: 1+flg1→X[12];cfg 1
38: gto "test select"
*26564
```

0: Test title and date.
1: Title.
2:
3: If all tests (TEST 0) selected, go forward six lines.
4: If repetitive testing and not first time through, go forward five lines.
5: Go to "SET-UP" subroutine.
6: Go to "RSBW" subroutine.
7: Go to "R1R4" subroutine.
8: If kHz or GHz entered, go back three lines. If MHz entered, go to "test select".
9: Preset 8568A, blank CRT, and erase memory.
10: Label test title on CRT.
11: Go to 'on interrupt' subprogram.
12:
13: Title.
14:
15: Set 8568A controls as shown.
16: Shift Second LO down, sweep, select Marker Delta, and place marker at peak.
17: Shift Second LO up, sweep, place marker at peak, and read amplitude into A[1].
18:
19: Title.
20:
21: Place blank in variable A.
22: If measured data is out of tolerance, place asterisk (*) in A and set flag 1.
23: If not using a 9866B, go forward eight lines.
24: Print test number and title on 9866B.
25: Print specification on 9866B.
26: Print specification on 9866B.
27: Print specification on 9866B.
28: Print measured data and asterisks (**) if applicable, on 9866B.
29: If all tests selected, print dividing line on 9866B.
30: Go forward seven lines.
31: Print test no. and title on strip printer. If flag 1 is not set, go forward 4 lines.
32: Print "out of tolerance" on strip printer.
33: Print on strip printer as shown.
34: Go forward two lines.
35: Print "PASSED" on strip printer.
36: Print dividing line on strip printer.
37: Add 1 to flag 1 value and place in YES/NO indicator. Clear flag 1.
38: Go to "test select" subroutine.
*: Check sum number.

Figure 16. RF Gain Uncertainty Test Annotated Listing (2 of 2)

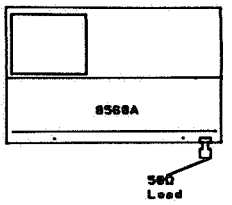
12. AVERAGE NOISE LEVEL

SPECIFICATION:

Displayed: < -135 dBm for frequencies > 1 MHz, < -112 dBm for frequencies ≤ 1 MHz but > 500 Hz with 10 Hz resolution bandwidth, 0 dB input attenuation, 1 Hz video filter.

DESCRIPTION:

The signal input of the spectrum analyzer is terminated using a 50-ohm load. The necessary front-panel control settings are made and the average noise level measured at 501 Hz and 1501 MHz.



CONNECT 50 ohm LOAD TO SIGNAL INPUT 2

To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
Test Number 12

EQUIPMENT:

50-Ohm Load. . . . . HP 11593A

PROCEDURE:

1. Connect equipment as shown in figure above.
2. Select test no. 12 by keying in 12 (Hz μV μsec) (kHz mV msec if continuous testing is desired) on the 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 17. Average Noise Level Test Annotated Listing (1 of 2)

FILE 13

Variables		Flags	
A	Trace A Data	1	Error
B	Sum of Trace A Data or Error Indicator	2	Counter
		3	No 9866B Printer
C	Error Indicator	4	Counter
D	Keyboard Entry	5	All tests (TEST 0) selected
I	For/Next Loop Counter	6	Repetitive testing selected
A(*)	Data		
X(*)	Display PASS/FAIL indicator		

```
0: "AVERAGE NOISE LEVEL      05/31/1978":
1: "noise floor":
2:
3: if flg6 and X[13]>0;gto +6
4: gsb "SET-UP"
5: gsb "LOAD"
6: gsb "R1R4"
7: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
8:
9: "test":
10:
11: cfg 4;wrt "8568","IP KSi EM"
12: wrt "8568","CF1.501GZ SP0HZ AT0DB RB10HZ VB1HZ RL-80DM"
13: wrt "8568","ST20SC S2"
14: wtb "8568","DA1024,D3PUPA298,592LB",18,"NOISE LEVEL",18,3,"HD"
15: cll 'on interrupt'
