BOEING, LOCKHEED UNVEIL COMPETING UAV-KILLING CONCEPTS

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With reports that Islamic State (IS) militants have begun operating commercially-produced unmanned air vehicles to support their activities in the Middle East, Boeing and **Lockheed** Martin are pursuing two very different approaches to knocking unmanned aircraft out of the sky.

Boeing has produced a 2kW laser weapon system to literally burn **UAV**s out of the sky, while Lockheed is taking a non-kinetic approach that appears to combine the best of its electronic warfare and cyber-sensing and attack capabilities.

The two companies briefed the media on their respective systems at the Association of the United States Army (AUSA) conference in Washington DC, and the differences between the two could not have been starker.

Boeing's laser system uses plug-in radar units and a high-resolution telescope to detect, track and engage UAVs with a 2-10kW compact laser weapon. Lockheed's product, named Icarus, uses "sensors, video, audio and radio-frequency-based capabilities" to identity or "fingerprint" targets for defeat by electronic disruption.

“UAVs and quadcopters are starting to become a problem for various [US government] agencies,” says David DeYoung, director of Boeing’s laser and electro-optical systems group. “IS is using them to find troop movements, and in the Russia-Ukraine war, they’re using them to great effect to watch where their artillery is landing. They’re buzzing airports and flying over people’s backyards – not that that’s a market for us.”

DeYoung says the counter-UAV mission could be the perfect initial application for laser-based weapon systems, although provisions must be made to avoid blinding friendly satellites or aircraft. The laser weapon’s predictive avoidance system receives data on where to avoid shooting to prevent collateral damage, and this aspect of the system was successfully tested during exercise "Black Dart” in August.

According to Boeing, the system is capable of hitting a target with a beam the diameter of a penny at 5.4nm (10km), and the weapon could eventually be integrated with the army's AH-64 Apache to destroy enemy communications or radio equipment on the battlefield.

Lee Tang, Lockheed’s senior engineering manager, says his company’s non-kinetic Icarus system more easily avoids collateral damage compared to its laser-based competitor.

“We use a variety of techniques to fingerprint the type of device flying in, and audio is one way we’re able to discern them,” Tang says. “You’ve got to be as specific as possible in identifying the threat that’s coming in to minimise collateral damage, and you don’t want to damage a lot of devices in the area. We really want to focus on the non-kinetic.”

Icarus is targeted more at the civil defence role, for use in locations such as sports stadiums and at the White House as well as to protect military bases, where Lockheed says a laser-based weapon system might not be practical or safe.

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