

2.4mm TRL/LRL VNA CALIBRATION KITS

7960A Series Tri-Kits

- TRL/LRL Calibrations
- SOLT (Short-Open-Load-Thru)
- Gated Air Line
- DC to 50 GHz
- Agilent VNAs



Model 7960A

Description

These 2.4mm Vector Network Analyzer (VNA) calibration kits are designed for use with a range of Agilent VNAs. The components in the kits are configured for use in making error-corrected TRM/TRL/LRL measurements of devices supplied with 2.4mm connectors, from DC to 50 GHz.

TRM/TRL/LRL Calibration

Maury TRL/LRL calibration kits are tri-kits containing 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 circuit.

Equipment Provided in 7960A Kits

| Model | Description | Quantity |
|-----------|--------------------------------|----------|
| 7943S1.25 | 2.4mm female to male air line | 1 |
| 7943S1.50 | 2.4mm female to male air line | 1 |
| 7943S6.25 | 2.4mm female to male air line | 1 |
| 7946A | 2.4mm female fixed short | 1 |
| 7946B | 2.4mm male fixed short | 1 |
| 7948A | 2.4mm female open circuit | 1 |
| 7948B | 2.4mm male open circuit | 1 |
| 7931A1 | 2.4mm female fixed termination | 1 |
| 7931B1 | 2.4mm male fixed termination | 1 |
| — | 5/16" double end wrench | 2 |
| — | Calibration constants disk | 1 |
| — | Instrument case | 1 |
| — | Operating instructions | 1 |

TRM/TRL/LRL Calibration

The following table shows the frequency ranges, calibration methods, and the standards used to perform a complete 2-port calibration to 50 GHz.

| Frequency Range | Type of Calibration | 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 |

Recommended Accessories (Not Provided in Kits)

- A035E Connector gage (thread-on type)
- 8799A1 Torque wrench 8 in/lbs



Specifications

| Air Lines: | Electrical Length (cm) |
|-------------------------------------|--------------------------|
| 7943S1.25 Air line | Electrical length 1.25cm |
| 7943S1.50 Air line | Electrical length 1.50cm |
| 7943S6.25 Air line | Electrical length 6.25cm |
| Frequency | DC — 50.0 GHz |
| Impedance | 50 ohms (nominal) |
| Return Loss | 48 dB minimum |
| Accuracy of Electrical Length | 0.0025cm |

Short Circuits:

Model 7946A and Model 7946B

| | |
|------------------------------|-------------------|
| Frequency Range | DC — 50.0 GHz |
| Reflection Coefficient | 0.99 minimum |
| Impedance | 50 ohms (nominal) |

Open Circuits:

Model 7948A and Model 7948B

| | |
|------------------------------|-----------------|
| Frequency Range | DC — 50.0 GHz |
| Reflection Coefficient | 0.99 minimum |
| Phase Accuracy | ± 2.0 degrees |
| Impedance | 50 ohms nominal |

Fixed Terminations:

Model 7931A1 and Model 7931B1

| | |
|----------------------|------------------------------|
| VSWR | 1.016 maximum, DC — 4.0 GHz |
| | 1.15 maximum, 4.0 — 50.0 GHz |
| Impedance | 50 ohms nominal |
| Power Handling | 1 watt CW |

Adapters:

Model 7921A, 2.4mm female to female

Model 7921B, 2.4mm female to male

Model 7921C, 2.4mm male to male

| | |
|-----------------|-----------------|
| VSWR | DC — 18.0 GHz |
| | 18.0 — 26.5 GHz |
| | 26.5 — 34.0 GHz |
| Impedance | 50 ohms nominal |

Adapters:

Model 7909A1, NMD 2.4mm female to 2.4mm female

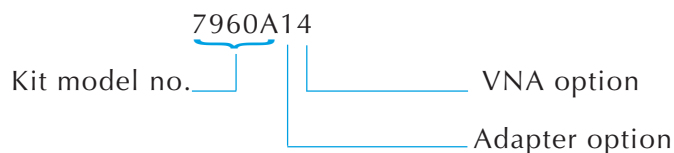
Model 7909B1, NMD 2.4mm female to 2.4mm male

| | |
|------------|-----------------------|
| VSWR | DC — 4.0 GHz, 1.05 |
| | 4.0 — 20.0 GHz, 1.08 |
| | 20.0 — 50.0 GHz, 1.12 |

Ordering Options

To order a kit configured to match your VNA model and specific application, add the appropriate option numbers at the end of the kit model number.

Example: Kit with adapter option 1 (2.4mm adapters) and VNA option 4 (Agilent8510C)



2.4mm TRL Adapter Options

| Option No. | Model and Description | Quantity |
|------------|--|----------|
| 1 | 7909A1, NMD 2.4mm female to 2.4mm female | 1 |
| | 7909A2, NMD 2.4mm female to 2.4mm male | 1 |
| | 7921A, 2.4mm female to 2.4mm female | 1 |
| | 7921B, 2.4mm male to 2.4mm male | 1 |
| | 7921C, 2.4mm female to 2.4mm male | 1 |
| 2 | 7921A, 2.4mm female to 2.4mm female | 1 |
| | 7921B, 2.4mm male to 2.4mm male | 1 |
| | 7921C, 2.4mm female to 2.4mm male | 1 |

Network Analyzer Options

| Option No. | Analyzer |
|------------|--------------------|
| 3 | Agilent 8510A/B |
| 4 | Agilent 8510C |
| 5 | Agilent 8719/20/22 |