16: 0+B;wrt "8568","TS DA1028 DW17 HD O3 TA"
17: for I=1 to 1000;red "8568",A;A+B+B;next I
18: B/1000+A[2];wtb "8568","DA1028 DW18 HD"
19: if not flg4;A[2]+A[1];wrt "8568","CF501HZ HD";sfg 4;gto -3
20:
21: "print out":
22:
23: 32+C+B
24: if flg3;gto +8
25: wtb 6,10,10,13,"          12. AVERAGE NOISE LEVEL",10,13
26: fmt 5,15x,c,/;wrt 6.5,"(Measured in 10 Hz BW)"
27: wrt 6,"          SPECIFICATION: <-135dBm for frequencies >1MHz"
28: fmt 5,25x,c;wrt 6.5,"<-112dBm for frequencies <=1MHz but"
29: wrt 6.5,"  >500Hz(with 10Hz resolution bandwidth"
30: wrt 6.5,"  and 0 dB input attenuation)"
31: wrt 6;wrt 6,"          MEASURED:"
32: if A[1]>-135;42+C;sfg 1
33: if A[2]>-112;42+B;sfg 1
34: if flg3;gto +6
35: fmt 1,20x,"Frequency",5x,"Noise Level",/;wrt 6.1
36: fmt 3,20x,c,f12.1,c,b,b
37: wrt 6.3," 501 Hz",A[2]," dBm ",B,8
38: wrt 6.3,"1501MHz",A[1]," dBm ",C,C;wrt 6
39: gto +7
40: prt "  TEST NO. 12     noise level   ";if not flg1;gto +4
41: spc ;prt "out of tolerance";spc
42: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
43: spc ;gto +2
44: spc ;prt "    PASSED";spc
45: fmt 6,16"-",/;wrt 16.6
46: 1+flg1+X[13];cfg 1
47: gto "test select"
*10966
```

0: Test title and date.
1: Title.
2:
3: If repetitive testing and not first time through, go forward six lines.
4: Go to "SET-UP" subroutine.
5: Go to "LOAD" subroutine.
6: Go to "R1R4" subroutine.
7: If kHz or GHz entered, go back three lines. If MHz entered, go to "test select".
8:
9: Title.
10:
11: Clear flag 4. Preset 8568A and erase memory.
12: Set 8568A controls as shown.
13: Set 8568A controls as shown.
14: Label test title on CRT.
15: Go to 'on interrupt' subprogram.
16: Place 0 in variable B. Sweep and output Trace A in ASCII units.
17: Initialize for/next loop to count from 1 to 1000. Read Trace A. Place A+B in B.
18: Divide B by 1000 and put in A[2].
19: If flag 4 is not set, put A[2] in A[1], set CF to 230 Hz, set flag 4, go back 3 lines.
20:
21: Title.
22:
23: Place blanks in C and B.
24: If not using a 9866B, go forward eight lines.
25: Print test number and title on 9866B.
26: Print title on 9866B.
27: Print specification on 9866B.
28: Print specification on 9866B.
29: Print specification on 9866B.
30: Print specification on 9866B.
31: Print measured heading on 9866B.
32: If measured data is out of tolerance, place asterisk (*) in C and set flag 1.
33: If measured data is out of tolerance, place asterisk (*) in B and set flag 1.
34: If not using a 9866B, go forward six lines.
35: Print headings on 9866B.
36: Format statement for next two lines.
37: Print measured data and asterisks (**) if applicable, on 9866B.
38: Print measured data and asterisks (**) if applicable, on 9866B.
39: Go forward seven lines.
40: Print test number and title on strip printer. If flag 1 is not set, go forward 4 lines.
41: Print "out of tolerance" on strip printer.
42: Print on strip printer as shown.
43: Go forward two lines.
44: Print "PASSED" on strip printer.
45: Print dividing line on strip printer.
46: Add 1 to flag 1 value and put in YES/NO indicator. Clear flag 1.
47: Go to "test select" subroutine.
*: Check sum number.

Figure 17. Average Noise Level Test Annotated Listing (2 of 2)

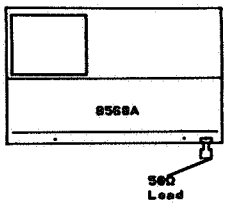
13. RESIDUAL RESPONSES (REV B)

SPECIFICATION:

< −105 dBm, with 0 dB input attenuation.

