

Operating and Service Manual

85130D NMD 3.5 mm to 3.5 mm Adapter Kit



Agilent Technologies

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Hewlett-Packard to Agilent Technologies Transition

This documentation supports a product that previously shipped under the Hewlett-Packard company brand name. The brand name has now been changed to Agilent Technologies. The two products are functionally identical, only our name has changed. The document still includes references to Hewlett-Packard products, some of which have been transitioned to Agilent Technologies.

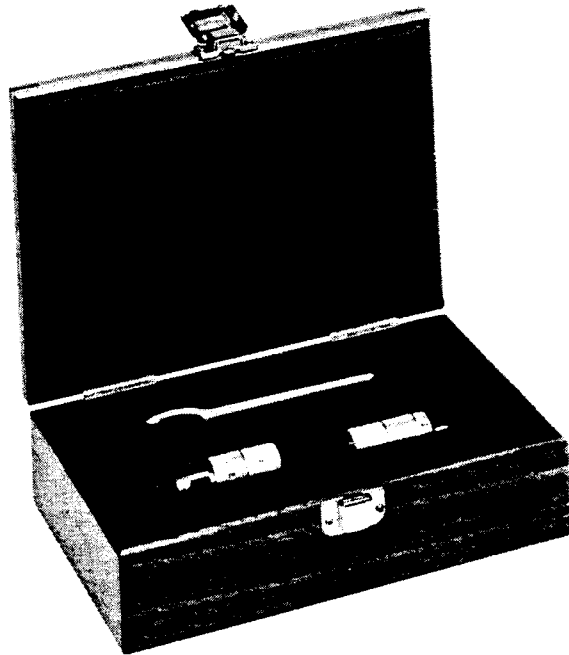
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HP 85130D NMD 3.5 mm to 3.5 mm ADAPTER KIT



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HP 85130D Adapter Kit

GENERAL INFORMATION

To obtain optimum performance from this adapter kit, observe these simple precautions:

- Make connections carefully to avoid misalignment and connector damage, which will result in inaccurate measurements.
- Keep the connectors free of dirt and any particles.
- When you clean the connectors, try compressed air first. Do not use abrasives. With a clean foam swab, apply **only** Freon TF as a solvent.
- For more information, refer to the Microwave Connector Care manual.

DESCRIPTION

The HP 85130D adapter kit consists of two NMD-3.5 mm to 3.5 mm adapters and a spanner wrench. The test set end of the adapters has a NMD-3.5 mm connector while the Device Under Test (DUT) end has a precision slotless 3.5 mm connector (PSC-3.5). The NMD-3.5 mm to PSC-3.5 (m) adapter is used as a connector saver on the test port of the test set. The NMD-3.5 mm to PSC-3.5 (f) adapter is used when a female test port is required.

CONTENTS

The HP 85130D kit contains the following:

Description	Quantity	Replacement Part Number
Test port adapters		
NMD-3.5 to PSC-3.5 (m)	1	85130-60006
NMD-3.5 to PSC-3.5 (f)	1	85130-60005
Storage box, foam lined	1	85130-60009
Operating and Service Manual	1	85130-90012
Spanner wrench	1	08513-20014

SPECIFICATIONS

Hewlett-Packard guarantees that your adapters will equal or exceed the following specifications:

DC to 8 GHz	≥ 34 dB return loss
8 to 18 GHz	≥ 30 dB return loss
18 to 26.5 GHz	≥ 28 dB return loss

The center conductor of the NMD-3.5 mm connector should be recessed 0.0000 to 0.0022 inches (0.000 to 0.056 mm) below the mating surface of the outer conductor.

The center conductors of the 3.5 mm precision connectors (3.5 mm (m) and PSC-3.5) should be recessed 0.0001 to 0.0005 inch (0.0025 to 0.013 mm) below the mating surface of the outer conductor.

PERFORMANCE TESTS

Using an HP 8510 Network Analyzer perform the following tests on your adapters as soon as you receive them, and periodically repeat the tests to determine if their performance meets the electrical specifications stated above or if they need to be replaced. An initial period of one year between performance tests is recommended.

Required Equipment	HP Part Number
HP 8510A/B Network Analyzer System with time domain option	8510 Opt. 010
3.5 mm loads (part of the HP 85052B calibration kit)	
male	85052-60010
female	85052-60011
3.5 mm 50Ω airline, 7.5 cm (part of the HP 85053B verification kit)	85053-60005

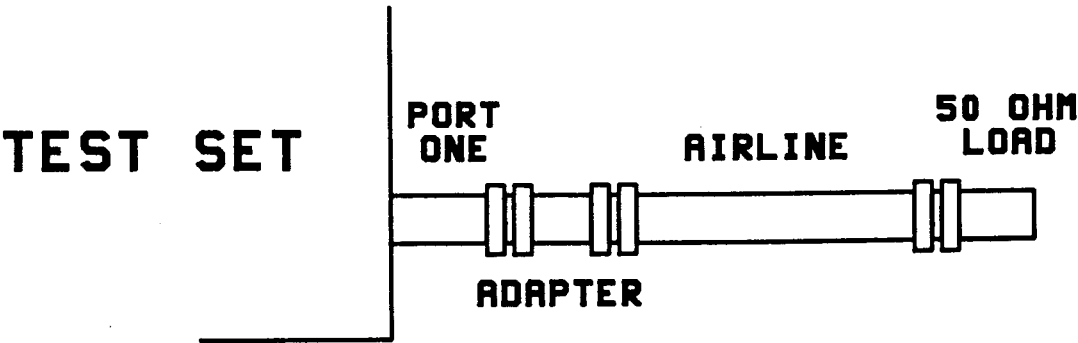


Figure 1. Return Loss set-up

Return loss is measured by connecting a 50-ohm fixed load termination through a 7.5 cm airline to the adapter, then attaching the adapter to port one of the test set (see *Figure 1*).

