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Manual Supplement

Disk Loading & Duplicating

for the

HP 8510C

HP Part No. 85050-90048
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Contents

Manual Supplement

This supplement contains information on duplicating and loading data using the disk now included with your product. Table 1 lists each model number, the related serial prefix, and that product's disk part number.

Table 1

HP Product Model Number	Initial Serial Prefix	Disk Part Number
85050B	3106A	85050-10005
85050C	3110A	85050-10006
85050D	3101A	85050-10007
85052B	3106A	85052-10010
85052C	3101A	85052-10011
85052D	3101A	85052-10012
85054B	3101A	85054-10005
85054D	3101A	85054-10006
85056A	3101A	85056-10003
85056D	3101A	85056-10004
11904S	3110A	11904-10002
R11644A	3105A	11644-10012
Q11644A	3104A	11644-10013
U11644A	3101A	11644-10014
V11644A	3117A	11644-10015
W11644A	3101A	11644-10016
R11645A	N/A	11645-10006
Q11645A	N/A	11645-10007
U11645A	N/A	11645-10008
V11645A	N/A	11645-10009
W11645A	N/A	11645-10010

Duplicating a Verification Data Disk

The following procedures show how to create a working copy of the verification data disk using the HP 8510 network analyzer without using an external disk drive. Use the working copy and keep the original media in a safe place.

There are two types of files on the verification data disk. The display memory files (DM_FILEn) contain single trace data (n refers to the file number); the memory all files (MA_FILEn) contain several single trace data files each. Each of the data memory and memory all files must be *loaded from* the source disk and *stored to* the target disk one at a time.

1. Initialize the target disk (now blank):
   a. Disable the disk write-protect (move the write-protect tab near the disk corner to close the rectangular hole in the disk).
   b. Insert the disk in the HP 8510C disk drive.
   c. Press (DISC), and select `SETUP DISC` `INITIALIZE DISC`.

      The HP 8510C initializes the disk (the process takes about one minute).
2. Remove the initialized disk from the disk drive.
3. Write-protect the source disk (the disk to be duplicated) and insert it in the disk drive.
4. On the network analyzer, press INSTRUMENT STATE (RECALL) and select `MORE` `FACTORY PRESET`.
5. Press (DISC) and select `DIRECTORY`.

   The network analyzer displays a list of all files on the source disk.
6. On a piece of paper write the file name and contents information for each disk file. This information will be used later.
7. Press (DISC) and select `LOAD MEMORY 1-8` `MEMORY n` (n is the next network analyzer memory location where data is to be loaded, beginning with 1).

   The network analyzer shows a listing of all display memory files on the disk.
8. With the RPG, select the next file to load (beginning with the first one shown) and select `LOAD FILE`.

   The network analyzer loads a single display memory file (DM) from the source disk into memory.
9. Repeat the preceding step until all files are loaded into the network analyzer.
10. When complete, replace the source disk with the target disk in the disk drive.
11. Select `STORE MEMORY 1-8` `MEMORY n` (n is the next memory location to be stored to disk, beginning with 1).

    Refer to the list of files recorded on paper earlier. To spell out the file name to be stored on disk, move the RPG knob to select letters and numbers and select `SELECT LETTER`.

    When finished with the file name, select `STORE FILE`. The file is stored to disk. Keep track of the next file name to be entered.

Repeat the preceding step until all files are stored onto the target disk.

12. Replace the target disk with the source disk in the network analyzer disk drive and select `LOAD MEMORY ALL`.

    The network analyzer shows a listing of the memory all files on the disk.

13. Using the RPG, select the next file to load (beginning with the first one shown) and select `LOAD FILE`.

    The network analyzer loads the memory all file (MA) into memory from the source disk.

14. Replace the source disk with the target disk.

15. Select `STORE MEMORY ALL`.

16. Refer to the list of files recorded on paper earlier, and use the RPG to spell out the file name to be stored on disk.

17. When finished with the file name, select `STORE FILE`. The file is stored to disk. Keep track of the next file name to be entered.

18. Repeat steps 11 through 17 until all files are stored onto the target disk.

19. When complete, press (DISC) and select `DIRECTORY`; the target disk file names listed should be identical with those recorded on the paper. If not, repeat this procedure.

