

LOCUST™

SOFTWARE-DEFINED RADIO

Resilient mission-adaptive data link

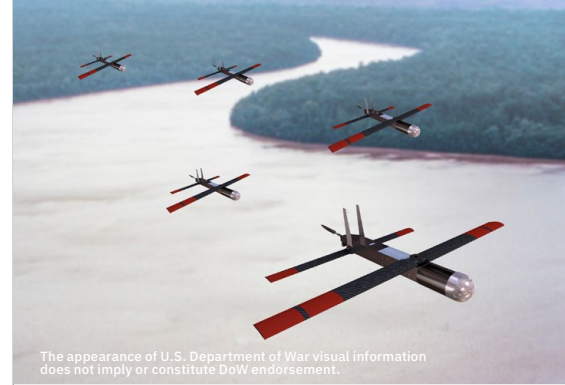
The L3Harris LOCUST is a small form factor Software-Defined Radio (SDR) that provides secure and covert Beyond Line-of-Sight (BLOS) and Line-of-Sight (LOS) communications. LOCUST enables over-the-horizon command and control of swarming effectors through real-time switching between resilient satellite and mesh-networking waveforms.

PRODUCT DESCRIPTION

LOCUST supports unprecedented mission flexibility through adaptive, full-duplex, dual-mode operation that seamlessly switches between proliferated Low Earth Orbit (pLEO) satellite constellations and advanced mesh mobile ad hoc network (MANET) LOS communications. Purpose-built for operations in contested environments, this compact SDR enables continuous connectivity throughout all phases of the effectors' mission regardless of range or operational conditions.

Optimized for Size, Weight and Power (SWAP) constrained platforms, LOCUST features an integrated RF front-end

including a power amplifier and diplexer, eliminating the need for external equipment. The software architecture incorporates AES-256 encryption and provides a flexible foundation for future capability enhancements including additional waveforms, extended mesh node counts and expansion modules for Electronic Warfare (EW) applications. LOCUST represents the culmination of commercial and military technologies to provide robust operational capabilities in the most challenging environments.



Reliable Communications for Long-Range Effectors and Swarming Platforms

KEY FEATURES

- > Dual-mode communications switching between Beyond Line of Sight (BLOS) and LOS links
- > Resilient mesh network
- > Anti-jam capabilities
- > GPS-denied operations
- > No external timing required
- > Integrated RF front end
- > USG and coalition variants
- > SDR

APPLICATIONS

- > Launched effects
- > UAVs
- > Swarming platforms
- > Long-range effectors
- > Attritable UAS

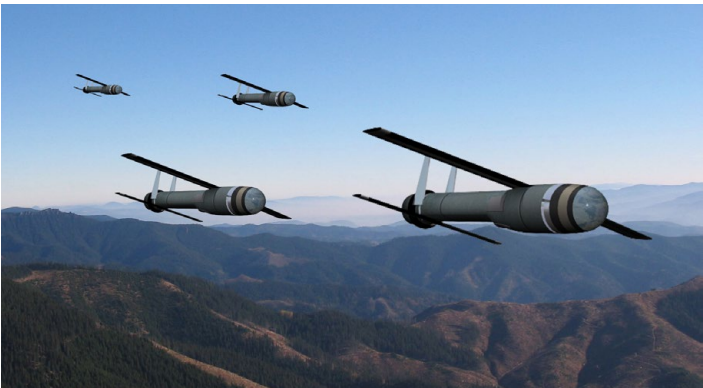
FUTURE ENHANCEMENTS

- > Additional waveforms
- > RF expansion modules
- > External RFE support
- > Expanded mesh networked node count
- > Additional waveform support
- > Optional external RF expansion module interface for extended frequency ranges or advanced capabilities
- > Alternative Position, Navigation, and Timing (APNT) support
- > High assurance crypto interface

SPECIFICATIONS

PERFORMANCE CHARACTERISTICS	
Supported Waveforms	
Beyond Line-of-Sight	WF-L
Line-of-Sight Mesh	ShadowLink
Waveform Characteristics	
WF-L	4-41 kbps
ShadowLink	12 kbps-1.5 Mbps+ > Mesh: Up to 32-node network > Adaptive power and rate control > Distributed topology management
Networking	
Addressing	IPv4/ IPv6
Transport	TCP and UDP Multicast and Unicast
Architecture	Full IP Networking capabilities
Messaging	Fixed and Variable-sized messages
Encryption	
Algorithm	AES-256
SWaP	
Weight	<2.2 lbs
Size	0.9" H x 3.7" W x 8.0" L 27 cubic inches
Power	Typical <90W at 28VDC
Input Voltage	28VDC +/- 4V
Environmental	
Altitude	40,000 ft
Thermal	Operational: -40 °C to 70 °C Non-operational: -40 °C to 85 °C
Vibration	MIL-STD-810G (40G Shock)
EMI/EMC	
Standard	MIL-STD-461F

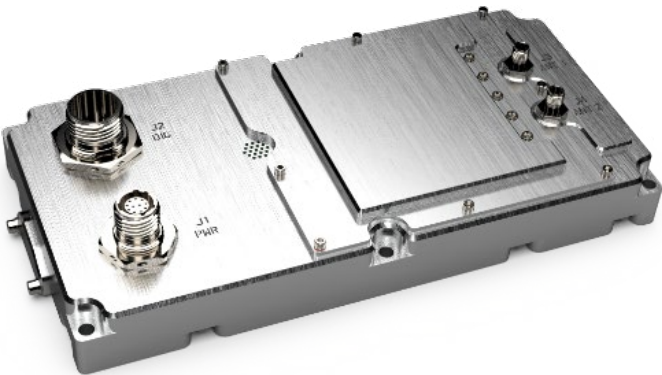
INTERFACES	
User Interface	
Ethernet	10/100/1000 Mbps
gRPC	Mission Control Interface (MCI) for command and status
Serial	RS-232, RS-422
Timing	Precision Time Protocol, IEEE 1588-2002 Support
Digital I/O	GPIO Discrete Support
RF	
S-Band	2-2.5GHz
Transmit RF Output Power	2.5W+
RF Expansion Module	2GHz-18GHz with ~10dBm



Over-the-horizon command and control of small effectors



Collaborative mesh networked communications



LOCUST with RF Expansion Module

LOCUST Software Defined Radio

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