



## 3.5mm SOLT VNA Calibration Kit Operating from DC to 26.5 GHz, Including Short Circuit, Open Circuit, Load, and Thru

### TECHNICAL DATA SHEET

PE5CK1020

Pasternack's 3.5mm 26.5 GHz Vector Network Analyzer (VNA) calibration kit is used to calibrate VNA and associated test setup, thus allowing Vector Error Correction to compensate for systematic errors inherent in the measurement of the device under test (DUT) allowing for precise and accurate characterization of the DUT's performance. The PE5CK1020 SOLT cal kit includes precisely defined male and female coaxial Short Circuits, Open Circuits, Fixed Loads and Through adapters for use during a standard multi-port calibration process. In addition to the calibration standards a fixed torque break-over style torque wrench and a set of open-ended wrenches are included to be used during the mating and de-mating of calibration components. The electrical behavior of the calibration standards is defined in the cal kit definition files for Keysight, Rohde & Schwarz, and Anritsu instruments, and are also provided in this manual. These files may be obtained by contacting Tech Support or downloaded from the PE5CK1020 product page on Pasternack's web site. It is necessary to follow the VNA manufacturer's instructions to import the cal kit definitions into the instrument.

A properly performed n-port SOL calibration characterizes the performance of the VNA hardware and any other cables or components out to the plane of the calibration. These affects are then removed from subsequent measurements. Calibrations performed using high quality VNA test cables effectively extends the VNA test ports to the end of the Test cables and this allows for greater flexibility when characterizing a product under test. High quality VNA test port cables are designed to optimize the stability of their phase and magnitude response – this allows the calibration to remain valid over flexure, time, and temperature, and over many mate/de-mate cycles.

Available in stock, ship same day!

#### Features

- SOL or SOLT versions available
- Cal kit definition files for Keysight, Rohde & Schwarz, and Anritsu VNAs
- Works with all major VNAs
- Protective wooden case for safe storage of components
- Torque wrench and tools included

#### Applications

- Calibration of Vector Network Analyzers
- Research and development
- Aerospace and defense
- Production test environments

#### Configuration

Connector  
Frequency Range

3.5mm  
DC to 26.5 GHz

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [3.5mm SOLT VNA Calibration Kit Operating from DC to 26.5 GHz, Including Short Circuit, Open Circuit, Load, and Thru PE5CK1020](#)



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#### Electrical Specifications for PE5CK1020 3.5mm Devices

Item	Part Number	Specifications	Frequency (GHz)
Female Termination Male Termination	PE5TR1010 PE5TR1011	1.02 Max VSWR 1.032 Max VSWR 1.052 Max VSWR 1.083 Max VSWR	DC to 3 GHz 3 to 6 GHz 6 to 20 GHz 20 to 26.5 GHz
Female Short Male Short	PE5SC3014 PE5SC3015	± 2.0° deviation from nominal	DC to 26.5
Female Open Male Open	PE5SC3029 PE5SC3030	± 1.4° deviation from nominal	DC to 26.5
Adapter Thru Female Thru Female to Male Thru Male	PE91414 PE91415 PE91416	1.05 Max VSWR 1.08 Max VSWR	DC to 18 18 to 26.5
Torque Wrench Open End Wrench Open End Wrench	PE5019-1A PE5TL1001 PE5TL1002	8 in-lbs Torque Setting 1/4" x 5/16" Dimensions 7/16" x 1/2" Dimensions	

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## PE5SC3014 3.5mm Female Short Specifications



ELECTRICAL			UNIT
Frequency Range	DC to 26.5		GHz
Phase	DC to 26.5 GHz	$\pm 2.0^\circ$	Max
Offset Impedance	50		$\Omega$
Offset Loss	1.3		$\text{G}\Omega/\text{s}$
Electrical Delay	16.684		ns
Inductance	$L0 \times 10^{-12} = 0$		H
	$L1 \times 10^{-24} = 0$		H/Hz
	$L2 \times 10^{-33} = 0$		H/Hz <sup>2</sup>
	$L3 \times 10^{-42} = 0$		H/Hz <sup>3</sup>