The effects of an imperfect load may be gated out using the HP 8510 time domain option as follows:

1. Press **[INSTR PRESET]**, the HP 8510 will be set to a pre-determined state.
2. Under STIMULUS, press **[START] [4] [5] [M/μ]**, this sets the start frequency to 45 MHz.
3. Under STIMULUS, press **[STOP] [2] [6] [.] [5] [G/n]**, this sets the stop frequency to 26.5 GHz.
4. Perform a 3.5 mm one port S11 calibration with 32 averaging at port one of your test set, as described in the HP 8510 Operating and Programming manual. Save the calibration.
5. With correction turned on, under MENUS, press **[DOMAIN]**. This brings up a set of time domain and frequency functions to the softkeys. Select **[TIME BANDPASS]**. This puts you in time domain mode.
6. Under STIMULUS, press **[START] [-] [.] [0] [5] [G/n]**. This sets the start time of the sweep to $-.05$ nano-seconds.
7. Under STIMULUS, press **[STOP] [1] [.] [2] [G/n]**. This sets the stop time of the sweep to 1.2 nano-seconds.
8. Under RESPONSE, press **[AUTO]**. This brings the trace on screen.
9. Under the softkey functions, press **[SPECIFY GATE]**. A new menu should appear that will allow you to press **[STOP]** softkey.
10. Using the RPG, adjust the stop gate to the center of the airline (see *Figure 2*).
11. Under the softkey functions press **[GATE ON]**. The HP 8510 will now compute the gate coefficients to gate out everything but the cable.
12. Press the **[PRIOR MENU]** button just to the right of the softkeys and a new menu should appear that will allow you to press **[FREQUENCY]** softkey.
13. Under MENUS, press **[MARKER]**. This brings up a set of functions to the softkeys. Select **[MORE] [MAXIMUM]** softkeys.
14. You can now read the return loss value from the screen marker value.

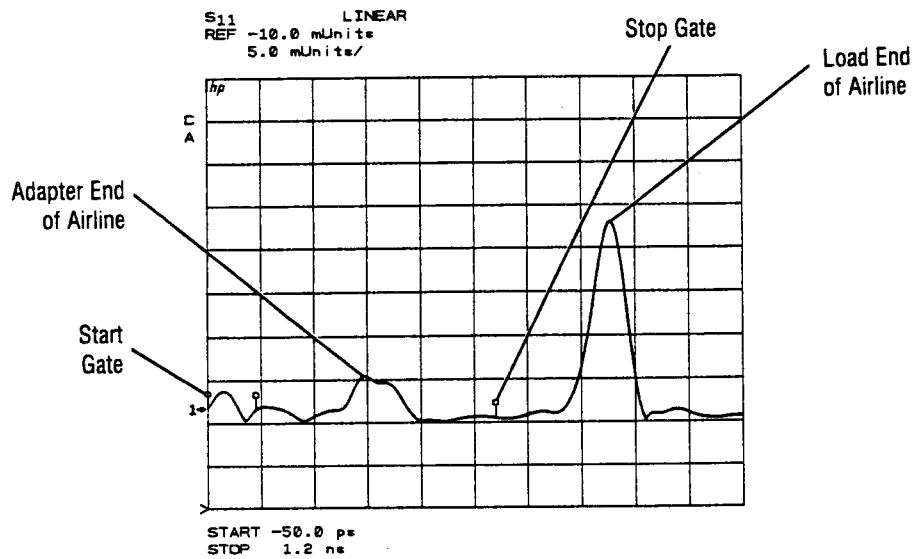


Figure 2. Location of Gates and Airline

PROPER USE

Attach the adapters to the test ports and tighten them finger tight. Use the spanner wrench to hold the test set end of the adapter and torque the test set connector with a 20 mm torque wrench set to 96 N-cm (8 in-lb). Attach a non-rotating clamp to each test port.

REPLACEABLE PARTS

There are no replaceable parts in the HP 85130D adapter kit. A worn or damaged adapter must be replaced in whole.

EQUIPMENT AND SUPPLIES

The following equipment and supplies are required for the maintenance and use of, but are not supplied with, your HP 85130D adapter kit.

3.5 mm gage kit (part of the HP 85052A/B calibration kits)	85052-80010
Torque wrench, 20 mm, 96 N-cm (8 in-lb)	8710-1764
Torque wrench, 5/16 inch, 96 N-cm (8 in-lb) (part of the HP 85052A/B calibration kits)	8710-1765
Microwave Connector Care Manual	08510-90064
Connector cleaning kit	92193Z
Non-rotating Clamp (included with the HP 8515A test set)	08515-60003



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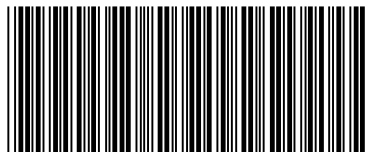
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Contacting Agilent

Online assistance: www.agilent.com/find/assist			
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Brazil <i>(tel)</i> (+55) 11 4197 3700 <i>(fax)</i> (+55) 11 4197 3800	Canada <i>(tel)</i> 888 447 7378	Mexico <i>(tel)</i> 1 800 734 7703 <i>(fax)</i> 1 800 734 7704	United States <i>(tel)</i> 800 829 4444 <i>(alt)</i> (+1) 303 662 3998 <i>(fax)</i> 800 829 4433
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