

7mm VNA CALIBRATION KITS

2650 SERIES

Fixed Termination Kits

- Simple, Economical

Standard Kits

- Broad VNA Coverage
- Includes Applicable Test Port Adapters, Spare Collets and Extractor

Expanded Kits Add

- Sliding Termination
- Connector Gage



2650F21

Description

These 7mm calibration kits are designed for use with Vector Network Analyzers (VNAs) equipped with 7mm, 3.5mm or 2.92mm test set connectors and cables. With these kits, you can make error corrected measurements of devices supplied with 7mm connectors from 45 MHz to 18 GHz.

Each kit includes:

- A full complement of calibration standards (shorts, opens, fixed and sliding loads*)
- Rugged test port adapters
- 7mm to 3.5mm phase matched adapters (where applicable)
- A connector gage* for checking contact pin locations prior to making connections
- A torque wrench* for accurately tightening connector junctions
- All required calibration standards, adapters and accessories
- Customer-specified software medium (cartridge or 3-1/2" disk) containing the calibration constants
- Operating instructions

These components are supplied in an attractive foam-lined wooden instrument case.

*Not provided in fixed termination kits.

Connector Description

7mm connectors are precision air interface sexless connectors that are rated from DC to 18 GHz. They have an air line size of 0.1197 inner diameter and a 0.2756 outer diameter. There are basically two configurations; 1) GPC7 (commonly referred to as APC7) which incorporates a bead support and, 2) LPC7 which is a beadless connector.

Model Chart

Select the model number appropriate for the VNA and test set/cable connectors.

Model	VNA	Test Set and Cable Connectors	Kit Type	Software Medium
2650F08	Agilent 8510A/B	7mm	Fixed Term.	Cartridge
2650F		7mm	Expanded	
2650H		3.5mm		
2650J	Agilent 8510C	3.5mm	Expanded	3-1/2" disk
2650M	Agilent 8720			
2650P	Agilent 8753	7mm	Fixed Term.	
2650W	Anritsu 360	2.92mm (K) ¹	Expanded	
2650X	Anritsu 37000			

¹ 3.5mm connectors are mating compatible with 2.92mm (K). The resulting junction is calibrated out and is not critical.



Equipment Provided in Kits 2650F, H, J, M, W, X

- 1 ea. Fixed short, 7mm
- 1 ea. Open circuit, 7mm
- 2 ea. Fixed termination, 7mm
- 1 ea. Sliding termination
- 2 ea. 7mm test port to NMD3.5mm female adapters*
- 1 ea. 3.5mm female to 7mm test port adapter* **
- 1 ea. 3.5mm male to 7mm test port adapter* **
- 1 ea. 7mm connector gage kit (push-on type)
- 1 ea. Torque wrench, 0.750" hex, 12 in/lbs
- 1 ea. Software configuration medium
(contains circuit constants)
- 1 ea. Collet extractor
- 4 ea. 7mm six-slot collets (spare parts)
- 1 ea. Instrument case
- 1 ea. Operating instructions

* Not provided in 2650F, 2650F02, or 2650F08 kits

** Phase matched set

Equipment Provided in Kit 2650P

- 1 ea. Fixed short, 7mm
- 1 ea. Open circuit, 7mm
- 2 ea. Fixed termination, 7mm
- 1 ea. Instrument case
- 1 ea. Operating instructions

Options

Option 01 adds air line 2653S30 to 2650F, H, J, M, X, and W kits.

2650F02 is a sliding load kit with the connector gage and torque wrench deleted.

2650F08 is a fixed termination kit with the adapters, sliding termination and connector gage deleted.

2650P16 provided with data disk for Agilent 8753A/B/C.

Available Accessories (not provided)

Offset Shorts:

Series 2049

Precision Mismatches:

Series 2611 in values up to 2:1 VSWR

Precision Two-Port Standard Set:

2654B

Specifications

Fixed Short:

Model 2615D3

Frequency Range DC to 18 GHz

Reflection Coefficient 0.99 minimum

Open Circuit:

Model 2616D3

Frequency Range 45 MHz to 18 GHz

Reflection Coefficient 0.99 minimum

Impedance 50 ohms nominal

Fixed Termination:

Model 2610F^{2,3}

Frequency Range DC to 18 GHz

VSWR 1.005 maximum, DC to 1 GHz
(52 dB minimum R. L.)

1.01 maximum, 1 to 2 GHz

1.03 maximum, 2 to 8 GHz

1.06 maximum, 8 to 18 GHz

Impedance 50 ohms nominal

Power Handling 1.0 watt CW

Reference Air Line:

Model 2653S30

Frequency Range DC to 18 GHz

Air Line Accuracy 54 dB minimum
(including connectors)

Impedance 50 ohms nominal

Connectors LPC7 (7mm beadless)



Specifications (continued)

Sliding Termination:

Model 2517H	
Frequency Range	2 to 18 GHz
Air Line Accuracy	52 dB minimum return loss (includes connector)
VSWR — Terminating Element	1.04 maximum,
Nominal Impedance	50 ohms
Power Handling	1.0 watts CW, 5.0 kW peak
Travel	Greater than 1/2 wavelength at 2 GHz
Connector	LPC7 (7mm beadless)

Adapter:

Model 2633B	
Frequency Range	DC to 18 GHz
VSWR	$1.018 + 0.003f$ (GHz)
Impedance	50 ohms nominal
Adapts	7mm test port ² to NMD3.5mm female ⁴

Adapters:

Model 8022A ⁵	
Model 8022B ⁵	
Frequency Range	DC to 18 GHz
VSWR	1.04 maximum, DC to 4 GHz 1.08 maximum, 4 to 18 GHz
Impedance	50 ohms nominal
Adapts	7mm test port ² to 3.5mm female/male

- ² The 7mm connector on this device is provided with a six slot collet (P/N 2680S2) and has a tightly controlled center conductor location.
- ³ The fixed loads are used for low frequency Z_0 calibration up to 2 GHz and for broadband isolation calibration.

- ⁴ The ruggedized 3.5mm female (NMD3.5mm female) connector provided on the model 2633B mate directly with the ruggedized male 3.5mm connectors (NMD3.5mm male) on the Agilent 8513A, 8514B, and 8515A test sets.

- ⁵ The 8022A2 and 8022B2 adapters are phase matched.