DESCRIPTION:

The signal input of the spectrum analyzer is terminated using a 50-ohm load. The peak amplitude of the noise or responses is measured at 32 MHz, 1145.8 MHz, and 19.925 MHz first. Next, the peak noise level is measured 5 MHz to 1500 MHz in 5 MHz steps.




```
CONNECT 50 ohm LOAD TO SIGNAL INPUT 2


To CONTINUE, push Hz
To SELECT ANOTHER TEST, push MHz
        Test Number 13
```

EQUIPMENT:

50-ohm Load ..... HP 11593A

PROCEDURE:

1. Connect equipment as shown in figure above.
2. Select test no. 13 by keying in 13 (Hz μV μsec) (kHz mV msec if continuous testing is desired) on the 8568A Keyboard.
3. Follow the instructions as they appear on the 8568A CRT display.
4. The following is an annotated listing of the test procedure.

Figure 18. Residual Responses Test Annotated Listing (1 of 2)

FILE 14

Variables		Flags	
A	Residual Response Amptd or Error Indicator	1	Error
B	Residual Response Frequency	2	Counter
C	Temporary Variable	3	No 9866B Printer
D	Keyboard Entry	4	Counter
I	For/Next Loop Counter	5	All tests (TEST 0) selected
J	For/Next Loop Counter	6	Repetitive testing selected
K	For/Next Loop Counter	7	Video Averaging
A(*)	Data		
X(*)	Display PASS/FAIL Indicator		

```
0: "RESIDUAL RESPONSES  REV.B  10/16/1978":
1: "residual responses":
2:
3: if flg5;gto +7
4: if flg6 and X[14]>0;gto +6
5: gsb "SET-UP"
6: gsb "LOAD"
7: gsb "R1R4"
8: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
9:
10: "test":
11:
12: wrt "8568","IP KSi EM"
13: wrt "8568","SP100KZ AT0DB RL-60DB"
14: wtb "8568","DA1024D3PUPA240,592LBRESIDUAL RESPONSES",3
15: cll 'on interrupt'
16: "initialize":for J=1 to 9 by 2;0→A[J+1];-200→A[J];next J
17: for I=-2 to 300
18: wrt "8568","RB1KZ VB1KZ";cfg 7
19: "loop":
20: if I=-2;wrt "8568","CF32MZ SP100KZ TS E1 MA"
21: if I=-1;wrt "8568","CF1145.8MZ SP1MZ TS E1 MA"
22: if I=0;wrt "8568","CF19.925MZ SP100KZ CR TS E1 MA"
23: if I<.5;gto +2
24: fmt 9,c,f.0,c;wrt "8568.9","CF",5I,"MZ TS E1 MA"
25: red "8568",A;wrt "8568","MF";red "8568",B
26: if not flg7 and abs(A)<105;wrt "8568","RB300HZ VB300HZ";sfg 7;gto "loop"
27: cll 'sort'(A,B)
28: if I=40;239→I
29: next I
30:
31: "print out":
32:
33: if flg3;gto +5
34: wtb 6,10,13,"          13. RESIDUAL RESPONSES",10,10,13
35: wrt 6,"          SPECIFICATION: <-105dBm, with 0dB input attenuation"
36: wrt 6;wrt 6,"          MEASURED:"
37: wrt 6,"          Maximum Residual Responses";wrt 6
38: for I=1 to 9 by 2;32→A
39: if abs(A[I])<105;42→A;sfg 1
40: if flg3;next I;gto +3
41: fmt 1,24x,f7.1,c,b,b,c,f5.0,c
42: wrt 6.1,A[I],"dBm",A,A," at",A[I+1]/1e6," MHz";next I;wrt 6;gto +7
43: prt "  TEST NO. 13      residuals    ";if not flg1;gto +4
44: spc ;prt "out of tolerance";spc
45: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
46: spc ;gto +2
47: spc ;prt "    PASSED";spc
48: fmt 6,16"-",/;wrt 16.6
49: 1+flg1→X[14];cfg 1
50: gto "test select"
51:
52: "sort":
53:
54: if D1>A[1];6→C;jmp 6
55: if D1>A[3];4→C;jmp 5
56: if D1>A[5];2→C;jmp 4
57: if D1>A[7];0→C;jmp 3
58: if D1>A[9];D1→A[9];D2→A[10];ret
59: ret
60: for K=0 to C by 2
61: A[7-K]→A[9-K]
62: A[8-K]→A[10-K]
63: next K
64: D1→A[7-C];D2→A[8-C];ret
*26087
```

0: Test title and date.