20. Remove the target disk from the network analyzer and label it as a duplicate of the original. Use the duplicate disk, and keep the original disk in a safe place.

Transferring Replacement-Device Data

If you obtain a replacement device for a verification kit, the new device is accompanied by its own data on disk and tape media. Use the tape with an HP 8510A or 8510B network analyzer, and the disk with an HP 8510C.

The following procedures describe how to copy the data for the new device onto the original disk or tape (the one that came with your kit).

Caution

Because once you write over disk data it cannot be recovered, make a backup copy of the verification data disk *before* you perform the following procedure (see "Duplicating a Verification Data Disk").

Disk Data Transfer

1. Disable write-protect on the target disk (the disk that contains the *original* device data) (move the write-protect tab near the disk corner to close the rectangular hole in the disk).
2. Write-protect on the source disk (the disk that contains data for the *new* device) and it in the network analyzer disk drive.
3. On the network analyzer, press INSTRUMENT STATE (RECALL), and select `MORE` `FACTORY PRESET`.
4. Press (DISC) and select `DIRECTORY`.

   The network analyzer displays a listing of two files on the source disk.
5. On a piece of paper write the file name and contents information for each disk file.
6. Remove the source disk from the disk drive and note the disk label. Write the file number (F1, F2, F3, or F4) that corresponds with the serial number of the replacement device. This information will be used later.
7. Replace the source disk into the network analyzer disk drive.
8. Press (DISC) and select `LOAD` `MEMORY 1-8` `MEMORY n` (n is the memory location to be stored to the target disk and corresponds with the file number noted previously (F)(1, 2, 3, or 4)).

   The network analyzer shows a listing of the one display memory file on the disk.
9. Select `LOAD FILE`.

   The network analyzer loads the display memory file (DM) from the source disk into memory.
10. Remove the source disk and insert the target disk into the network analyzer disk drive.
11. Select `STORE` `MEMORY 1-8` `MEMORY n` (n is the memory location to be stored to the target disk and corresponds with the file number noted previously (1, 2, 3, or 4)).
12. Refer to the list of files recorded on paper earlier. Spell out the file name to be stored on disk by moving the RPG knob to select letters and numbers and selecting `SELECT LETTER`. When finished with the file name, select `STORE FILE`. The file is stored to disk.

13. Remove the target disk and insert the source disk into the network analyzer.
14. Select `LOAD MEMORY ALL`.

    The network analyzer shows a listing of the single memory all file on the disk.
15. Select `LOAD FILE`.

    The network analyzer loads the memory all file (MA) into memory from the source disk.
16. Remove the source disk and insert the target disk into the network analyzer.
17. Select `STORE MEMORY ALL`. Refer to the list of files recorded on paper earlier. Spell out the file name to be stored on disk by moving the RPG knob to select letters and numbers and selecting `SELECT LETTER`. When finished with the file name, select `STORE FILE`. The file is stored to disk.
18. Remove the target disk from the network analyzer. Enable write-protect on the disk (move the write-protect switch near the disk corner to *open* the rectangular hole in the disk).
19. Write the new device serial number on the disk label.
20. Make a duplicate copy of this new verification data disk, and keep the original disk in a safe place.

Loading a Calibration Constants Disk

Use the following procedure to load the calibration constants into an HP 8510C. If you are using a different analyzer, or are using an external disk drive, refer to the analyzer documentation.

1. Insert the calibration constants disk into the HP 85101 drive.
2. Press (DISC).
3. Select `LOAD` `CAL KIT 1-2`.
4. Select either `CAL KIT 1` or `CAL KIT 2`.
   The analyzer displays the disk directory.
5. Use either the RPG knob or the arrow keys to highlight the desired file.
6. Select `LOAD FILE` to load the calibration constants into memory.
7. Remove the disk from the drive.

Duplicating a Calibration Constants Disk

Use the following procedure to make a backup copy of a calibration constants disk on an HP 8510C network analyzer. If you are using a different network analyzer, or are using an external disk drive, refer to the analyzer documentation.

