

Wave Relay[®] Gen 5 Mod Payload

Modular MANET Radio



Example Integration

CACI's Wave Relay Gen 5 Modular Payload radio with swappable Interchangeable Frequency Modules (IFM) is designed to be integrated into Mod Payload (MP) compliant unmanned aircraft systems (UAS), unmanned ground vehicles (UGV), and other systems to provide a single network for multi-platforms and multi-sensors enabling operations within the Persistent Systems Wave Relay Mobile Ad Hoc Network (MANET) ecosystem. The robust packaged design of the Wave Relay Gen 5 Modular Payload maintains key features of the Wave Relay Gen 5 Embedded Module while providing the required Modular Aircraft Interface Module (MAIM) interface for MP compliance.

Wave Relay is a market-leading product that provides a powerful, secure network that unites the critical data from multiple resources in real time, providing the most advanced and scalable MANET.

The MP variant of Wave Relay Gen 5 allows operators to quickly integrate a MANET radio solution into their platform with minimal effort, as well as provides the flexibility of using the Wave Relay Gen 5 Modular Payload for other systems that are MP-compliant.

The Wave Relay Gen 5 Modular Payload provides the options for use of three antennas each routed to a separate channel on the payload. This maximizes the performance of the system but is not required for base functionality.

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Features

- 1U Mod Payload size with Interchangeable Frequency Modules (IFM)¹ allowing users to change the frequency bands of the radio.
 - RF-1150: L-band, 1350 to 1390 MHz
 - RF-2150: S-band, 2200 to 2507 MHz
 - RF-2125: BAS, 2025 to 2145 MHz
 - RF-5100: Upper C-band, 5100 to 5945 MHz
 - Use of RF-4100 Lower C-band module is compatible for use but will exceed the 1U size envelop for MP integration.
- Auxiliary connections that maintain the functionality of non-MP interfaces native to the Wave Relay ecosystem. These include an independent GPS input, an analog video input, spare general purpose input/output (GPIO), sleep mode, and USB on-the-go.
- MP mechanical features including wedgelock mounting rails, MP cold plate mounting pattern, and MP-compliant heatsink.
- Antenna options that are compliant with Modular Payload antenna mounts². This includes 2-point and 4-point interface compliance.

Electrical Features

- Power [Main MP Interface]
- 10/100 Ethernet [Main MP Interface]
- Serial Console [Main MP Interface]
- Zeroize [Main MP Interface]
- 3x RF connection [MP-compliant]
- RF GPS Input
- SDI/Analog Video Input



Specifications

General Specifications	
Frequency Range	1350 – 5945 MHz, IFM module band limited
Max Distance Between Nodes	130 miles (209 km)
Node Entry Time	<1 sec

Size, Weight and Power Specifications (SWaP)	
Dimensions – Modular Payload	6.2”L x 4.3”W x 1.5”D (1U)
Weight	640 g (1.41 lbs)
DC Power (typical)	15W

Environmental Specifications	
Operating Temperature Range	-40 to 85°C (-40 to 185°F)
Vibration	Per MIL-STD-810G (for embedded module)
Environmental Exposure	High Altitude (operational)
Emissions	RE102 (for embedded module)

Interface Specifications	
3x SSMB RF connectors	Wave Relay radio channels
Power Comms Port (via MAIM)	
Networking	Ethernet 10/100 Mbps
Power	8 to 28VDC
Aux Ports	
D-sub connector	GPIO, Sleep, USB OTG
MMCX RF connector	Aux GPS Input
MCX connector	SDI/Analog Video Input

¹ To enable use of the Persistent Systems COTS IFM modules, the Wave Relay Mod Payload is not designed for direct cold plate mounting without the removable heatsink.

² S-band omni and blade antennas have been evaluated for a Group 3 UAS platform flight test.

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