

PBAR Note 617
Dimensions and Measurements of Waveguide-Coax Adapters (Part I)

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This note is a document of dimensions of some waveguide-coax adapters (band 1, 2 and 4) to be used for the arrays in debuncher cooling upgrade. The plots of measured S11 parameters are also included. All adapters have very good performance: S11 are below or around -20 db over the full band.

Note. Shown in schematic drawings in the following pages are the cross sections of adapters along the longitudinal direction (beam direction) of the arrays. The unit in these drawing is inch.

The dimensions of transverse cross section (not shown in the drawings) of waveguide used for tuning these adapters are: 2.362"x0.660" (band 1), 1.870x0.535" (band 2) and 1.450"x0.395" (band 4.) The widths of band 1 and 4 are slightly larger than that of the latest version (2.290"x0.660" band 1, 1.870x0.535" band 2, and 1.370"x0.395" band 4.) This is because these waveguide were machined before the final version. Since we are now changing vacuum feedthrough designs (the coax line will not filled with teflon for adapters used in kicker) we will build new waveguide for band 1 and 4 with the correct dimensions and corresponding adapters will be adjusted accordingly. I'll report the final versions of these waveguide-coax adapters in next design note.

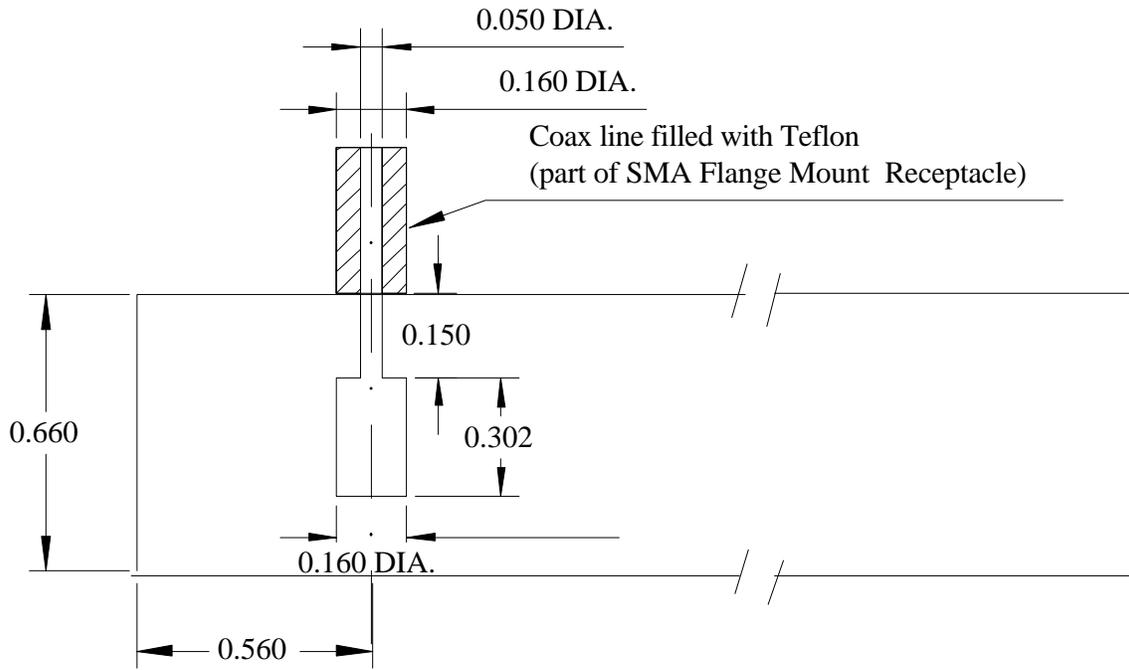


Figure 1. Dimension of WG-Coax Adapter (Band1 Pickup)

