

• **PicoPak Phase Response**

A simple verification of the PicoPak phase response is to vary the length of its signal line with a coaxial phase trimmer such as the Bracke Mfg. BM12000 shown in Figure 17. That device is a variable 50Ω coax line whose phase response was calibrated with a VNA as 1.69 ps/turn as shown in Figure 18. The measured response is exactly that expected for an air line.



Figure 17 Phase Trimmer

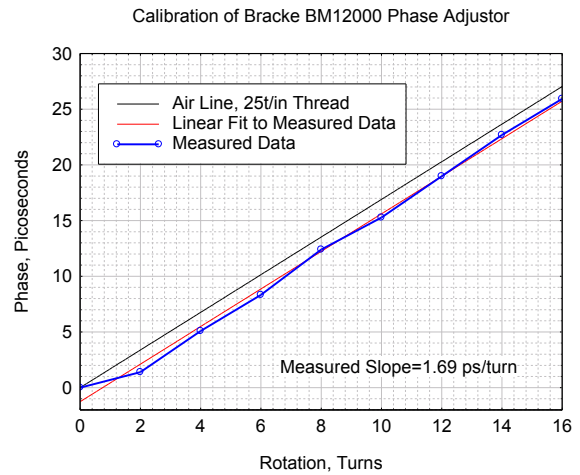


Figure 18 Phase Response

The response of PicoPak module S/N 103 to the same 16 turn phase adjustment is shown in Figure 19. A phase change of 27.3 ps was observed, in agreement with the expected value of 27.0 ps. This test is not intended to calibrate the PicoPak, since its phase sensitivity is determined exactly by the period of the signal frequency and the DDS resolution, but rather as a simple way to verify its basic response. The measured phase responds smoothly to the change in transmission line length and the noise allows phase changes on the order of 5 ps to be resolved.

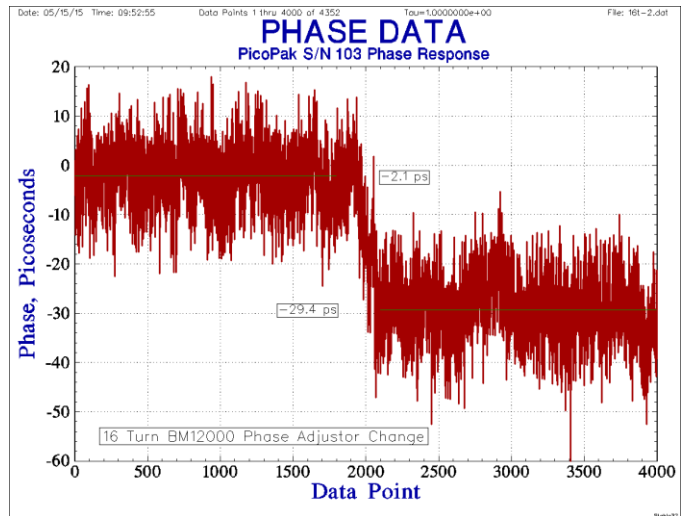


Figure 19. PicoPak Response to Phase Change