

Operating and Service Manual

Agilent Technologies

85130G NMD-2.4 mm to 2.4 mm Adapter Kit

SERIAL NUMBERS

This manual applies directly to Agilent 85130G adapters with serial number 101 and above. An adapter with an *earlier* (or no) serial number is not specified above 40 GHz.



Agilent Technologies

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Hewlett-Packard to Agilent Technologies Transition

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HP 85130G Adapter Kit

Introduction

Use the two adapters provided in this kit to protect 2.4 mm connectors (on a test set, for example). If the application requires a male test port, use the NMD-2.4 mm_(f) to NMD-2.4 mm_(m) adapter. If the application requires a female test port, use the NMD-2.4 mm_(f) to PSC-2.4 mm_(f).

Incoming Inspection

Use Table 1-7 to verify receipt of all parts. The foam-lined storage case protects the adapters during shipment. If the case or components appear damaged, set aside the kit and all packaging material and contact the nearest Hewlett-Packard office (listed at the back of this manual).

If either of the following conditions exist, notify your nearest Hewlett-Packard office:

- The shipping contents are incomplete.
- There is mechanical damage or a mechanical defect.

Notify the carrier if the shipping container is damaged or the cushioning material shows signs of stress. Keep all shipping material for the carrier's inspection. Hewlett-Packard will arrange for repair or replacement of incomplete or damaged shipments without waiting for a settlement from the transportation company.

Use the performance test in this manual to determine if the adapters meet their electrical specifications. An initial period of one year between performance testing is recommended.

Device Serial Numbers

The adapters in this kit are individually serialized. To help avoid confusing these adapters with similar adapters from other kits, record the serial numbers in Table 1-1.

Table 1-1. Individual Adapter Serial Numbers

Serialized Adapter	Serial Number
NMD-2.4 mm _(f) to NMD-2.4 mm _(m)	_____
NMD-2.4 mm _(f) to PSC-2.4 mm _(f)	_____

Caring for the Adapters

For optimum performance from the adapters in this kit, observe the following precautions:

- Make connections carefully to avoid misalignment and damage, which causes measurement errors.
- Keep the connectors clean.

When you clean a connector, first use compressed air. Never use an abrasive. Use a clean foam swab and isopropyl alcohol.

- For more information, refer to Hewlett-Packard's *Microwave Connector Care* (see Table 1-7 for ordering information).

Precision Slotless Connectors

When properly used, a precision slotless connector should have the same lifespan as a standard slotted connector. Hewlett-Packard designed the precision slotless contacts to mate with all connectors within a connector series *when those connectors meet published interface dimensions*. Mating a connector that *does not* meet published specifications can damage a precision slotless connector. For this reason, ensure that any device you connect is within its specifications.

Specifications

Mechanical

Table 1-2. Mechanical Specifications

Precision Connector	Center Conductor			
	Allowable Recession ¹		Allowable Protrusion	
	mm	in	mm	in
NMD-2.4 mm _(f)	0.0000 to 0.056	0.0000 to 0.0022	0.0000	0.0000
NMD-2.4 mm _(m)	0.0025 to 0.0127	0.0001 to 0.0005		
PSC-2.4 mm _(f)	0.0025 to 0.0127	0.0001 to 0.0005		

¹ Center conductor shoulder behind outer conductor mating plane.