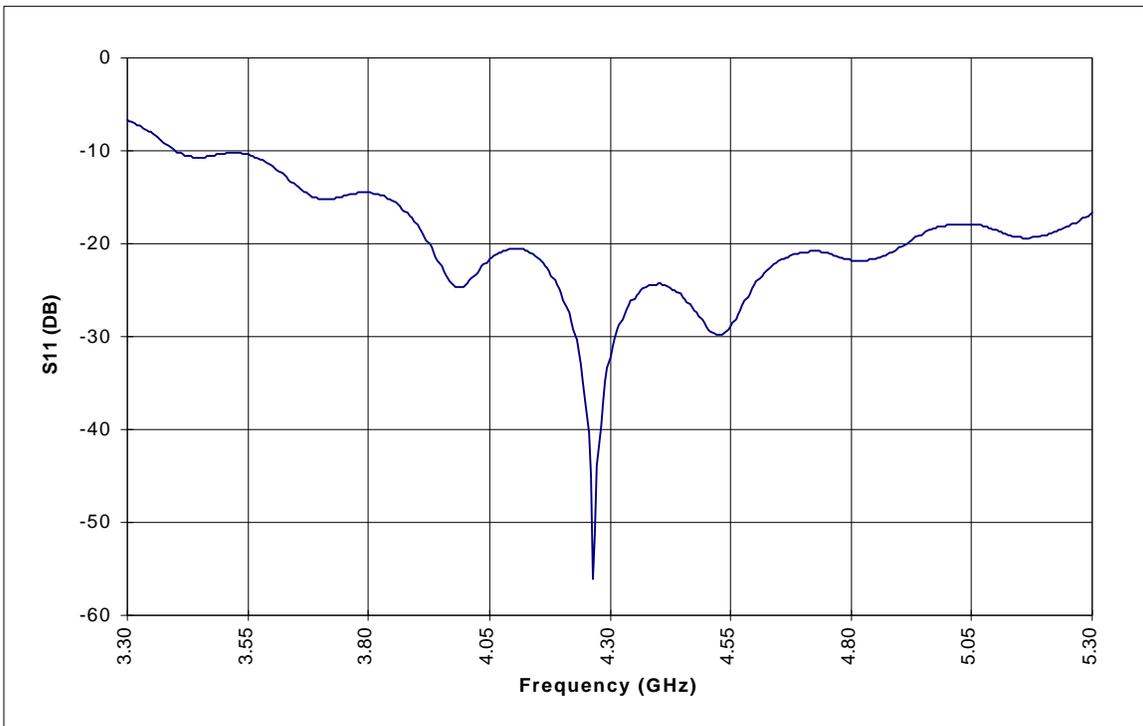


Figure 2. S11 of WG-Coax Adapter (Band1 Pickup)

