



StarPlus 1130

MIMO CPE, IP67 Ruggedized Enclosure

OVERVIEW

EION's StarPlus 1130 is a high-power, high-performance ruggedized outdoor subscriber station for deployments where extended range is a requirement. StarPlus 1130 uses EION's proprietary TrustLink technology, which is built on more than a decade of OFDM experience, to reduce interference and increase throughput.

With its high spectral efficiency, large capacity, user friendly GUI and rich feature-set, StarPlus is the ideal unlicensed wireless solution for rural and metropolitan broadband requirements.

TRUSTLINK ADVANTAGE

TrustLink™ technology ensures equitable distribution of traffic to all subscriber stations and uses intelligence to determine the number of polling cycles every user gets depending on the level of its activity. This way the network resources are not wasted during the polling of inactive users due to no user data transmission. TrustLink can be employed in both point-to-point and point-to-multipoint networks and dramatically reduces the effects of unwanted interference on the wireless link.

PRODUCT FEATURES

- EION TrustLink™ Technology
- 2 x 2 MIMO
- Operates in 4.9 public safety and 5.8 GHz unlicensed bands
- Rugged construction for all weather conditions
- High spectral efficiency and robust RF network performance
- Security Enhancements up to AES-256 Encryption
- Optional GPS sync capability
- Large portfolio of external panel and dish antennas
- Real Time RSSI alignment indicator
- Built-in spectrum analyzer & audible antenna alignment beeper and LEDs
- Up to 300 Mbps data rate over the air, maximum Ethernet throughput is 100 Mbps
- User friendly web-based GUI
- SNMP v2c and enterprise MIB for advanced network management
- 40 MHz Turbo channel size
- 20 MHz Normal channel size
- 5 & 10 MHz Narrow band channel sizes
- Built-in lightning, power surge PoE protection, high EMI immunity

RADIO SPECIFICATION

Topology	Point-to-Multipoint CPE, other modes available by license key					
Diversity	1 x 1 SISO (Default) 2 x 2 MIMO (Requires Upgrade Key)					
Frequency*	5.000 to 6.100 GHz (StarPlus 1130-58) 4.900 to 5.000 GHz (StarPlus 1130-49)					
Channel Size*	Quarter: 5 MHz; Half: 10 MHz; Normal: 20 MHz; Turbo: 40 MHz					
Channel Spacing	5 MHz x channel number for CF					
Modulation	MCS 0 to 15 (6.5 to 300 Mbps); BPSK, QPSK, 16-QAM and 64-QAM for LibraPlus mode (6Mbps - 54Mbps), OFDM permits NLOS deployments					
Antenna	2x N-type female antenna connectors (default) Integrated MIMO panel antenna (optional)					
Output Power†	+29 dBm aggregate; 2 x 26 dBm per stream (configurable from 9 dBm up to license key limit in 1 dB steps), Manually programmed fixed transmit power level					
Receiver Sensitivity (BER = 10 ⁻⁶) +/- 2dB		Modulation	5 MHz	10 MHz	20 MHz	40 MHz
	MCS0/8	BPSK	-101 dBm	-98 dBm	-95 dBm	-92 dBm
	MCS1/9	QPSK1/2	-99 dBm	-96 dBm	-93 dBm	-90 dBm
	MCS2/10	QPSK3/4	-96 dBm	-93 dBm	-90 dBm	-87 dBm
	MCS3/11	16-QAM1/2	-95 dBm	-92 dBm	-89 dBm	-84 dBm
	MCS4/12	16-QAM2/3	-91 dBm	-88 dBm	-85 dBm	-81 dBm
	MCS5/13	64-QAM2/3	-87 dBm	-84 dBm	-81 dBm	-77 dBm
	MCS6/14	64-QAM3/4	-85 dBm	-82 dBm	-79 dBm	-76 dBm
MCS7/15	64-QAM5/6	-81 dBm	-78 dBm	-75 dBm	-74 dBm	
Duplexing Format	Dynamic Time Division Duplex (TDD), Half-Duplex					
Radio Feature Support	Dynamic Frequency Selection (DFS)					
Spectral Efficiency	6.5 bits per Hertz					
GPS Sync	Synchronization of Communication Frames to GPS timing signal. Add order code "-GP", Requires external GPS receiver GPS Sync feature can be turned on or off					

† Maximum power output is set by country specific licensing key. The operator of this product must ensure compliance when selecting external antennas with the limits specified by local regulation prior to deployment

* Frequency bands that are available to the operator are determined by country specific licensing key.

