PicoVNA E-Cal 8.5 GHz Automated calibration kit (SMA male)

Minimized as far as possible, the manual calibration process involves several torqued connect/disconnect operations and a manual loading of unique data files for each standard. The E-Cal SOLT calibration process reduces this to just one connection by internally switching its calibration standards. The process becomes automatic and highly repeatable, with power, control and data read all managed by the PicoVNA software over a USB interface.

Fast, convenient and less error-prone, an E-Cal standard is to an extent compromised by switch errors, resulting in non-ideal short, open, load and through. Mitigating this, the PicoVNA E-Cal standards include fast-rise oven control of device temperatures, and full-span multipath S-parameters traceably characterize these now stable and minor imperfections. It is also true that the convenience, deskilling and speed of automated calibration tend to promote more regular calibration, and thus more accurate, repeatable and reliable measurement – so much so that some process managers insist upon an automated E-Cal.

All PicoVNA calibration and check standards (below) are calibrated against fully traceable PC3.5 standards and are supplied in a protective carry case.

Order Code	Name	Type	Ports	Standards	Impedance	Connector	Characterization
TA518	SOLT-AUTO-M	Ovened USB-controlled automated E-Cal SOLT	2	Short, open, load, through and separate characterized/ polarized port adaptor	50 Ω	SMA(m)	Full S-parameter 300 kHz to 8.5 GHz. Embedded and read from USB device.

Parameter	Value	Conditions
Port interface and impedance	2x 50 Ω SMA(m) ports	
Port input limits	+10 dBm operating, +20 dBm/1 V pk protection	
Bandwidth	300 kHz to 8.5 GHz	
Directivity	40 dB	
Source match	40 dB	
Load match	36 dB	
Reflection tracking	0.05 dB	
Transmission tracking	0.04 dB	
Transfer calibration method	SOLT comparison	Characterization data records to internal memory

Parameter	Value	Conditions
Control and power	USB 2.0 (micro)	
Dimensions	65 mm L x 43 mm W x 15 mm H	Including connectors
Weight	60 g	
Temperature (operating)	5 °C to 40 °C	
Temperature (oven control range)	+18 °C to 28 °C	To meet quoted accuracy
Oven warming time	45 s typical at 23 °C	
Humidity (operating)	5% to 80% RH non-condensing	
Temperature (storage)	–20 °C to 50 °C	
Humidity (storage)	5% to 80% RH non-condensing	