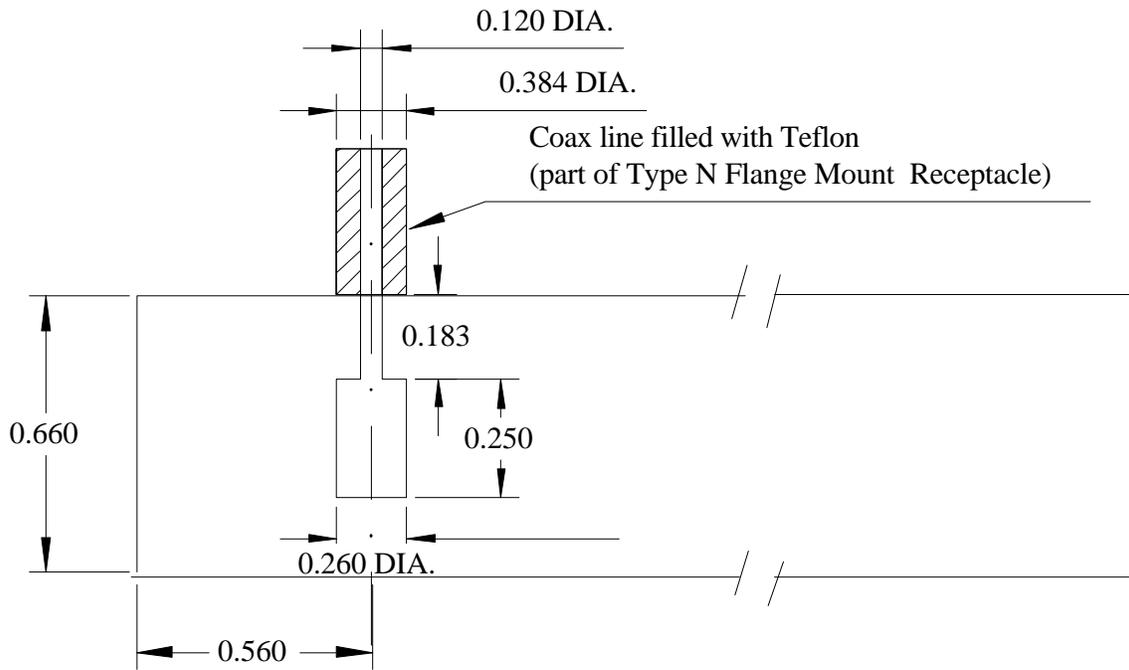


Figure 3. Dimension of WG-Coax Adapter (Band1 Kicker)

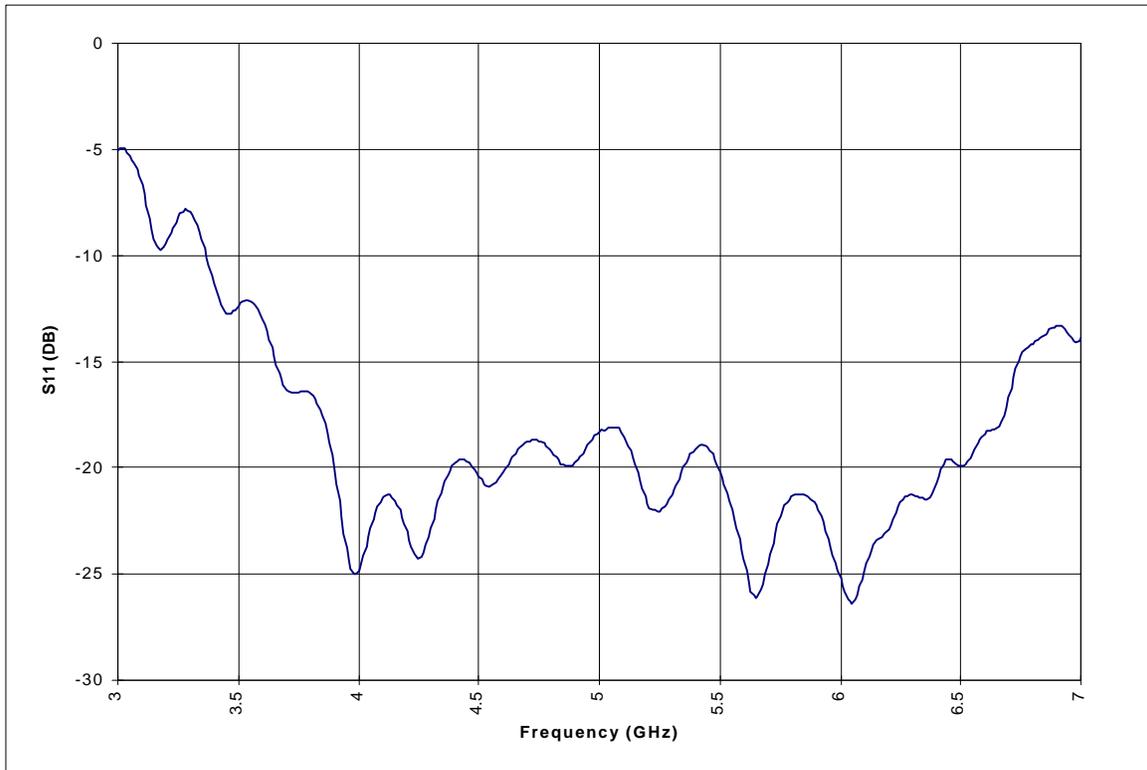


Figure 4. S11 of WG-Coax Adapter (Band1 Kicker)

