GVR5
Dual Band Wave Relay® MANET

Overview

The GVR5 provides simultaneous, dual-band, robust, low latency, and high-capacity networked communications among tracked and wheeled ground vehicles, and among ground vehicles and Wave Relay® MANET-equipped aircraft.

Use the Wave Relay® MANET’s massively scalable network, with Cloud Relay™ and intelligent Radio-over-IP (RoIP), to rapidly task-organize vehicles, munitions, dismounts, and airborne assets. The GVR5 interoperates with the Wave Relay® MANET family of tactical networking devices.

- Simultaneous Dual Band Wave Relay® MANET (Mobile Ad-Hoc Network)
- Automatically routes communications over the best band depending on geography and RF congestion
- Embedded Cloud Relay™ federates the GVR5 with 3rd Party Communications Systems, such as LTE and Wide Band SATCOM
- Automatically discovers & routes communications to tactical voice networks, such as SINCGARS, TACSAT, and HF
- Massive Network Scalability & Robust IP networking supports Rapid Task Organization, Joint Operations, & Mobile Command & Control
- Tracked and Wheeled Vehicle Ready
- Ideal for manned-unmanned vehicle teaming and vehicle leader-follower operations

Massively Scalable MANET
Simultaneous, Dual-Band, Wave Relay® MANET With Embedded Cloud Relay™ and Radio-Over-IP
### Key Features

- Simultaneous Dual Band Wave Relay® MANET
- **WR-GVR5-SYS-01**: C-Band & L-Band
- **WR-GVR5-SYS-02**: C-Band & S-Band
- **WR-GVR5-SYS-03**: L-Band & S-Band

- Optimize communications range, data throughput, and penetration with the GVR5’s 3x3 MIMO antennas with vertical and horizontal polarizations.
- Make any command and control service available, virtually, from anywhere in the network, using the GVR5’s Internet Protocol differentiated services and efficient voice and video multicast.
- The GVR5’s embedded Cloud Relay™, in conjunction with the massively scalable Wave Relay® MANET, makes rarely available means of communicating, such as high capacity SATCOM and LTE, available to anyone in the network.
- The GVR5’s on-board video encoder, efficient multicast technology, and IP differentiated services will ensure video renders everywhere it’s needed, in time, and without over-loading the network.
- The GVR5 is wheeled and tracked vehicle-ready and has optional ballistic shock mounting for the harshest combat environments.

### Core Features

#### Dual Band Communications Options

- Choose Any Two Frequency Bands
  - C: 4430MHz to 5000MHz
  - L: 1350MHz to 1390MHz
  - S: 2200MHz to 2507MHz

- Selective RF Standby via front panel and software APIs.

#### 3x3 MIMO Antenna Options

- Optimize communications range and penetration using the GVR5’s alternative combinations of vertically and horizontally polarized antennas.
- Each antenna type comes with either wide or narrow vertical beam widths to support your unique communications preferences.

#### Networking

- IPv4/IPv6 with Differentiated Services
- Advanced Wave Relay® MANET multicast algorithms
- RTP Unicast & Multicast
- Layer 2 network connectivity
- Cloud Relay™
- Integrated DHCP server

#### Security

- FIPS 140-2 Certification
- Integrated Hardware Cryptographic Acceleration
- CTR-AES-256 Encryption
- HMAC-SHA-256 Authentication & Integrity
- NSA Suite-B Algorithms
- Cryptographically authenticated Over-the-Air Rekey and Key Zero
- Front Panel Single Switch Zero
- Add a HAIP to use the radio on a Type 1 Black Core Network.

#### Video

- (2) 3G-SDI Input
- H.264 Encoding and Decoding
- Native Scaling
- Bit Rates
  - 500 Kbps - 20 Mbps

#### Frame Rates

- 6/10/15/24/29.97/30/59.94/60 fps
- (59.94/60 fps not available at 1080p)

- (2) 1 GHz Quad Core ARM
- Android™ 6.0 Marshmallow

#### I/O

- (2) RJ-45 Enet
- (2) 3G-SDI Video
- (2) SMA GPS Antenna
- (2) RS-232

### Unified Voice Services Integration

- TOCNET-G4® interoperability provides ad-hoc use of any TOCNET-G4 connected communications asset via the Wave Relay® Network.

### Environment

- MIL-STD-810
- Temperature
  - Storage: -60°F to +160°F
  - Operating: -25°F to +125°F plus solar radiation 1120W/m²
- Humidity
  - 95% non-condensing from 86°F to 160°F

### Altitude

- Storage: -1312ft to 50,000ft;
- Operating: -1312ft to 15,000ft

### Other

- Steam & Water Jet Cleaning, Blowing
- Sand & Dust, Salt Fog, Fungus, Fording
- Shock Pulse, Drop, Vibration, ESD, HEMP, NSL, NBC
- Optional ballistic shock mounts

#### EMI

- MIL-STD-461
- CE102
- CS101
- CS114-116
- RE-102
- RE-103

### Power: MIL-STD-1275

- Reverse Polarity Protection

#### Input Voltage Range

- 20 to 33VDC

#### Starting Operation

- Operates through 12VDC for 1sec (initial engagement surge), 16VDC for 30sec (cranking surge)

#### Transient Disturbance

- Operates through 250V for 70μs (spike), 100V for 50ms (surge)

### Human Factors

- MIL-STD-1472

### Safety

- SEL Form 1183
- Dimensions
  - 10.05”W x 9.96”D x 4.59”H (excluding connectors)
  - Max Weight (C/L) Radio
  - 9.5lbs

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NO NDA REQUIRED

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