ULTRALINK-GX80

UltraLink™-GX80
(with parabolic antenna 30 cm)

All-Outdoor Gigabit Packet Radio

Overview

UltraLink™-GX80 is a high-performance, ultra-high capacity E-Band (71-76/ 81-86 GHz) radio designed for use in demanding wireless transport use cases. Its cutting edge modem and RF transceiver technology deliver the highest system gain and spectral efficiency in the market today. UltraLink™-GX80 offers leading link ranges while achieving throughputs of up to 10 Gbit/s full duplex. Furthermore, in 2+0 XPIC operation it achieves throughputs of up to 20 Gbit/s full duplex. UltraLink™-GX80 supports a comprehensive set of carrier networking and frequency / phase synchronization features. It is a uniquely-versatile radio that can be flexibly used in a variety of applications as the same unit can be configured to support Ethernet, eCPRI or CPRI traffic. It is ideally suited for 4G/4G+/5G RAN backhaul, midhaul and fronthaul, as well as, any transport application in Ethernet-based networks as a fiber substitute. Being a fully outdoor radio, UltraLink™-GX80 minimizes deployment footprint and cost. It is designed to be easily installed, while its unique integrated Radio Link Quality Monitoring and Diagnostics functionality expedites link diagnostics and troubleshooting.

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 10
Modulation (adaptive)	4-QAM to 1024-QAM
Link Adaptation	Hitless ACM mechanism up to 9 states
Forward Error Correction	LDPC / Reed Solomon
Configurations	1+0 / 1+1 / 2+0 / RLA / XPIC / BCA
Antenna size options / Gain (Midband)	Parabolic 20 cm / 41 dBi, 30 cm / 45.5 dBi and 60 cm / 50.5 dBi Compliant with ETSI EN 302 217 Class 3

Mechanical & Environmental Specifications

Dimensions (H x W x D), mm	335 x 238 x 120
Weight, kg	6.5 (excluding the mounting kit)
Power Supply Options	• Direct DC: -48 V (nominal) • Power over Ethernet (PoE)
Power Consumption (typ.), W	85
Operating Temperature	-33 °C to +55 °C[1]

[1] The unit is functional down to -50 °C but specifications are not guaranteed below -33 °C.

Radio Performance

Modulation	L1 Throughput (Mbit/s)[2]							System Gain @ BER 10^{-6}, Typ., dB (without antennas)[3]						
	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	-	-	-	-	4558	2279	1107	-	-	-	-	66.0	69.5	73.7
512-QAM	-	9999	8144	6108	4072	2036	987	-	60.4	63.0	65.5	69.8	74.0	78.1
256-QAM	9999	9999	7171	5378	3585	1793	867	65.6	66.5	68.6	70.9	74.0	77.1	81.1
128-QAM	9999	9371	6198	4649	3099	1550	746	70.6	71.4	73.3	74.6	78.3	82.3	85.4
64-QAM	9218	7901	5226	3919	2613	1306	626	74.7	75.5	77.3	78.6	82.5	85.5	88.5
32-QAM	6159	5279	3493	2619	1746	873	432	78.8	79.4	81.2	82.5	86.0	89.0	92.0
16-QAM	5787	4960	3281	2460	1640	820	386	82.4	83.1	84.9	86.1	89.2	92.2	95.2
4-QAM	2893	2480	1640	1230	820	410	193	93.3	93.9	95.7	96.9	99.0	102.0	105.0
4-QAM Lo	1607	1377	911	683	455	228	113	95.4	96.0	97.8	99.0	101.7	104.7	107.7

Features & Networking Specifications

Interfaces
- 3 x SFP/SFP+ (optical), 1 x RJ45, 1 x USB
- Depending on the operating mode the interfaces are:
  - Ethernet Mode / eCPRI (IEEE 802.3-2018)
    - Up to 2 x 10GBase-SR/LR/ER/ZR (SFP+)
    - Up to 3 x 1000Base-X (SFP)
    - 1 x 100/1000 BASE-T (RJ45)
    - 1 x USB(Local Management)
  - CPRI Mode
    - 3 x CPRI Options 2 to 7 (SFP/SFP+)
    - 1 x 100/1000BASE-T (RJ45) for management
    - 1 x USB (Local Management)

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
- L3 networking, IP/MPLS support

Bridge Security
- MAC Anti-Spoofing
- Port Flooding Protection
- Broadcast 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
- 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
- H-QoS

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.8261 / G.8262 / G.8264 (Synchronous Ethernet)
- IEEE 1588-2008 TC (E2E), ITU-T G.8273.3 Class B
- IEEE 1588-2008/ITU-T G.8275.1 T-BC, ITU-T G.8273.2 Class B

Management & Monitoring
- Embedded Web Server (WebUI)
- Command Line Interface (CLI)
- Management over IPv4 and IPv6, SNMP v2c, v3
- Access authentication: Local and remote (TACACS+)
- 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™)
- SDN (NETCONF / YANG)

CE
- CE Marked

Spectrum
- ETSI EN 302 217-2-2

EMC / EMI
- ETSI EN 301 489-1
- ETSI EN 301 489-4
- EN 55032

Electrical Safety
- EN 60950-1, EN 60950-22
- EN 50385 (RF Exposure)

Environmental
- ETSI EN 300019-2-4, Class 4.1/4M5 (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)

[2] Optimum Capacity modem profile, 256Bytes frame.
[3] Optimum System gain Modem profile.

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