

AFTNC VNA Calibration Kits

DATA SHEET / 2Z-062A

Models:

8680CK10 – Fixed Load Kit

8680CK11 – Fixed Load Kit Plus Adapters

8680CK20 – Sliding Load Kit

8680CK21 – Sliding Load Kit Plus Adapters



AFTNC VNA Calibration Kits

MODELS 8680CK10/11 AND 8680CK20/21

Features

- > AFTNC Connectors
- > DC to 20 GHz
- > High Performance
- > Keysight, Rhode & Schwarz and Anritsu VNAs Supported

Calibration Methods Supported

- > 8680CK10 & 8680CK11 – Fixed Load SOLT (DC–20.0 GHz)
- > 8680CK20 & 8680CK21 – Sliding/ Fixed Load SOLT (DC–20.0 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, which uses Short, Open and Load standards, requires precise models of the standards’ electrical performance. Fixed load SOLT uses fixed terminations and is adequate for measuring devices with mid-range reflection coefficients. The lowest return loss is limited by the reflection coefficient of the fixed load standard (typically better than 20 dB return loss*).

The sliding load SOLT kit can accurately measure lower reflection coefficients due to the improved termination performance provided by the sliding load (typically better than 30 dB return loss).

8680CK10/11/20/21 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).

Recommended Accessories

A012A TNC, TNCA, and AFTNC Connector Gage Kit:

Contains a metrology-grade “push-on” “universal” type, dial indicator style gage for measuring the contact pin and dielectric interface locations of MIL-STD, IEC and commercial TNC connectors. *This provides an easy and accurate way to measure these critical linear interface dimensions.

2698G1 9/16-inch Torque Wrench — 12.0 Inch lbs:

For proper torquing of TNCA and MP6 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 8680CK20/21 and are highly recommended for use with 8680CK10/11 kits.

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

A012A



2698G1



Maury AFTNC VNA Calibration Kits

Maury precision AFTNC VNA calibration kits include each of the calibration standards and tools shown in the tables at the right. The 8680CK10/20 kits do not include adapters; the 8680CK11/21 kits include one each of the in-series adapters shown. Other in-series and between-series adapters are sold separately.

Components Included in 8680CK10/11 Kits

| QUANTITY | DESCRIPTION | MODEL |
|----------|--------------------------------------|-------|
| 1 | AFTNC female fixed short circuit | 8686A |
| 1 | AFTNC male fixed short circuit | 8687A |
| 1 | AFTNC female open circuit | 8685A |
| 1 | AFTNC male open circuit | 8685B |
| 1 | AFTNC female fixed termination | 8684A |
| 1 | AFTNC male fixed termination | 8684B |
| 1* | AFTNC female to AFTNC female adapter | 8688A |
| 1* | AFTNC male to AFTNC male adapter | 8688B |
| 1* | AFTNC female to AFTNC male adapter | 8688C |
| 1 | Foam-lined wood instrument case | — |

* These adapters are provided in the 8680CK11 kits, but are not included in the 8680CK10 kits.

8680CK10



8680CK11



8680CK20



8680CK21



Components Included in 8680CK20/21 Kits

| QUANTITY | DESCRIPTION | MODEL |
|----------|---------------------------------------|--------|
| 1 | AFTNC female fixed short circuit | 8686A |
| 1 | AFTNC male fixed short circuit | 8687A |
| 1 | AFTNC female open circuit | 8685A |
| 1 | AFTNC male open circuit | 8685B |
| 1 | AFTNC female fixed termination | 8684A |
| 1 | AFTNC male fixed termination | 8684B |
| 1* | AFTNC female to AFTNC female adapter | 8688A |
| 1* | AFTNC male to AFTNC male adapter | 8688B |
| 1* | AFTNC female to AFTNC male adapter | 8688C |
| 1 | AFTNC female sliding termination | 8683A |
| 1 | AFTNC male sliding termination | 8683B |
| 1 | 9/16-inch torque wrench — 12 in. lbs. | 2698G1 |
| 1 | 7/16-inch open end wrench | 8770Z7 |
| 1 | Foam-lined wood instrument case | — |

* These adapters are provided in the 8680CK21 kits, but are not included in the 8680CK20 kits.

