

Confidence In Measurement
Is Knowing Your VNA Was Calibrated With A Maury Cal Kit!

1.85mm CAL KITS

From
MAURY MICROWAVE



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Model Series:

7850A - Standard Offset Short Kit
7850B - Fixed Termination Kit
7850F - Economy Kit (Female)
7850M - Economy Kit (Male)
7860A - TRL Kit (Tri-Kit)

1.85mm VNA Calibration Kits from Maury Microwave

7850A series, 7850B/F/M series, and 7860A series

Features

- ▶ 1.85mm Connectors
- ▶ DC to 67 GHz (Operates to 70 GHz)
- ▶ High Performance
- ▶ Broad VNA Coverage

The Importance of VNA Calibration

Any uncalibrated test setup has systematic errors inherent in the equipment used. The ability to obtain an accurate measurement of a device under test (DUT) depends on how well these errors are corrected. The basis of network analyzer error correction is the measurement of known electrical standards, such as a thru, open circuit, short circuit, and precision load impedance. By calibrating your network analyzer with these standards, you can compensate for the inherent imperfections.

Why Does Maury Manufacture 1.85mm Calibration Kits?

The trend within the RF and Microwave industry design community is increasingly toward the use of higher frequency ranges and applications that require higher degrees of precision and accuracy. With the introduction of the newest generation of VNAs (like Agilent's PNA series) the need for tools to calibrate systems with 1.85mm test ports has grown. Maury addresses that need with the model 7850A Standard Offset Short Kit series, the 7850B/M/F Fixed Termination Kit series, and the 7860A TRL Kit series.

Calibration Methods Supported

- ▶ 7850A
 - SOLT (DC–26.0 GHz)
 - SSST (26.0–67 GHz)
- ▶ 7850B
 - SOLT (Broad Band Cal);
 - Low Band Fixed Load (DC–26.0 GHz);
 - High Band Fixed Load (10.0–67.0 GHz)
- ▶ 7860A
 - TRM/TRL/LRL

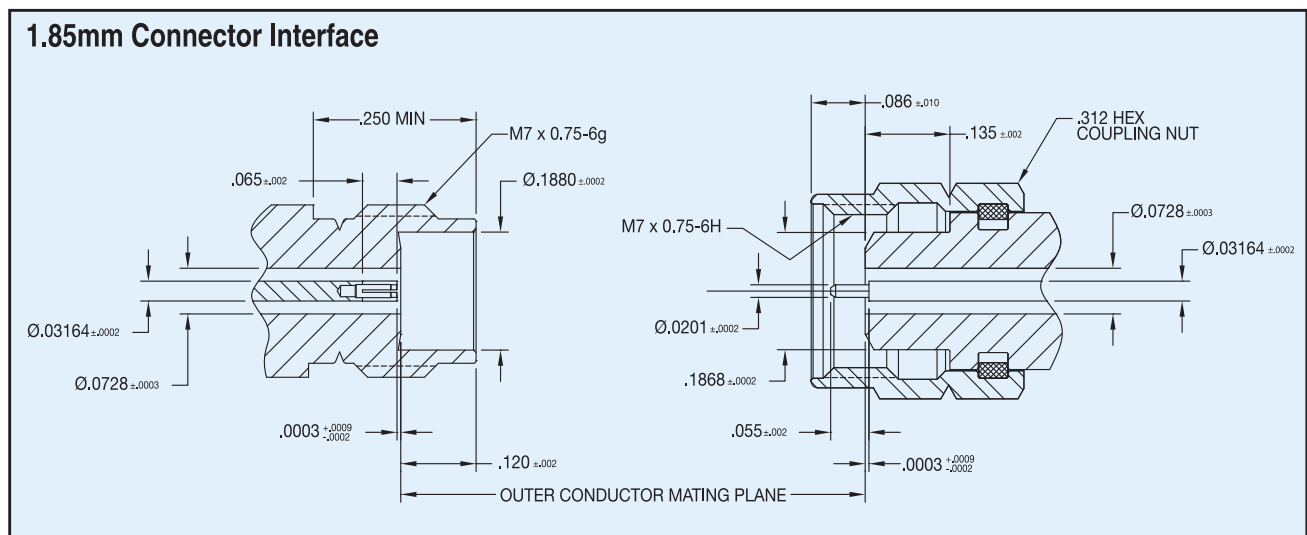
These kits are configured for use in performing one-port SOL (Short-Open-Load) response calibrations (a method used for measuring VSWR/ Return Loss), and full two-port SOLT (Short-Open-Load-Thru) calibration (for performing forward and reverse transmission and reflections measurement). The 7860A TRL kits are configured for use under three calibration methods, TRM/TRL/LRL (Thru-Reflect-Match/Thru-Reflect-Line/Line-Reflect-Line). The 3.00cm air line in the kit, along with the short circuit, can be used to measure source match.

