PRECISION CALIBRATION KITS

COAXIAL - OSP[1]/ DYNAMATE[1] CONNECTORS
VECTOR NETWORK ANALYZERS (VNA)

Features

- OSP Connector
- Up to 18 GHz
- Precision Coupling
- Expanded and Economy Kits

Model 8780A13

Description

The Maury 8780 calibration kits provide the necessary standards required to accurately calibrate vector network analyzers up to 18 GHz for error-corrected measurements of devices equipped with OSP blind-mate connectors.

A unique feature of these kits is the use of a positive coupling system which permits the standards to be mated to the test ports using a calibrated torque wrench. This capability provides for precise repeatability of the calibration interface with each standard, and a significant improvement in accuracy over a simple, non-captivated, blind-mate interface.

The 8780 kits are available in configurations ranging from full kits that include both female and male standards with a sliding termination and computer storage media[2] containing the kit calibration constants in a format appropriate for a specific VNA. All kits are supplied in a wooden instrument case with operating instructions. The option charts on the following pages allow you to select a calibration kit configuration that best fits your needs and budget.

The table below shows the available basic kits. To add capability, select an option from the appropriate chart on the following pages.

Model	Includes Sliding Load	Includes Computer Medium with Calibration Constants[2]	Includes Torque and Open End Wrenches	Connector Type
8780A[3]	yes	yes	yes	female & male
8780B[3]	no	yes	yes	female & male
8780F[3]	no	no	no	female
8780M[3]	no	no	no	male

1 "OSP" is the M/A-Com Omni-Spectra designation for this connector. Dynamate is the Dynawave designation. Other manufacturers may refer to it by different designations. Please see Maury data sheet SE-085 for a definition of the connector interface.

2 Data cartridge or diskette as appropriate for a specific VNA.

3 Add option suffix from the charts on the following pages to upgrade the kit capability from the basic model.

Equipment Provided
8780A/B Calibration Kits

These kits are characterized as having both female and male standards, a torque wrench and open-end wrenches for precise, repeatable connections, and optional adapter sets and calibration constants on computer media.

The components shown in the following chart are included in the 8780A kits. The 8780B kits have the same composition except that the sliding termination (item 7) is deleted. The options noted below are applicable to both kit series.

Item	Model	Description	Quantity
1	8783A	Fixed termination, OSP female	1
2	8783B	Fixed termination, OSP male	1
3	8782A	Open circuit, OSP female	1
4	8782B	Open circuit, OSP male	1
5	8781A	Short circuit, OSP female	1
6	8781B	Short circuit, OSP male	1
7	8784D	Sliding termination, OSP female and male	1
8	2698H1	Torque wrench, 9/16", 8 in-lb	1
9	8770Z6	Open-end wrench, 5/16"	1
10	8770Z7	Open-end wrench, 7/16"	1
11	8780Z4	Operating instructions	1
12	8780Z3	Instrument case	1

To upgrade the selected kit to include calibration constants on computer media and/or adapters, add a two digit suffix selected from the chart below to the basic model.

Network Analyzer Test Port Type	VNA Manufacturer and Model						Kit Provided Without Software	Test Port Adapter Set Options
	Agilent				Anritsu	Rohde & Schwarz		
	8510C	8719/20/22	8753	PNA	37000	ZV Series		
–	04	05	06	07	09	01	—	None
7mm	14	15	16	17	19	11	10	8780Z5
3.5mm	24	25	26	27	29	21	20	8780Z6

The adapter sets listed in the preceding chart are comprised of the following items:

8780Z5:	2 each	8787G	Adapter, 7mm to OSP female
	2 each	8787H	Adapter, 7mm to OSP male
8780Z6:	1 each	8787Q	Adapter, 3.5mm female to OSP female
	1 each	8787R	Adapter, 3.5mm male to OSP female
	1 each	8787S	Adapter, 3.5mm female to OSP male
	1 each	8787T	Adapter, 3.5mm male to OSP male

Adapters within each set are phase matched (same electrical length) so that they may be interchanged for measurement of non-insertable devices.

