SMPM Spring Bullets

P/N: 1132-4117
(OAL 0.960")

P/N: 1132-4116
(OAL 0.870")

P/N: 1132-4115
(OAL 0.780")

P/N: 1132-4114
(OAL 0.690")

P/N: 1132-4113
(OAL 0.600")

Features & Benefits

- Eliminates gaps between bullet and shroud for maximum RF performance
- Wide range of available sizes
- Performance guaranteed under all states of compression
- DC - 40 GHz

Applications

- Mil-Aero
- High density, small form factor
- Board to board with multiple simultaneous mates
- Large scale blind-mate arrays

SMPM Spring Bullet Performance Under Compression

SV's SMPM spring bullets have been designed for repeatable VSWR profiles over the entire range of compression. Repeatability is critical in applications where the compressed length can vary due to tolerance stackup at final integration. As you can see in the below image, from the nominal (design target) overall length at .050" compression to the fully compressed (.100") condition, the VSWR remains consistent and stable.

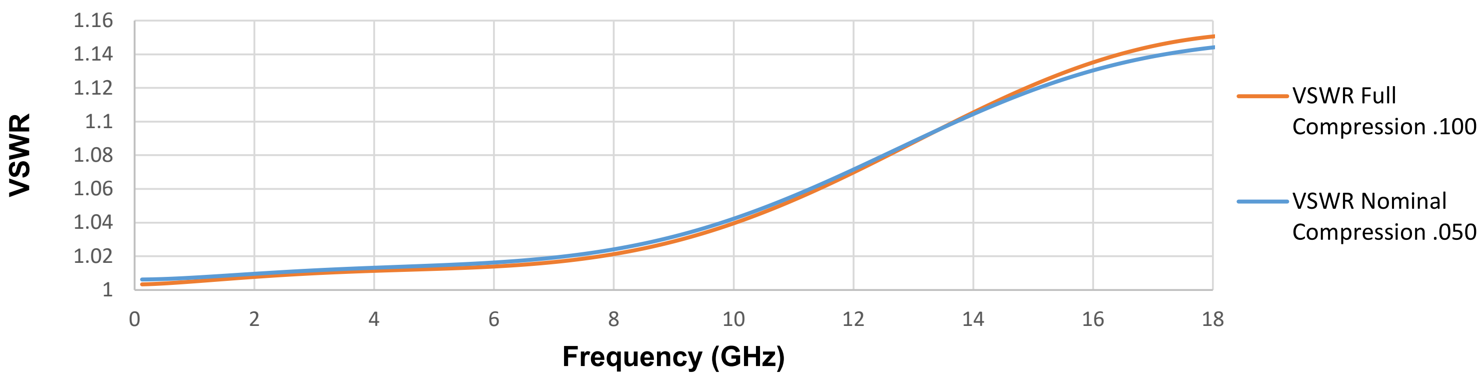

Figure 1: VSWR profile at Nominal (.050") and Full (.100") Compression

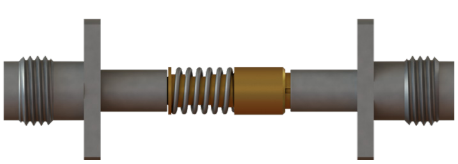

Figure 2: No Compression

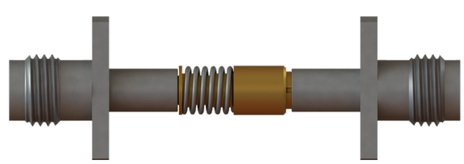

Figure 3: Nominal Compression

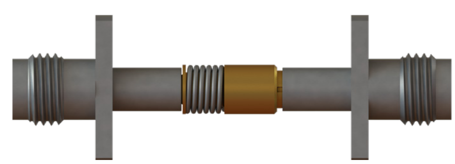

Figure 4: Full Compression

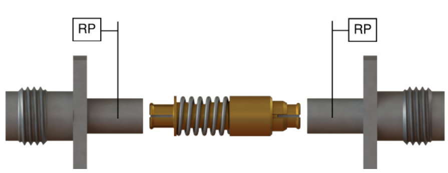

Figure 5: Test set-up for SMPM Female to Female Bullet

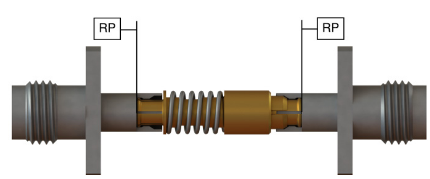

Figure 6: As tested, SMPM Female to Female Bullet

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SMPM Spring Bullet Performance Under Compression *(cont'd)*

Figure 7 demonstrates the capability of an SMPM spring bullet to maintain similar levels of insertion loss when both nominally and fully compressed.