1: Title.
2:
3: If all tests (TEST 0) selected, go forward seven lines.
4: If repetitive testing and not first time through, go forward six lines.
5: Go to "SET-UP" subroutine.
6: Go to "LOAD" subroutine.
7: Go to "R1R4" subroutine.
8: If kHz or GHz entered, go back 3 lines. If MHz selected, go to "test select".
9:
10: Title.
11:
12: Preset 8568A and erase memory.
13: Set 8568A controls as shown.
14: Label test title on CRT.
15: Go to 'on interrupt' subprogram.
16: Subroutine title. Initialize for/next loop to count from 1 to 9 by 2. Continue loop.
17: Initialize for/next loop to count from -2 to 300 by 1.
18: Turn Video Averaging off. Clear flag 7.
19: Title.
20: If count is -2, set 8568A controls as shown.
21: If count is -1, set 8568A controls as shown.
22: If count is 0, set 8568A controls as shown.
23: If count is less than .5, go forward two lines.
24: Set Center Frequency to 5 times the count and place marker at signal peak.
25: Read marker amplitude and marker frequency.
26: If amptd > -105 dBm, turn on Video Averaging and remeasure.
27: Go to 'sort' subprogram with marker amplitude and frequency values, A and B.
28: If count is 40, change count to 239.
29: Continue loop.
30:
31: Title.
32:
33: If not using a 9866B, go forward five lines.
34: Print test number and title on 9866B.
35: Print specification on 9866B.
36: Print measured heading on 9866B.
37: Print heading on 9866B.
38: Initialize for/next loop to count from 1 to 9 by 2. Place blank in variable A.
39: If measured data is out of tolerance, place asterisk (*) in A and set flag 1.
40: If not using a 9866B, continue with loop then go forward three lines.
41: Format statement for next line.
42: Print measured data and asterisks (**) if applicable, on 9866B.
43: Print test no. and title on strip printer. If flag 1 is not set, go forward 4 lines.
44: Print "out of tolerance" on strip printer.
45: Print on strip printer as shown.
46: Go forward two lines.
47: Print "PASSED" on strip printer.
48: Print dividing line on strip printer.
49: Add 1 to flag 1 value and put in YES/NO indicator. Clear flag 1.
50: Go to "test select" subroutine.
51:
52: Subroutine title.
53: }
54: }
55: }
56: }
57: }
58: } Sort all measured responses in descending order by amplitude.
59: }
60: }
61: }
62: }
63: }
64: Return.
* Check sum number.

Figure 18. Residual Responses Test Annotated Listing (2 of 2)

14. FREQUENCY RESPONSE

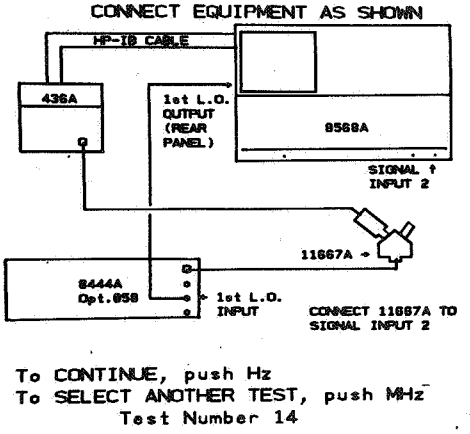
SPECIFICATION:

INPUT #1: ±1.5 dB, 100 Hz to 1500 MHz with > −10 dB RF Attenuation.
INPUT #2: ±1.0 dB, 100 kHz to 1500 MHz with > −10 dB RF Attenuation.

