ULTRALINK-GX80 advanced



UltraLink™-GX80 Advanced (with parabolic antenna 30 cm)

All-Outdoor 15 Gbit/s E-Band Radio

Overview

UltraLink™-GX80 Advanced is the highest-throughput single-transceiver E-Band radio, capable of supporting up to 15 Gbit/s full duplex data traffic rate in 1+0 link configuration. Inheriting the leading system gain of the field-proven UltraLink™-GX80 radio, it can achieve the longest high-capacity E-Band radio link range. The UltraLink™-GX80 Advanced unit hosts a fully featured Ethernet bridge, which offers advanced Carrier Ethernet functionality over its 2 x 10/100/1000Base-T and 3 x 10GbE interfaces, enabling operators to avoid the cost and complexity of using additional networking devices wherever possible. UltraLink™-GX80 Advanced supports advanced frequency and phase/time synchronization protocols to fully address the stringent synchronization requirements of 5G networks. The supported Radio Link Quality Monitoring and Diagnostics functionality expedites link diagnostics and troubleshooting and simplifies deployment and maintenance. Being an easy to install and manage compact all-outdoor radio, it minimizes deployment footprint and total cost of ownership. Mobile network operators worldwide deploying 5G/5G-Advanced technology, while at the same time continuing to support the existing 2G/3G/LTE/LTE-Advanced base stations as well as fixed service network operators / ISPs, upgrading their networks to offer Gigabit access service, can benefit from the use of UltraLink™-GX80 Advanced as an alternative to optical fiber.

Radio Specifications

Operating Frequencies, MHz	71,000 to 76,000 / 81,000 to 86,000
Channel Sizes, MHz	125 / 250 / 500 / 750 / 1,000 / 1,500 / 2,000
Duplexing Scheme	FDD
Ethernet Throughput, Gbit/s	Up to 15
Modulation (adaptive)	BPSK to 1024-QAM
Link Adaptation	Hitless ACM mechanism up to 10 states
Forward Error Correction	LDPC / Reed Solomon
Configurations	1+0, 2+0 XPIC / RLA, Dual Band (with OmniBAS or third-party MW radios)
Antenna size options / Gain[1] (Midband)	• Single & Dual-Polarization: parabolic 20 cm / 41 dBi, 30 cm / 45.5 dBi, 60 cm / 50.5 dBi and 90 cm / 52.5 dBi. • Dual-band 60 cm with 5 / 11 / 13 / 15 / 18 / 23 GHz. • Dual-band 90 cm with 18GHz. • 60 cm 1-D Beam Stabilizing antenna. • All antennas compliant with ETSI EN 302 217 Class 3 and US FCC Part 101.115. • HW ready for connecting to Intracom Telecom's beam stabilizing antennas.

Mechanical & Environmental Specifications

Dimensions (H x W x D), mm	335 x 238 x 120
Weight, kg	6.5
Power Supply Options	-48 V DC (delivered directly or through PoE)
Power Consumption (typ.), W	89
Operating Temperature	-33 °C to +55 °C[2]

[1] Gain values refer to Single polarization antennas. For Dual polarization antennas gain values are 1.5 dB less.
[2] The unit is functional down to -50 °C but specifications are not guaranteed below -33 °C.

Radio Performance

Modulation	Ethernet Throughput (Mbit/s)[3]							System Gain @ BER 10^{-6}, Typ., dB[4]						
	2000 MHz	1500 MHz	1000 MHz	750 MHz	500 MHz	250 MHz	125 MHz	2000 MHz	1500 MHz	1000 MHz	750 MHz	500 MHz	250 MHz	125 MHz
1024-QAM	-	-	9757	7318	4888	2444	1187	-	-	58.2	60.9	66.0	69.5	73.7
512-QAM	15405	13204	8734	6550	4367	2183	1058	59.1	60.4	63.0	65.5	69.8	74.0	78.1
256-QAM	13565	11628	7691	5768	3845	1923	929	65.6	66.5	68.6	70.9	74.0	77.1	81.1
128-QAM	11726	10050	6647	4986	3324	1662	800	70.6	71.4	73.3	74.6	78.3	82.3	85.4
64-QAM	9886	8473	5604	4203	2802	1401	671	74.7	75.5	77.3	78.6	82.5	85.5	88.5
32-QAM	6605	5662	3746	2809	1873	936	463	78.8	79.4	81.2	82.5	86.0	89.0	92.0
16-QAM	6206	5319	3518	2639	1759	880	414	82.4	83.1	84.9	86.1	89.2	92.2	95.2
4-QAM	3103	2660	1759	1319	880	440	207	93.3	93.9	95.7	96.9	99.0	102.0	105.0
4-QAM Low	1723	1477	977	733	488	244	121	95.4	96.0	97.8	99.0	101.7	104.7	107.7
BPSK	803	688	454	341	227	114	56	98.1	98.7	100.5	101.7	104.4	107.4	110.4