MECHANICAL	
Housing	Gold Plated Beryllium Copper
Connector	3.5mm Female
Screw Thread	1/4-36 UNS-2A
Dimensions	0.55 [13.97] $\varnothing$ , 0.873 [22.17] Length
Pin Depth	0.0000 - 0.0030

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## PE5SC3015 3.5mm Male Short Specifications



ELECTRICAL		UNIT
Frequency Range	DC to 26.5	GHz
Phase	DC to 26.5 GHz	$\pm 2.0^\circ$ Max
Offset Impedance	50	$\Omega$
Offset Loss	1.3	$\text{G}\Omega/\text{s}$
Electrical Delay	16.684	ns
Inductance	$L0 \times 10^{-12} = 0$	H
	$L1 \times 10^{-24} = 0$	H/Hz
	$L2 \times 10^{-33} = 0$	H/Hz <sup>2</sup>
	$L3 \times 10^{-42} = 0$	H/Hz <sup>3</sup>

MECHANICAL	
Housing	Gold Plated Beryllium Copper
Connector	3.5mm Male
Screw Thread	1/4-36 UNS-2B
Dimensions	0.50 [12.7] $\varnothing$ , 0.91 [23.21] Length
Pin Depth	0.0000 - 0.0030

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## PE5SC3029 3.5mm Female Open Specifications



ELECTRICAL		UNIT
Frequency Range	DC to 26.5	GHz
Phase	DC to 26.5 GHz	$\pm 1.4^\circ$ Max
Offset Impedance	50	$\Omega$
Offset Loss	1.3	G $\Omega$ /s
Electrical Delay	14.49	ps
Capacitance	$C_0 \times 10^{-15} = 63.17$	F
	$C_1 \times 10^{-27} = -1178.0$	F/Hz
	$C_2 \times 10^{-36} = 109.6$	F/Hz <sup>2</sup>
	$C_3 \times 10^{-45} = -2.15$	F/Hz <sup>3</sup>

MECHANICAL	
Housing	Gold Plated Beryllium Copper
Connector	3.5mm Female
Screw Thread	1/4-36 UNS-2A
Dimensions	0.50 [12.7] $\varnothing$ , 0.83 [21.08] Length
Pin Depth	0.00025 $\pm 0.00020$

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PE5SC3030 2.4mm Male Open Specifications



ELECTRICAL		UNIT
Frequency Range	DC to 26.5	GHz
Phase	DC to 26.5 GHz	$\pm 1.4^\circ$ Max
Offset Impedance	50	$\Omega$
Offset Loss	1.3	G $\Omega$ /s
Electrical Delay	14.49	ps
Capacitance	$C_0 \times 10^{-15} = 62.54$	F
	$C_1 \times 10^{-27} = -1284.0$	F/Hz
	$C_2 \times 10^{-36} = 107.6$	F/Hz <sup>2</sup>
	$C_3 \times 10^{-45} = -1.89$	F/Hz <sup>3</sup>

MECHANICAL	
Housing	Gold Plated Beryllium Copper
Connector	3.5mm Male
Screw Thread	1/4-36 UNS-2B
Dimensions	0.50 [12.7] Ø, 0.87 [22.10] Length
Pin Depth	0.00025 ±0.00020

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PE5TR1010 3.5mm Female Termination Specifications



ELECTRICAL			UNIT
Frequency Range	DC to 26.5		GHz
VSWR at Frequency Range	DC to 3 GHz	1.02	Max
	3 to 6 GHz	1.032	Max
	6 to 20 GHz	1.052	Max
	20 to 26.5 GHz	1.083	Max
Impedance	50		Ω
Power Rating	0.5 watt CW		
	0.25 kW Peak		

