StarPlus 5300

300 Mbps MIMO Outdoor Base Radio

OVERVIEW

The StarPlus 5300 is a high capacity base radio system that offers a competitive alternative to leased lines, wired and optical systems. StarPlus 5300 uses advanced OFDM and MIMO technologies to deliver breakthrough performance in the unlicensed band.

The StarPlus 5300 radio is ready to handle the extreme backhaul loads that originate from today's data-heavy 4G/LTE based networks.

With the application of a multiple association license key, the StarPlus 5300 can operate in multipoint mode and communicate with StarPlus CPEs. The flexible StarPlus 5300 is the ideal wireless platform to meet the needs of today's bandwidth hungry users.

The StarPlus 5300 base radio is packaged in a rugged enclosure, which is suitable for all weather conditions. The all-metal enclosure provides high EMI immunity for stable operation in interference prone environments.

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 with software key
- Operates in 4.9 public safety and 5.8 GHz unlicensed bands
- 4G/LTE Backhaul Ready
- Rugged construction for all weather conditions
- High spectral efficiency and robust RF network performance
- Security Management Enhancements
- Large portfolio of external panel and dish antennas
- Real Time RSSI alignment indicator
- Built-in spectrum analyzer & audible antenna alignment beeper
- Up to 300 Mbps data rate over the air, maximum Ethernet throughput is 100 Mbps
- 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-Point (Default) Point-to Multipoint Access Point (Requires Upgrade Key)
Diversity	1 × 1 SISO (Default) 2 × 2 MIMO (Requires Upgrade Key)
Frequency*	5.000 to 6.100 GHz (StarPlus 5300-58) 4.900 to 5.000 GHz (StarPlus 5300-49)
Channel Size*	Quarter: 5 MHz; Half: 10 MHz; Normal: 20 MHz; Turbo: 40 MHz
Channel Spacing	5 MHz × 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.
Output Power†	+29 dBm aggregate; 2 × 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

† 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	MDI-X RJ45 10/100/1000 Mbps Ethernet; Auto-negotiation or configurable for full/half dulplex at 10/100 Mbps
Operational Mode	Transparent Bridging (per OSI Layer2), Multicast
Quality of Service	Advanced QoS with multiple service flows and classifier priorities, four separate levels supported; • 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

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; • 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. < 10 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
Dimensions	230 mm × 230 mm × 65 mm
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

ORDERING INFORMATION

5300-58	5 GHz StarPlus 5300 Base Radio, IP67 Ruggedized Enclosure
5300-49	4.9 GHz StarPlus 5300 Base Radio, IP67 Ruggedized Enclosure
9530-00-00-10	StarPlus Upgrade Speed Key to Two Streams - Upgrade StarPlus 5300 base radio to two streams MIMO
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