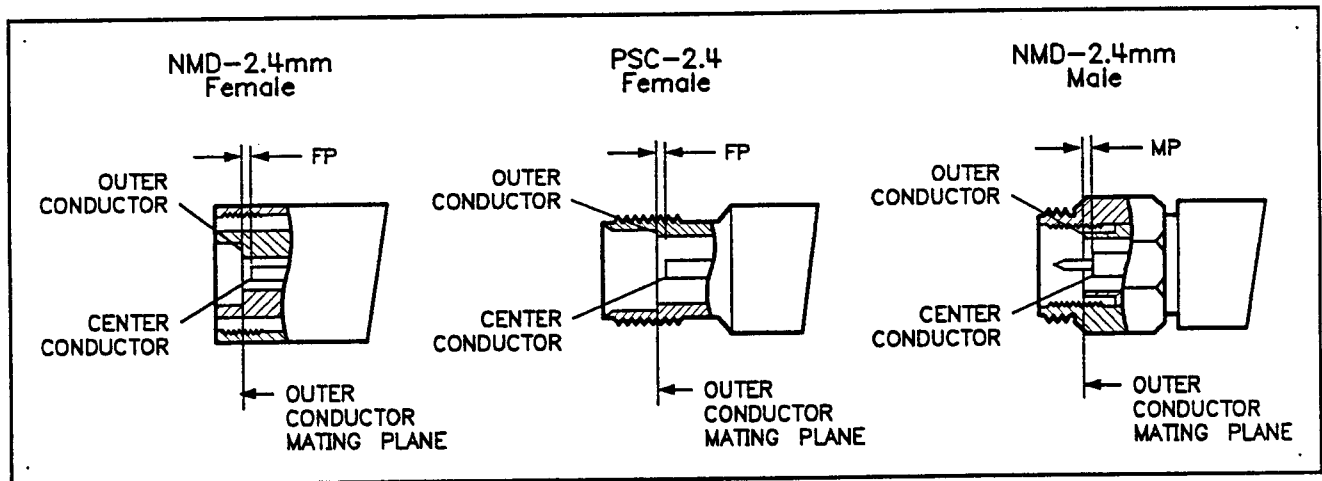


Figure 1-1. Center Conductor Recession

Electrical

Table 1-3. Electrical Specifications

Frequency Range	Return Loss
DC to 26.5 GHz	≥28 dB
26.5 to 40 GHz	≥23 dB
40 to 50 GHz ¹	≥20 dB

¹ Adapters with serial number ≥101.

Performance Test

Use the following test to determine if the adapters meet their electrical specifications. An initial period of one year between performance testing is recommended.

Recommended Test Equipment

Note



If you are testing adapters that are not specified above 40 GHz (serial numbers <101 and *no* serial numbers), replace the 50 GHz critical frequency specification in Table 1-4 with 40 GHz.

Table 1-4. Recommended Test Equipment

Instrument	Critical Specifications	Recommended HP Model or Part Number ¹
Vector Network Analyzer	Frequency Range: DC to 50 GHz	8510B/C ²
Source	Frequency Range: DC to 50 GHz	83651A
Test Set	NMD-2.4 mm Frequency Range: DC to 50 GHz	8517A
Calibration Kit	2.4 mm Frequency Range: DC to 50 GHz	85056A
Adapter	2.4 mm _(m) to 2.4 mm _(m)	85056-60005 ³
Adapter	2.4 mm _(f) to 2.4 mm _(f)	85056-60006 ³
Test Port Cable	NMD-2.4 mm _(f) to 2.4 mm _(f)	85133C/E or 85133D/F ⁴

¹ You may substitute other equipment if it meets or exceeds the critical specifications listed.

² With firmware revision 6.0 or greater.

³ Part of an HP 85056A calibration kit.

⁴ Two-cable set (one NMD-2.4 mm_(f) to NMD-2.4 mm_(m), and one NMD-2.4 mm_(f) to 2.4 mm_(f)).

Procedure

1. Turn on the network analyzer system. Press **PRESET** and let the system warm up for at least one hour.
2. Inspect, clean, and gage all connectors.
3. Using the calibration kit adapters, connect the equipment as shown in Figure 1-2.

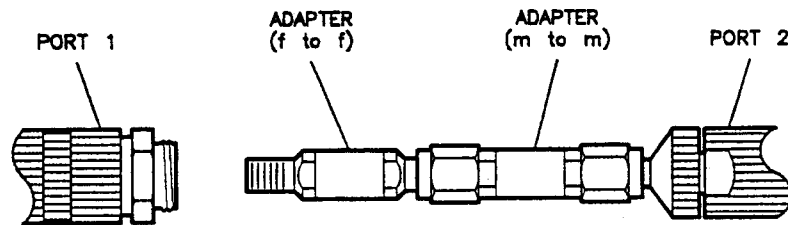


Figure 1-2. Port 1 Calibration Set

4. Create a calibration set for port 1:
 - a. Perform a full 2-port calibration between port 1 and the female-to-female adapter.
 - b. Save the calibration in CAL SET 1.
5. Connect the HP 85130G female-to-male adapter between port 1 and the female-to-female adapter.
6. Measure the HP 85130G adapter and record the results on the test record.
7. Remove the HP 85130G adapter.
8. Using the adapters from the calibration kit, connect the equipment as shown in Figure 1-3.

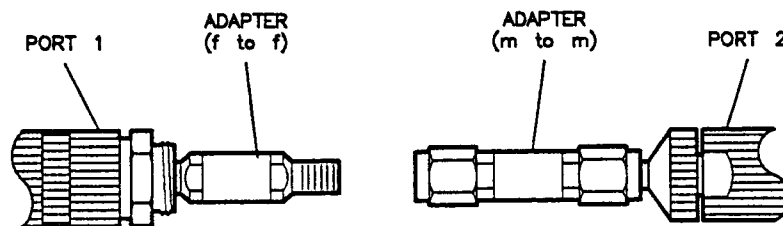


Figure 1-3. Port 2 Calibration Set

9. Create a calibration set for port 2:
 - a. Perform a full 2-port calibration between the female-to-female adapter and the male-to-male adapter.
 - b. Save the calibration in CAL SET 2.

