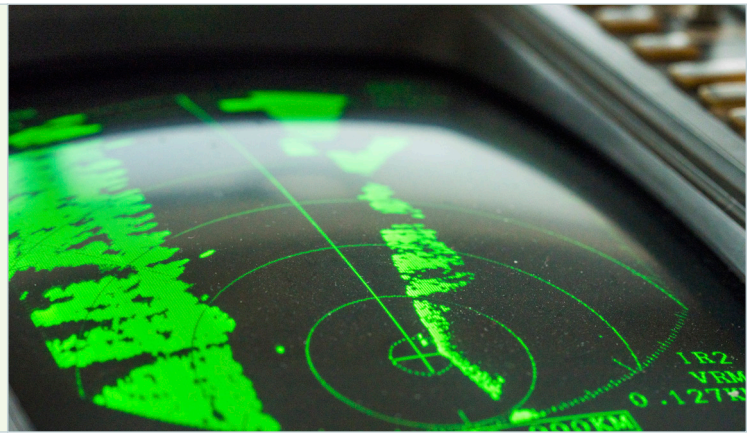
Case Study

Phase-Array Radar

Why Change

- Increased resolution and range
- Improved performance/weight ratio
- Improved efficiency



Application Background

This airborne application required improved resolution of targets, increased operating range and smaller system size and weight compared to the previous generation equipment.

Challenges

The output power of the transmitting array was 3kW peak and, since the load was pulsed, the continuous input power of the front-end could be reduced using a 20 mF holdup capacitor. Fast charging of this capacitor was required to minimize ripple on the capacitor and maintain output regulation.

Why Vicor?

Using standard power components the RF amplifier loads were driven by Vicor's Bus Converter Modules (BCMs) sized for their peak power loading. The capacitor was charged from the 270V supply using MBCMs followed by PRMs sized for their continuous power rating. This approach minimized power component size and power conversion stages, maximizing system efficiency.

Link to Whiteboard »

Power Supply Specifications	
Input	270 V_{DC}
Outputs	9.6V regulated 3kW peak for RF amplifier loads