1. Load the original calibration constants disk (see previous procedure).
2. Initialize a blank disk:
   a. Insert the disk into the HP 85101 disk drive.
   b. Press (DISC).
   c. Select `STORAGE IS INTERNAL` `SETUP DISC` `SETUP DISC` `INITIALIZE DISC` `YES`.
3. With an initialized disk in the HP 85101 disk drive, transfer the calibration constants:
   a. Press (DISC) (STORE).
   b. Select `CAL KIT/1-2` `CAL KIT/*1`.
   c. Select the appropriate data type.
4. Remove, write protect, and label the disk.

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INTRODUCTION:

This manual insert describes the differences in the HP 8515A Option H84 Test Set compared to the standard 8515A. It also describes the manual changes necessary to document the 8515A-H84.

DESCRIPTION:

The 8515A Option H84 is a standard 8515A test set that has been modified to allow peak CW power levels of up to 1 watt to be present at the test ports. The added couplers (A21 and A22) are reversible for versatility in configuring special test systems. Injection of a second signal for intermodulation testing of mixers, noise figure and spectrum analysis for amplifier testing are some examples. See Figure 4.

OPERATION:

* * * CAUTION * * *

Special care must be taken when power levels to the test ports exceed +17 dBm (50 mW). Exceeding +17 dBm at the test ports with the standard external links (08512-20019) installed between J2 and J3 and between J4 and J5 could cause permanent damage to the test set (see Figure 2). In the large signal configuration (see Figure 1) 1 Watt (+30 dBm) is the maximum signal into the test ports. Note the bias limitations listed in Figure 3 that effect the maximum power levels.

Figure 1 shows a sample large signal configuration for the 8515A-H84. In this configuration the reference signals are taken from the added couplers. This ratios out errors contributed by the drive amplifier. Figure 2 shows a standard small signal configuration. The test set is delivered in this configuration. Figure 3 shows maximum power levels for all connections. Refer to Figure 4 for an SC/MM (single connection/multiple measurement) sample configuration.

The step attenuators in the 8515A-H84 control power only to the test samplers (b1 and b2). Power at the test samplers should not exceed 0 dBm. Samplers start compressing at -10dBm. Power control at port 1 or port 2 is not possible with the 8515A-H84's attenuators. An 8340B Synthesized Sweeper (with attenuators) is recommended for use with the 8515A-H84.

OPERATION (continued):

To reverse one or both of the added couplers refer to Figure 5 and perform the following steps:

1. Remove W36, W37, W46, W47, W50 and W51.
2. Remove the screws that secure the coupler bracket to the deck.
3. Disconnect Bias Tee A7 from Coupler A21.
4. Remove the two screws securing the coupler to the bracket. Reverse the coupler and replace the screws.
5. Reverse the above procedure for reassembly, but replace W47 with W49 (included in the 8515A-H84 accessory box).
6. For Port 2 coupler (A22) reversal, use the above procedure and refer to Figure 5 for any reference designator changes.

SPECIFICATIONS:

The 8515A-H84 performance is considered "typical", and depend on how the test-set is configured. The coupler frequency response rolls off below 1.7 GHz. Therefore when in S-Parameter mode (small signal configuration) operation from 1.7GHz to 26.5 GHz is comparable to the standard HP 8515A. If the 8515A-H84 is operated below 1.7GHz the Dynamic Range, Source match, and directivity specifications will be degraded.

SYSTEM VERIFICATION:

The standard 8515A system verification procedure is used for the 8515A-H84. Performance will be comparable to the standard 8515A, with the exception noted in the "specification section". The Test-set must be in Small signal configuration with the system verification procedure is performed.

MANUAL CHANGES NECESSARY TO DOCUMENT THE 8515A-H84:

The following are manual changes that must be made to document the 8515A-H84. Make changes to the HP 8515A Operating and Service Manual (HP part number 08515-90015) as follows:

Page 10, Figure 3, Installation:
Delete: Item 5 REF PORT EXTENSION CA (LONG, 2) P/N 08514-20013

Page 3, Table 2, Replaceable Parts:
Add: A21, A22 P/N 0955-0125 DIRECTIONAL COUPLER
A23, A24 P/N 909D 50-OHM TERMINATION/DC-26.5 GHz
Change: A6, A8 to KRYTAR MDL #2616 WITH 3.5 MALE INPUT CONN

