

# PRECISION CALIBRATION KITS

## WR159 WAVEGUIDE, 4.9 — 7.05 GHz

### For Calibrating

- Agilent
- Anritsu
- Rohde & Schwarz

### Description

The F7005E calibration kits are designed to provide accurate calibration of the most common Agilent and Anritsu vector network analyzers (VNAs). These kits are available for use with VNA test sets and test cables utilizing 7mm or 3.5mm connectors. The chart on page 2 shows the adapter options available. Other connectors are available on special order.

### Kit Composition

The F7005E calibration kits include all the necessary devices for accurately calibrating most Agilent and Anritsu VNAs in WR137 waveguide from 4.9 to 7.05 GHz. A precision sliding load provides an impedance standard with a typical return loss greater than 55 dB. All component flanges have precision indexing holes, greatly improving measurement repeatability (indexing pins are included with each kit).

### Specifications

#### General:

Frequency Range ..... 4.9 to 7.05 GHz  
 Waveguide Size ..... WR159 (1.590 x 0.795 I.D.)  
 Cutoff Frequency ..... 3.710 GHz  
 Flange ..... MPF159 and MPF159B mates with CPR159<sup>3</sup>

#### Sliding Termination: Model C314

Housing VSWR ..... 1.005 maximum  
 Element VSWR ..... 1.01 maximum  
 Element Travel ..... Greater than 1/2 waveguide wavelength at lowest frequency



Model F7005E13

Quantity	Description
3	Adapters (see chart on page 2)
1	Sliding termination, high precision, model 314
1	Precision fixed termination
1	Straight section
1	Offset short, 1/8λ
1	Offset short, 3/8λ
1	Fixed (reference plane) short
1	Flange hardware including indexing pins (set) <sup>1</sup>
1	Data medium containing the calibration constants <sup>2</sup>
1	Instrument case
1	Operating instructions

<sup>1</sup> Consists of four (4) each long and short indexing pins and sixteen (16) each 6-32 screws and nuts.

<sup>2</sup> Configuration media software is included with each kit. See adapter set and VNA options table on page 2 to select the software corresponding to your network analyzer (VNA code).

<sup>3</sup> This flange is described in detail on Maury data sheet 5E-011 and 5E-011A.



## Specifications Continued

### Fixed Termination: Model F301C

VSWR ..... 1.02 maximum (<1.01 typical)  
Power Rating ..... 4.0 W average, 1.0 kW peak

### Offset Shorts:

Electrical Length ..... See table below  
Reflection Coefficient..... >0.999  
Quarterwave..... 0.642 nominal (1.631cm)  
Offset Length Accuracy ..... ±0.0015 inches

Model	Offset Length		Wavelength
	Inches	(cm)	
F340C1	0.321	0.815	1/8
F340C3	0.963	2.446	3/8

### Fixed Short: Model F344A

Reflection Coefficient..... >0.999

### Precision Straight Section: Model F102C5

VSWR ..... 1.01 maximum  
Length ..... 5.000 inches

### Adapters:

Three waveguide to coaxial adapters are included with each kit. The standard adapter set options and adapter specifications are listed below. Other adapter options are available on special order.

## Adapter Set and VNA Options

Insert the appropriate single-digit numbers from the chart below to designate the adapter set and VNA options needed.

**EXAMPLE:** to order a F7005E kit for the Agilent 8510C with adapter set option 1, the correct model number is F7005E14.

Adapter Set Option  $\uparrow$   $\uparrow$  VNA Code

Adapter Set Option	Description	VNA Code
1	2 each 7mm right angle launch; 1 each 7mm end launch	1 — Rohde & Schwarz
2	1 each 7mm right angle launch; 2 each 7mm end launch	4 — Agilent 8510C
3	1 each 3.5mm (female) right angle launch	5 — Agilent 8719/20/22
	1 each 3.5mm (male) right angle launch	7 — Agilent PNA
	1 each 3.5mm (female) end launch (NMD)	9 — Anritsu 37000
NMD mates with the ruggedized test ports on most popular VNAs.		

## Adapter Specifications

Model	Description	Maximum VSWR
F209C2	7mm right angle launch to WR137 waveguide	1.05
F229C1	7mm end launch to WR137 waveguide	1.10
F200A1	3.5mm (female) right angle launch to WR137 waveguide	1.10
F200B1	3.5mm (male) right angle launch to WR137 waveguide	1.10
F230K1	3.5mm end launch (NMD) to WR137 waveguide	1.10