

PBAR Note 676

Dimensions and Measurements of Waveguide-Coax Launchers for Pbar Accumulator Core Cooling Upgrade

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This note is a document about dimensions and measurement results of waveguide-coax launchers installed on the arrays in pbar accumulator core cooling system.

Since power for kicker in core cooling system is very small, the launchers designed for pickups and kickers are identical. The coaxial ports of all launchers use SMA type connector. Shown in Figure 1, 3, and 5 are schematic drawings of launchers in the cross section along the longitudinal direction (beam direction) of the arrays. The unit in these drawings is inch. The corner joining waveguide portion and its end is a round one with radius of 0.125 inch (not shown in figure 1, 3 and 5.) This is due to the size of the milling tool (waveguide and its end is a whole unit machined from an aluminum block.) Detail of these corners can be found in mechanical drawings.

Shown in Figure 2, 4 and 6 are measured S11 parameters of the launchers terminated with a waveguide termination. These results show that all launchers matched very well: reflection is ~ -26 - -27 db or lower over full bandwidth which is ~ -5 db better than commercial launchers.

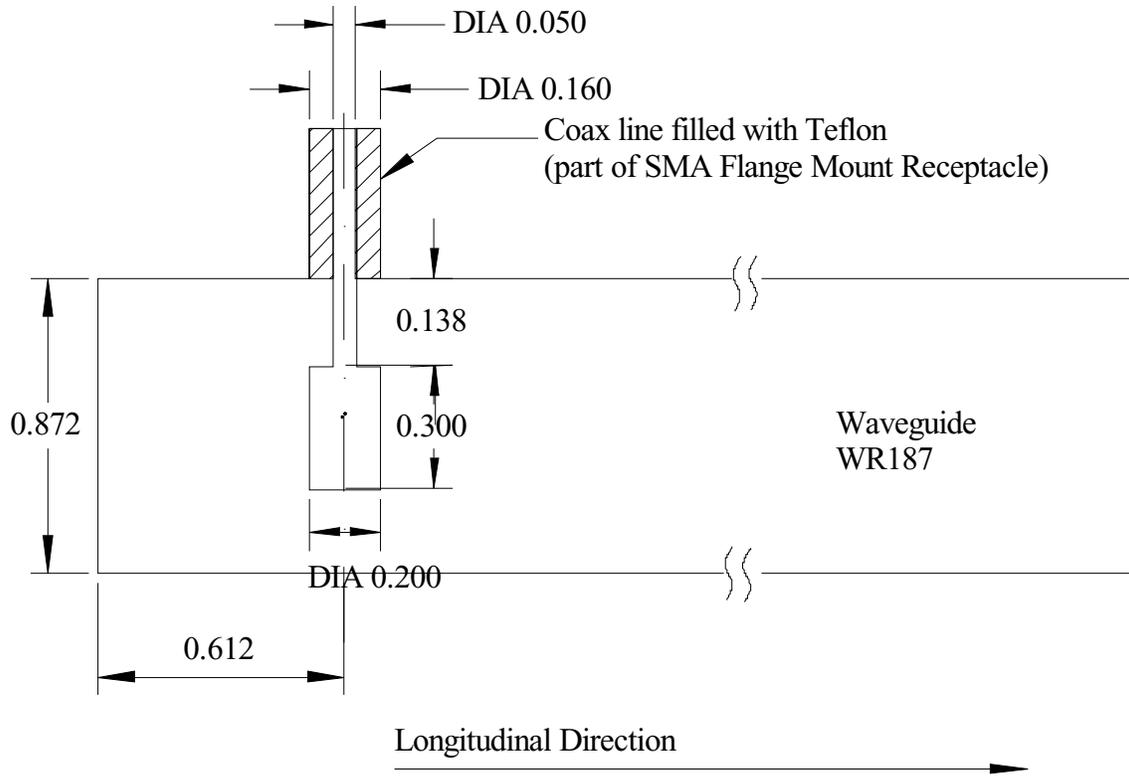


Figure 1. Dimension of WG-Coax Launcher (Band 1).