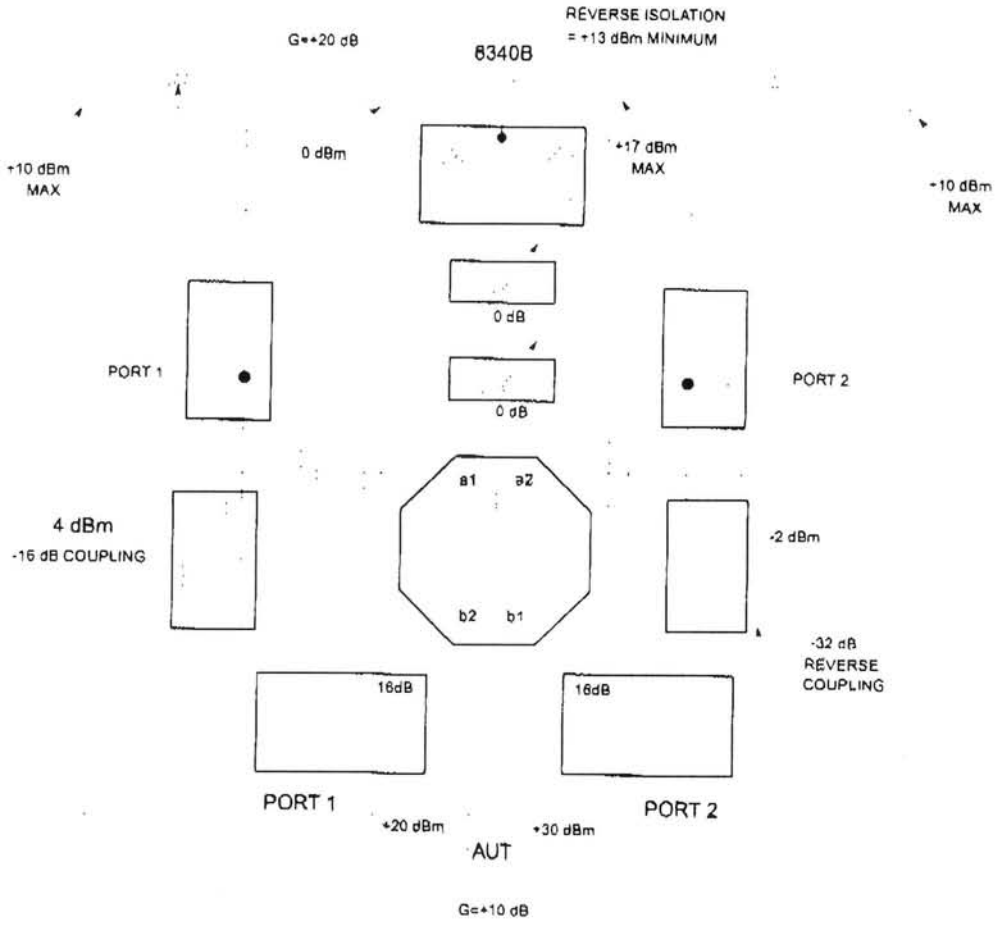
Page 4, Table 2, Replaceable Parts:
Change: W35 CA RF to P/N 08514-20093 J15-AT6
W37 CA RF to P/N 08515-20021 A8-A21
E10,24,25 Qty to 11
AT4, AT6 to P/N 8493C #020
Delete: AT1,2,3,5
Add: W31 CA RF P/N 08515-20020 A17-A11
W32 CA RF P/N 08514-20092 J18-AT4
W36 CA RF P/N 08515-20021 A6-A22
W38 CA RF P/N 08515-20022 A16-A10
PORT 1.2 FRNT PANEL CONNECTORS Qty 2 (See Figure 9)

