

Operating and Service Manual

Agilent Technologies

85130F

**NMD 2.4 mm to 3.5 mm
Adapter Kit**



Part Number 85130-90030

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Notice

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 85130F 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 85130F adapter kit consists of two NMD-2.4 mm to 3.5 mm adapters and a spanner wrench. The test set end of the adapters has a NMD-2.4 mm connector while the Device Under Test (DUT) end has a precision connector. The NMD-2.4 mm to NMD-3.5 mm (m) adapter is used when a male test port is required. The NMD-3.5 mm to PSC-3.5 (f) (precision **slotless** connector) adapter is used when a female test port is required.

CONTENTS

The HP 85130F kit contains the following:

Description	Quantity	Replacement Part Number
Test port adapters		
NMD-2.4 mm to NMD-3.5 mm (m)	1	85130-60010
NMD-2.4 mm to PSC-3.5 (f)	1	85130-60011
Storage box, foam lined	1	85130-60013
Operating and Service Manual	1	85130-90030
Spanner wrench	1	08513-20014

SPECIFICATIONS

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

Table 1. HP 85130F Specifications

CENTER CONDUCTOR PROTRUSION		
No center conductor shoulder (male pin end of female center pin) protrusion is allowable on any connector.		
CENTER CONDUCTOR RECESSION		
NMD-2.4 mm Female	PSC-3.5 Female	NMD-3.5 mm Male
MP = male contact pin shoulder recession behind the outer conductor mating plane. FP =recession of the end of female center pin behind the outer conductor mating plane.		
Connector	Allowable Recession	
	mm	in
NMD-2.4 mm female	+0.000 to +0.056	+0.000 to +0.0022
PSC-3.5 female	+ 0.00254 to + 0.0127	+0.0001 to +0.0005
NMD-3.5 mm male	+ 0.00254 to + 0.0127	+0.0001 to +0.0005
ELECTRICAL		
Adapter	Frequency Range	Return Loss
NMD-2.4 mm to PSC-3.5 female and NMD-2.4 mm to NMD-3.5 mm male	DC to 8 GHz	≥32 dB
	8 GHz to 18 GHz	≥28 dB
	18 GHz to 26.5	≥26 dB

PERFORMANCE TESTS

Using an HP 8510 Network Analyzer perform the following test on your adapters as soon as you receive them, and periodically repeat the test 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 Model/Part Number

HP **8510B** Network Analyzer HP 8510 Option 010
with time domain option and **B.04.0X** firmware or higher

HP 8516A S-parameter Test Set

HP **834XX** Synthesized Sweeper

NOTE: Refer to the HP 8516A Operating and Service Manual for information on instrument compatibility.

3.5 mm loads

(part of the HP 850528 calibration kit)

male85052-60010

female 85052-60010

3.5 mm **50Ω** airline, 7.5 cm 85053-60005

(part of the HP 850538 verification kit)

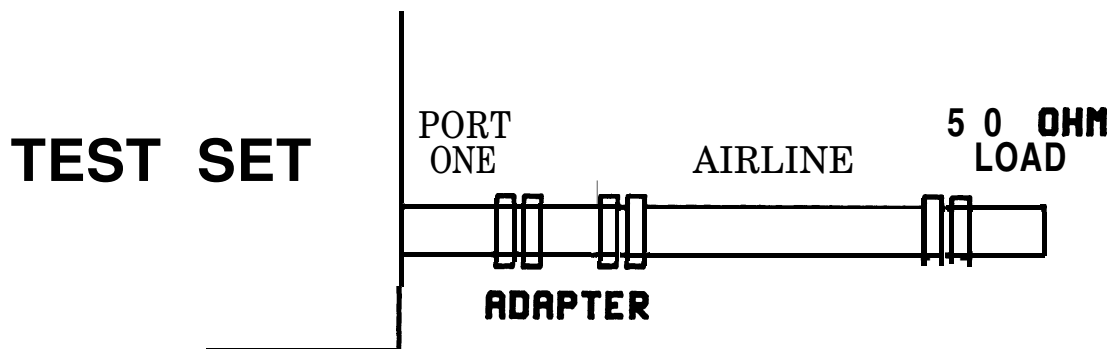


Figure 1. Return Loss Set-up

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 7).

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

1. Press **[PRESET]**. The HP 8510 will be set to a predetermined 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 2.4 mm one port sliding load **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. Set up as shown in Figure 1.

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 nanoseconds**.
7. Under STIMULUS, press **[STOP] [1] [G/n]**. This sets the stop time of the sweep to 1 nanosecond.
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 adapter.
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 the **[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, and record the results on the Performance Test Record provided.

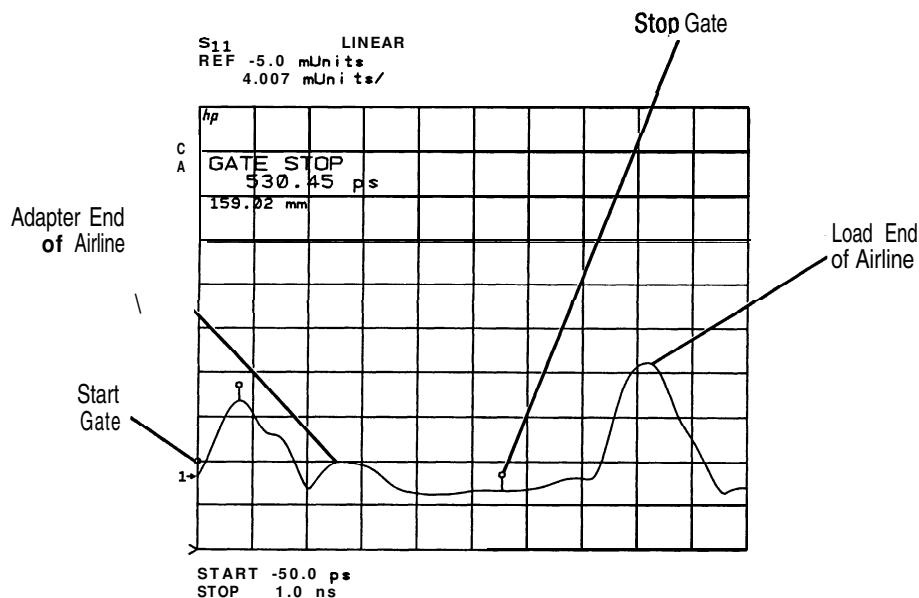


Figure 2. Location of Gates and Airline

Performance Test Record

ELECTRICAL SPECIFICATIONS			Tested by: _____
			Date: _____
Adapter	Frequency Range	Return Loss	Measured
NMD-2.4 mm to PSC-3.5 female and NMD-2.4 mm to NMD-3.5 mm male	DC to 8 GHz	≥ 32 dB	
	8 GHz to 18 GHz	≥ 28 dB	
	18 GHz to 26.5 GHz	≥ 26 dB	

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 85130F 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 85130F adapter kit.

3.5 mm gage kit	85052-80010
(part of the HP 85052A/B calibration kits)	
Torque wrench, 20 mm, 96 N-cm (8 in-lb)	8710-1764
Torque wrench, 5/16 inch, 96 N-cm (8 in-lb)	8710-1765
(part of the HP 85052A/B calibration kits)	
Microwave Connector Care Manual	08510-90064
Connector cleaning kit	92193Z
Non-rotating Clamp	08515-60003
(two included with the HP 8516A test set)	