AIRAYA

Proven, Fast, Reliable

WirelessGRID™ Fixed Wireless Backhaul Link

(4.90-5.85 GHz, Up to 108 Mbps)

For Multipoint, Backhaul, and Repeater Installations
Model #'s: AI108-4958-N, AI108-4958-1, AI108-4958-SU, AI108-4958-Kit

Product Highlights

The WirelessGRID™ series of outdoor wireless bridges deliver a comprehensive range of product features, ensuring fast, secure and reliable networking services, including…

- **Integrated architecture** for ease of installation, configuration, and management
- **Data rates** up to 108 Mbps per radio, adaptive and fixed modulation modes operating on 40, 20, 10, or 5 MHz wide channels
- **SecureRF™ Architecture** provides 5 layers of security, including unique radio mask and layer-2 protocol, mutual radio authentication, 128-bit AES data encryption, and VLAN termination. Inline Ethernet encryptors can also be used as required
- **Compatible** with all standard 100/10 Mbps Ethernet switches, routers, 802.11q, 802.11p VPN, Trunk and VoIP protocols. Up to 1600 byte packet size supported
- **Real-time antenna alignment tool** simplifies antenna alignment, optimizes link quality, and maximizes system throughput
- **Integrated VLAN Support** for logical network segmentation
- **LED Diagnostics** for power, Ethernet and radio
- **Real-time monitoring of WirelessGRID™** displays signal strength, connected radios, and radio statistics via SNMP, CLI, and Web
- **Integrated network sniffer** for advanced Ethernet and Radio network diagnostics

Proven in thousands of private networks worldwide, WirelessGRID™ radios are designed for seamless integration and bandwidth hungry applications

Cost-effective Design

The indoor WirelessGRID™ fixed wireless bridge is designed for use with an indoor/outdoor RF cable and outdoor antenna. It provides maximum range and capacity, delivering outstanding performance in a simple, secure, and cost-effective design. Utilizing OFDM technology in the 4.90-5.85 GHz frequency range, WirelessGRID™ bridges operate at a range of up to 30 miles and at speeds up to 108 Mbps.

The design of the indoor WirelessGRID™ bridges' provides many of the same features as WirelessGRID™ outdoor wireless bridges, enabling seamless integration into existing Ethernet networks, while simplifying installation, diagnostics, and management, at a reduced cost.

Proven Performance and Simple Configuration

Ideally suited for bandwidth-hungry applications that require secure, fast, affordable and reliable building-to-building connectivity, WirelessGRID™ bridges provide optimal delivery of IP voice, data, and video services in multipoint and backhaul, point-to-point networks at speeds up to 108 Mbps.

With AIRAYA's exclusive user-selectable 5, 10, 20 and 40 MHz wide channel and power settings, and more than 170 available channels in the 4.90-5.850 GHz frequency range, these unique capabilities allow us to meet and exceed your capacity, speed, scalability, and usage requirements, while minimizing spectrum usage and complying with local regulations.

Advanced SecureRF™Security

Our SecureRF™ architecture provides 5 layers of security. A unique radio mask, proprietary bridge protocol, mandatory mutual radio authentication, embedded 128-bit AES encryption, and VLAN termination. Inline Network encryptors can also be used, adding higher levels of encryption and ensuring the prevention of hacking, data theft and unauthorized intrusions.

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AI108-4958-N, AI108-4958-1, AI108-4958-SU, AI108-4958-Kit Specifications
For Multipoint, Backhaul, and Repeater Installations

Radio

Multiple Frequency Bands Supported. 40, 20, 10, 5 MHz wide channel selections (*Local regulations apply*)	4.940-4.990 GHz Public Safety Band (FCC Part 90, licensed Intl.) Non-overlapping Channels: 9 x 5 MHz, 5 x 10 MHz, 2 x 20 MHz, 1 x 40 MHz		
	5.25-5.35 GHz license-exempt Non-overlapping Channels: 15 x 5 MHz, 8 x 10 MHz, 4 x 20 MHz, 2 x 40 MHz		
	5.47-5.72 GHz license-exempt (ETSI, FCC, ITU) with TPC and DFS Non-overlapping Channels: 50 x 5 MHz, 25 x 10 MHz, 12 x 20 MHz, 5 x 40 MHz		
	5.725-5.850 GHz license-exempt UNII & ISM Bands Non-overlapping Channels: ISM, UNII: 22 x 5 MHz, 11 x 10 MHz, 5 x 20 MHz, 2 x 40 MHz		
Radio Type	Orthogonal Frequency Division Multiplexing (OFDM)		
Standards	802.3, 802.1Q, 802.1P, Cisco ISL, VLAN Termination		
Total System EIRP and Radio Output Power	Radio output power: Max: 21 dBm (Set to local regulatory requirements to comply with transmit, conducted and EIRP power limits)		
Radio Receiver Sensitivity	Data Rate	Sensitivity	Modulation
	1.5 to 108 Mbps	-69 to –91 dBm	64QAM, 16QAM, QPSK, BPSK
WirelessGRID Operating Modes	Point-to-Multipoint, Point-to-Point, Repeater		
Antenna Type(s)	AI108-4958-N – Antenna ordered separately AI108-4958-SU – Includes a 23 dBi outdoor antenna, 25 ft. LMR-400 cable AI108-4958-Kit – Includes 2 x 23 dBi outdoor antennas, 2 x 25 ft. LMR-400 cables		