Page 5, Table 2, Replaceable Parts:
Add: W40 CA RF P/N 08515-20023 A8-A17
W41 CA RF P/N 08515-20024 A6-A16
W42 CA RF P/N 08514-20094 A18J8-J8
W46 CA RF P/N 08515-20025 A22-J17 (FWD)
W47 CA RF P/N 08515-20026 A21-J16 (FWD)
W48 CA RF P/N 08515-20027 A22-J17 (REV)
W50 CA RF P/N 08514-20100 A9-J5
W51 CA RF P/N 08514-20101 A7-J2
W70 CA AY P/N 08515-60005 A16-A19J9 & A17-A19J8 Qty 2
Change: W45 to P/N 08514-20095 A18J7-J6
W49 to P/N 08515-20028 A21-J16 (REV)
W52 to P/N 08514-20102 CA JUMPER J8-J18 & J6-J15 Qty 2
W57 to P/N 08515-60006 CA AY J11 REAR PANEL
17 to P/N 08515-00016 REAR PANEL H84

Page 6, Table 2, Replaceable Parts:

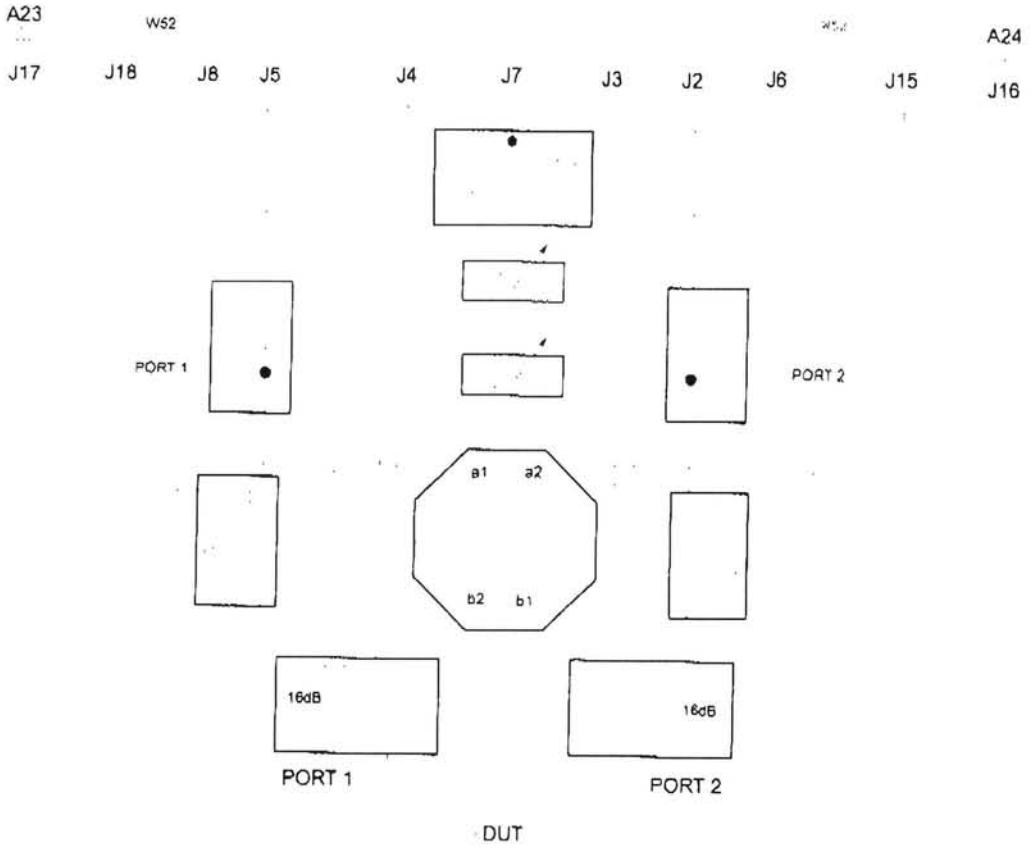
Change: 60 to P/N 08515-00015 FRONT PANEL H84
61 to P/N 08515-00017 SUB PANEL H84
Add: 97 P/N 08514-00040 SUB DECK LEFT
98 P/N 08514-00041 SUB DECK RIGHT
99 P/N 08514-00042 COUPLER BRACKET Qty 2
100 P/N 08516-00010 COUPLER CLAMP Qty 2
101 P/N 08516-00009 COUPLER SUPPORT Qty 2
102 P/N 08515-00018 SUB DECK, ATTENUATOR Qty 2

NOTE: See Figure 5 for cable and component locations.



