Keysight 85130F NMD 2.4 mm to 3.5 mm Adapter Kit

Operating and Service Manual

KEYSIGHT TECHNOLOGIES

Notices

Manual Part Number

85130-90030

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Safety Notices

CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

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A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

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 using compressed air first. Do not use abrasives. With a clean foam swab, apply only isopropyl alcohol.
- For more information, refer to the *Connector Care for RF and Microwave Coaxial Connectors* document. It can be viewed online by searching for part number 08510-90064 at www.keysight.com.

Description

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

Contents

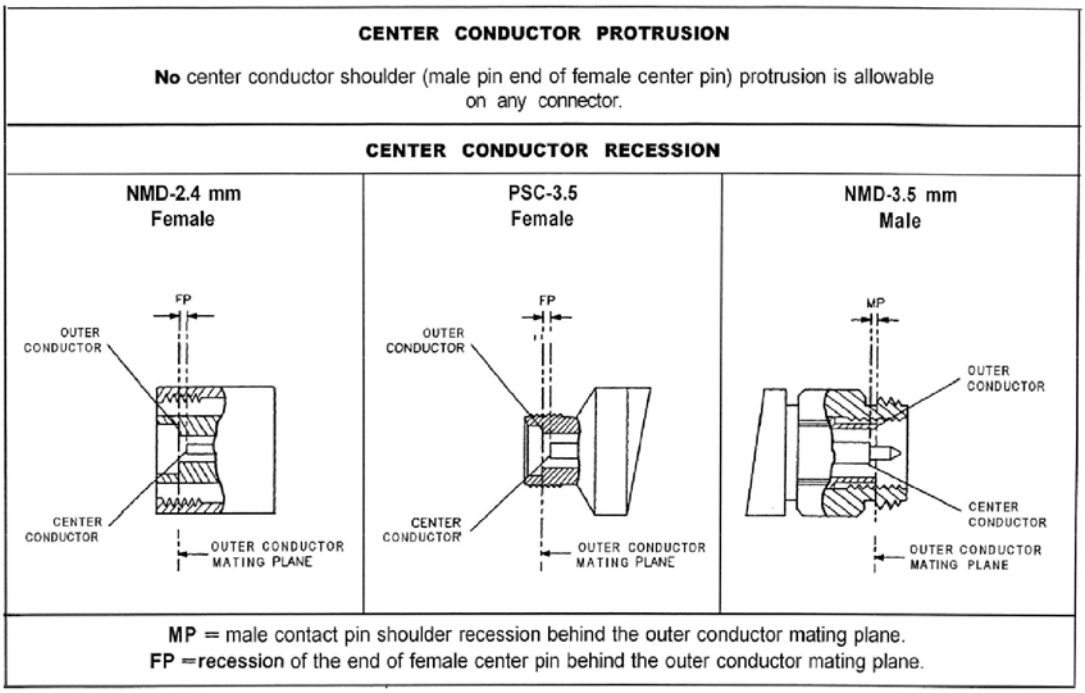
The 85130F kit contains the following:

- Test port adapter, NMD-2.4 mm (f) to NMD-3.5 mm (m) (Keysight part number 85130-60010)
- Test port adapter, NMD-2.4 mm (f) to PSC-3.5 (f) (Keysight part number 85130-60011)
- Storage box, foam-lined
- Operating and Service Manual
- Spanner wrench

Specifications

Keysight Technologies guarantees that your adapters will equal or exceed the following specifications.

Figure 1 85130F Specifications



Connector	Allowable Recession	
	mm	in
NMD-2.4 mm female	+0.015 to +0.056	+0.0006 to +0.0022
PSC-3.5 female	+0.015 to +0.0254	+0.0006 to +0.0010
NMD-3.5 mm male	+0.015 to +0.0254	+0.0006 to +0.0010
ELECTRICAL		
Adapter	**Frequency Range**	**Return Loss**
NMD-2.4 mm (f) to PSC-3.5 (f) and NMD-2.4 mm (f) to NMD-3.5 mm (m)	DC to 8 GHz	≥ 32 dB
	8 GHz to 18 GHz	≥ 28 dB
	18 GHz to 26.5 GHz	≥ 26 dB

Proper Use

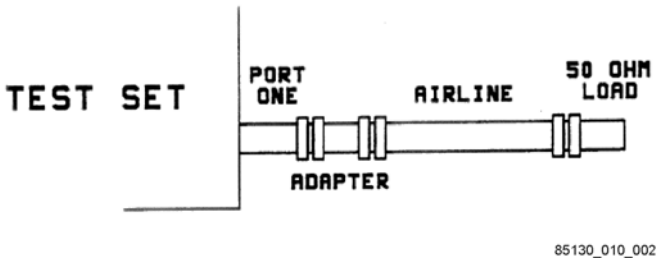
Attach the adapters to the test ports and tighten them finger tight. Use the spanner wrench to hold the test set end of the adapter and torque the test set connector with a 20 mm torque wrench set to 96 N-cm (8 in-lb).

