

# Lacroix Innovates in Air Platform Protection

*Editor's note: This article has been updated to include Saab's role in the DVM program.*

French pyrotechnics and countermeasures house Lacroix Defense (Mazères, France) has debuted a number of new expendable countermeasure technologies and techniques designed to improve air platform survivability.

As well as a family of advanced multi-spectral decoys, the company has revealed the development and test of a new steerable airborne countermeasures dispenser and a "smart" countermeasures communications interface.

Lacroix already produces a range of Magnesium/Teflon/Viton (MTV) flares (designed to generate high intensity infrared [IR] output) and spectral flares (optimized for seekers with IR counter-countermeasures logic). However, the emergence of a new generation of man-portable air defense systems (MANPADS) combining both ultraviolet and IR channels, and using advanced imaging techniques and multi-criteria target processing, has eroded the effectiveness of these decoys.

"As a result, traditional [countermeasures] based on adapted thermal radiation are no longer sufficient, and a new decoy concept must be developed," said the company.

Working in conjunction with the Direction générale de l'armement (DGA), Lacroix's research and development team has developed a new family of "combined" countermeasures tailored to defeat advanced MANPADS seekers. According to the company, these decoys are based on a three-part pyrotechnic composition that generates multiple effects – de-characterization, confusion and deception – in sequence.

“By distorting the scene perceived by the homing device and then generating confusion within it, the target tracking algorithm is disrupted. The homing device can then be lured by a new scene created by a decoy while the aircraft maneuvers away from the threat,” said Lacroix.

Four advanced expendables – LIR 110F (flash saturation), LIR 113 (scene confusion through scene point multiplication), LIR 112 and 115 (MTV and spectral kinematic deception) – have been prototyped and demonstrated. “These pyrotechnic solutions developed...under the supervision of the DGA have already been tested in flight with very positive results and presented to NATO,” the company said.

Alongside these advanced pyrotechnic decoys, Lacroix is collaborating with Saab, which has prototyped a new steerable countermeasure dispenser system, DVM, initially for rotary-wing aircraft. The development of a steerable dispenser – flight testing was performed on a Tiger helicopter in 2024 – reflects the company’s view that the dynamic orientation of the decoy launcher in relation to the threat angle of arrival will become increasingly important to countering advanced MANPADS.

“The signature of the aircraft varies depending on the angle at which the missile approaches it,” Lacroix said. “By modulating the infrared signal of the decoy as closely as possible to that of the aircraft according to this angle, the decoy sequence becomes even more effective and economical. This is the concept of ‘the right decoy at the right time’.”

To enable the “smart” dispense of these advanced decoys, Lacroix is also developing a new electronic interface to provide bi-directional data exchange between the host aircraft’s electronic warfare suite/defensive aids system and individual decoys loaded in chaff/flare dispensers. Compliant with the Smart Stores Communication Interface codified under NATO STANAG 4781, the communications link serves two purposes:

first, to provide the host system with information on the expendable type and status (for example, air carriage life and "use by" date); second, to enable in-flight pre-launch programming of smart expendables to optimize the dispense sequence/pattern. – *R. Scott*