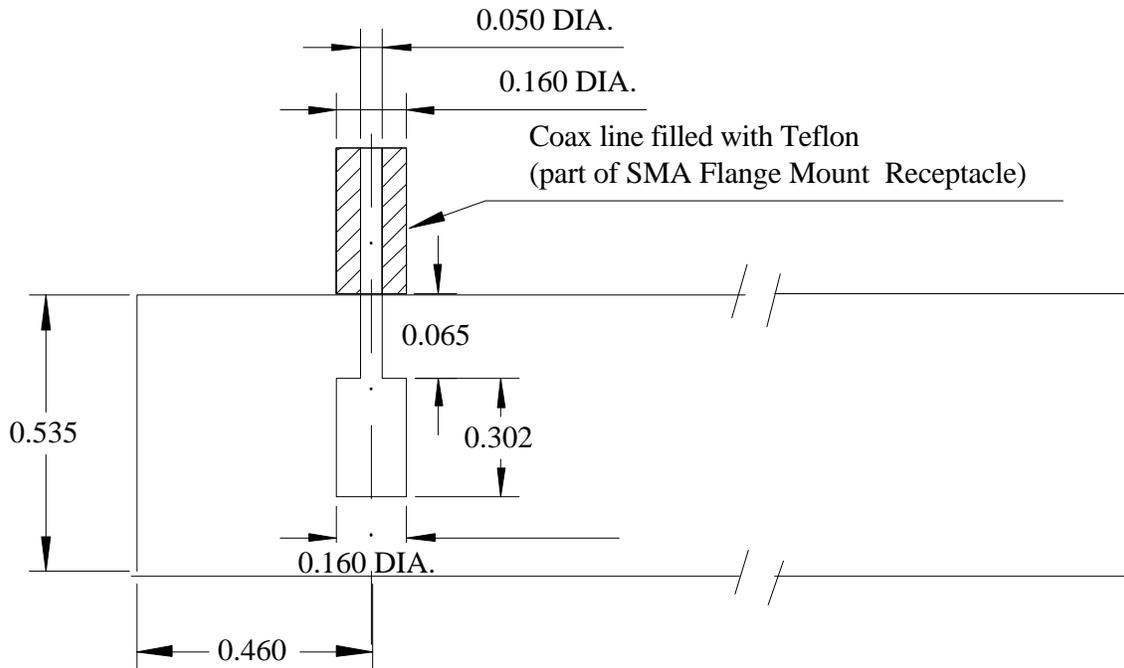


Figure 5. Dimension of WG-Coax Adapter (Band2 Pickup)

