The Case for Improvement of GORE PHASEFLEX Test Cables

2020-04

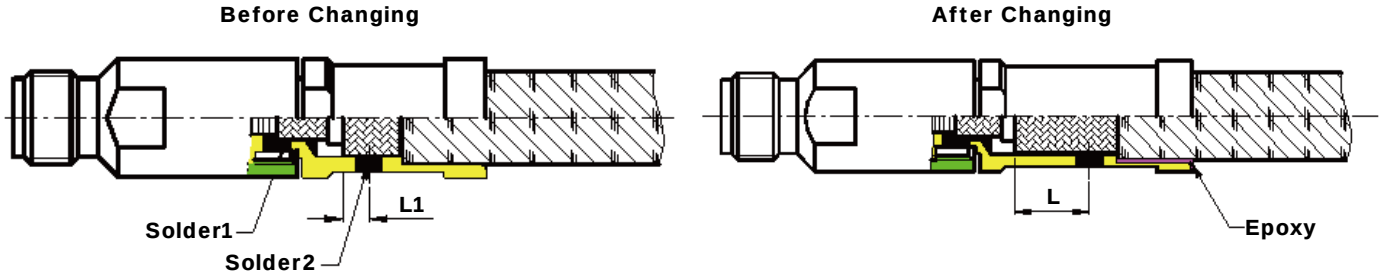
Gore PHASEFLEX test cables are recognized as the premier offering in the RF test world. They exhibit excellent durability and stability upon mechanical stress such like crush, tensile and kink (twist).

However, recently one user complained their PHASEFLEX cable lost stability. From our analysis, the reason is the solder point at the outer strength member had broken. Clearly, the durability could be improved if they alter the solder tube design. In the graphic below, one can see their original solder tube and the recommended remedy. The top image shows the braided strength member solder joint is too close at the braid edge allowing the solder joint to easily be broken by an action such as a kink (twist).

Our suggestion, illustrated in the lower image is:

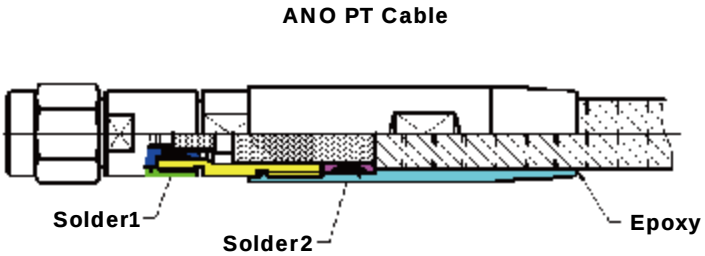
1. Increase the distance from L1 to L of the braid edge.

2. Further enhancement can be achieved by filling the gap between solder tube and Braid jacket with epoxy (purple color area).

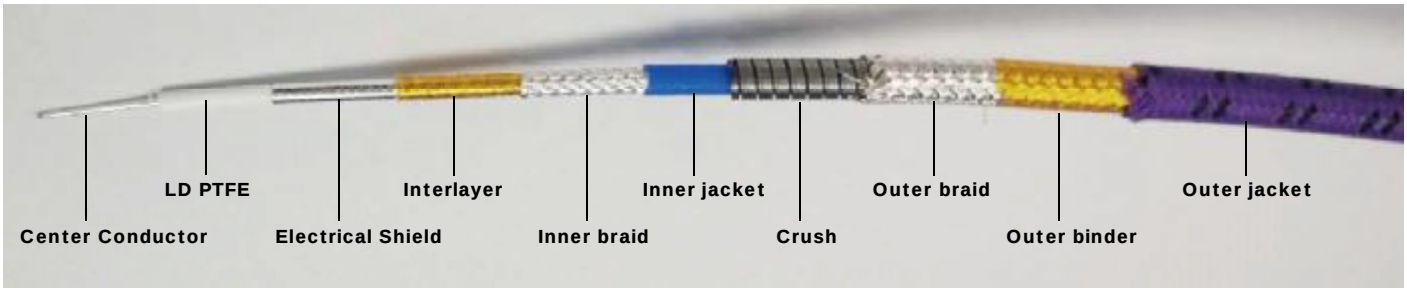


Graphic: Gore PHASEFLEX cable change suggestion.

