

**SBIR FINAL REPORT  
FOR Crossed Field Amplifier Transmitter**

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## **Program Objective**

The technical objective of this effort is to determine an optimum design for a single/multi-tube CFA transmitter that extends the present testing coverage of MIL-STD-464 and provides ease of use and speed during susceptibility testing. The specific objectives of the program are as follows.

1. Determine specifications and find a source for a high voltage power supply that will service all three tubes in a single transmitter.
2. Determine specifications and find a source for a modulator that can match the impedance of all three tubes and can switch between them quickly.
3. Determine isolator specifications and sources.
4. Determine heat exchanger specifications, sources and possible designs.
5. Determine driver specifications and sources. Outline alternatives to TWT drives including specifications, availability and cost.
6. Determine an rf power monitoring system that can display drive fwd, drive rfl, final fwd, final rfl of three separate amplifiers automatically.
7. Determine fault circuit specifications and outline possible designs to accommodate them.
8. Determine a design that allows multiple CFAs to be video pulsed (individually) from a single control system, high voltage power supply and modulator.
9. Select an operator interface that lends itself to ease of use in the testing environment.
10. Develop a control system concept that allows the operator to set up and run tests at multiple powers and frequencies quickly during a test and is optimized for a CFA transmitter.
11. Determine a physical layout for the system that will allow optimum test capability.