Contribution ID: **611** Contribution code: **WEPS137** Type: **Poster Presentation**

Design and implementation of ridge waveguides for dual-mode microwave structure

Wednesday 4 June 2025 16:00 (2 hours)

The growing interest in dual-mode microwave structures has led to a surge in research efforts. A critical challenge in their application is the efficient transfer of microwave power with various frequencies. One approach to this issue involves the utilization of intricate waveguide components, such as a dual-mode electron gun that operates at both the fundamental and second harmonic frequencies. This gun is constructed by integrating a directional coupler with a mode launcher, which allows the S-band and C-band power to be transferred into a single waveguide, directing them to a dual-mode electron gun. An alternative method employs ridge waveguide technology to selectively transmit or block specific frequencies. The technology has been successfully integrated into dual-mode deflecting structure. This paper presents a C-band bandpass filter has been engineered to achieve a power reflection level of less than -30 dB at 5712 MHz and a power transmission level of less than -40 dB at 11424 MHz.

Footnotes

Paper preparation format

Word

Region represented

Asia

Funding Agency

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Session Classification: Wednesday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T06 Normal Conducting RF