Lockheed Martin Completes Successful Tracking With Open Architecture, Solid-State Radar Antenna

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Lockheed Martin successfully displayed live tracks with its internally developed Scalable Solid-State S-band Radar (S4R) Engineering Development Model (EDM). The live tracks demonstrate Lockheed Martin's proven approach to an active antenna- based radar system designed with commercial hardware and open architecture software.

The S4R EDM is an active, electronically-steered, antenna-based radar system designed to be scalable to support multiple missions, including air surveillance, cruise missile defense, ballistic missile defense, counter target acquisition and littoral operations. The proven design is derived from the S-band antenna developed for the U.S. Navy's Volume Search Radar on the DDG-1000 next-generation destroyer.

The S4R EDM was developed using Silicon Carbide (SiC) based high-power Transmit/Receive (T/R) modules. SiC provides greater power than other commonly used materials due to its increased heat tolerance. With more power, the radar has longer range and provides more precise target discrimination.

Transmit/Receive modules are the most critical components of a solid-state antenna. They serve as multiple function circuits that generate and transmit signal power over the full face of the radar, receive the reflected radar signal, amplify it for processing and electronically steer the radio frequency beams in space.

"This system provides evidence of a proven approach using high-power Silicon Carbide technology," said Carl Bannar, vice president of Lockheed Martin's Radar Systems business. "In addition, the total system approach provides flexibility for multiple mission needs."

Headquartered in Bethesda, MD, Lockheed Martin employs more than 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

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