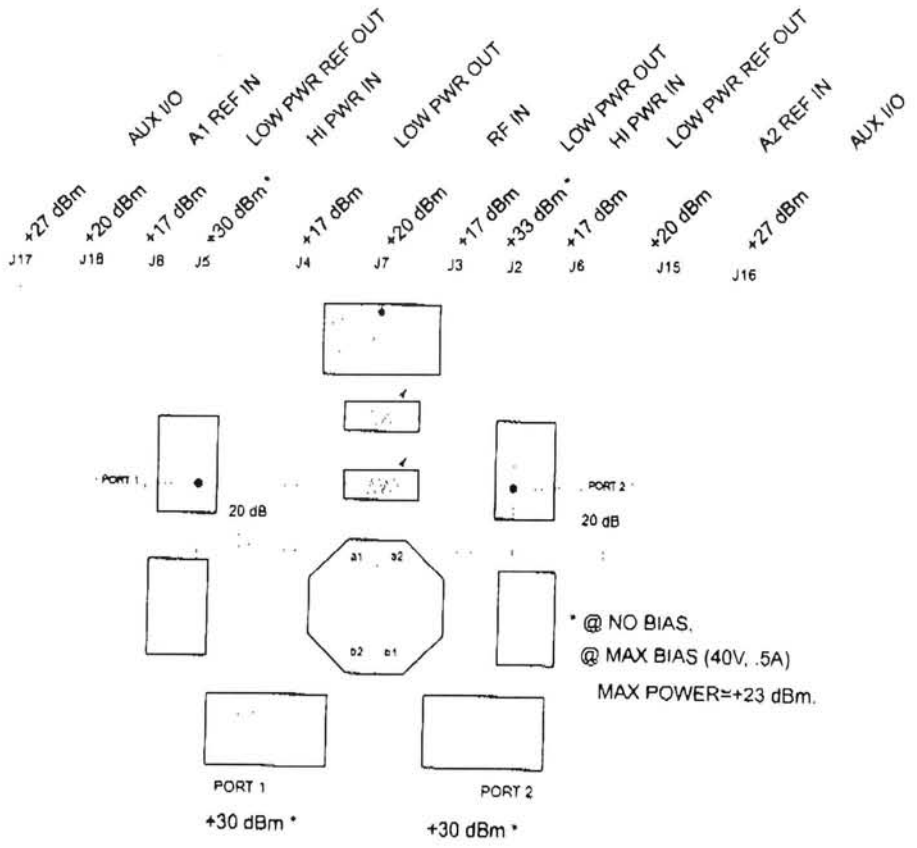
LARGE SIGNAL CONFIGURATION

Figure 1



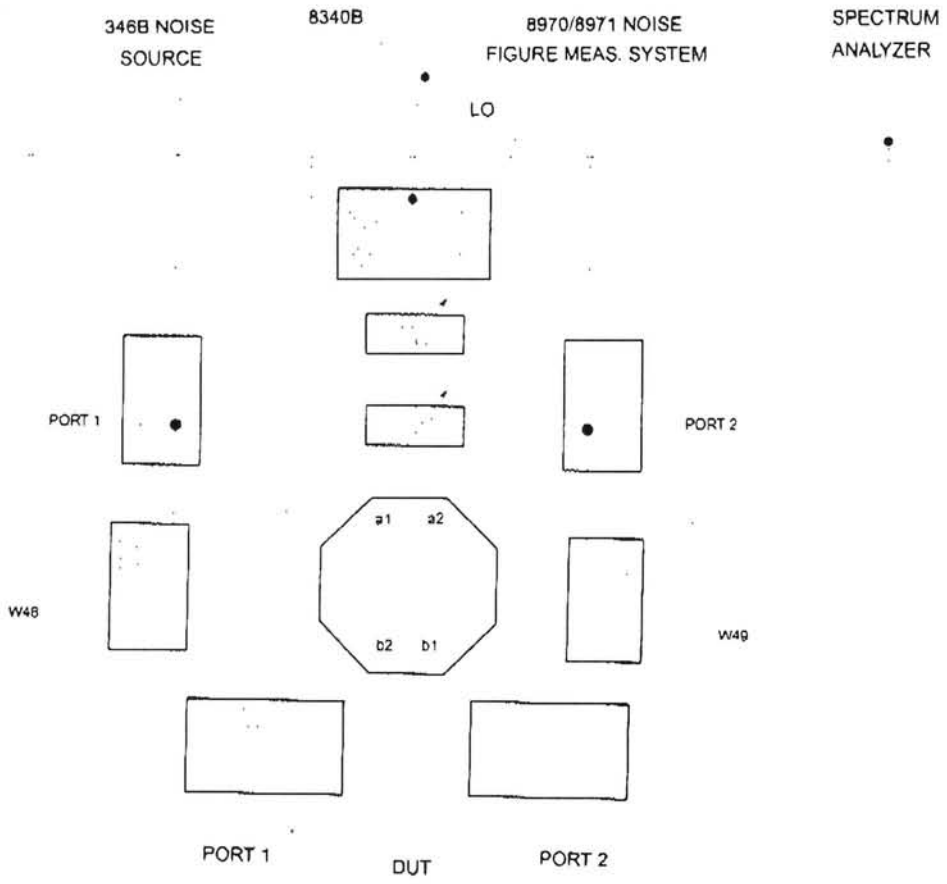
SMALL SIGNAL CONFIGURATION