NETWORK SPECIFICATIONS

Network Connection	RJ45 10/100 BaseT IEEE802.3 complaint with data rates up to 100 Mbps Auto-negotiation or configurable for full/half duplex
Operational Mode	Transparent Bridging (per OSI Layer2), Multicast
Quality of Service	Advanced QoS with multiple service flows and classifier priorities, four separate levels supported; <ul style="list-style-type: none"> VLAN ID (IEEE 802.1q) VLAN Priority (IEEE 802.1p) DSCP/ToS
Fast Frame Aggregation	Yes
Sector Locking/Bridging	Yes, configurable black or white Access Control Lists. Supports intra-sector bridging
VLAN	Data Tagging/Untagging, 802.1q transparency, VLAN Management, QinQ
NAT	1:N NAT configurable through CPE GUI
DHCP	DHCP server for LAN devices when in NAT mode
IPv6	IPv6 pass through enabled when CPE works in bridge mode, Tunneling in NAT mode

WIRELESS NETWORKING

Medium Access Control	Proprietary MAC, TrustLink™
Output Power Management	Yes
Data Rate Selection	Dynamic Adaptive Modulation per Link or manually programmed to fixed modulation type

SECURITY

Management Access	RADIUS, Username and Password Access is via Hypertext Transfer Protocol Secure HTTPS AES-256 (TLS 1.0+) Compatible with all modern web browsers and Windows 7 OS
Encryption	WEP (64, 128, 154), WPA1 (TKIP), WPA2 (CCMP - AES 128, CBC-MAC for headers). Encryption is available in factory firmware and firmware upgrades AES-256 Encryption on payload available via firmware upgrade key

MANAGEMENT

Remote Monitoring	HTML Web-GUI, SNMP v2c (Set, Get and Traps with proprietary MIB) MIB files are available from eionwireless.com or can be downloaded directly from the StarPlus GUI.
Management IP	DHCP client or configurable static IP
RADIUS Support	RADIUS supported for centralized admin access with fallback mode
User Management	Profiles for multiple user roles. Individual user names and passwords are supported in fallback mode
Installation Management	Wireless Link Monitor and Diagnostic Tool; <ul style="list-style-type: none"> Provides noise and RSSI signal levels as well as other statistical information Measure signal strength at each StarPlus location Real-time view of available over the air bandwidth Real-Time Link Quality Metrics Audible Antenna Alignment Beeper (can be switched on or off via SNMP or web GUI) Visual LED Antenna Alignment Built-in Spectrum Analyzer
Syslog	Built-in syslog, events can be viewed on the device or exported to an external syslog file for analysis
Backup Configuration	Save Radio Configuration to local PC
Software Upgrade	Over the Air or local, Web-based upgrade, Dual bank to allow rollback
Ease of Use	Single management view of all deployed products in EION Constellation centralized management system
Location Management	GPS location information can be entered and viewed in external geographical mapping tool

PHYSICAL, ELECTRICAL & ENVIRONMENTAL

Power Consumption	Typ. < 6 Watts
Power Supply	100-240V, 50/60 Hz AC; UL/CSA approved 48 Volt POE system; DC power options available. The included power supply includes one standard Ethernet port for connection to LAN or local PC, and one PoE port for connection to the StarPlus equipment. Power supply is 10/100 BaseT IEEE802.3 complaint with data rates up to 100 Mbps full duplex on both ports
Temperature Range	Operating: -30° C to +70° C Storage: -40° C to +90° C
Relative Humidity	Operating: 0% to 100% (condensing); Storage: Max. 90% (non-condensing)
Mounting Bracket	Rugged outdoor mounting hardware included, 2-Axis pole/wall
Enclosure	Single Unit, Die Cast Metal NEMA 4x; IP67 Each unit includes an RJ45 cable gland to provide a fully weatherproof IP67 seal once installed

Weight	2.0 kg (External Antenna) 3.2 kg (Integrated Antenna)
Dimensions	230 mm x 230 mm x 65 mm (External Antenna) 300 mm x 300 mm x 85 mm (Integrated Antenna)
Lightning Protection	Integrated, Telcordia GR-1089 compliant (Meets IEC 61000-4-2/ 4-4)

STANDARDS COMPLIANCE

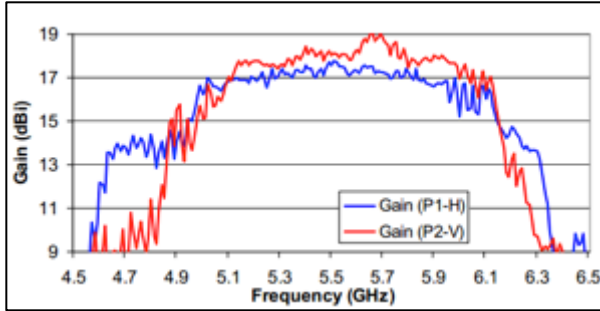
Radio and Spectrum Management	Adheres to Industry Canada Spectrum Management and Telecommunications Radio Standards Adheres to RSS-111 Issue 3 for Broadband Public Safety Equipment Operating in the band 4940-4990 MHz Adheres to RSS-210 Issue 8 License-exempt Radio Apparatus (all frequency bands): Category 1 Equipment Adheres to FCC Part 15 Approved for WPC (India)
Weatherproofing	IP67
Compliance	RoHS/WEEE
Ethernet Standards	Complaint to IEEE 802.3i-1990 for 10 BaseT Complaint to IEEE 802.2u-1995 for 100BaseT