For applications that only require all-female or all-male connections, Maury offers the 7850F/M single-sex fixed termination kits, at a lower price than the 7850B full fixed termination kits.

Connector Description

The precision 1.85mm connectors on the components in this kit are miniature, instrument grade, air-interface connectors that operate mode free up to 70 GHz, and comply with IEEE stan-

dard 287 general precision connector, instrument grade GPC1.85. For detailed interface specifications please refer to Maury data sheet 5E-059.



Kit Description

Maury 1.85mm calibration kits are designed for making error-corrected measurements (on a wide range of vector network analyzers) on 1.85mm devices from DC to 67 GHz. Each kit includes a full complement of calibration standards (as listed at right) and can be configured for any combination of VNA or test set/cable connectors. User-specified VNA software and a set of adapters are available for each kit. These components are housed in an attractive, foam-lined, wood instrument case.



Components Included in 7850A Kits

QUANTITY	DESCRIPTION	MODEL
1	1.85mm female fixed short circuit (0.5cm)	7846A
1	1.85mm female fixed short circuit (0.606cm)	7846B
1	1.85mm female fixed short circuit (0.683cm)	7846C
1	1.85mm female fixed short circuit (0.794cm)	7846D
1	1.85mm male fixed short circuit (0.5cm)	7847A
1	1.85mm male fixed short circuit (0.606cm)	7847B
1	1.85mm male fixed short circuit (0.683cm)	7847C
1	1.85mm male fixed short circuit (0.794cm)	7847D
1	1.85mm female open circuit termination	7848A1
1	1.85mm male open circuit termination	7848B1
1	1.85mm female low band fixed termination	7831A1
1	1.85mm male low band fixed termination	7831B1
1	Torque wrench (8 in/lbs)	8799A1
1	5/16-inch double end wrench	—
1	VNA software on 3.5 in disk or flashdrive	—
1	Operating Instructions (manual)	—
1	Instrument case	—

Components Included in 7850B/F/M Kits

QUANTITY	DESCRIPTION	MODEL
1	1.85mm female fixed short circuit (0.5cm)	7846A*
1	1.85mm male fixed short circuit (0.5cm)	7847A**
1	1.85mm female open circuit termination	7848A1*
1	1.85mm male open circuit termination	7848B1**
1	1.85mm female low band fixed termination	7831A1*
1	1.85mm male low band fixed termination	7831B1**
1	1.85mm female high band fixed termination	7832A*
1	1.85mm male high band fixed termination	7832B**
1	Torque wrench (8 in/lbs)	8799A1
1	5/16-inch double end wrench	—
1	VNA software on 3.5 in disk or flashdrive	—
1	Operating Instructions (manual)	—
1	Instrument case	—

*Included in 7850F single sex kits but not in 7850M single sex kits.

**Included in 7850M single sex kits but not in 7850F single sex kits.

Components Included in 7860A Kits

QUANTITY	DESCRIPTION	MODEL
1	1.85mm female to male air line (0.96cm)	7843S0.96
1	1.85mm female to male air line (1.15cm)	7843S1.15
1	1.85mm female to male air line (3.00)	7843S3.00
1	1.85mm female fixed short circuit	7846A
1	1.85mm male fixed short circuit	7847A
1	1.85mm female fixed termination	7831A
1	1.85mm male fixed termination	7831B
1	Torque wrench (8 in/lbs)	8799A1
1	5/16-inch double end wrench	—
1	3/16-inch double end wrench	—
1	VNA software on 3.5 in disk or flashdrive	—
1	Operating Instructions (manual)	—
1	Instrument case	—

Recommended Accessories

A048A Digital connector gage kit (thread-on type)

COMPONENT SPECIFICATIONS

The Maury precision 1.85mm components included in these kits have the following specifications:

Air Lines – Models 7843S0.96, 7843S1.15 & 7843S3.00

Frequency Range	DC to 67.0 GHz
Electrical Length:	
7843S0.96	0.96cm
7843S1.15	1.15cm
7843S3.00	3.00cm
Electrical Length Accuracy	0.0025cm
Minimum Return Loss (excluding connector interface)	48 dB
Nominal Impedance	50 ohm