DESCRIPTION:

The spectrum analyzer rear-panel 1st LO OUTPUT is connected to a tracking generator which supplies the input signal for the analyzer. A power meter is connected to a power splitter, along with the tracking generator, which in turn is connected directly to the SIGNAL INPUT connector of the analyzer.

The signal amplitude is measured from 1 MHz to 1500 MHz in 20 MHz increments and compared to the measured value of the input signal indicated by the power meter. This procedure is performed for both input connectors. The operator is asked to make the new connection to the other input connector mid-way through the test.



EQUIPMENT:

Tracking Generator	HP 8444A, Opt 058
Power Meter	HP 436A
Power Sensor	HP 8482A
Power Splitter	HP 11667A

PROCEDURE:

1. Connect equipment as shown in figure above.

2. Select test no. 14 by keying in 14 (Hz μV μsec) ((kHz mV msec) if continuous testing is desired) on the 8568A Keyboard.

3. Follow the instructions as they appear on the 8568A CRT display.

4. The following is an annotated listing of the test procedure.

Figure 19. Frequency Responses Test Annotated Listing (1 of 3)

FILE 15

	Variables		Flags
A	Marker Amplitude	1	Error
B	Maximum Amplitude	2	Counter
C	Minimum Amplitude	3	No 9866B Printer
D	Keyboard Entry	4	Counter
F	Center Frequency	5	All tests (TEST 0) selected
I	For/Next Loop Counter	6	Repetitive testing selected
P	Power Meter Reading		
A(*)	Data		
X(*)	Display PASS/FAIL Indicator		

```
0: "FREQUENCY RESPONSE          04/03/1978":
1: "freq response":
2:
3: cfg 2;if flg6 and X[15]>0;gto +5
4: gsb "SET-UP"
5: gsb "8444A"
6: gsb "R1R4"
7: if D>1;gto -3;if D=1e6;gto "test select";cfg 5,6
8: wrt "8568","IP KSi EM LG1D8 RB100KZ RL-10DM ST.5SC"
9: wrt "8568","DT@D3PUPA100,350LBADJUST 8444A TRACK ADJUST@"
10: wrt "8568","PUPA100,310LBAND LEVEL ADJUST FOR A@"
11: wrt "8568","PUPA100,270LBPEAK SIGNAL 1 DIVISION@"
12: wrt "8568","PUPA100,230LBBELOW REFERENCE LINE@"
13: wrt "8568","PUPA100,100LBTo CONTINUE, push Hz@"
14: gsb "R1R4"
15: wrt "8568","KST CF1MZ SP100KZ M2 CF S2 TS"
16: wrt "8568","EMKSiEM"
17: wtb "8568","DA1024D3PUPA240,592LBFREQUENCY RESPONSE",3
18: cll 'on interrupt'
19:
20: "test":
21:
22: fmt 8,c,f2.0,b
23: 2-flg2→I;wrt "8568.8","D3PUPA280,560LBSIGNAL INPUT",I,3
24: for I=0 to 75
25: I*20→F;if I=0;1→F
26: fmt 9,c,f4.0,c
27: wrt "8568.9","CF",F,"MZ TS MA";red "8568",A
28: if I=0 and A<-14;gto -24;if flg2;gto +8
29: wrt "mtr","DT";red "mtr",P;A-P→A
30: max(A,B)→B;if I=0;A→B
31: min(A,C)→C;if I=0;A→C
32: next I
33: if not flg2;B-C→A[1]
34: if flg2;B-C→A[2]
35: if flg2;gto "print out"
36: wrt "8568","KSi EM A4 KSm KSo";eir 7,0;wait 50
37: wtb "8568","DA1024D3PUPA96,352LBCONNECT POWER SPLITTER TO INPUT 1",3
38: wtb "8568","PUPA100,100LBTo CONTINUE, push Hz",3
39: wtb "8568","PUPA100,64LBTo SELECT ANOTHER TEST, push MHz",3