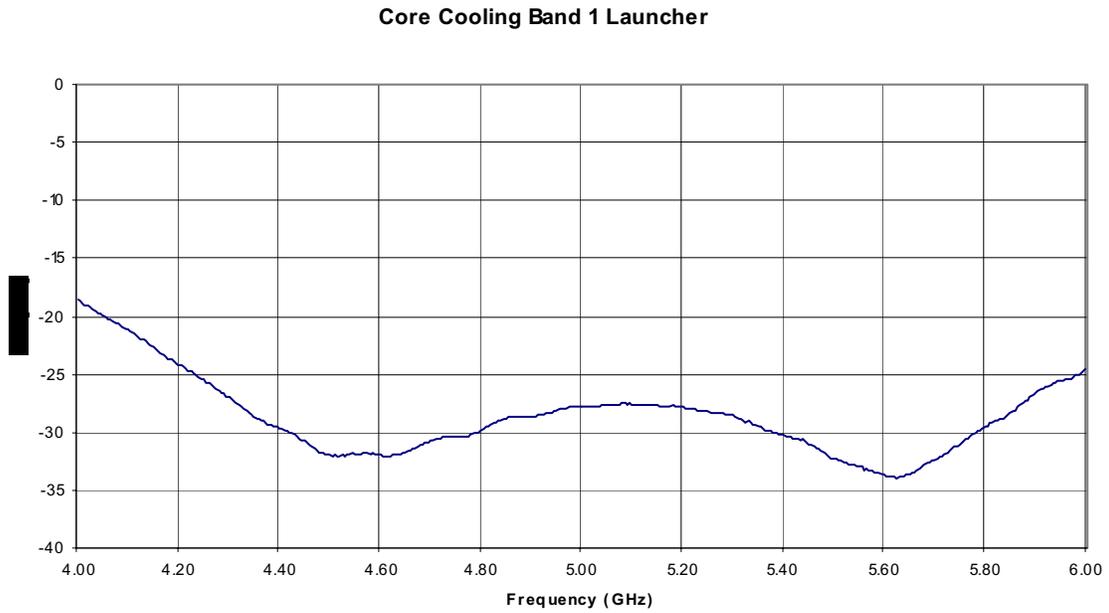


Figure 2. S11 of WG-Coax Launcher (Band 1).

