

Errata

Title & Document Type: 8720A Network Analyzer Firmware Revision Notice

Manual Part Number: 08720-90130

Revision Date: November 1989

HP References in this Manual

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard's former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. We have made no changes to this manual copy. The HP XXXX referred to in this document is now the Agilent XXXX. For example, model number HP8648A is now model number Agilent 8648A.

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Search for the model number of this product, and the resulting product page will guide you to any available information. Our service centers may be able to perform calibration if no repair parts are needed, but no other support from Agilent is available.

HP 8720A Network Analyzer

Firmware Revision Notice



HP Part No. 08720-90130
Printed in USA November 1989

Firmware Revision 2.00

Firmware Improvements

Firmware revision 2.00 for the HP 8720A network analyzer incorporates several improvements over previous versions. The changes are in three areas:

- Waveguide Measurements
- Markers
- File Capabilities (including CITIfile)

Waveguide Measurements

Waveguide Electrical Delay

Electrical delay and port extensions now feature a choice of waveguide mode or the default coax mode. Waveguide mode permits accurate extension of the measurement plane through waveguide. Waveguide mode also makes possible more accurate fault-location measurements using time-domain in waveguide. The improvements result from waveguide mode accounting for dispersion (different frequencies travel through waveguide at different speeds) in rectangular waveguide.

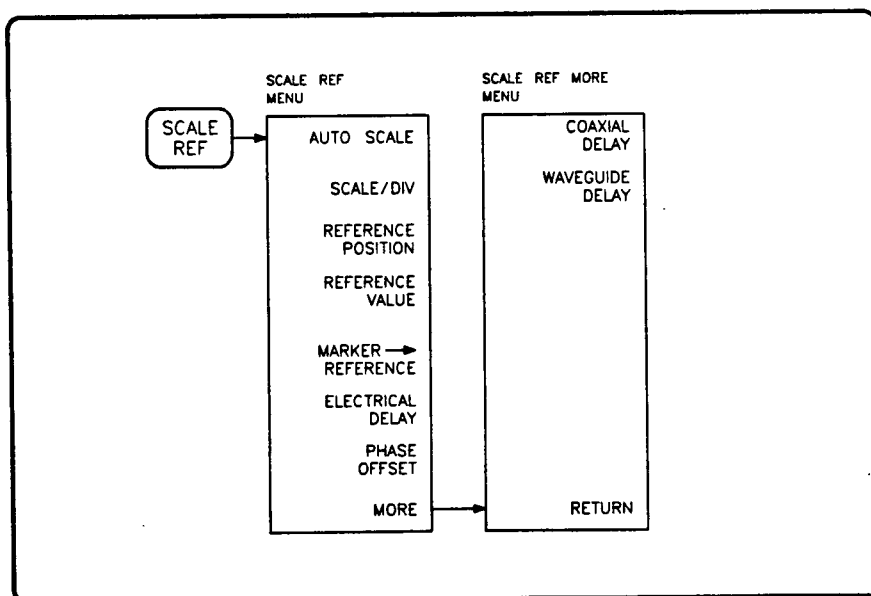


Figure 1-1.

More Reliable Sliding Load Cal

The new sliding load calibration algorithm more reliably corrects for directivity when very good (better than 42 dB return loss) sliding loads are used. This is especially important for waveguide calibrations because 50 dB loads are quite common in waveguide.

System Impedance Softkey

SET SYSTEM Z0 lets you change the system impedance from 50 ohms (to 1 ohm, for instance, for waveguide measurements).

SET SYSTEM Z0 has been added to the Modify Cal Kit menu (and still appears in the Calibrate More menu).