10. Perform an adapter removal:

a. Press **CAL**.

b. Select:

MORE **MODIFY CAL SET** **ADAPTER REMOVAL**

CAL SET for PORT 1 **CAL SET 1**

CAL SET for PORT 2 **CAL SET 2**

ADAPTER 2.4mm B.O

MODIFY & SAVE **CAL SET 3**

11. Replace the female-to-female adapter with the HP 85130G female-to-female adapter.

12. Measure the HP 85130G adapter and record the results on the test record.

**Performance
Test**

Table 1-5. Test Record (1 of 3)

Test Facility _____	Report Number _____
_____	Date _____
_____	Customer _____
_____	Tested by _____
Model _____	Ambient temperature _____ °C
Serial Number _____	Relative humidity _____ %
Options _____	Line frequency _____ Hz (nominal)
Calibration Constants Revision _____	
Special Notes	

Test Record (2 of 3)

Model _____	Report Number _____	Date _____	
Test Equipment Used	Model Number	Trace Number	Cal Due Date
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

Table 1-6. Test Record (3 of 3)

Model	Report Number			Date
Test Description	Serial Number	Minimum Spec.	Results	Measurement Uncertainty ¹
RETURN LOSS				
NMD-2.4 _(f) to NMD-2.4 _(m)	_____			
DC to 26.5 GHz		≥28 dB	_____	±3.5 dB
26.5 to 40 GHz		≥23 dB	_____	±3.5 dB
40 to 50 GHz ²		≥20 dB	_____	±3 dB
NMD-2.4 _(f) to PCS-2.4 _(f)	_____			
DC to 26.5 GHz		≥28 dB	_____	±3.5 dB
26.5 to 40 GHz		≥23 dB	_____	±3.5 dB
40 to 50 GHz ²		≥20 dB	_____	±3 dB

¹ Using the equipment and procedure documented in this manual.

² Adapters with serial number ≥101.

Replaceable Parts

Table 1-7 lists the replacement part numbers. To order a listed part, note the description, HP part number, and the quantity desired. Telephone or send your order to the nearest Hewlett-Packard office (listed at the back of this manual).

Returning an Adapter or Adapter Kit to HP

If an adapter or adapter kit requires service, contact the HP office nearest you for information on where to send it (sales and service offices are listed at the back of this manual). When you send an adapter or adapter kit to Hewlett-Packard, include a service tag (found at the end of this manual), on which you provide the following information:

1. Your company name and address.
2. A technical contact person within your company, and their complete phone number.
3. If you are returning a complete kit, include the model number and serial number.
4. If you are returning one or more devices, include the part number(s) and serial number(s).
5. Indicate the type of service required.
6. Include any applicable information.

More Information

This manual contains limited information about network analyzer system operation. For complete information, refer to the instrument documentation.

If you need additional information, contact your local Hewlett-Packard representatives (sales and service offices are at the back of this manual).

Table 1-7. Replaceable Parts

Description	Quantity Per Kit	HP Replacement Part Number
Test Port Adapters		
NMD-2.4 mm _(f) to NMD-2.4mm _(m)	1	85130-60015
NMD-2.4 mm _(f) to PSC-2.4mm _(f)	1	85130-60016
HP 85130G Documentation		
Manual	1	85130-90043
Misc Items		
Foam Lined Storage Box	1	85130-60017
Spanner Wrench	1	08513-20014
Items Not Included in Kit		
2.4 mm Calibration Kit		85056A
Torque Wrench 20 mm 96 N-cm (8 in-lb)		8710-1764
Torque Wrench 5/16 in 96 N-cm (8 in-lb) ¹		8710-1765
Connector Cleaning Kit		92193Z
Isopropyl Alcohol (30 ml squeeze-top bottle)		8500-5344
Foam Swabs (500)		9300-1270
Non-rotating Clamp ²		08515-60003
Protective End Cap NMD-2.4mm _(f)	3	1401-0214
Protective End Cap NMD-2.4mm _(m)	1	1401-0208
Protective End Cap PSC-2.4mm _(f)	2	1401-0202
Connector Care Manual		08510-90064

¹ Part of an HP 85052 calibration kit.

² Two supplied with test set.

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Customer Order Number

Manufacturing Part Number

85130-90043



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