Electrical

AC Power	Input: 100-120V, 0.6A (50Hz-60Hz) 220V available Output: 5V, 2.0A (2.1mm Coax , center-pin positive)

Models and Ordering Information

AI108-4958-Kit	**Complete bridge kit includes: 2(QTY) - 23 dBi outdoor antenna, 2(QTY) - 25 ft. LMR-400 cable, 2(QTY) - bridges**
AI108-4958-1	**Bridge, antenna, cable**
AI108-4958-N	**Bridge only no antenna, no cable**
AI108-LA5	**0-6 GHz RF cable lightning arrestor**

AIRAYA

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SecureRF™ Radio Security

SecureRF™ Layered Security Design	SecureRF™ Architecture – Unique radio mask, mandatory radio authentication, 128-bit AES data encryption, VLAN termination.

Network/Radio Connections

Antenna Connector	N-Type Female input
Radio Bridge Connector	N-Type Female input
Ethernet	100/10 Mbps Ethernet (RJ45) *100Mbps full-duplex recommended

Indoor Unit (IDU) to Outdoor Unit (ODU) Communication

Cable Type	LMR-400
Cable Length	25 ft (7.62 m) For other lengths, please contact AIRAYA
Cable Connectors	N-Type male to N-Type male

Range

Industry Canada/FCC	Up to 7.5 miles (12 km) with included 23dBi panel antennas. To 30 miles with external options in 5.9GHz.
International Maximum	Up to 30 miles (48.27 km) – with maximum radio power and optional parabolic antennas. Local regulation apply

Configuration and Management

Configuration Utility	Built-in Web server. Telnet/CLI. Available at all times through secure interface
Software Upgrades	FTP Download
Antenna Alignment	Real-time RSSI (signal strength) monitor, link optimization and throughput maximization utility, HTML
LED Status Indicators (3)	Power, Ethernet and Radio Link activity
VLAN Support	Logical network setting segmentation per radio
Bandwidth Management	Maximum Information Rate(MIR) per radio
Real-time Monitoring	Secure Management Interface - Real-time signal strength, authentication data, system uptime, data rate, channel selection via HTTP, Telnet/CLI, and SNMP

Environmental

Operating Temperature	ODU: -22° F to 140° F (-30° C to 60° C)	IDU: 32° F to 122° F (0° C to 50° C)
Operating Humidity	ODU: Fully Weather Protected, NEMA 4/IP67	IDU: 5 to 95% non-condensing
Outdoor Antenna	-40°C to 70°C. Antennas are fully weather protected	
Lightning Protection	ETSI CE Certified PoE and RF Protection Options Available	
Wind Survivability	130 MPH Sustained	140 MPH for 3 Seconds

Mechanical Dimensions

Outdoor Antenna	12 x 12 x 1 in (30 x 30 x 2.5 cm)
Wireless Bridge	7.6 x 5.5 x 1.2 in (19.3 x 14 x 3.05 cm)
Outdoor Antenna Mount	Includes mast mounts and clamp kit for 1" (26 mm) diameter thru 4.5" (115 mm) diameter masts, wall-mountable

Compliance and Certification

Radio	Part 90 Public Safety, FCC 15.407 (UNII, ISM), Industry Canada RSS-210, ETSI (w/TPC and DFS), Anatel, ICASA Hong Kong, Mexico, Singapore, Part 90 Emission Designators: 5M00X1D, 10M0X1D, 15M0X1D, 20M0X1D
Safety	UL - Canada, USA, CE Mark, RoHS, WEEE, EN 60950 3rd Edition
EMC	FCC Part 15, Industry Canada RSS-210, Mexico, Anatel, EN 301 893, EN 301 489-17, EN 50385, RoHS
Emissions Designators	4.90 GHz: 5M00X1D, 10M0X1D, 15M0X1D, 20M0X1D