

## ABSTRACT

Inductive Output Tubes and Power Dissipation through Coaxial Load Resistors for Project X and Superconducting RF Programs

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Retired inductive output tube equipment will be used to amplify power that can be utilized by future accelerator beam programs. The electrical energy generated will need to be dissipated through the use of coaxial load resistors. This configuration is referred to as the Mayflower System. Both components of this system are temperature sensitive, and as a result, a coolant-based solution needed to be implemented in order to remove the excess heat that will generate during runtime. However, construction of a new Mayflower-specific coolant system was dubbed highly impractical. Utilization of already existing coolant lines was required. A new manifold was retrofitted into the already established MS6 low-conductivity water pipings. Flow rates and pressure needed to be taken into consideration during this implementation, also due to component sensitivities. For this reason, instrumentation of regulators, relief valves, and switches were put into effect to protect equipment. This cooling system will allow the Mayflower to be an active power source for future accelerators created under Project X.