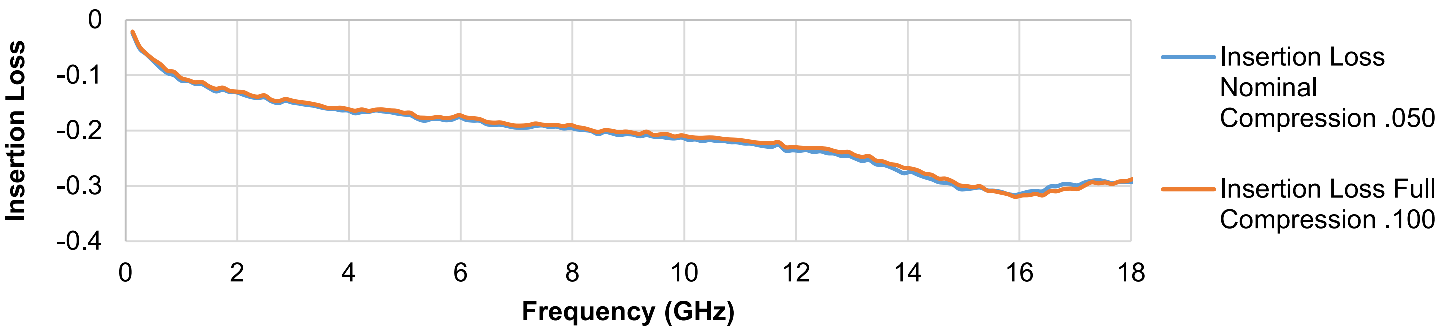

Figure 7: Insertion loss comparison under different states of compression

Ensure Full Mating at each RF Port with SMPM Spring Bullets

In Figure 8 below you will see that the left hand bullet is fully mated (reference planes in contact) while the right hand bullet is offset. This kind of misalignment often happens in multiport applications when using 'fixed' (no spring) bullets due to machining and assembly tolerances. Spring bullets provide a solution to this problem by compressing to absorb those tolerances.

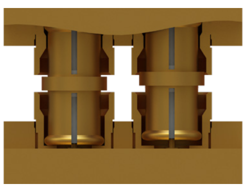

Figure 8: Fixed Bullets

Figure 9: Spring Bullets

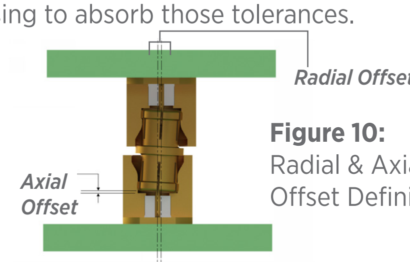

Figure 10: Radial & Axial Offset Definitions

Figures 11 and 12 below show the VSWR and Insertion Loss performance under radial offset increments of 2 mils (.002"). Radial offset is defined by the distance between the centerlines of the offset shrouds as shown in Figure 10, above.

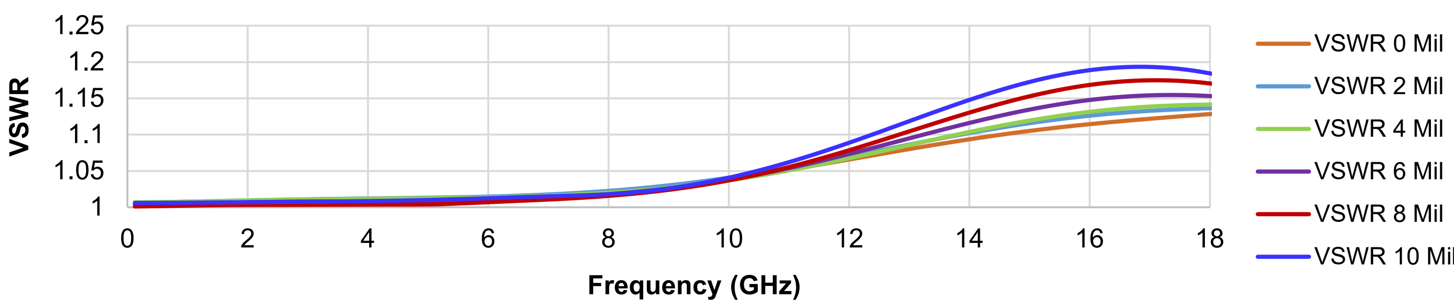

Figure 11: VSWR over radial offset at nominal compression

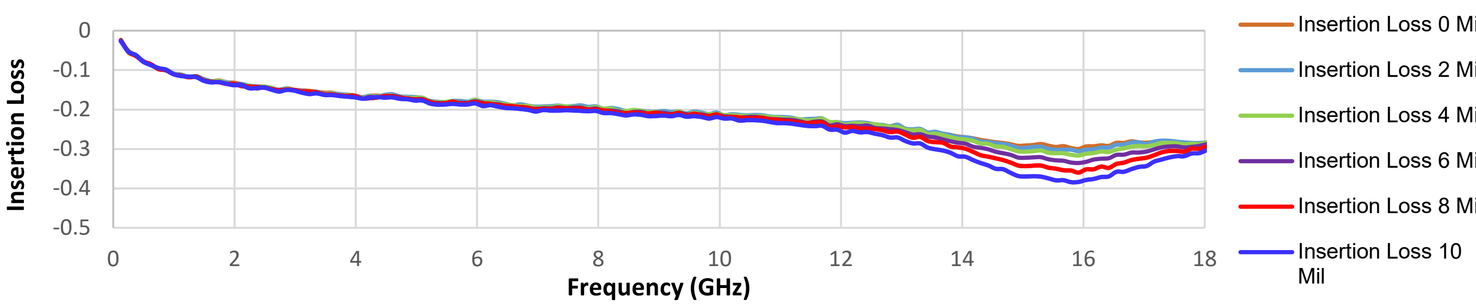

Figure 12: Insertion loss over radial offset at nominal compression

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