INTEGRATED ANTENNA

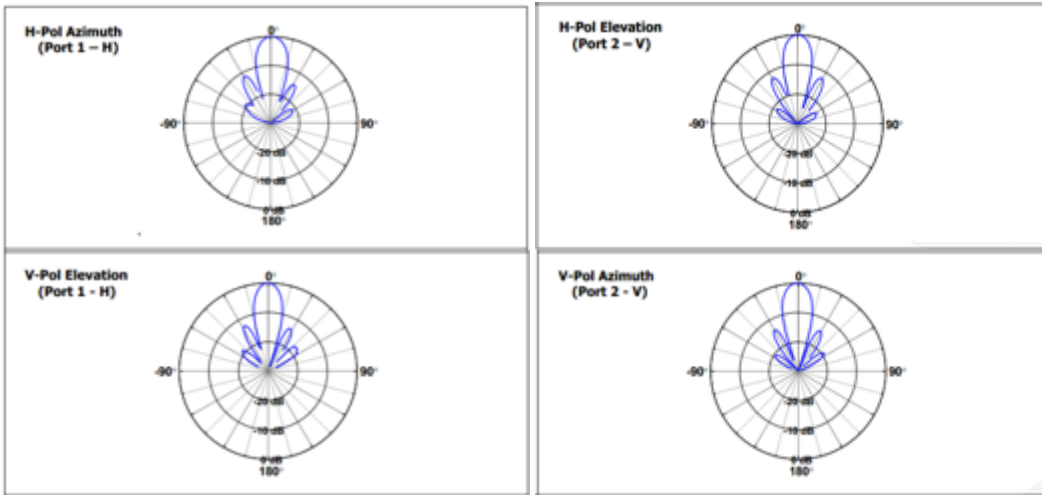
The specifications below apply to the optional integrated antenna that is included with the StarPlus 5300. The unit can optionally be purchased with 2x N-Type antenna connectors for use with an external antenna.

Gain	19 dBi
Radiation	Directional
Frequency Range	4.9 -5.9 GHz
Polarization	Dual – Polarization
Azimuth-3dB Beamwidth	Horizontal(Port 1): 17 degrees Vertical (Port 2): 17 degrees
Elevation-3dB Beamwidth	Horizontal(Port 1): 17 degrees Vertical (Port 2): 17 degrees
Isolation	-40dB (Max)
Front-to-Back Ratio	-25dB (Max)
VSWR	Horizontal(Port 1): <1: 1.87 Vertical(Port 2): <1: 2.00
Cross Polarization Isolation	-27dB (Max)
Side Lobe	< -12dB

INTEGRATED ANTENNA GAIN PLOT



INTEGRATED ANTENNA POLAR PLOTS



ORDERING INFORMATION

1130-58	5 GHz StarPlus 1130 CPE, IP67 Ruggedized Enclosure 2x N-type
1130-49	4.9 GHz StarPlus 1130 CPE, IP67 Ruggedized Enclosure 2x N-type

OPTIONS

Hardware options must be specified at time of ordering with the option code listed below.

19i	Integrated 19 dBi Panel Antenna, 4.9 to 6.0 GHz. This option replaces the 2 N-Type connectors
GP	Auxiliary RJ45 Port for connection to external GPS receiver. GPS receiver purchased separately

LICENSE KEYS

7900-00-00-01	P2P Master Key – Enables P2P Master Capability (enabled by default on 5300 radios)
7300-58-00-01	StarPlus Multiple Association License Key - 3 Devices
7300-58-00-02	StarPlus Multiple Association License Key - 10 Devices
7300-58-00-10	StarPlus Multiple Association License Key – Unlimited Devices
9530-00-00-10	StarPlus MIMO Upgrade Speed Key (enabled by default on 1120 and 1130 radios)
9531-00-00-10	AES-256 Encryption License Key (Require one per StarPlus radio)

BOX CONTENTS

Each Box Contains the following items	<ul style="list-style-type: none"> • StarPlus 1130 Wireless Radio • 48V PoE Injector 10/100 • Pole/Wall mounting bracket • Copper Grounding Lug • RJ45 Port Weatherproofing Assembly • Ferrite Bead • Quick Start Guide
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