

### Product Highlights

WirelessGRID base stations come in 4-radio, 3-radio, or single radio configurations. Each configuration delivers a comprehensive range of product features, ensuring fast, secure and reliable networking services.

♦ **Integrated architecture** for ease of installation, configuration, and management

Each base station radio can support up to 124 subscriber unit radios. A 4-radio base station is capable of supporting up to 496 subscriber units in a 10"x8"x6" form factor

♦ **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



### Integrated Architecture

Outdoor-ready WirelessGRID™ base stations are designed to simplify installation, maximize range and capacity, and deliver outstanding performance in 1-radio, 3-radio or 4-radio configurations. Utilizing OFDM technology in the 5GHz (4.90-5.85 GHz) frequency range, WirelessGRID™ base stations operate in multipoint mode at ranges of up to 10 miles\* and at speeds up to 108 Mbps per radio.

\*Distance is dependent on many factors. Please consult AIRAYA technical personnel regarding design requirements.

### Proven Performance and Simple Configuration

Proven in thousands of networks worldwide, WirelessGRID™ radios are ideally suited for bandwidth-hungry applications that require robust, reliable, and secure multipoint connectivity.

WirelessGRID™ base stations provide optimal delivery of IP video, voice, and data services by utilizing AIRAYA's unique video tuning capability (VTC), user-selectable 5, 10, 20 and 40 MHz wide channel and power settings, and more than 170 available channels. This flexibility allows us to meet or exceed your capacity, speed, and scalability, and usage needs, while optimizing frequency 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.

#### Common WirelessGRID Multipoint Applications

Wireless Video Surveillance and Security Systems	Fixed outdoor and mobile video camera surveillance systems take advantage of AIRAYA's VTC video tuning capability, providing best-in-class wireless video capability for homeland security, military and enterprise security systems. In fact, the largest wireless video installations we know of worldwide run on WirelessGRID infrastructure.
Private Government Network Infrastructure	Private networks for public safety and government use allow agencies to reliably communicate and share information without risk of intrusion. AIRAYA WirelessGRID networks are proven and deployed in many private government networks today.
Service Provider Infrastructure	Rural cities and towns lack cable and telephone plant capacity. WirelessGRID multipoint systems allow for affordable and scalable high speed access in rural communities with minimal investment in new infrastructure. WirelessGRID radios are accepted by the USDA Rural Utility Services program (RUS) for government funded rural broadband use.
Education and Enterprises	WirelessGRID radios have been deployed in many primary/secondary education facilities. In addition, many enterprise have taken advantage of the low cost, ease of installation and high reliability of WirelessGRID radios to quickly expand their operations.



Proven, Fast, Reliable

# WirelessGRID™ Outdoor Base Station

(4.90-5.85 GHz, Up to 108 Mbps)

Model #'s: AI 108-4958-BSU, AI 108-4958-BSU3, AI 108-4958-BSU4 Specifications For Multipoint and Mobile Vehicle Systems

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
Operating Modes	Point to Multipoint and Hotspot, Ad-Hoc for Vehicle to Vehicle		
BSU Antennas AI108-4958-BSU -> AI108-4958-BSU3-> AI108-4958-BSU4->	60°, 90° or 120° Sector antenna is available for purchase Three (3) x 120° Sector antennas provide 360° cell coverage Four (4) x 90° Sector antennas provide 360° cell coverage		
BSU Capacity AI108-4958-BSU -> AI108-4958-BSU3-> AI108-4958-BSU4->	Up to 124 subscriber units per single radio base station Up to 372 subscriber units per 3 radio SuperBase™ Up to 496 subscriber units per 4 radio SuperBase™		

Models and Ordering Information	
AI108-4958-BSU4	Outdoor SuperBASE w/150ft. PoE Cable, 4 x Radios and 4 x N-type Female Connectors (Up to 100 Mbps TCP/IP Capacity), 4 x Antennas
AI108-4958-BSU3	Outdoor SuperBASE w/150ft. PoE Cable, 3 x Radios and 3 x N-type Female Connectors (Up to 90 Mbps TCP/IP Capacity), 3 x Antennas
AI108-4958-BSU	Outdoor Base Station w/150ft. PoE Cable, 1 x Radio and 1 x N-type Female Connector (Up to 42 Mbps TCP/IP Capacity)
AI108-4958-ON2	Outdoor Base Station/Repeater w/150ft. PoE Cable, 1 x Radio and 2 x N-type Female Connectors (Up to 42 Mbps TCP/IP Capacity)
AI108-4958-MSU	Mobile Subscriber Unit (MSU) w/15ft. Power Cable, 1 x N-type Female Connector, 1 x Bulkhead Ethernet Connector
AI108-4958-OSU	Outdoor Subscriber w/150ft. PoE Cable, 1 x Radio and 1 x 23 dBi Antenna
AI108-4958-ONSU	Outdoor Subscriber Unit w/150ft. PoE Cable, 1 x Radio and 1 x N-type Female Connector



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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.

Indoor Unit (IDU) to Outdoor Unit (ODU) Communication	
Cable Type	CAT 5e 4 x 2 x 24AWG gel-filled (UV protected, weatherized)
Maximum Distance	328 ft (100 m) between network connection and outdoor units

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
Indoor LAN Status Indicator	Remote Power Indicator
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

Mechanical Dimensions	
AI108-4958-BSU	ODU: 10 x 8 x 3 in (25.4 x 20.3 x 7.6 cm)
AI108-4958-BSU2	ODU: 10 x 8 x 3 in (25.4 x 20.3 x 7.6 cm)
AI108-4958-BSU3	ODU: 10 x 8 x 6 in (25.4 x 20.3 x 14 cm)
AI108-4958-BSU4	ODU: 10 x 8 x 6 in (25.4 x 20.3 x 14 cm)
Indoor Unit for all BSU's	6 x 3 x 1 in (15.2 x 7.6 x 2.5 cm)
Outdoor Unit Mounting	Includes mast mount and clamp kit for 1" (26 mm) diameter thru 4.5" (115 mm) diameter masts. Also wall mountable

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
Lightning Protection	ETSI CE Certified PoE and RF Protection	
Wind Survivability	130 MPH Sustained	140 MPH for 3 Seconds

Electrical	
AI108-4958-BSU	Input: 100-240V , 0.6A Auto-ranging (50Hz-60Hz) Output: 48V, .4A Maximum for remote powered systems (POE)
AI108-4958-BSU3 AI108-4958-BSU4	Input: 100-240V , 0.6A Auto-ranging (50Hz-60Hz) Output: 48V, .4A Maximum for remote powered systems (POE)

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