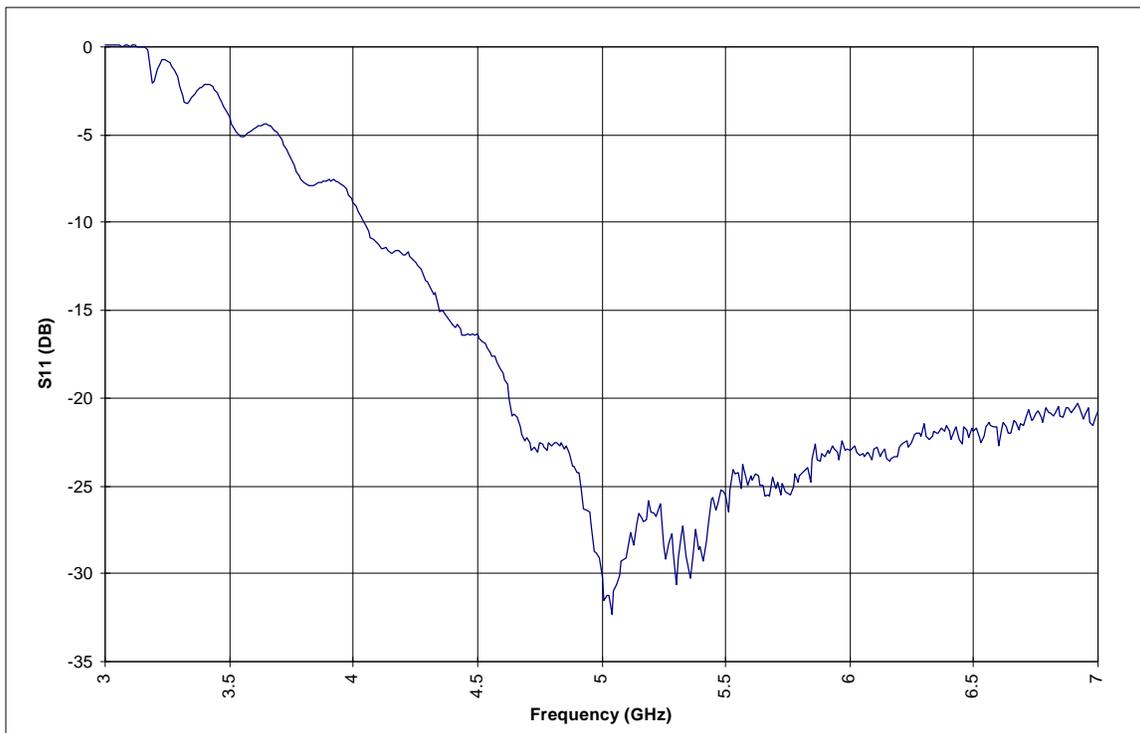


Figure 6. S11 of WG-Coax Adapter (Band2 Pickup)

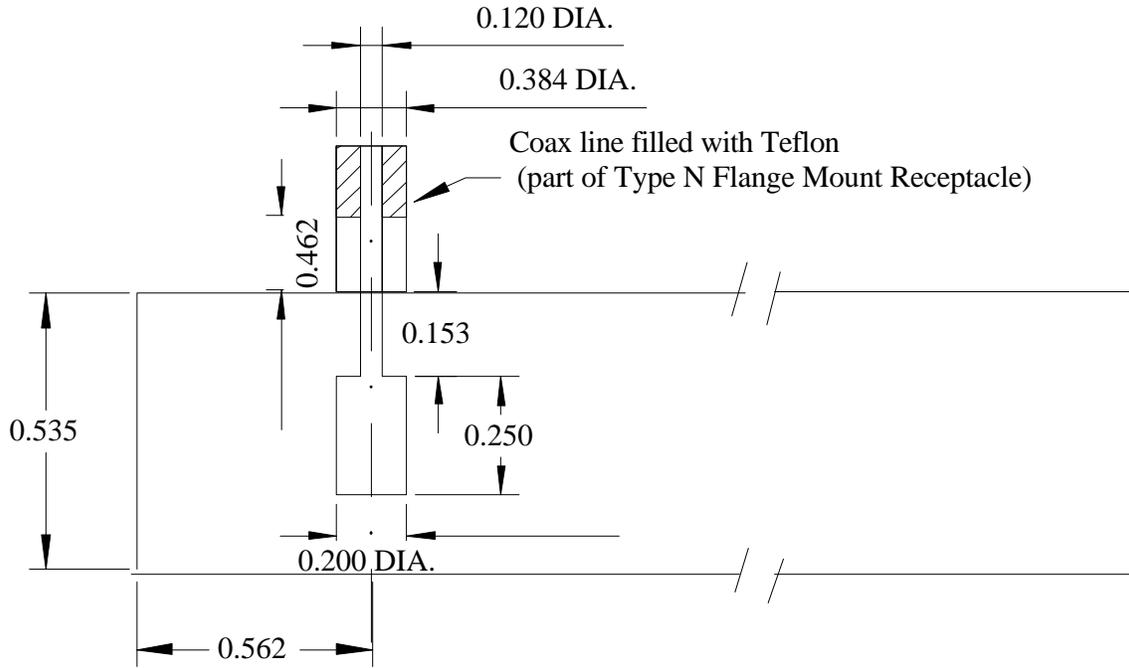


Figure 7. Dimension of WG-Coax Adapter (Band2 Kicker)

