

Sample Holders	Keysight Part Numbers and 3 rd Party Vendors	Calibration Kit Suggestions*
Coaxial Airlines		
Keysight provides coaxial airlines in calibration and verifications kits as well as single part numbers.		
3.5mm connector 26.5GHz	85053BR03 is a single 7.5cm long airline 85053B Verification Kit contains one 7.5cm long airline and three other devices that can be used for system verification.	85052B/C/D or N4691B
APC7 connector 18Ghz	85051BR03 is a single 10cm long airline. 85051B Verification Kit contains one 10cm long airline and three other devices that can be used for system verification. 85050C contains one 7mm long airline and calibration standards, but the 7mm long airline may not be long enough for some samples.	85050B/C/D or N4696B
TypeN connector 18Ghz	85055AR03 is a single 12.5cm long airline. 85055A Verification Kit contains one 12.5cm long airline and three other devices that can be used for system verification.	85054B/D or N4690B
Other sizes	Keysight, as well as many other third party companies such as Maury Microwave http://www.maurymw.com/ provide quality airlines in additional sizes that can be used for sample holders	Calibration kit must have same connector as sample holder.

Rectangular Waveguide Shims and Straight Sections

Keysight waveguide shims and straight sections make perfect materials measurement sample holders. The shims and straight sections are available in calibration kits which can also be used for calibration. Straight sections are also available as single part numbers.

X-band 8.2-12.4Ghz	X11644A calibration kit 00896-60008 straight section	X11644A
P-band 12.4-18.0Ghz	P11644A calibration kit 00896-60007 straight section	P11644A
K-band 18.0-26.5Ghz	K11644A 00896-60006 straight section	K11644A
R-band 26.5-40Ghz	R11644A calibration kit 11644-60016 5cm long straight section 11644-60001 10cm long straight section	R11644A
U-band 40-60Ghz	U11644A calibration kit 11644-60018 5cm long straight section 11644-60003 10cm long straight section	U11644A
Q-band 33-50Ghz	Q11644A calibration kit 11644-60017 5cm long straight section	Q11644A
V-band 50-75Ghz	V11644A calibration kit 11644-60012 5cm long straight section	V11644A
W-band 75-110Ghz	W11644A calibration kit 11644-60013 5cm long straight section	W11644A
Other Bands	Quality waveguide shims and straight sections in additional bands are widely available from third party companies such as Penn Engineering http://www.pennengineering.com/ , Maury Microwave http://www.maurymw.com/ and Oleson Microwave, http://www.oml-mmw.com/	Calibration kit must have same connector as sample holder.

Corrugated Circular Waveguide Fixtures

Corrugated Circular Waveguide fixtures, supported in N1500A v2015, can be purchased from SwissTo12, in frequency bands from 45 GHz to 1.1THz.
<http://www.swissto12.com>

Free Space Fixtures

A reasonably nice fixture can be made with commercially available shelving and antennas. (see 85071E on line help for picture). Standard gain horns work well if sample size is not an issue and are widely available from many companies, such as Q-Par Angus <http://www.q-par.com>. and Custom Microwave <http://www.custommicrowave.com/> Precision fixtures are available from the following companies.

Microwave Frequencies	Material-Wave Interactions Lab makes controlled beam antennae as well as fixtures http://www.mwilab.com/	Calibration kit should have same connectors as input to antennae.
High microwave and mm-Wave Frequencies	Thomas Keating Ltd. makes precision quasi optical tables in a wide variety of frequency ranges. These tables can be purchased from Keysight as special handling options, for example the 85071E-E01, 75-110GHz table, or directly from Thomas Keating Ltd. http://qmciworks.ph.qmw.ac.uk/TKI/Agilent/Agilent_VNA_QO.html	Calibration kit should have same connectors as input to antennae.

*This list contains suggestions to cover the frequency range of the sample holder, and not meant to be all inclusive. Calibration kits should be of the same connector type and gender of the sample holder, or in the case free space, of the input to the antennae. Please see your specific network analyzer documentation for additional choices.