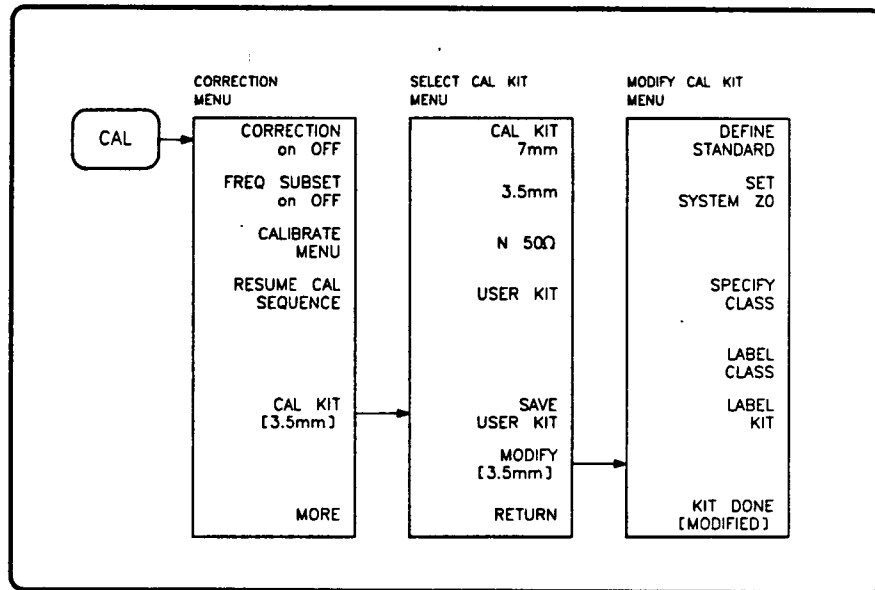


Figure 1-2.

Markers

DISP MKRS ON off enables the analyzer to display the stimulus and response data for 1 to 4 markers per channel (up to 8 in dual display mode). The HP-IB command is DISM; default mode is ON. Note that the marker statistics and marker bandwidth features deactivate DISP MKRS.

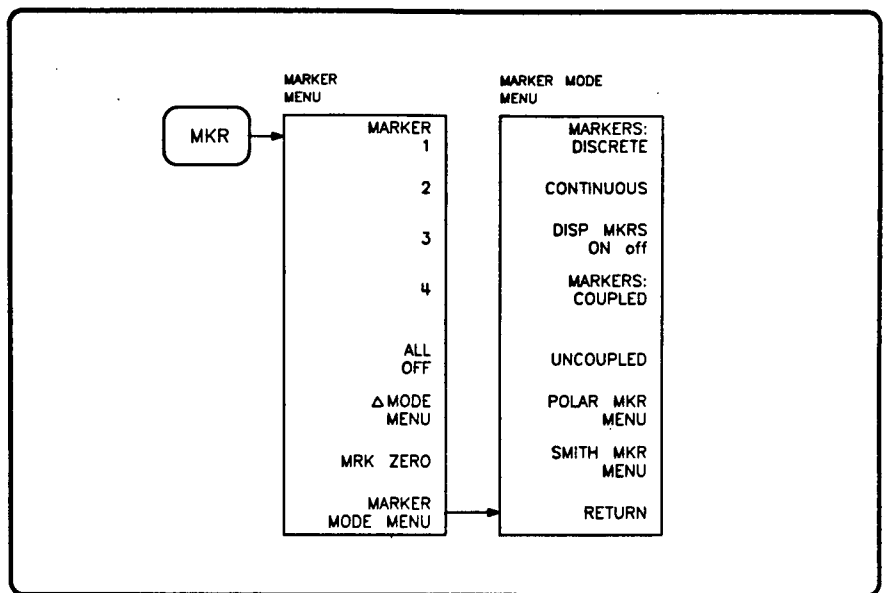


Figure 1-3.

File Capabilities

File Compatibility

Disk files created by firmware revision 2.00 of the HP 8720A are interchangeable with all previous revisions. Additionally rev 2.00 files can be read by the HP 8720B.