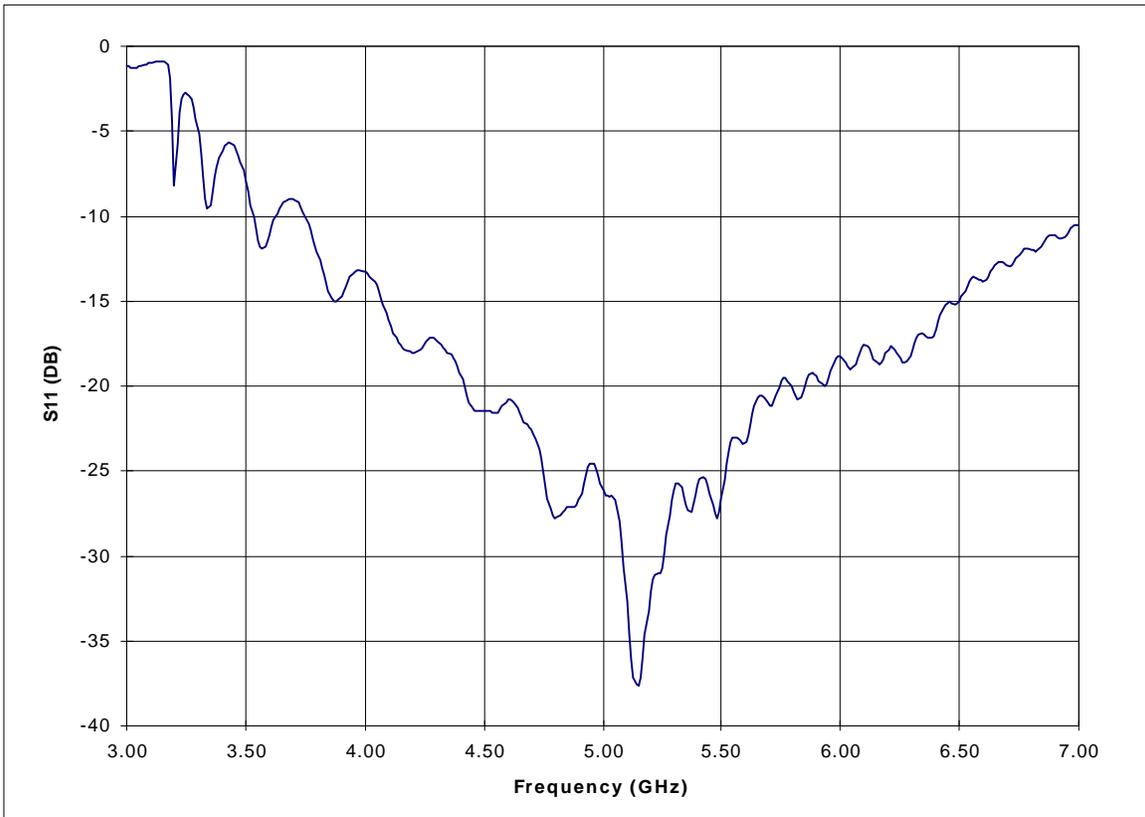


Figure 8. S11 of WG-Coax Adapter (Band2 Kicker)