ANOISON offers an equivalent of PHASEFLEX cable that provides excellent durability and stability. It is called the "PT Series Precision Test Cables" or in short "ANO PT Cable". An important aspect is how the connectors and cable soldered, epoxied, and armored.



There are a total 10 layers:



A Typical spec for PT-18M-18F-39:

ELECTRICAL DATA:

- **Impedance: 50 Ohms**
- **Frequency Range: DC-67 GHz**
- **VSWR: 1.30 Max.**
- **Insertion Loss: 6.0 dB Typ.**
- **Phase Stability: ±8° Typ./±15.6° Max.**
- **Amplitude Stability: ± 0.06 dB Typ./± 0.10 dB Max.**

Figure 1: Ruggedized, Flexible Construction of ANO PHASEFLEX microwave/RF Test Assemblies

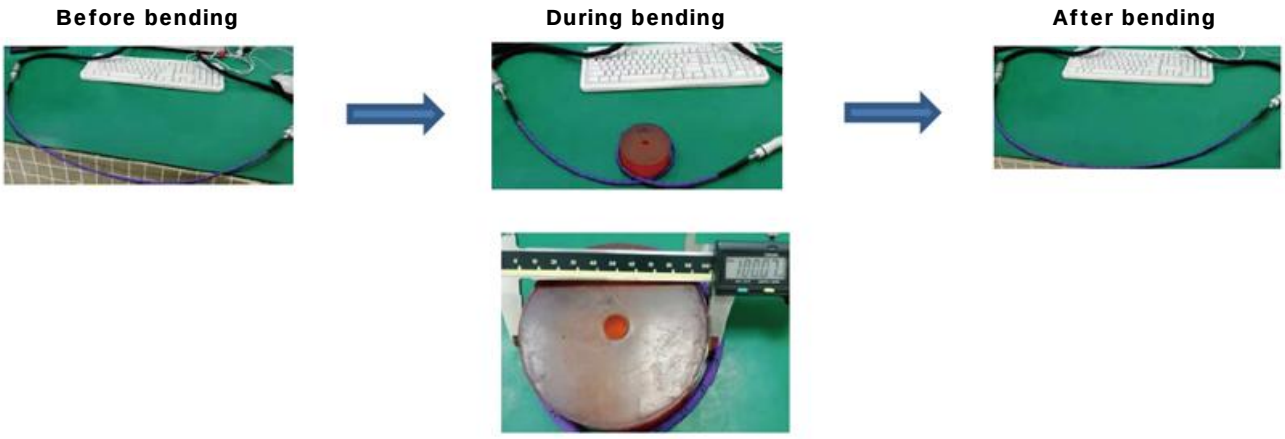


