

QuarterBack® Offset Test



As a world leader in the RF/Microwave industry with over 50 years of proven performance, our designs and manufacturing capabilities of coaxial connectors, cable assemblies and passive components is unparalleled and ideal for military, satellite, aerospace, commercial and telecommunications applications.

Summary

The SMP was originally designed to blind mate and tolerate misalignment. The QuarterBack® (QB) design features a bayonet locking nut on the standard SMP interface for a secure yet low withdrawal force RF and microwave connection.

Due to the lack of a rigid connection typical with threaded connectors, the QB has an inherent potential for off-axis or misaligned mating conditions. This test performed to evaluate changes in electrical performance specifications between the nominal mated position and the extreme offset conditions.

Test Setup

QB male panel mount connectors (SF1211-66204) were terminated to Ø.047 FlexTra® (200-70-214) and mated to QB female T-Flex 405 flexible cable assemblies. The opposing end of the test cables were terminated with 2.92mm male cable connectors.

The cables were plotted in the nominal position (Figure 1) and then biased perpendicular to the connector axis to their physical limit (Figure 2) in four different directions. Any further force applied would result in noticeable physical damage to the outer body of the connector itself and in real applications would result in destructive damage to the cable termination.

The designations shown in the chart legend are considered up, down, left, and right when looking into the QB male interface and considering the lab bench to be the bottom.

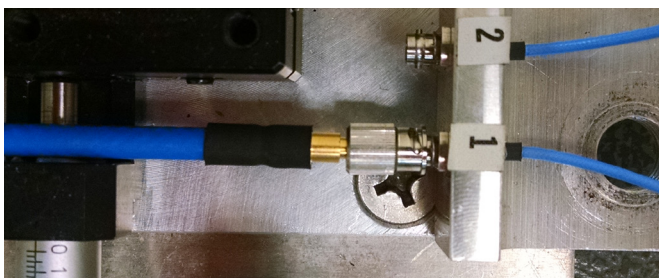


Figure 1: Nominal

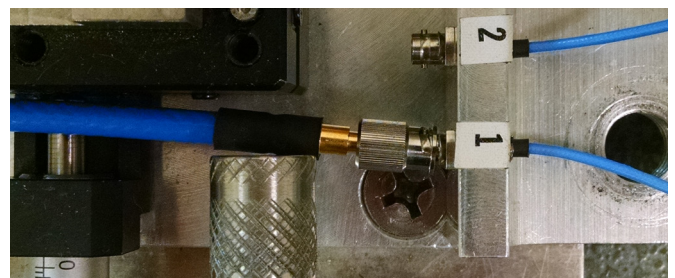


Figure 2: Offset position (offset “left” shown)

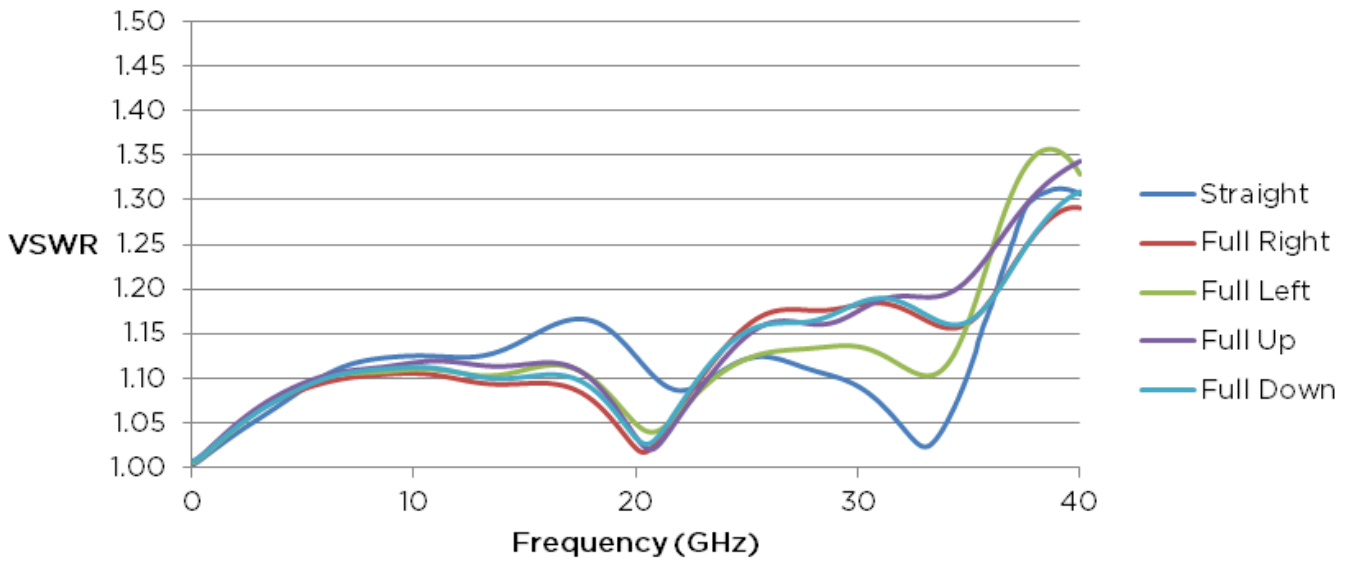
Test Results

VSWR and Insertion Loss plots were collected from 10 Mhz to 40 GHz. VSWR results were gated and include the entire mated pair and cable transition, including approximately .125" of cable length. Insertion loss results are given for the entire test cable - from 2.92mm male, through the QB mated pair, and ending at the other 2.92mm male.

Conclusion

There was no significant negative performance impact observed in either VSWR or insertion loss. Plots below:

Misalignment - VSWR



Misalignment - Insertion Loss