Figure 2



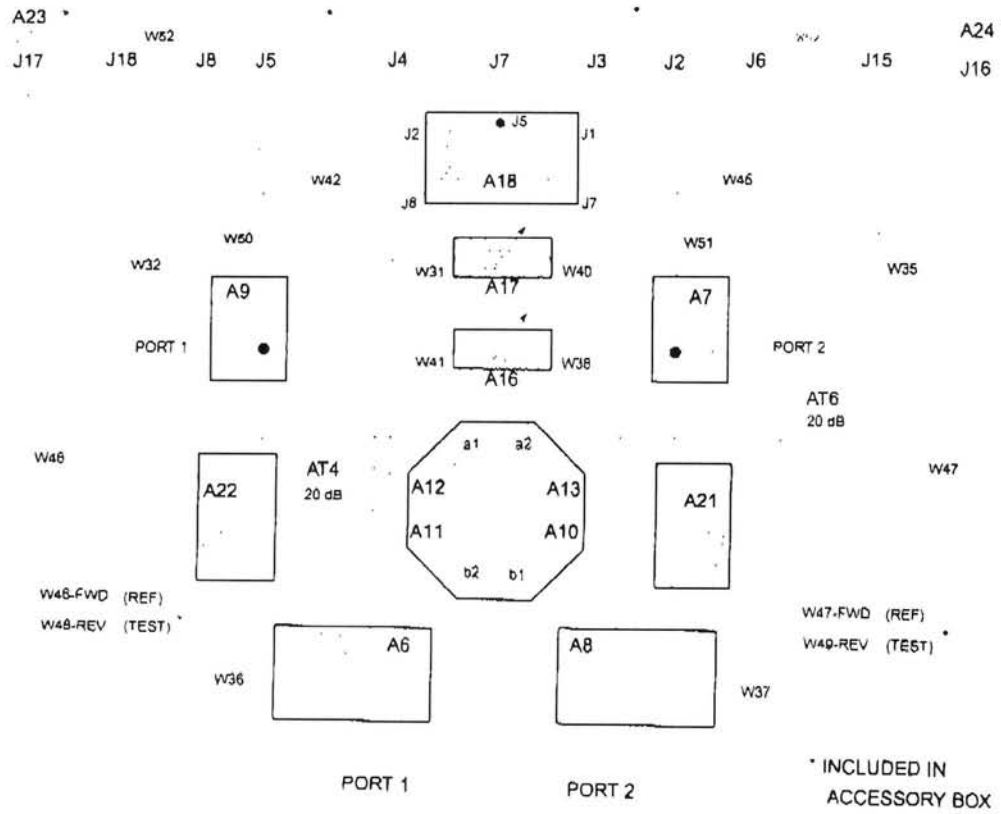
MAXIMUM POWER LEVELS

Figure 3



SCMM CONFIGURATION

Figure 4



8515A-H84

UNIQUE COMPONENTS

Figure 5