COMPONENT SPECIFICATIONS



Sliding Terminations – Models 8683A & 8683B

Frequency Range -- 2.0 to 20.0 GHz
 Maximum VSWR of Terminating Element -- 1.05
 Air Line Accuracy -- 56 dB min return loss (equivalent return loss of air line impedance)
 Nominal Impedance -- 50 ohm
 Power Handling -- 5.0 watt CW, 1.0 kW peak
 Travel -- Greater than 1/2 wavelength at 2.0 GHz



Fixed Short – Models 8686A & 8687A

Frequency Range -- DC to 20.0 GHz
 Minimum Reflection Coefficient -- 0.98
 Phase Accuracy -- ± 2.0 degrees
 Nominal Impedance -- 50 ohm



Precision AFTNC Adapters – Models 8688A, 8688B & 8688C

Frequency Range -- DC to 20.0 GHz
Maximum VSWR:
 DC to 4.0 GHz -- ≤ 1.04
 4.0 to 8.0 GHz -- ≤ 1.08
 8.0 to 20.0 GHz -- ≤ 1.12
 Nominal Impedance -- 50 ohm

(Note: These adapters are included in the 8680CK11/21 kits, but are not included in the 8680CK10/20 kits.)



Fixed Terminations – Models 8684A & 8684B

Frequency Range -- DC — 20.0 GHz
Maximum VSWR:
 DC — 4.0 GHz -- 1.04
 4.0 — 12.0 GHz -- 1.08
 12.0 — 20.0 GHz -- 1.10
 Nominal Impedance -- 50 ohm
 Power Handling -- 1.0 watt CW 1.0 kW peak



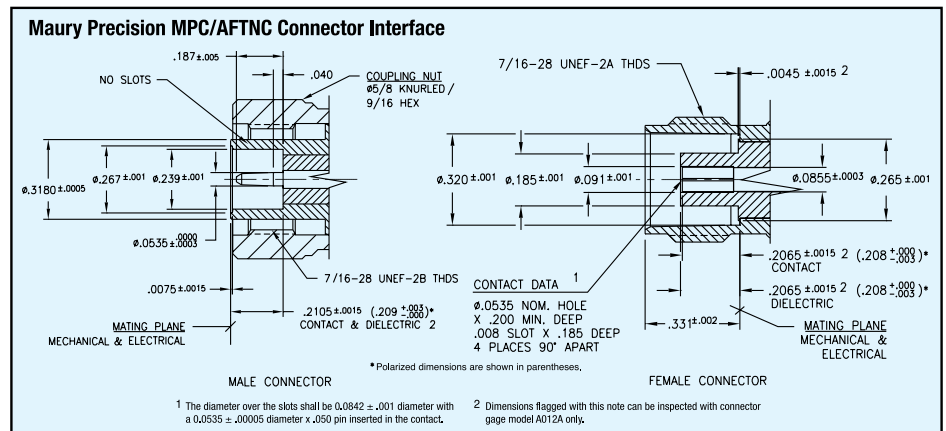
Open Circuits – Models 8685A & 8685B

Frequency Range -- DC to 20.0 GHz
 Minimum Reflection Coefficient -- 0.98
 Phase Accuracy -- ± 2.0 degrees
 Nominal Impedance -- 50 ohm