40: gsb "R1R4"
41: if D>1;gto -5;if D=1e6;gto "test select";cfg 5,6
42: wrt "8568","I1 A1 KSp KSn";sfg 2;gto -26
43:
44: "print out":
45:
46: if flg3;gto +8
47: wtb 6,10,10,13,"          14. FREQUENCY RESPONSE",10,10,13
48: fmt 2,10x,c;wrt 6.2,"SPECIFICATION:"
49: fmt 2,20x,c,/;wrt 6.2," INPUT 1, +/-1.5dB(3.0dB pk-pk), 1MHz to 1500MHz"
50: wrt 6.2," INPUT 2, +/-1.0dB(2.0dB pk-pk), 1MHz to 1500MHz"
51: wrt 6,"          MEASURED:"
52: fmt 2,/,14x,c,5x,c,/
53: wrt 6.2,"Signal Input","  Peak-to-peak Amptd"
54: 32→A→B;if abs(A[1])>2;42→A;sfg 1
55: if abs(A[2])>3;42→C;sfg 1
56: if flg3;gto +5
57: fmt 2,17x,c,10x,f7.1,c,b,b
58: wrt 6.2,"INPUT 1",A[2],"dB",C,C
59: wrt 6.2,"INPUT 2",A[1],"dB",A,A;wrt 6
60: gto +7
61: prt "  TEST NO. 14    freq. response ";if not flg1;gto +4
62: spc ;prt "out of tolerance";spc
63: prt "REFER TO        OPERATING AND   SERVICE MANUAL  SECTION IV"
64: spc ;gto +2
65: spc ;prt "     PASSED     ";spc
66: fmt 6,16"-",/;wrt 16.6
67: 1+flg1→X[15];cfg 1
68: if flg5 and not flg3;ldf 0,203,240
69: gto "test select"
70:
71: "8444A":
72: wrt "8568","D1PUPR-140,-400PD0,150,-400,0,0,-150,400,0PU-150,0,0,150"
73: wrt "8568","PU200,-95,D2PUPR-10,0LBo@PUPR0,20LBo@PUPR0,30LBo@"
74: wrt "8568","PUPR0,30LBO@"
75: wrt "8568","PUPR-150,285PD0,150,-150,0"
76: wrt "8568","0,-150,150,0PU0,100PD-150,0PU120,-70LBO@PUPR280,-50"
77: wrt "8568","PUPA260,360LB8444A@PUPA200,770LB436A@"
78: wrt "8568","PUPA260,330LBOpt.058@"
79: wrt "8568","PUPR490,90PD10,0,0,10,20,0,0,30,-30,30,-30,-30,0,-30,20,0"
80: wrt "8568","0,-10,10,0PU-295,230"
81: wrt "8568","PUPR0,280PD-350,0,0-110PU25,0PD0,80,325,0PU0,-200"
82: wrt "8568","PUPR-250,200LBHP-IB CABLE@,PUPR90,-250"
83: wrt "8568","PUPR-285,40PD0,-150,500,0,15,-15PU-10,-12"
84: wrt "8568","PDPR40,-38,5,5,10,-10,10,10,-10,12,5,7,-40,40,-20,-26"
```

0: Test Title and date.
1: Title.
2:
3: Clear flag 2. If repetitive testing and not first time through, go forward 5 lines.
4: Go to "SET-UP" subroutine.
5: Go to "8444A" subroutine.
6: Go to "R1R4" subroutine.
7: If kHz or GHz entered, go back 3 lines. If MHz entered, go to "test select".
8: Set 8568A controls as shown.
9: Label on CRT as shown.
10: Label on CRT as shown.
11: Label on CRT as shown.
12: Label on CRT as shown.
13: Label on CRT as shown.
14: Go to "R1R4" subroutine.
15: Set 8568A controls as shown.
16: Erase 8568A memory.
17: Label test title on CRT.
18: Go to 'on interrupt' subprogram.
19:
20: Title.
21:
22: Format statement for next line.
23: Place 2-flag 2 value in variable I (Signal Input No.). Label Signal Input No. on CRT.
24: Initialize for/next loop to count from 0 to 75 by 1.
25: Place I times 20 in variable F. If I is 0, put 1 in F.
26: Format statement for next line.
27: Set Center Frequency to value of F and read marker amplitude.