Equipment Provided
8780F/M Calibration Kits

The 8780F kits are comprised of the female fixed standards shown in the 8780A/B composition chart (items 1, 3 and 5). The 8780M kits are comprised of the male fixed standards shown in the 8780A/B composition chart (items 2, 4 and 6). Torque and open-end wrenches and calibration constants on computer media are not provided for these kits; however, the constants are provided in the operating notes and can be entered manually from the front panel of the VNA. Various adapter options are available for these kits for either one-port (one adapter) or two-port (three adapters) measurements. To upgrade these kits to include adapters, add the appropriate option number shown below to the model when ordering.

Test Set or Cable Connectors	Option	Adapters Provided	
		8780F	8780M
7mm	10	2 each 8787H, 7mm to OSP male 1 each 8787G, 7mm to OSP female	2 each 8787G, 7mm to OSP female 1 each 8787H, 7mm to OSP male
7mm	11	1 each 8787H, 7mm to OSP male	1 each 8787G, 7mm to OSP female
3.5mm	20	2 each 8787S, 3.5mm female to OSP male 1 each 8787Q, 3.5mm female to OSP female	2 each 8787Q, 3.5mm female to OSP female 1 each 8787S, 3.5mm female to OSP male
3.5mm	21	1 each 8787S, 3.5mm female to OSP male	1 each 8787Q, 3.5mm female to OSP female
Type N	30	2 each 8787K, type N male to OSP male 1 each 8787J, type N male to OSP female	2 each 8787J, type N male to OSP female 1 each 8787K, type N male to OSP male
Type N	31	1 each 8787K, type N male to OSP male	1 each 8787J, type N male to OSP female

Adapters from OSP to the same connector series are phase matched (same electrical length) so that they may be interchanged for measurement of non-insertable devices.

Specifications

Short Circuits:

8781A, OSP female
8781B, OSP male

Frequency Range: ..... DC to 18 GHz
Reflection Coefficient ..... 0.99 (minimum)
Reference Impedance ..... 50 ohms

Open Circuits:

8782A, OSP female
8782B, OSP male

Frequency Range ..... DC to 18 GHz
Reflection Coefficient ..... 0.99 (minimum)
Reflection Phase ..... ±2 degrees
Reference Impedance ..... 50 ohms

Fixed Terminations:

8783A, OSP female
8783B, OSP male

Frequency Range ..... DC to 18 GHz

Maximum VSWR:

DC to 1 GHz 1.03
1 to 6 GHz 1.05
6 to 18 GHz 1.08

Reference Impedance ..... 50 ohms

Specifications Continued

Sliding Terminations:

8784D, OSP Female and Male

Frequency Range ..... 2 to 18 GHz
Air Line Accuracy ..... 42 dB (minimum)

Terminating Element Maximum VSWR:
- 2 to 4 GHz 1.09
- 4 to 18 GHz 1.05

Reference Impedance ..... 50 ohms
Power Handling ..... 1 watt CW, 0.5 kW peak
Travel ..... > 1/2 wavelength at 2 GHz

Adapters:

7mm to OSP[4]

8787G, 7mm to OSP female
8787H, 7mm to OSP male

Maximum VSWR :
- DC to 4 GHz 1.04
- 4 to 18 GHz 1.08

Type N (male) to OSP[4]

8787J, type N male to OSP female
8787K, type N male to OSP male

Maximum VSWR:
- DC to 4 GHz 1.065
- 4 to 18 GHz 1.13

3.5mm to OSP[4]

8787Q, 3.5mm female to OSP female
8787R, 3.5mm male to OSP female
8787S, 3.5mm female to OSP male
8787T, 3.5mm male to OSP male

Maximum VSWR:
- DC to 4 GHz 1.04
- 4 to 18 GHz 1.08

[4] Adapters within each series are phase matched (same electrical length) to facilitate measurement of non-insertable devices by means of adapter substitution.