Features & Networking Specifications

Interfaces

- 3 x SFP/SFP+ (optical), 1 x RJ45, 1 x RJ50
  - Up to 3 x 10GBase-SR/LR (SFP+)
  - Up to 3 x 1000Base-X (SFP)
  - Up to 1 x 2.5GBase-X (SFP+)
  - 1 x 10/100/1000 BASE-T (RJ45 1xPoE IN)
  - 1 x 10/100/1000 BASE-T (RJ50)

Networking Features

- IEEE 802.1Q (VLAN), IEEE 802.1p
- IEEE 802.1ad (Provider Bridge (Q-in-Q))
- IEEE 802.1w (RSTP) / IEEE 802.1s (MSTP)
- IEEE 802.1AX (LAG/LACP)
- ITU-T G.8032v2 (ERP)
- Carrier Ethernet E-Line, E-LAN services
- Jumbo Frames: 9,600 bytes
- MAC Learning enable / disable per VLAN
- eCPRI, IEEE 802.1CM Profile A
- SW upgrade for IP/MPLS networking functionality

Bridge Security

- MAC Anti-Spoofing
- Port Flooding Protection
- Broad/Multi-cast, Unknown unicast frames Storm Control

Quality of Service (QoS)

- Eight QoS classes (8 queues)
- Packet Classification per Interface / VLAN ID / P-Bits / DSCP / IPv6 TC / MPLS EXP
- Service Policing: two rate, three-color (MEF compliant)
- Queue Management:
  - Tail drop
  - WRED
- Egress shaping per port
- Queuing Schemes:
  - Strict Priority (SP)
  - Weighted Round Robin (WRR)
  - Weighted Fair Queuing (WFQ)
  - Hybrid: 1 or 2 queues SP plus 7 or 6 queues WRR or WFQ
- Egress H-QoS per flow and service

Ethernet OAM

- IEEE 802.1ag (Service OAM (CFM)), ITU-T Y.1731 (Performance Monitoring)
- ITU-T G.8013/ Y.1731 Ethernet Bandwidth Notification (ETH-BN)
- ITU-T G.8013/ Y.1731 Ethernet Client Signal Fail (ETH-CSF)
- IEEE 802.3ah (Link OAM (EFM))

Synchronization

- ITU-T G.8262.1/ G.8264 (Enhanced Synchronous Ethernet)
- IEEE 1588-2008 TC (E2E), ITU-T G.8273.3 Class B[5]
- IEEE 1588-2008/ITU-T G.8275.1 T-BC, ITU-T G.8273.2 Class B[5]

Management & Monitoring

- Embedded Web Server (WebUI)
- Command Line Interface (CLI)
- Management over IPv4 and IPv6, SNMP v2c, v3
- Access authentication: Local and remote (TACACS+)
- Authorization for multiple roles with configurable permissions
- Support of strong passwords, HTTPs, SSHv2
- Support of File Transfer (FTP), Syslog server
- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
- Statistics: Radio, modem, G.826, RMON, per VLAN/Queue
- Historical Performance in the element
- DOM / DDM for SFP modules
- Radio Link Quality Monitoring and Diagnostics
- Fully managed by Intracom Telecom NMS (uni|MS™)
- AES 256-based payload encryption over the air

Conformance

- CE Marked

Spectrum

- ETSI EN 302 217-2

EMC / EMI

- ETSI EN 301 489-1
- ETSI EN 301 489-4
- EN 55032

Electrical Safety

- EN 62368-1
- EN 50385 (RF Exposure)
- EN 60215

Environmental

- ETSI EN 300019-2-4, Class 4.1 (Operation)
- ETSI EN 300 019-2-1, Class 1.2 (Storage)
- ETSI EN 300 019-2-2, Class 2.3 (Transportation)
- IEC 60529, Class IP67 (Protection against dust and water)

[3] Optimum Capacity profile / 128-byte frame size.
[4] Optimum System Gain profile.
[5] Class C in Roadmap.

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