



The Invisible Protective Bubble: How L3Harris Transforms Falcon IV Radios into Anti-Drone Jamming Devices

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Faced with the massive and asymmetric losses caused by small drones on both sides in the war in Ukraine, the defense industry is reacting with extreme speed. The military electronics manufacturer L3Harris has reconfigured its widely used portable transceivers from the **Falcon IV** series. The new software update called „**Wraith Shield**“ leverages the existing hardware and antenna infrastructure in tactical radios to seek, identify, and disrupt enemy drone control signals.

The Basis of Deployment: Integration into the U.S. Army

The widespread presence of this technology finds its roots in large-scale supply contracts signed in recent years. Already in October 2021, the U.S. Army ordered **1,000 new L3Harris Falcon® IV AN/PRC-171 Compact Team Radios** with the aim of ensuring soldiers at any tactical level can transmit crucial information to command teams through an integrated network.

This initial supply order for the Compact Team Radio introduced a robust and easy-to-use solution capable of sharing voice and sensor data in *Joint All-Domain Command and Control* style, fully supporting the U.S. Army's connected network vision. The AN/PRC-171 offers over 20 hours of continuous and reliable voice and data communications with a single battery, interfacing perfectly with other L3Harris solutions like the *Enhanced Night Vision—Binocular (ENVG-B)*.

The Backbone of NATO: The Falcon IV Family

The Falcon IV family includes highly advanced software-defined radios (SDR), already in daily use by the Bundeswehr and almost all NATO countries. They are considered the de facto standard, particularly among special forces and Joint Terminal Attack Controllers (JTAC).

Compatible devices include:

- **AN/PRC-163 & PRC-167:** Multi-channel handheld radios used by the Bundeswehr, NATO special forces, and JTAC.
- **RF-9820S (AN/PRC-171):** *Compact Team Radio* employed by compact infantry teams (U.S. Army).
- **RF-9820S-ER:** Embeddable version for unmanned platforms and autonomous systems.
- **AN/PRC-158C:** Two-channel tactical radio for extended tactical networks.

The primary goal of this evolutionary development is the creation of a personal „protective bubble“ for electronic warfare (EW) to benefit the individual soldier. The most significant aspect is that, according to the company, the system requires no new hardware. Only a software update for the existing „Wraith“ communication waveform is necessary, active on over 100,000 Falcon IV radios worldwide.

A Simple Software Update Instead of Costly New Developments

Statements & Perspectives

„At the cost of a simple software update, this function can be added to a radio that soldiers already carry with them. It is their personal protective bubble against unmanned systems“,

explains Chris Aebli, president of Mission Critical Communications (MCC) at L3Harris. For his part, Bryant Henson, president of Tactical Communications at L3Harris, emphasized during the 2021 contract that these radios integrate Manpack and Leader systems at the team level, extending operational effectiveness to all soldiers.

At their core, L3Harris and partner DataShapes AI – which trained the underlying artificial intelligence algorithms – exploit the digital intelligence already integrated into modern SDR radios. The Wraith waveform – developed between 2022 and 2023 with significant contribution from Ukraine – requires the Falcon IV radio to continuously scan the spectrum for signals, identify them, and determine which originate from friendly devices to establish a local ad-hoc network without compromising its own communications.



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Coordinated Jamming and Tactical Utility

Wraith Shield extends this functionality by allowing the identification of signals used by the enemy to pilot their drones, sharing this data through the local network and coordinating all connected radios to emit white noise on the same channel, thus disrupting the command signal. Depending on the programming of the individual drone, signal interruption can cause:

- Erratic circling flight over the operational area
- Automatic return to base (*Return-to-Home*)
- Inexorable fall to the ground or emergency landing on the spot

In its current version, Wraith Shield coordinates simultaneous jamming by 40 Falcon IV radios, with the goal of reaching 100 in future updates. Detected threats can also be forwarded to command posts via a Battle Management System (BMS).

Conclusion: A New Level of Tactical Protection

L3Harris emphasizes that Wraith Shield is not a universal panacea, but the integration of a multi-layered defense strategy. Leveraging the vast installed base of radios like the AN/PRC-171, the system closes a critical gap for the protection of small infantry units on the modern battlefield.