

Agilent
85130B
NMD 3.5 mm to 7 mm
Adapter Kit

Operating and Service
Manual



85130-90006



Agilent Technologies

Notices

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85130B 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.agilent.com.

Description

The 85130B adapters are used when 7 mm devices must be attached to a 3.5 mm test set in a network analyzer system. The test set end of the adapters has a NMD-3.5 mm (f) connector while the Device Under Test (DUT) end has a precision 7 mm connector. You should never attempt to use these adapters on test sets with 7 mm ports.

Contents

The 85130B kit contains the following:

- Test port adapter, NMD-3.5 mm (f) to 7 mm (Agilent part number 85130-60003), quantity 2
- Storage box, foam-lined
- Operating and Service Manual
- Spanner wrench

Specifications

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

Frequency	Return Loss
<8 GHz	> 34 dB
8 – 18 GHz	> 28 dB

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

The center conductor of the 7 mm connector, with the collet removed, should be recessed 0.0005 ± 0.0003 inches (0.013 ± 0.008 mm) below the mating surface of the outer conductor.

Proper Use

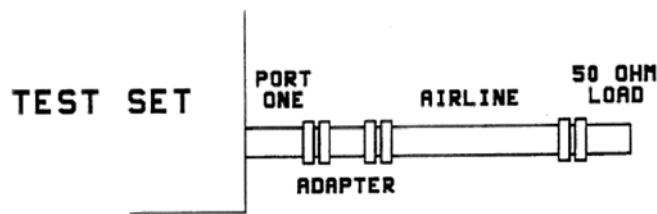
Attach the adapters to the test ports and tighten them finger tight. Use the spanner wrench to hold the test set end of the adapter and torque the test set connector with a 20 mm torque wrench set to 96 N-cm (8 in-lb).

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 above, or if they need to be replaced. An initial period of one year between performance tests is recommended.

Required Equipment	Agilent Model or Part Number
Network analyzer – 18 GHz (or higher) measurement capability – with time domain option 010	PNA with Option 010 (See <i>PNA Family Microwave Network Analyzers Configuration Guide</i> , part number 5990-7745EN)
7 mm loads (included in the 85050B calibration kit)	85050-60006
7 mm 50 ohm airline, 10 cm (included in the 85051B verification kit)	85051-60007

Figure 1 Return Loss Setup



85130_010_002

Return loss is measured by connecting a 50 ohm fixed load termination through a 10 cm airline to the adapter, then attaching the adapter to port one of the test set (see [Figure 1](#)).

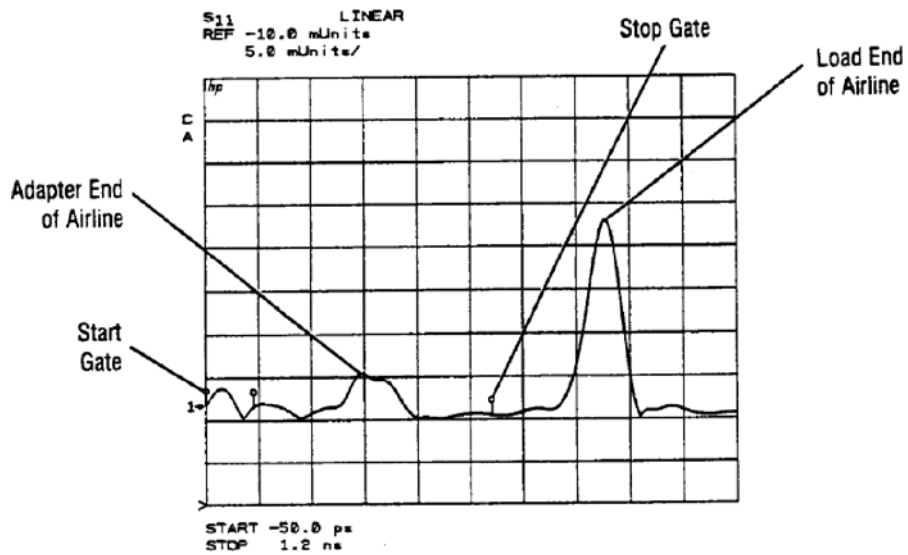
The effects of an imperfect load may be gated out using the network analyzer time domain option.

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 18 GHz.
4. Set an IF bandwidth of 100 Hz.

5. Perform, and then save, a 3.5 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 2](#).
10. Select the analyzer's frequency domain mode.
11. Use the markers to read the return loss value.

Figure 2 Analyzer Trace Showing Location of Gates and Airline



85130_012_001

Performance Test Record

ELECTRICAL SPECIFICATIONS			
Tested by: _____			
Date: _____			
Adapter	Frequency Range	Return Loss	Measured
NMD-3.5 mm (f) to 7 mm	DC to 8 GHz	≥ 34 dB	
	8 GHz to 18 GHz	≥ 28 dB	

Replaceable Parts

Only the center collet of the 7 mm connector is field-replaceable. If the collet becomes damaged, or loses its springiness, or will not return to position after being depressed, or does not protrude 0.002 – 0.010 inches (0.05 – 0.25 mm) beyond the mating plane of the outer conductor, it must be replaced. To replace the collet, use the extractor tool (not included) and the precision 6-slot replacement collet (not included). Part numbers for these items are provided in the following table. Refer to the *Connector Care for RF and Microwave Coaxial Connectors* document for more information.

Equipment and Supplies

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

Item	Part Number
3.5 mm gage kit (part of the 85052B calibration kits)	11752-60105 (f) 11752-60106 (m)
7 mm gage set (part of 85050B calibration kit)	85050-80012
Torque wrench, 3/4", 136 N-cm (12 in-lb) (part of the 85054B calibration kit)	8710-1766
Torque wrench, 20 mm, 96 N-cm (8 in-lb)	8710-1764
Extractor tool (used to remove the collet)	5060-0236
Precision 6-slot collet	85050-20001
Document: <i>Connector Care for RF and Microwave Coaxial Connectors</i>	08510-90064

Contacting Agilent

Assistance with test and measurement needs and information on finding a local Agilent office are available on the Web at:

www.agilent.com/find/assist

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