28: If count is 0 and marker amplitude is less than −14, go back 24 lines.
29: Measure input to 8568A with power meter, subtract from marker amplitude, and put in A.
30: Determine maximum amplitude.
31: Determine minimum amplitude.
32: Continue loop.
33: If flag 2 is not set, subtract C from B and put in A (1).
34: If flag 2 is set, subtract C from B and put in A (2).
35: If flag 2 is set, go to "print out" subroutine.
36: Set 8568A controls as shown.
37: Label on CRT as shown.
38: Label on CRT as shown.
39: Label on CRT as shown.
40: Go to "R1R4" subroutine.
41: If kHz or GHz entered, go back five lines. If MHz selected, go to "test selected".
42: Set 8568A controls as shown and go back 27 lines.
43:
44: Title.
45:
46: If not using a 9866B, go forward 8 lines
47: Print test number and title on 9866B.
48: Print specification on 9866B.
49: Print specification on 9866B.
50: Print specification on 9866B.
51: Print measured heading on 9866B.
52: Format statement for next line.
53: Print headings on 9866B.
54: Put blanks in A and B. If measured data is out of tolerance, put * in A, set flag 1.
55: If measured data is out of tolerance, put * in C and set flag 1.
56: If not using a 9866B, go forward 5 lines.
57: Format statement for next two lines.
58: Print measured data for Input 1 and asterisks (**) if applicable, on 9866B.
59: Print measured data for Input 2 and asterisks (**) if applicable, on 9866B.
60: Go forward 7 lines.
61: Print test no. and title on strip printer. If flag 1 is not set, go forward 4 lines.
62: Print "out of tolerance" on strip printer.
63: Print on strip printer as shown.
64: Go forward two lines.
65: Print "PASSED" on strip printer.
66: Print dividing line on strip printer.
67: Add 1 to flag 1 value and put in YES/NO indicator. Clear flag 1.
68: If all tests selected, load file 0 and execute lines 203 through 240.
69: Go to "test select" subroutine.
70:
71: Subroutine title.
72: Draws 8444A on CRT.
73: Draws 8444A on CRT.
74: Draws 8444A on CRT.
75: Draws 436A on CRT.
76: Draws 436A on CRT.
77: Labels model numbers on 8444A and 436A.
78: Labels Opt. 058 on 8444A.
79: Draws 11667A.
80: Draws 11667A.
81: Draws HP-IB cable.
82: Labels HP-IB cable.
83: Draws 436A connection cable.
84: Draws 8482A.

Figure 19. Frequency Response Test Annotated Listing (2 of 3)

```
85: wrt "8568","PUPR95,-40PD15,25,-10,10,-15,-25PU-305,165"
86: wrt "8568","-95,-245PD392,0,0,20"
87: wtb "8568","PU-390-85PD-70,0,0,190PU0,20PD0,272,140,0PU0,-10LB",169,3
88: wtb "8568","PUPA480,330LB",168," 1st L.O.",3,"PUPA520,300LBINPUT",3
89: wrt "8568","PUPA420,770LB1st L.O.@PUPA420,740LBOUTPUT@"
90: wrt "8568","PUPA420,710LB(REAR@PUPA420,680LBPANEL)@"
91: wtb "8568","PUPA680,440LB11667A ",169,3
92: wtb "8568","PUPA800,630LBSIGNAL ",94,3,"PUPA800,600LBINPUT 2",3
93: wrt "8568","PUPA700,300LBCONNECT 11667A TO@PUPA700,270LBSIGNAL INPUT 2@"
94: wrt "8568","D3PUPA200,670LBCONNECT EQUIPMENT AS SHOWN@";ret
*31454
```

85: Draws adapter.
86: Draws 8444A connection cable.
87: Draws 1st LO connection cable.
88: Labels 1st LO connection cable at 8444A.
89: Labels 1st LO connection cable at 8568A.
90: Labels 1st LO connection cable at 8568A.
91: Labels model number for 11667A.
92: Labels 8568A Signal Input.
93: Labels connection instructions.
94: Labels operating instructions.
* Check sum number.

Figure 19. Frequency Response Test Annotated Listing (3 of 3)

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