Fixed Shorts - Models 7846A/B/C/D & 7847A/B/C/D

Frequency Range	DC to 67.0 GHz
Minimum Reflection Coefficient	0.99
Phase Accuracy	±4 degrees
Nominal Impedance	50 ohm

Open Circuits - Models 7848A1/B1

Frequency Range	DC to 67.0 GHz
Minimum Reflection Coefficient	0.99
Reflection Phase	± 4 degrees
Nominal Impedance	50 ohm

Fixed Terminations - Low Band Models 7831A1/B1

Frequency Range	DC to 26.5 GHz
Maximum VSWR:	
DC to 4.0 GHz	1.1016
4.0 to 26.0 GHz	1.15
Power Handling	1 watt CW
Nominal Impedance	50 ohm

Fixed Terminations - High Band Models 7832A/B

Frequency Range	10.0 to 67.0 GHz
Maximum VSWR	1.15
Power Handling	0.5 watt CW, 0.5 kW peak
Nominal Impedance	50 ohm

ADAPTERS & ADAPTER SET OPTIONS – Adapter Sets (7850Z1, 7850Z2 & 7850Z3)

The adapter sets described on this page provide users with the ability to tailor their Maury calibration kits for use with specific VNAs. The NMD adapters in these sets are specifically designed to mate with the special ruggedized connectors used on most commercial VNA test sets. Adapters may be ordered in separately boxed sets, as options shipped with corresponding VNA calibration kits, or as individual adapters (by model number) to serve as replacement parts or spares. If ordering adapter sets for a cal kit, see the *Option Finder* below.

Adapters Included in 7850Z1 Sets

TEST PORT ADAPTER OPTION	QUANTITY	DESCRIPTION	MODEL
1	1	NMD1.85mm female to 1.85mm female	7809A1
	1	NMD1.85mm female to 1.85mm male	7809A2
	1	1.85mm female to 1.85mm female	7821A
	1	1.85mm male to 1.85mm male	7821B
	1	1.85mm female to 1.85mm male	7821C

Adapters Included in 7850Z2 Sets

TEST PORT ADAPTER OPTION	QUANTITY	DESCRIPTION	MODEL
2	1	1.85mm female to 1.85mm female	7821A
	1	1.85mm male to 1.85mm male	7821B
	1	1.85mm female to 1.85mm male	7821C

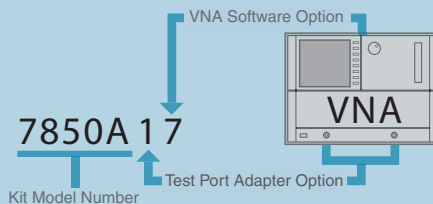
Adapters Included in 7850Z3 Sets

TEST PORT ADAPTER OPTION	QUANTITY	DESCRIPTION	MODEL
3	1	1.85mm female to 2.92mm female	7826A
	1	1.85mm female to 2.92mm male	7826B
	1	1.85mm male to 2.92mm female	7826C
	1	1.85mm male to 2.92mm male	7826D

Note: Adapter options for single sex kits (7850F and 7850M) contain only the appropriate female or male adapters.

Ordering Options

To specify the test port adapter and VNA software options you need, simply add two digits to the end of the kit model number (as show in the diagram at right). The first digit is the test port adapter option number, and the second is the VNA software option number (as found in the *Option Finder* below). The example in the diagram shows the combination of digits needed to order a 7850A kit configured with the adapters and software for use with an Agilent PNA that has 1.85mm or 2.4mm test ports.



Option Finder

VNA TEST PORT CONNECTOR TYPE	TEST PORT ADAPTER OPTIONS (see above)	VNA SOFTWARE OPTIONS					
		KITS W/O SOFTWARE OPTION 0	ROHDE & SCHWARZ ZV SERIES OPTION 1	AGILENT 8510C OPTION 4	AGILENT 8719/20/22 OPTION 5	AGILENT PNA SERIES OPTION 7	ANRITSU 37000 OPTION 9
1.85mm or 2.4mm ¹	0	—	01	04	05	07	09
	1	10	11	14	15	17	19
	2	20	21	24	25	27	29
2.92mm or 3.5mm ¹	3	30	31	34	35	37	39

¹ 1.85mm and 2.4mm connectors are fully mateable, as are 3.5mm and 2.92mm connectors. The resulting junction is calibrated out and is not critical.