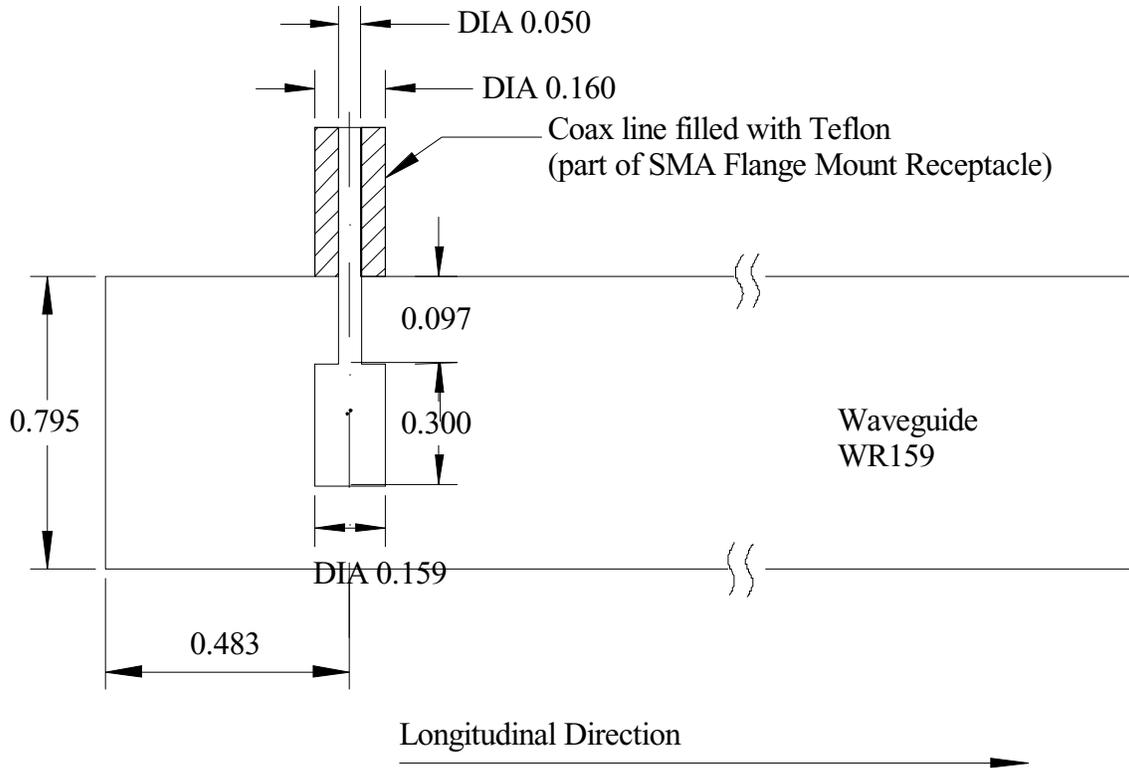


Figure 3. Dimension of WG-Coax Launcher (Band 2).

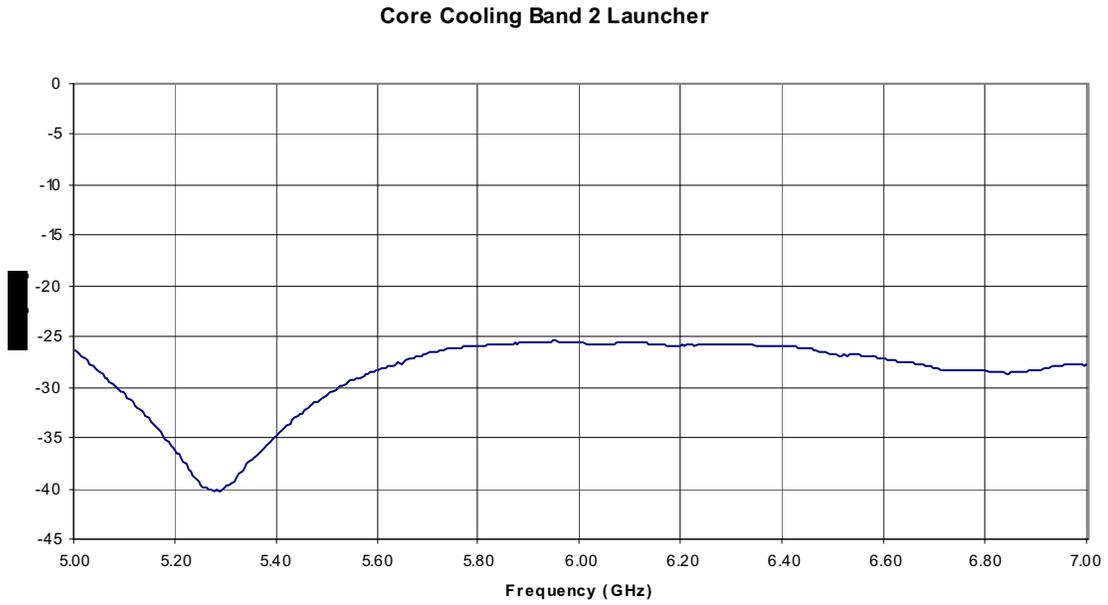


Figure 4. S11 of WG-Coax Launcher (Band 2).

