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 inter-operates 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
- 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
**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.
- Manually or remotely enable/disable one or both RF bands for LPI/LPD or EMCON operations.
- 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

**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 Multicast & Unicast
RTSP Unicast
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 HAIPE to use the radio on a Type 1 Black Core Network.

**Video**
- (2) 3G-SDI Input
- H.264 Encoding
- 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 Ethernet (10/100 Mbps)
- (2) 3G-SDI Video
- (2) SMA GPS Antenna
- (2) RS-232

**Environment**
MIL-STD-810
**Temperature**
Storage: -60°F (-51°C) to +160°F (+71°C)
Operating: -25°F (-32°C) to +125°F (+51°C) plus solar radiation
1120W/m²

**Relative Humidity**
95% non-condensing from 86°F (30°C) to 160°F (71°C)

**Altitude**
Storage: -1,312ft to 50,000ft;
Operating: -1,312ft 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
RS-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)
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