Performance Tests

Use a network analyzer to perform the following return loss test on your adapters as soon as you receive them. Periodically repeat the test to determine if the performance meets the electrical specifications stated on the previous page, or if they need to be replaced. An initial period of one year between performance tests is recommended.

Required Equipment	Keysight Model or Part Number
Network analyzer – 26.5 GHz (or higher) measurement capability – with time domain option 010	PNA with Option 010 (See *PNA Family Microwave Network Analyzers Configuration Guide*, part number 5990-7745EN)
3.5 mm loads (included in the 85052B calibration kit)	00902-60003 (male) 00902-60004 (female)
3.5 mm 50 ohm airline, 7.5 cm (included in the 85053B verification kit)	85053-60005

Figure 2 Return Loss Setup



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 2).

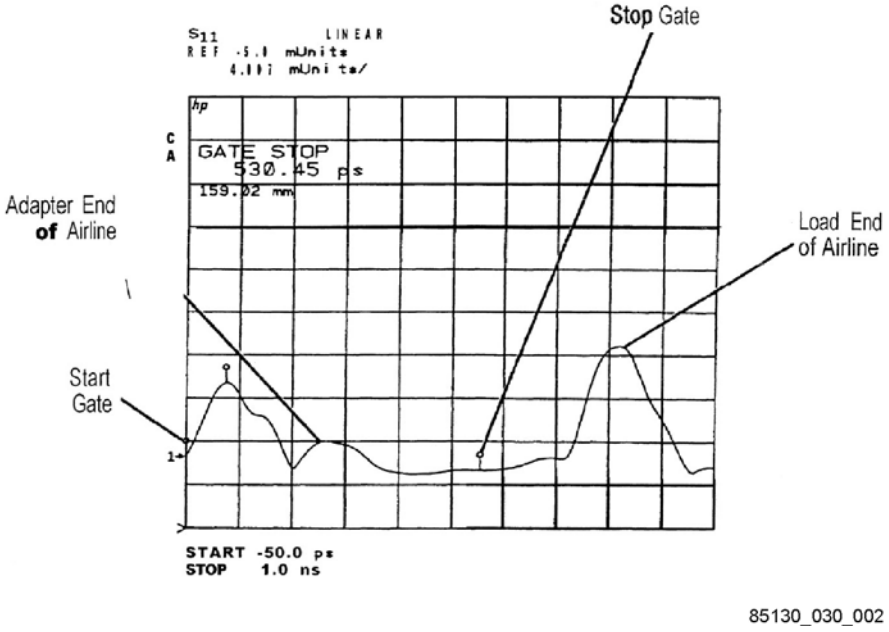
The effects of an imperfect load may be gated out using the network analyzer time domain option.

NOTE Refer to your network analyzer's Help system for specific instructions on using the functions mentioned in the return loss test below.

1. Preset the analyzer.
2. Set a stimulus start frequency of the analyzer's lowest frequency.
3. Set a stimulus stop frequency of 26.5 GHz.
4. Set an IF bandwidth of 100 Hz.
5. Perform, and then save, a 2.4 mm 1-port S_{11} calibration.
6. With correction turned on, select the time domain mode.
7. Set a stimulus start time for the sweep to –0.05 nano-seconds.

8. Set a stimulus stop time for the sweep to 1.0 nano-seconds.
9. Select the gating function and gate-out everything but the adapter. See Figure 3.
10. Select the analyzer's frequency domain mode.
11. Use the markers to read the return loss value.

Figure 3 Analyzer Trace Showing Location of Gates and Airline



Performance Test Record

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

Replaceable Parts

There are no replaceable components for the adapters. 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 85130F adapter. kit.

Item	Part Number
3.5 mm gage set (part of 85052B calibration kit)	11752-60105 (f) 11752-60106 (m)
2.4 mm gage set (part of 85056A calibration kit)	11752-60107 (f) 11752-60108 (m)
Torque wrench, 20 mm, 96 N-cm (8 in-lb)	8710-1764
Torque wrench, 5/16", 96 N-cm (8 in-lb) (part of the 85052B calibration kits)	8710-1765
Document: *Connector Care for RF and Microwave Coaxial Connectors*	08510-90064

Contacting Keysight

Assistance with test and measurement needs and information on finding a local Keysight office are available on the Web at:
www.keysight.com/find/assist

NOTE In any correspondence or telephone conversation, refer to the Keysight product by its model number and full serial number. With this information, the Keysight representative can determine whether your product is still within its warranty period.

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