MECHANICAL	
Housing	Gold Plated Beryllium Copper
Connector	3.5mm Female
Screw Thread	1/4-28 UNF-2A
Dimensions	0.36 [9.144] Ø, 1.46 [37.084] Length
Pin Depth	0.0000 - 0.0030

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## PE5TR1011 3.5mm Male Termination Specifications



ELECTRICAL			UNIT
Frequency Range	DC to 26.5		GHz
VSWR at Frequency Range	DC to 3 GHz	1.02	Max
	3 to 6 GHz	1.032	Max
	6 to 20 GHz	1.052	Max
	20 to 26.5 GHz	1.083	Max
Impedance	50		Ω
Power Rating	0.5 watt CW 0.25 kW Peak		

MECHANICAL	
Housing	Gold Plated Beryllium Copper
Connector	3.5mm Male
Screw Thread	1/4-28 UNF-2B
Dimensions	0.36 [9.144] Ø, 0.15 [3.81] Length
Pin Depth	0.0000 - 0.0030

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## PE91414 3.5mm Thru Female Specifications



ELECTRICAL			UNIT
Frequency Range	DC to 26.5		GHz
VSWR at Frequency Range	DC to 18 GHz	1.05	Max
	18 to 26.5 GHz	1.08	Max
Impedance	50		Ω
Typical Delay	59.0		ps

MECHANICAL	
Housing	Gold Plated Beryllium Copper
Connector	3.5mm Female to 3.5mm Male
Screw Thread	1/4-36 UNS-2A
Dimensions	0.50 [12.7] Ø, 0.80 [20.32] Length
Pin Depth	0.000 - 0.003

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## PE591415 3.5mm Thru Male Specifications



ELECTRICAL		UNIT
Frequency Range	DC to 26.5	GHz
VSWR at Frequency Range	DC to 18 GHz	1.05
	18 to 26.5 GHz	1.08
Impedance	50	$\Omega$
Typical Delay	59.0	ps

MECHANICAL	
Housing	Gold Plated Beryllium Copper
Connector	3.5mm Male to 3.5mm Male
Screw Thread	1/4-36 UNS-2B
Dimensions	0.50 [12.7] $\varnothing$ , 0.88 [22.35] Length
Pin Depth	0.000 - 0.003

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## PE91416 3.5mm Thru Female to Male Specifications



ELECTRICAL		UNIT
Frequency Range	DC to 26.5	GHz
VSWR at Frequency Range	DC to 18 GHz	1.05
	18 to 26.5 GHz	1.08
Impedance	50	Ω
Typical Delay	59.0	ps

MECHANICAL	
Housing	Gold Plated Beryllium Copper
Connector	3.5mm Female to 3.5mm Male
Screw Thread	1/4-36 UNS-2A
Dimensions	0.50 [12.7] Ø, 0.84 [21.336] Length
Pin Depth	0.000 - 0.003

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### General Instructions and Usage Notes

#	Notes
1	Keep provided protective blue caps installed when not in use.
2	Store in climate controlled environment.
3	Always keep connectors clean.
4	Avoid touching the connector interface.
5	Use caution when handling.
6	For female components, do not insert male pin greater than 0.037" [.94 mm]. <b>Failure to comply will result in damage to the female connector.</b>
7	When mating, always ensure that the components to be interconnected remain in a fixed position while rotating <b>only the coupling nut</b> slowly to mate the connectors.
8	When de-mating, always ensure that the interconnected components remain in a fixed position while rotating <b>only the coupling nut</b> slowly to de-mate the connectors.
9	Visually inspect the connector threads prior to use. If needed, clean the center conductor pin and outer conductor with alcohol to remove any debris that may be present. <b>Be sure to apply the alcohol in a circular motion with a lint-free cloth or applicator.</b>
10	Use at room temperature.

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**Compliance Certifications** (see [product page](#) for current document)

#### Plotted and Other Data

Notes:

- Values at +25 °C, sea level

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URL: <https://www.pasternack.com/3.5mm-short-open-load-thru-solt-vna-calibration-kit-26.5ghz-pe5ck1020-p.aspx>

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