Figure 2: How we test the Phase Stability

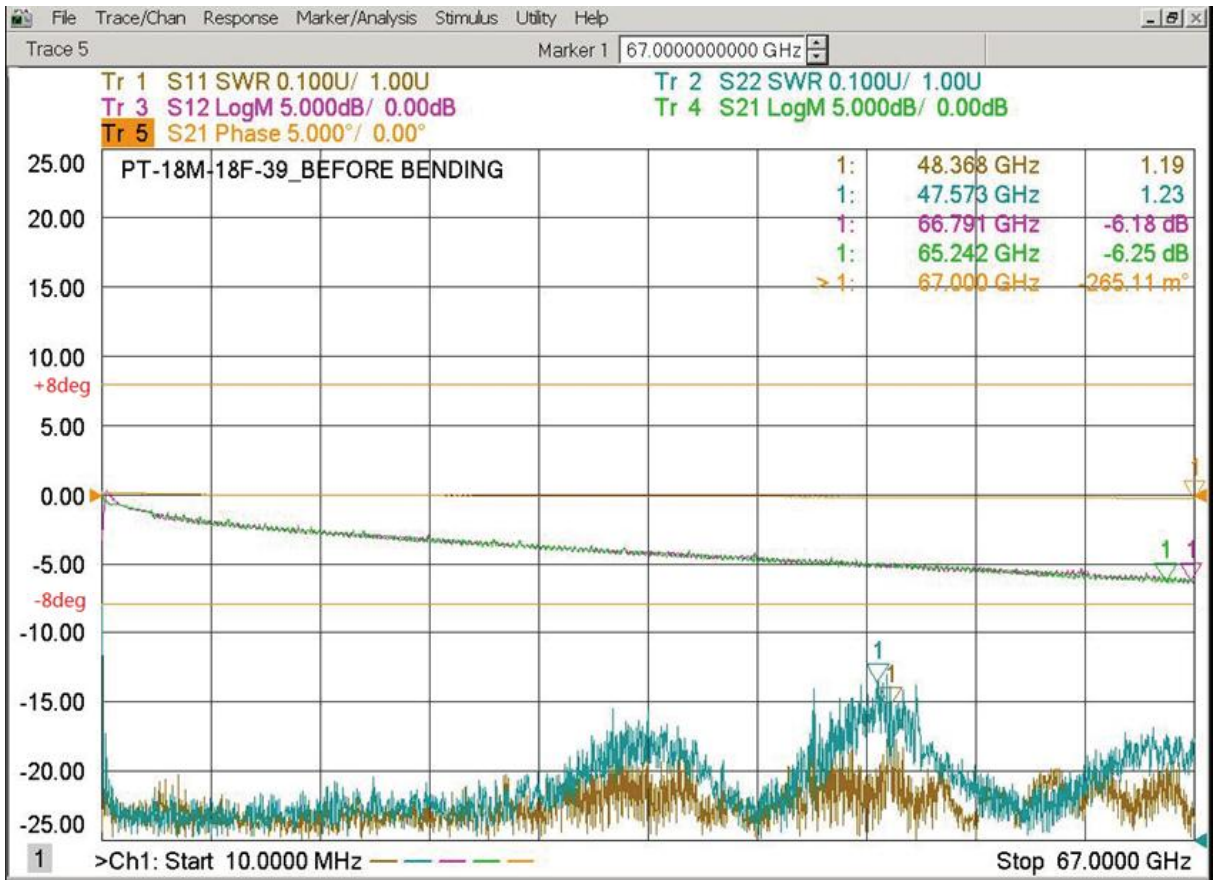
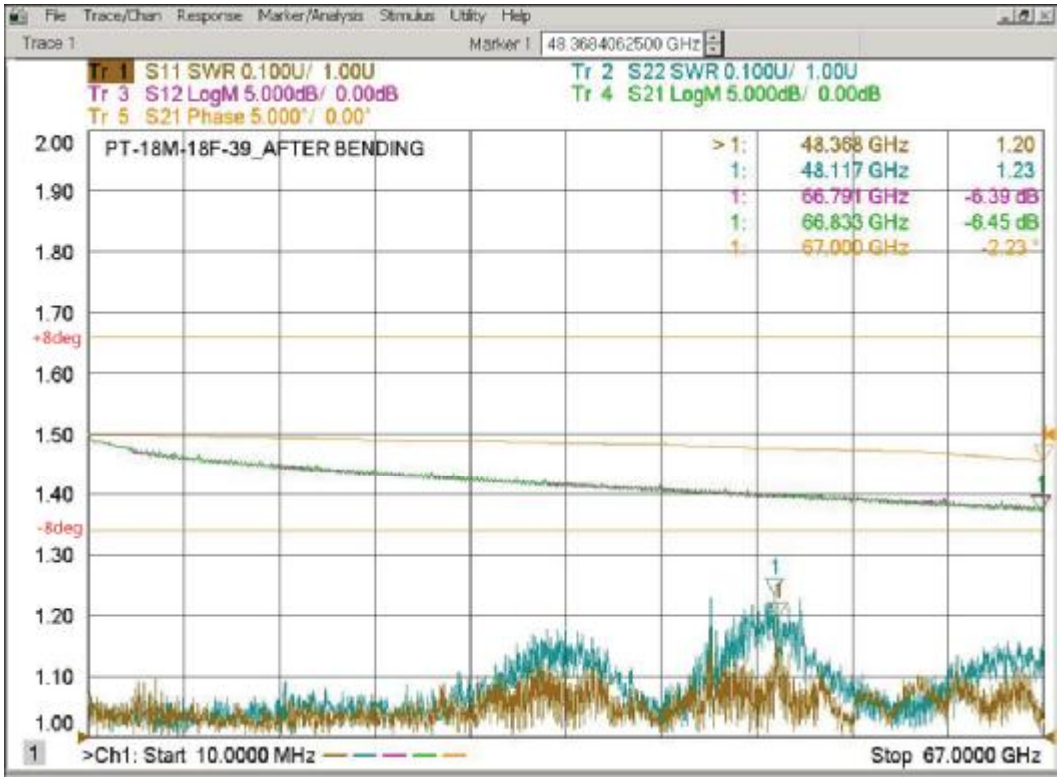
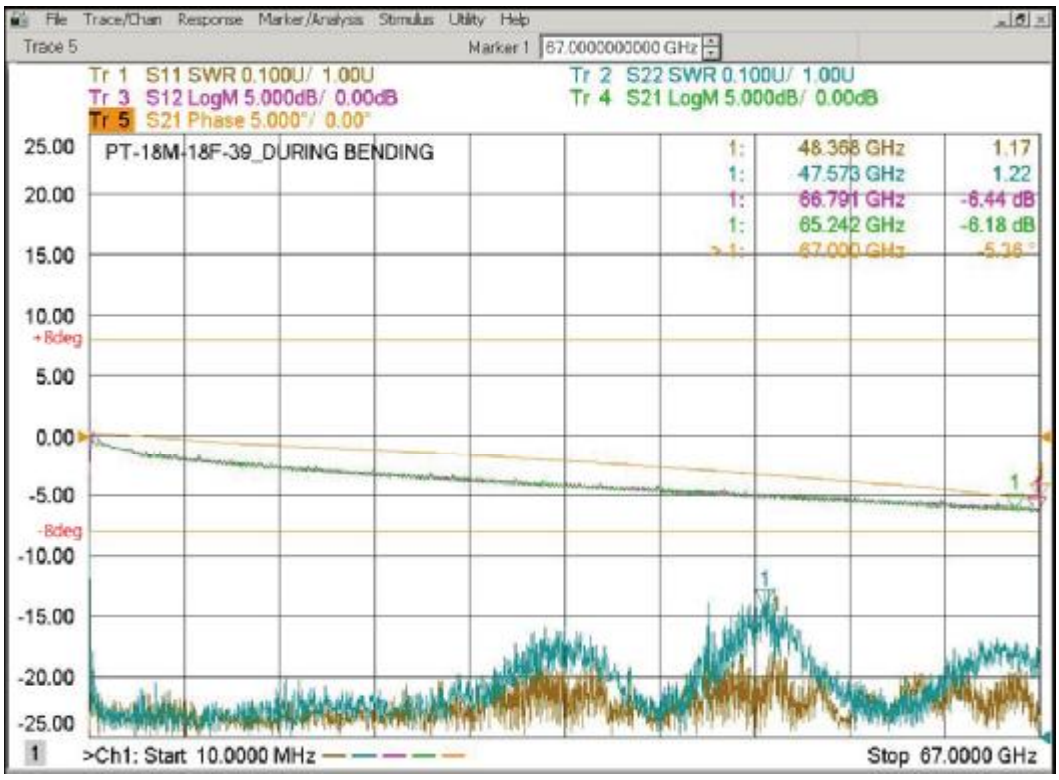


Figure 2: Test data





Test result: **Excellent**

- **Frequency Range: DC-67 GHz**
- **VSWR: 1.23**
- **nsertion Loss: -6.45 dB**
- **Phase Stability: ±5.36°**
- **Amplitude Stability: - 0.025 dB**