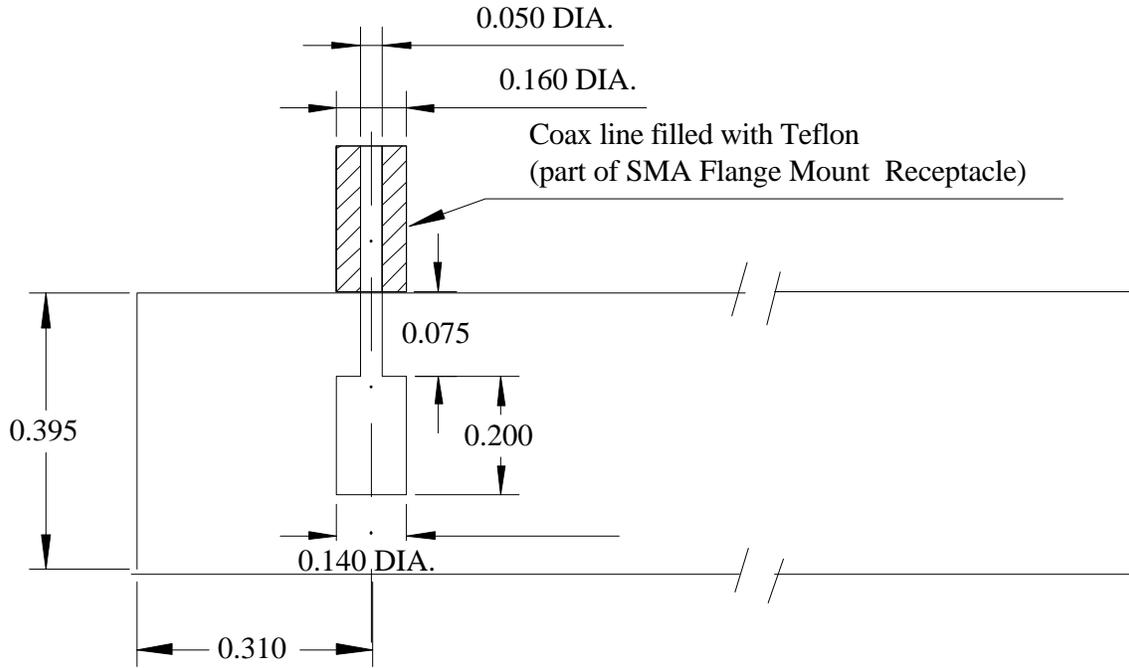


Figure 9. Dimension of WG-Coax Adapter (Band4 Pickup)

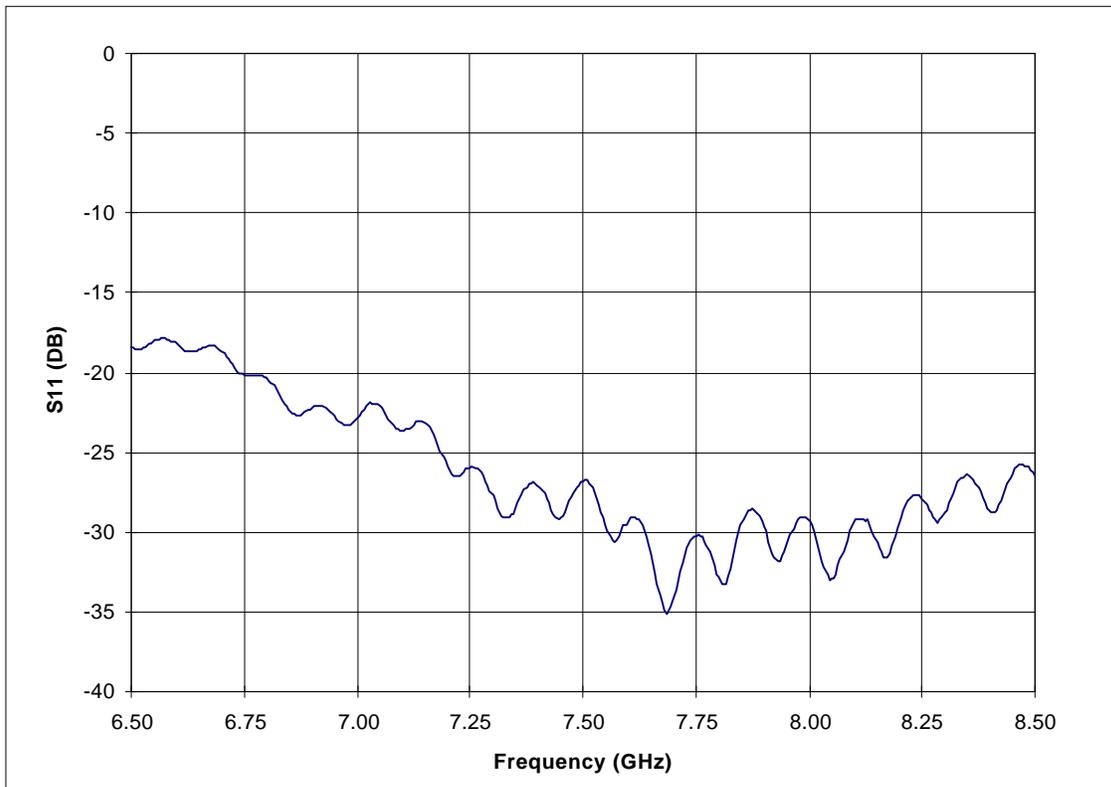


Figure 10. S11 of WG-Coax Adapter (Band4 Pickup)