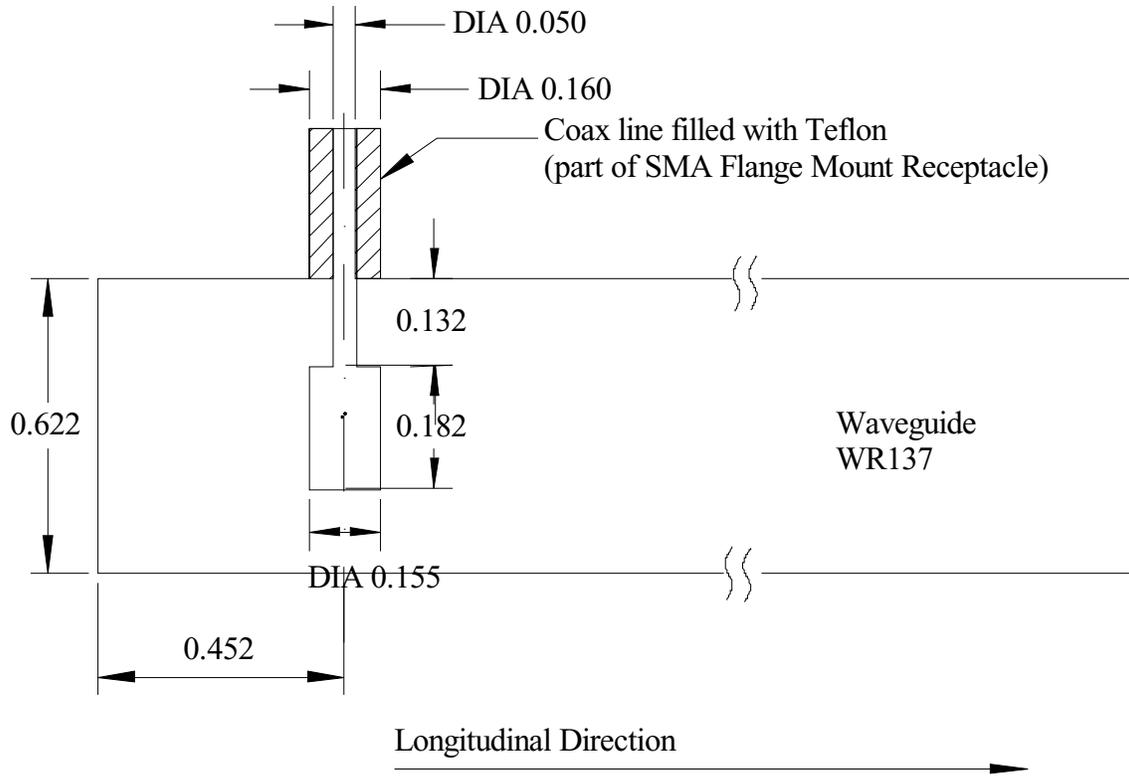


Figure 5. Dimension of WG-Coax Launcher (Band 3).

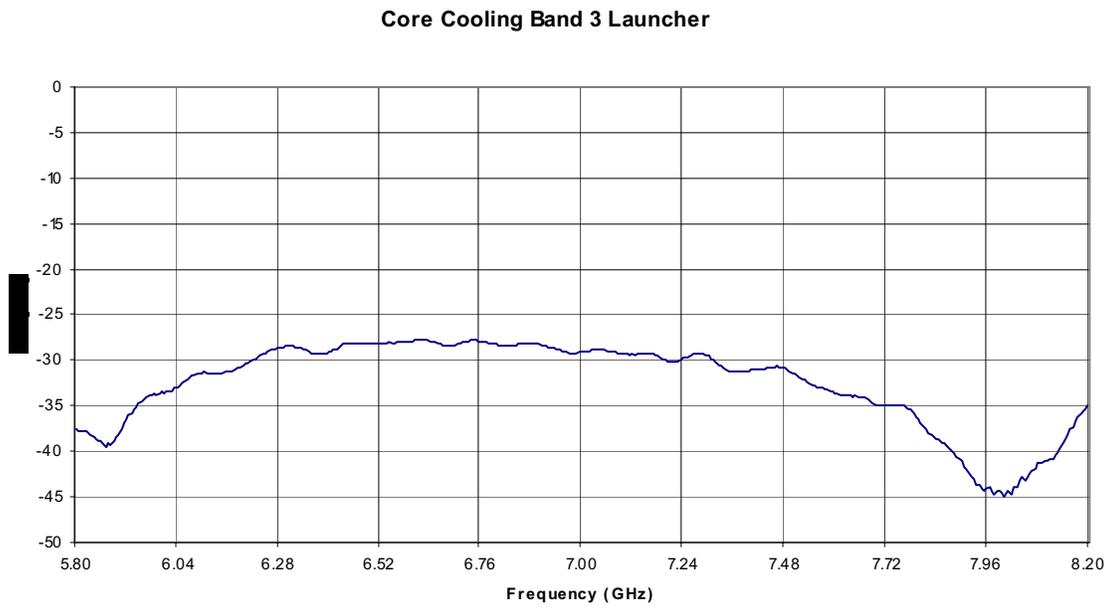


Figure 6. S11 of WG-Coax Launcher (Band 3).