

2.4mm VNA Calibration Kits

7950A Series Standard Kits

Features

- ▶ 2.4mm Connectors
- ▶ DC to 50 GHz
- ▶ High Performance
- ▶ Broad VNA Coverage
- ▶ Fixed and Sliding Load Calibration



Description

These 2.4mm calibration kits are designed for use with a broad range of Vector Network Analyzers (VNAs). The components in the kits are configured for use in making error-corrected measurements of devices supplied with 2.4mm connectors, from DC to 50 GHz. Each kit includes a full complement of calibration standards (as listed at right) and can be configured for use with any combination of VNA or test set/cable connectors. All kit components come housed in an attractive, foam-lined, wood instrument case.

Connector Description

The precision 2.4mm connectors are miniature, instrument grade, air-interface connectors that operate mode free up to 50 GHz, and comply with IEEE standard 287 general precision connector, instrument grade—GPC2.4. For interface specifications please refer to Maury data sheet 5E-064.

Recommended Accessories

A048A Digital connector gage kit (thread-on type) See page 92.

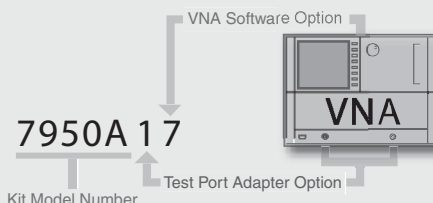
Components Included in 7950A Kits

QUANTITY	DESCRIPTION	MODEL
1	2.4mm female fixed offset short	7946A
1	2.4mm male fixed offset short	7946B
1	2.4mm female open	7948A
1	2.4mm male open	7948B
1	2.4mm female fixed termination	7931A1
1	2.4mm male fixed termination	7931B1
1	2.4mm female sliding termination	7935A
1	2.4mm male sliding termination	7935B
1	Torque wrench (8 in. lbs)	8799A1
1	5/16-inch double end wrench	—
1	7/16-inch double end wrench	—
1	VNA software disk	—
1	Operating Instructions (manual)	—
1	Instrument case	—

Note: Each kit also includes a set of adapters that is user specified per the Option Finder below. (See page 11 for details.)

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 shown 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 7950A 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 TYPE	TEST PORT ADAPTER OPTIONS (see page 11)	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 2.92mm (K) and 3.5mm connectors. Resulting junctions are calibrated out and are not critical.

Key Literature: Maury data sheet 2Z-050.

2.4mm VNA Calibration Kits

7950B/F/M Fixed Termination Kits

Features

- ▶ 2.4mm Connectors
- ▶ DC to 50 GHz
- ▶ High Performance
- ▶ Broad VNA Coverage
- ▶ Fixed Load Calibration

Description

These precision 2.4mm connector calibration kits are designed for use with a broad range of vector network analyzers (VNA). With these kits, you can make error-corrected measurements of devices equipped with 2.4mm connectors from DC to 50 GHz.

Each kit includes a full complement of calibration standards (shorts, opens, and fixed loads) and can be configured for use with any combination of VNA or test set/cable connectors. User-specified VNA software and a set of adapters are included. All kit components come housed in an attractive, foam-lined, wood instrument case.

Connector Description

The precision 2.4mm connectors on the components in this kit are miniature, instrument grade, air-interface connectors that operate mode free up to 50 GHz, and comply with IEEE standard 287 general precision connector, instrument grade GPC2.4. For interface specifications please refer to Maury data sheet 5E-064.

Recommended Accessories

A048A Digital connector gage kit (thread-on type) See page 92.



7950B

Components Included in 7950B Kits

QUANTITY	DESCRIPTION	MODEL
1	2.4mm female fixed offset short	7946A*
1	2.4mm male fixed offset short	7946B**
1	2.4mm female open	7948A*
1	2.4mm male open	7948B**
1	2.4mm female fixed termination	7931A1*
1	2.4mm male fixed termination	7931B1**
1	Torque wrench (8 in. lbs)	8799A1
1	5/16-inch double end wrench	—
1	7/16-inch double end wrench	—
1	VNA software disk	—
1	Operating Instructions (manual)	—
1	Instrument case	—

Note: Each kit also includes a set of adapters that is user specified per the Option Finder below. (See page 11 for details.)

*Included in 7950F single sex kits but not in 7950M single sex kits.

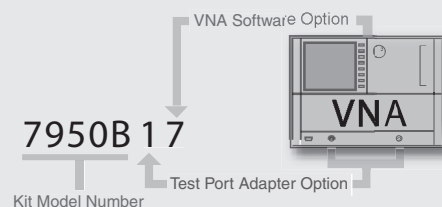
**Included in 7950M single sex kits but not in 7950F single sex kits.

Components Included in 7950F and M Kits

7950F and 7950M are single sex kits which include the components listed above, but only female (7950F) or male (7950M) connectors respectively. Torque wrenches and open end wrenches are not included.

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 shown 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 7950B 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 TYPE	TEST PORT ADAPTER OPTIONS (see page 11)	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 2.92mm (K) and 3.5mm connectors. Resulting junctions are calibrated out and are not critical.

Key Literature: Maury data sheet 2Z-050.

2.4mm TRL/LRL VNA Calibration Kits

7960A Series Tri-Kits

Features

- ▶ 2.4mm Connectors
- ▶ TRM/TRL/LRL, SOLT and Gated Air Line Calibrations
- ▶ DC to 50 GHz



7960A

Description

These 2.4mm calibration kits are designed for use with a range of vector network analyzers (VNA). With these kits, you can make error-corrected measurements of devices equipped with 2.4mm connectors from DC to 50.0 GHz.