Form 5 HP-IB, IEEE Data Format

Form 5 is an HP-IB data format usable by PC DOS compatible computers (and computers using the Intel 8086, 8088, 80286, or 80386 microprocessors). It is defined by IEEE as a binary floating point single precision (32 bit) format.

CITIfile ASCII Data File Format

The ASCII data file format is a transportable, easy-to-read alpha-numeric data format. In the network analyzer, the ASCII files follow the CITIfile (Common Instrument Transfer and Interchange file) protocol. CITIfile is used by the Hewlett-Packard MDS (Microwave Design System). As a result, ASCII format is useful under these circumstances:

- If you want to transfer disk files for use with HP's MDS.
- If you want to manipulate data array information with an external computer.

ASCII can store or transfer (in CITIfile format) data arrays, calibration data, and trace memory data.

To select ASCII format, press **SAVE** **STORE TO DISK** **DEFINE STORE** **DATA FILE FORMAT ASCII**.

CITIfile Definitions

- **CITIfile data file:** a file in ASCII format that consists of one or more CITIfile packages.
- **CITIfile package:** alpha and numeric information typically residing in a header section and one or more data sections.
- **Header section:** first part of a package, it describes (1) the data section to follow or (2) the instrument state or (3) both.
- **Data section:** second part of a package, it consists of the data array and its delimiters.
- **Data array:** numeric data, arranged one data element per line. In RI (real, imaginary) format, each element is a pair of numbers.
- **Data delimiters:** BEGIN and END mark the start and stop of each data array.
- **CITIfile:** the first keyword of any CITIfile package. It must be followed by a revision code to indicate the revision level of the file. For example: CITIFILE A.01.00.
- **Keyword:** the first text on a new line; spaces are not allowed although the underline “_” is valid. Two keyword examples: NAME, SEG_LIST_BEGIN.
- **Data:** 1. a keyword which identifies the name of a data array and its format. For example, DATA S RI. 2. the numbers, often paired, which comprise the data array.

HP 8720 CITIfile Data File Example

CITIFILE A.01.00
#NA HP8720A.02.00

NAME Results

VAR Freq Mag 201
DATA S[1,1] RI
SEG_LIST_BEGIN
SEG 1000000000 2000000000 201
BEGIN
8.1234E-1,-8.9876E-1
8.2345E-1,-8.8765E-1
.
.
.
8.3456E-1,-8.5432E-1
8.4567E-1,-8.4321E-1
END

*CITIfile keyword and revision number.
Network analyzer identifier keyword,
model, and firmware revision.
Data filename keyword and name of
file: RESULTS.*

*Data delimiter, begins data section.
1st entry of data array.
2nd entry of data array.*

*200th entry of data array.
201st entry of data array.
Data delimiter, ends data section.*

Example Program to Read and Print CITIfile

```
1 ALLOCATE Filename$[30], Current_line$[256], Response$[30]
2 PRINTER IS 1
3 LINPUT "Name of File to Read?", Filename$
4 ASSIGN @Diskfile to Filename$
5 ON END @Diskfile GOTO End_of_file
6 PRINT "***DISK FILE NAME:'"$&"'***"
7 REPEAT
8 ENTER @Diskfile;Current_lines
9 PRINT Current_lines
10 UNTIL 0=1
11 End_of_File:!
12 PRINT "***END OF FILE***"
13 END
```

HP 8719A and 8720B Network Analyzers

Firmware Revision Notice



**HEWLETT
PACKARD**

HP Part No. 08720-90129

Printed in USA November 1989

Firmware Revision 1.01

Firmware Improvements

Firmware revision 1.01 for HP 8719A and 8720B network analyzers incorporates several improvements over its predecessors. The changes are in two areas:

- Waveguide Measurements
- File Compatibility

Waveguide Measurements

Waveguide Electrical Delay

Electrical delay and port extensions now feature a choice of waveguide mode or the default coax mode. Waveguide mode permits accurate extension of the measurement plane through waveguide. Waveguide mode also makes possible more accurate fault-location measurements using time-domain in waveguide. The improvements result from waveguide mode accounting for dispersion (different frequencies travel through waveguide at different speeds) in rectangular waveguide.

