

Product Note 62

Precision N-Connector 0.04 to 12GHz TRL VNA Calibration Kit

Introduction

TRL Cal Kits provide the best calibration accuracy for VNAs which is essential for RF measurements especially of highly reflective devices such as tuners. Focus Microwave's Coaxial TRL (Through-Reflect-Line) Calibration Kits (calkits) are very accurate, robust and easy to use. They cover 0.04 to 50 GHz in different bands and connector types and provide state of the art calibrations of Network Analyzers. The TRL calkits of Focus Microwaves are available in six connector types: GPC-7, -3.5, -2.9 (K®), -2.4mm, -N and 7/16. Focus calkits are compatible with all Hewlett-Packard® and Wiltron® network analyzers with the TRL, TRL*, LRL and LRM software option.



Description of the N Connector 12GHz⁽¹⁾ TRL Calkit

The N Connector TRL calibration kit includes

- one precision coaxial Delay Line with a proprietary Connector Extender,
- two phase-equal N Shorts (one male and one female),
- two 50Ω Loads (one male and one female) and
- one 5.5" (14cm) long insertable (male-female) coaxial extension line.
- one floppy diskette with Calkit parameters and
- one Operation and Service Manual.

The entire frequency range 0.01 to 12 (up to 14) GHz is covered with one single Delay Line standard, included in the calkit. There is no need for a second "low frequency" standard, as suggested by HP or the NIST. Excellent calibration results are obtained with the supplied standards alone (see figures 2, 3 and 4 on page 2 of this note).

⁽¹⁾ The Calkit can be used up to 14GHz. Delay Lines for using only up to 6GHz are also available.

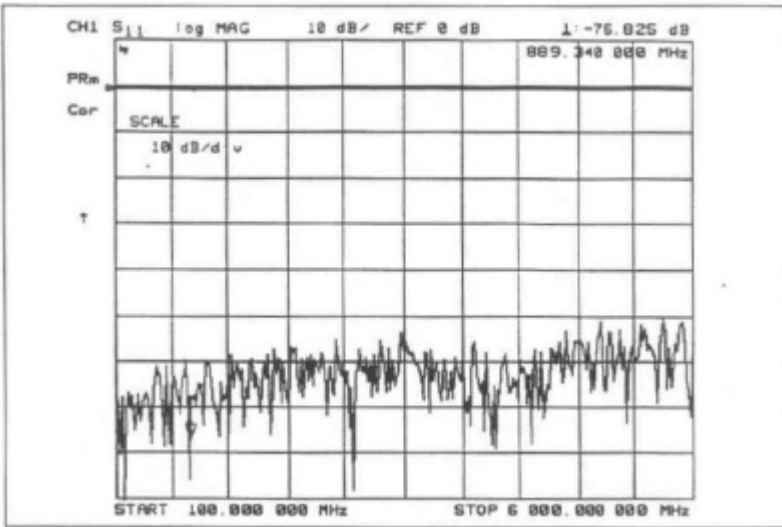


Figure 2: Residual Reflection (Source Match) via a Through Line verification, 0.1 to 6 GHz

Figure 3: Offset Short Ripple (peak to peak < 0.05dB) 0.5 to 6 GHz

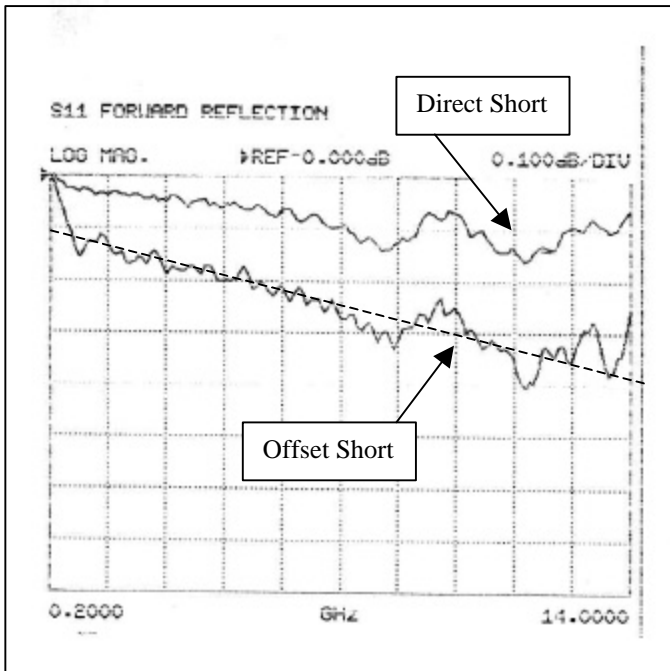
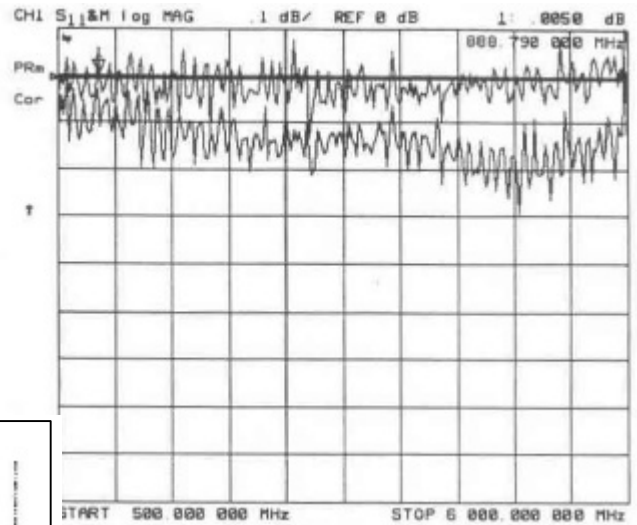


Figure 4: Offset Short Ripple of N connector TRL calkit (peak to peak < 0.1dB) 0.2 to 14 GHz