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# Radio-Frequency Hardware Considerations for a High-Power Solid-State Amplifier

*Wednesday 13 August 2025 16:00 (2 hours)*

A feasibility study is developing a prototype solid state power amplifier to supplant or replace 805 MHz klystrons powering the coupled-cavity linac at the Los Alamos Neutron Science Center (LANSCE). We are considering the RF passive hardware used for such an amplifier. The power from individual transistor pallets that provide 5 kW each must be power-combined to the requisite 1.25 MW needed to replace a klystron. Various approaches are being considered for combining Additionally, the protection of the various components from reflected power is essential to avoiding damage to the pallets and all of the passive RF components such as combiners and connectors. The use of magic tees as both combiners and isolators is discussed, and circulators are another critical component for this design. Finally, as power is combined, another concern is the power handling of connectors, and the balance between performance and the practicality of the large number of connectors becomes crucial.

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No

## Footnotes

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## Funding Agency

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Yes

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