

7mm VNA Calibration Kits

DATA SHEET / 2Z-075

Models:

2650CK40 – Fixed Load SOLT Kit

2650CK50 – Characterized Device (CD) Fixed Load SOLT Kit



7mm VNA Calibration Kits

MODELS 2650CK40 AND 2650CK50

Features

- > 7mm Connectors
- > DC to 18 GHz
- > Compatible with Insight calibration SW and uncertainty analysis*
- > Keysight, Rohde & Schwarz and Anritsu VNAs Supported

Calibration Methods Supported

- > 2650CK40 – Fixed Load SOLT (DC–18.0 GHz)
- > 2650CK50 – Characterized Device (CD) SOLT (0.05–18.0 GHz)

The Importance of VNA Calibration

Imperfections exist in even the finest test equipment. If un-corrected these systematic imperfections cause the equipment to yield less accurate measurements. The basis of network analyzer error correction is referred to as “calibration” of which multiple methods exist.

Calibration Methods

SOLT calibration is performed using Short, Open and Load standards, which are described by a polynomial equation. The equation is developed using the average performance of a large sample of identical standards, and is then shared by all calibration kits of the same series. In addition, the fixed-load SOLT methodology uses a fixed termination to define the 50ohm reference, where the lowest measurable return loss is determined by the return loss of the fixed termination, typically better than 20dB. This makes fixed-load SOLT with polynomial definitions ideal for measuring devices with mid-range reflection coefficients.

SOLT calibration can also be performed using individually characterized standards, referred to as Characterized Device (CD)

fixed-load SOLT calibration. In this case, each standard is individually measured and its S-parameters are used as an integral part of the calibration, and the polynomial equation is no longer used. The advantage of this technique is that the calibration accuracy is increased due to the elimination of average performance in the polynomial definition, and the lowest measurable return loss is improved.

Characterized Device (CD) kits also allow for uncertainty evaluation of a device under test. Each CD kit is shipped with a set of factory uncertainty data compatible with MT940-series Insight VNA calibration and measurement software.

2650CK40/50 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).

2650CK40/50 kits do not include adapters. Maury offers a wide range of between-series adapters in 7mm to other types that can be ordered separately.

A028D



2698C2



2633C1



7909C1



Go to www.maurymw.com/Precision/Adapters.php to see all Maury 7mm in-series and between series adapters.

Recommended Accessories

A028D Connector Gage Kit:

Contains one metrology-grade “Thread-on” type, dial indicator style gage for measuring the planar contact location. This provides an easy and accurate way to measure critical linear interface dimensions of 7mm coaxial connectors.

2698C2 3/4-inch Precision Torque Wrench (12.0 inch lbs):

For proper torquing of 7mm, LPC7, Type N, NMD3.5, NMD2.92, NMD2.4 connections. Factory preset to 12.0 inch lbs to ensure the precise torque needed for optimum repeatability. Employs a “break” design that makes it impossible to over-torque your connections. These torque wrenches are provided with 2650CK50 kits, and are highly recommended for use with 2650CK40 kits.

Ruggedized Test Port Adapters (Available Models):

Model 2633C1 – NMD3.5mm female to 7mm

Model 7909C1 – NMD2.4mm female to 7mm

These adapters save wear and tear on your VNA test ports.

* Cal kit factory uncertainty only available in conjunction with Insight MT940B option.

Verification Kits:

Have confidence in your S-parameter measurements by validating your VNA calibration. Maury verification kits are designed for 1-port and 2-port VNA calibration validation for well-matched and mismatched DUTs by comparing the S-parameters of user-characterized and factory-characterized verification standards, with or without measured

uncertainty boundaries. More information regarding Verification Kits can be found in data sheet [2Z-077](#).

Insight Calibration and Measurement Software:

Insight is the industry's first commercial software suite designed to empower VNA users and help them make better decisions by quantifying measurement

uncertainty. Insight is an agnostic software tool compatible with most commercial VNAs and represents a paradigm shift in the way users approach VNA calibration, validation, measurement, visualization and analysis. More information regarding Insight can be found in data sheet [4T-023](#).

Maury 7mm VNA Calibration Kits

Maury precision 7mm VNA calibration kits include each of the calibration standards and tools shown in the tables at the right. The 2650CK40/50 kits do not include adapters; in-series and between-series adapters are sold separately. (See Maury's Precision Calibration & Interconnect Solutions catalog for adapter specifications. This catalog is available online at [maurymw.com](#).)

Components Included in 2650CK40 Kits

QUANTITY	DESCRIPTION	MODEL
1	7mm fixed short circuit	2615D3
1	7mm open circuit termination	2616F1
1	7mm fixed termination	2610F1
1	3/4-inch torque wrench — 12 in. lbs.	2698C2
1	Foam-lined wood Instrument case	—

2650CK40



Components Included in 2650CK50 Kits

QUANTITY	DESCRIPTION	MODEL
1	7mm fixed short circuit	2615D3
1	7mm open circuit termination	2616F1
1	7mm fixed termination	2610F1
1	3/4-inch torque wrench — 12 in. lbs.	2698C2
1	Foam-lined wood Instrument case	—

2650CK50



COMPONENT SPECIFICATIONS



Fixed Termination – Model 2610F1

Frequency Range -- DC to 18.0 GHz

Maximum VSWR:

DC – 2.0 GHz -- 1.02

2.0 – 8.0 GHz -- 1.03

8.0 – 18.0 GHz -- 1.06

Nominal Impedance -- 50 ohm

Power Handling -- 1 watt CW 1 kW peak



Open Circuit – Model 2616F1

Frequency Range -- DC to 18.0 GHz

Minimum Reflection Coefficient -- 0.995

Phase Accuracy -- ± 0.3 degrees

Nominal Impedance -- 50 ohm



Fixed Short – Model 2615D3

Frequency Range -- DC to 18.0 GHz

Minimum Reflection Coefficient -- 0.995

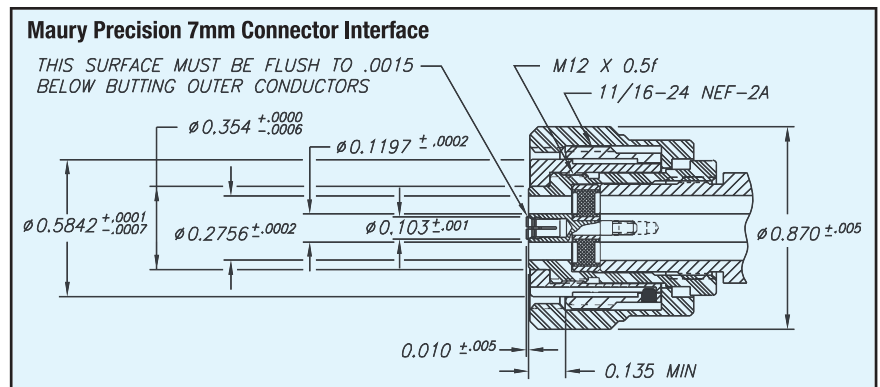
Phase Accuracy -- ± 0.3 degrees

Nominal Impedance -- 50 ohm

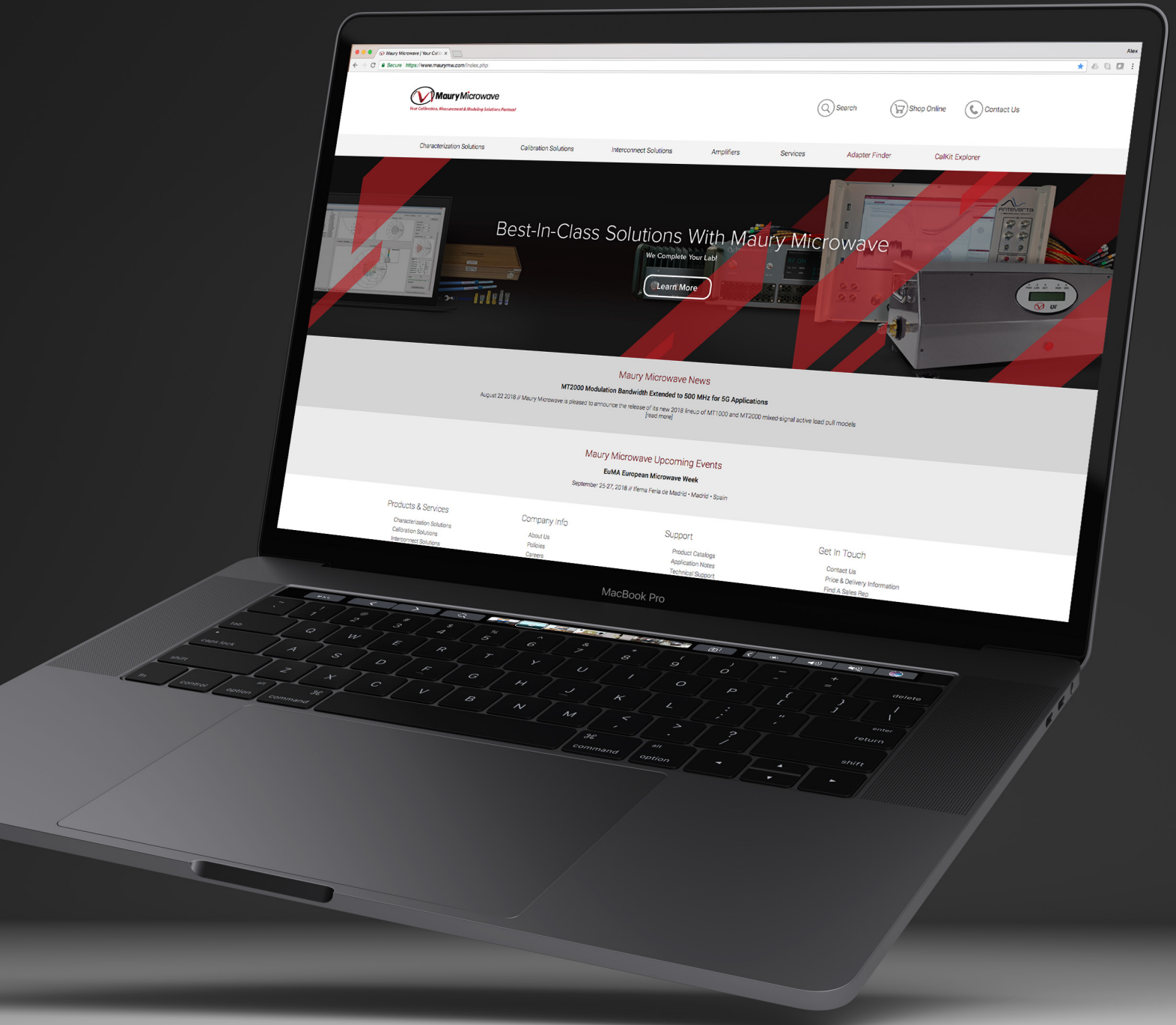
Connector Description

7mm connectors are precision air interface hermaphroditic connectors that are rated from DC to 18 GHz. They have an air line size of 0.1197 inner conductor diameter and a 0.2756 outer conductor diameter. There are basically two configurations;

1) GPC7 (commonly referred to as APC7), which incorporates a bead support and, 2) LPC7A, which is a beadless connector. They comply with IEEE standard 287 for instrument grade general precision connectors (GPC7). See Maury data sheet 5E-060 for complete interface dimensions.



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