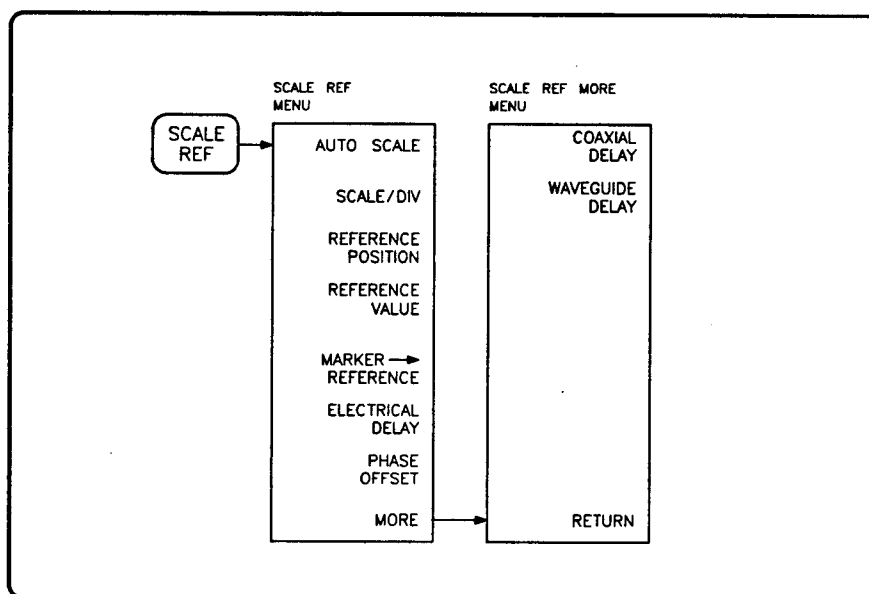


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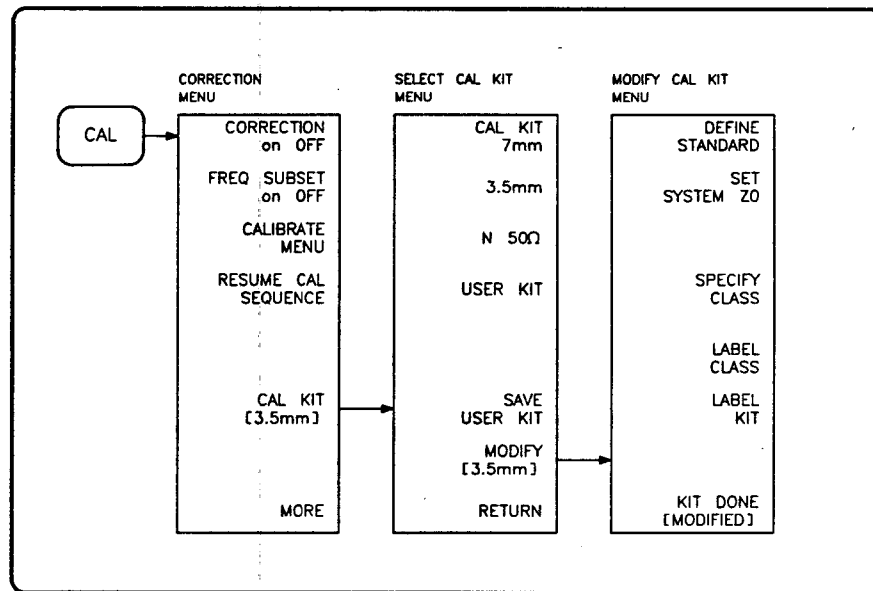


Figure 1-2.

File Compatibility

All disk files created by all firmware revisions of the HP 8719A and 8720A or revision 1.00 of the HP 8720B are readable by revision 1.01 of the HP 8719A and 8720B.