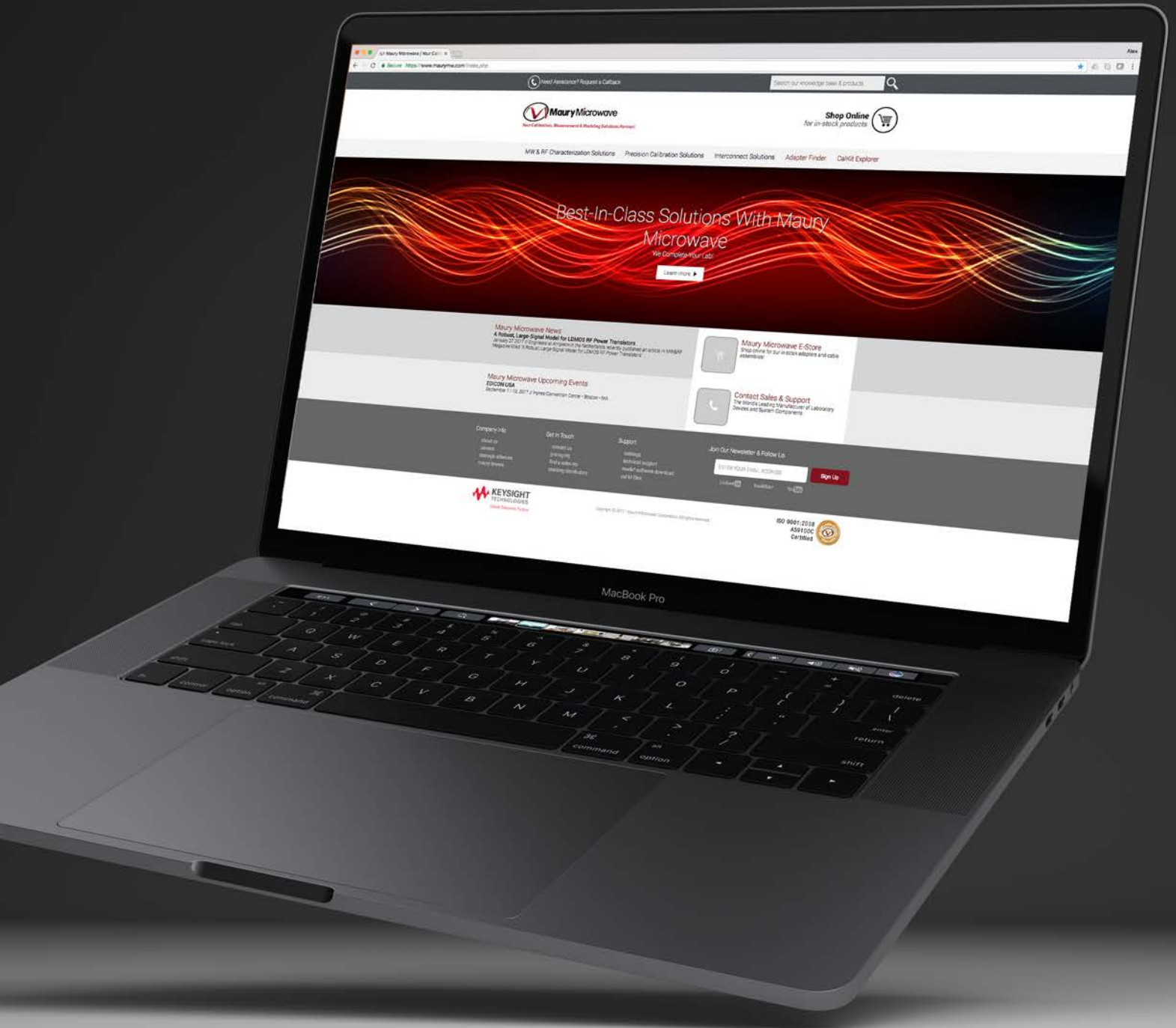
Connector Description

The AFTNC connectors (MPC/AFTNC) on the components in this kit are precision stainless steel connectors that mate with most commercially available AFTNC connectors, and especially with those conforming to MIL-C-39012 and MIL-T-81490. They are low VSWR connectors rated from DC to 20.0 GHz.

For interface specifications see Maury data sheet 5E-056.



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