

## **FALCON® IV RF-9820S-ER** **EMBEDDABLE MODULAR RADIO**

**Single Channel, Small Form Factor Embeddable  
Modular Radio Powered by the Wraith™  
Fast-Hopping, Anti-Jam Resilient Waveform**

The single channel RF-9820S-ER Embeddable Modular Radio delivers robust voice and data capabilities for missions on the move. This multi-mission solution gives warfighters the flexibility of tactical MANET control for Group 1+ UAVs.

Ease of integration is critical for every embeddable device to ensure our communications payload can be successful on any platform. The RF-9820S-ER delivers that and more, with a resilient waveform—Wraith™—that makes it ideal for mobile, tactical edge operations in close proximity to adversarial interference such as jamming.

Wraith™ is a self-healing, frequency-hopping Mobile Ad Hoc Network (MANET) waveform optimized for sharing wideband voice, data and position location information (PLI) across a variety of platforms. It provides connectivity for ground-to-air, air-to-air, Beyond Line of Sight and other applications using advanced techniques that reduce the effectiveness of enemy electronic warfare attack and detection activities including targeting, interception and jamming.

Wraith™ can support up to 140 nodes on a single network with multiple data streams and up to 16 talk groups. It is configurable for low latency, high throughput mission sets across a variety of use cases from high-quality video relay to coordinated SWARM control, advantage node range extension, and a variety of UAV to UAS MANET-enabled autonomy scenarios.

Users can reduce the probability of detection or interception by choosing from a wide range of power outputs, ranging from 3.2W all the way down to 50mW. Wraith™ operates from 225MHz to 450 MHz and from 1.3 GHz to 2.6 GHz with selectable 1.25, 5, and 20 MHz bandwidths.

A key benefit of the RF-9820S-ER is that it is based upon our currently fielded AN/PRC-171 technology. This means that the RF-9820S-ER is fully interoperable with fielded AN/PRC-171, AN/PRC-163, and AN/PRC-167 radios across the DOD and with International allies. Any of these fielded ground radios can provide direct UAS control via the Wraith™ waveform. The RF-9820S-ER is also capable of hosting third party waveforms though the dual boot capability.

This RF-9820S-ER is size, weight and power optimized for Group 1 and Group 2 UAS platforms. It features commercially available connectors, offers world class AES-256 encryption, and can operate as a non-CCI high assurance relay. The radio hardware is capable of continuous RF frequency coverage from 225 MHz to 2.6 GHz.



### **RESILIENT RANGE EXTENSION FOR NETWORK INTEGRITY**

#### **KEY BENEFITS**

- > Maintain network integrity in congested and contested environments with resilient Wraith™ waveform
- > Easy-to use, integrate, and upgrade using provided programming tools and commercial connectors
- > Interoperable with fielded L3Harris Falcon IV® radios; allows for UAV control through fielded radios
- > Software Defined Radio capable of being field-upgraded and storing multiple waveforms
- > Designed to easily integrate into a wide variety of Group 1+ UAV platforms

GENERAL	
Frequency Ranges	<b>Wraith™</b> 225-450 MHz and 1.3-2.6 GHz <b>ULOS</b> 225-512 MHz AM/ASK, 762-870 MHz FM/FSK and 225-2.6GHz L/S
Supported Bandwidths	<b>Wraith™</b> 1.2 MHz, 5 MHz, and 20 MHz <b>ULOS</b> 25KHz
GPS	Internal GPS
Management Tools	Windows® based Communication Planning Application (CPA), Wraith™ CPA Plug-in Wizard, WebMMI for networking monitoring and remote management
Frequency Tuning	10 Hz
Encryption	AES-256
Unmanned Aerial Systems Solutions	Group 1+

ENVIRONMENTAL (INTEGRATION DEPENDENT)	
Operating Temperature	-30C to +55C (operational)
Emissions	RE102
MIL-STD-810G	Vibration High Temperature (operational) High Altitude (operational)

PHYSICAL (INTEGRATION DEPENDENT)	
Dimensions	9.6 cm (3.79 in.) x 6.8 cm (2.66 in.) x 1.9 cm (0.76 in.)
Volume	7.66 in³
Weight	186g

CONNECTORS / INTERFACES (CUSTOMIZABLE)	
Primary I/O	Audio, Ethernet, USB (USB-OTG, USB-H1, serial RNDIS 232, serial UART)
Power	Direct to PWB
Antenna Port	Direct to PWB
GPS	Direct to PWB
Mounting Plate	Optional

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L3Harris Technologies is the Trusted Disruptor in the defense industry. With customers' mission-critical needs always in mind, our ~50,000 employees deliver end-to-end technology solutions connecting the space, air, land, sea and cyber domains in the interest of national security.



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