TRM/TRL/LRL Calibration

Maury TRL/LRL calibration kits are tri-kits that contain the components needed to perform three types of calibrations (TRM/TRL/LRL, SOLT, and short-open-(air line + load). Source match can also be measured using the 6.25cm air line and provided short. The table below shows the frequency ranges, calibration methods, and the standards used to perform a complete 2-port calibration to 50 GHz.

FREQUENCY RANGE	CALIBRATION METHOD	CALIBRATION STANDARDS
DC – 400 MHz	TRM	Fixed Termination
400 MHz – 2.0 GHz	TRL	6.25cm air line
2.0 GHz – 10.0 GHz	TRL	1.25cm air line
10.0 GHz – 50.0 GHz	LRL	1.25cm & 1.50cm air lines

Components Included in 7960A Kits

QUANTITY	DESCRIPTION	MODEL
1	2.4mm female to male air line (1.25cm)	7943S1.25
1	2.4mm female to male air line (1.50cm)	7943S1.50
1	2.4mm female to male air line (6.25cm)	7943S6.25
1	2.4mm female open	7948A
1	2.4mm male open	7948B
1	2.4mm female fixed offset short	7946A
1	2.4mm male fixed offset short	7946B
1	2.4mm female fixed termination	7931A1
1	2.4mm male fixed termination	7931B1
2	5/16-inch double end wrenches	—
1	VNA software disk	—
1	Operating Instructions (manual)	—
1	Instrument case	—

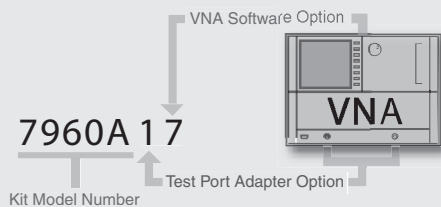
Note: Each kit also includes a set of adapters that is user specified per the Option Finder below. (See page 11 for details.)

Recommended Accessories

- A048A Connector gage kit (thread-on type). See page 92.
- 8799A1 Torque wrench, 5/16-inch (8 in. lbs). See page 94.

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 shown 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 7960A 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 TYPE	TEST PORT ADAPTER OPTIONS (see page 11)	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 2.92mm (K) and 3.5mm connectors. The resulting junction is calibrated out and is not critical.

Key Literature: Maury data sheet 2Z-051.

2.4mm VNA Calibration Kit Adapter Options

7950Z3, 7950Z4, & 7950Z8 Sets

Features

- ▶ NMD2.4mm to 2.4mm, 2.4mm In-Series, and 2.4mm to 2.92mm Adapters
- ▶ DC to 50 GHz
- ▶ High Performance
- ▶ Phase Matched Within Model Series

Description

The NMD2.4mm test port adapters in these sets are specifically designed to mate with the special ruggedized connectors used on commercial VNA test sets. The precision 2.4mm adapters feature low VSWR and low insertion loss and are of minimum length. The sets described on this page are configured to provide users with the ability to tailor their Maury calibration kit for use with specific VNAs. These adapters may be ordered in separately boxed sets, as options shipped with their corresponding VNA calibration kits, or as individual adapters (by model number) to serve as replacement parts or spares.

Adapters Included in 7950Z3 Sets

TEST PORT ADAPTER OPTION	QUANTITY	DESCRIPTION	MODEL
1	1	NMD2.4mm female to 2.4mm female	7909A1
	1	NMD2.4mm female to 2.4mm male	7909A2
	1	2.4mm female to 2.4mm female	7921A
	1	2.4mm male to 2.4mm male	7921B
	1	2.4mm female to 2.4mm male	7921C

Adapters Included in 7950Z4 Sets

TEST PORT ADAPTER OPTION	QUANTITY	DESCRIPTION	MODEL
2	1	2.4mm female to 2.4mm female	7921A
	1	2.4mm male to 2.4mm male	7921B
	1	2.4mm female to 2.4mm male	7921C

Adapters Included in 7950Z8 Sets

TEST PORT ADAPTER OPTION	QUANTITY	DESCRIPTION	MODEL
3	1	2.4mm female to 2.92mm female	7926A
	1	2.4mm female to 2.92mm male	7926B
	1	2.4mm male to 2.92mm female	7926C
	1	2.4mm male to 2.92mm male	7926D

Note: Adapter options for single sex kits (7950F and 7950M) contain only the appropriate female or male adapters.

Adapter Specifications

The Maury precision 2.4mm in-series adapters and the NMD2.4mm test port adapters included in these sets have the following specifications:

Ruggedized Test Port Adapters

Models 7909A1 and 7909A2 (for more detail see page 102)

Frequency Range DC to 50.0 GHz

Maximum VSWR:

DC to 26.5 GHz 1.10

26.5 to 40.0 GHz 1.15

40.0 to 50.0 GHz 1.20

Nominal Impedance 50 ohm

Precision 2.4mm Adapters

Models 7921A/B/C (for more detail see page 103)

Frequency Range DC to 50.0 GHz

Maximum VSWR:

DC to 26.5 GHz 1.06

26.5 to 40.0 GHz 1.10

40.0 to 50.0 GHz 1.15

Nominal Impedance 50 ohm

Models 7926A/B/C/D (for more detail see page 104)

Frequency Range DC to 40.0 GHz

Maximum VSWR:

DC to 4.0 GHz 1.05

4.0 to 20.0 GHz 1.08

20.0 to 40.0 GHz 1.12

Nominal Impedance 50 ohm