

ULTRALink™-GX80



UltraLink™-GX80
(with parabolic antenna 30 cm)

All-Outdoor 10 Gbit/s E-Band Radio

Overview

UltraLink™-GX80 is a high-performance, high-capacity E-Band (71-76 / 81-86 GHz) radio designed for use in demanding wireless transport cases. Its cutting edge modem and RF transceiver technology deliver market-leading E-Band link ranges at 10 Gbit/s full-duplex capacity. Furthermore, in 2+0 XPIC operation, it achieves throughputs of up to 20 Gbit/s (full duplex). UltraLink™-GX80 is a uniquely-versatile fully-outdoor radio suitable for wide variety of applications. It supports Ethernet/IP, eCPRI or CPRI traffic transport, while offering a rich set of L2 and L3 networking features for the delivery of Carrier Ethernet and IP/MPLS-based services. Additionally, it offers frequency and phase synchronization functionality that fully addresses the stringent timing requirements of 4G/5G networks. Its unique integrated Radio Link Quality Monitoring and Diagnostics functionality expedites link diagnostics and troubleshooting. Being an easy to install and manage compact all-outdoor radio, it enables minimization of deployment footprint and total cost of ownership. As a result, UltraLink™-GX80 is ideally suited for 4G/4G+/5G RAN backhaul, midhaul and fronthaul or any transport application in Ethernet/IP-based networks 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 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, 2+0 XPIC / RLA ⁽¹⁾ , Dual Band (BCA) 2+0 & 3+0 ⁽¹⁾
Antenna size options / Gain (Midband)	<ul style="list-style-type: none"> • Single and Dual-Polarization parabolic 20 cm / 41 dBi, 30 cm / 45.5 dBi and 60 cm / 50.5 dBi. • Dual-band 60 cm with 18 / 23 / 15 / 13 / 11 GHz. • 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 antenna & mounting kit)
Power Supply, nominal	-48 V DC (delivered directly or through PoE)
Power Consumption (typ.), W	85
Operating Temperature	-33 °C to +55 °C ⁽²⁾

⁽¹⁾ Supported by the legacy L2 software platform. To be supported by the new Hybrid L2 & L3 software platform.

⁽²⁾ The unit is functional down to -50 °C but specifications are not guaranteed below -33 °C.

Radio Performance

Modulation	L1 Throughput (Mbit/s) ⁽³⁾							System Gain @ BER 10 ⁻⁶ , Typ., dB (without antennas) ⁽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	-	-	-	-	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 traffic interfaces are:
 - Ethernet Mode / eCPRI (IEEE 802.3)
 - Up to 2 x 10GBase-SR/LR (SFP+)
 - Up to 3 x 1000Base-X (SFP)
 - Up to 2 x 2.5G Base-X (SFP+)⁽⁵⁾
 - 1 x 100/1000 BASE-T (RJ45)
 - CPRI Mode⁽⁵⁾
 - 3 x CPRI Options 2 to 7 (SFP/SFP+)
 - 1 x 100/1000BASE-T (RJ45) for management only

• Layer 2 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)⁽⁵⁾
- IEEE 802.1AX (LAG/LACP)⁽⁵⁾
- ITU-T G.8032v2 (ERP)⁽⁵⁾
- Carrier Ethernet E-Line, E-LAN services
- Jumbo Frames: 9,600 bytes
- MAC Learning enable / disable per VLAN
- eCPRI, IEEE 802.1CM Profile A
- Bridge Security (MAC Anti-Spoofing, Port Flooding, BC/MC Storm protection)
- Ethernet OAM
 - IEEE 802.1ag(CFM), ITU-T Y.1731 (Performance Monitoring)⁽⁵⁾
 - ITU-T G.8013/ Y.1731 Bandwidth Notification (ETH-BN)⁽⁵⁾
 - ITU-T G.8013/ Y.1731 Client Signal Fail (ETH-CSF)⁽⁵⁾
 - IEEE 802.3ah (Link OAM (EFM))⁽⁵⁾

• L3 and IP/MPLS Networking Features⁽⁶⁾

- IPv4 L3 Routing (OSPF, IS-IS, BGP, RIPv1/RIPv2 and static routing)
- MPLS LDP, RSVP
- L3VPN and MP-BGP
- L2VPN VPWS and VPLS (raw and tagged mode) with LDP signaling
- BFD (static route, OSPF, IS-IS) and MPLS-OAM
- Network slicing tools (L3 sub-interface, VRF, RSVP-TE, MS-PW, advanced QoS Ingress/Egress)
- Hybrid Layer 2 and Layer 3 operation
- OSPFv3 over SVI routing for IPv6 traffic (for management traffic only)

• Quality of Service (QoS)

- Eight QoS classes (8 queues)
- Traffic Classification per VLAN ID / P-Bits / DSCP / IPv6 TC / MPLS EXP
- Ingress Policing per traffic flow, Egress Shaping per port
- Queue Management: Tail drop, WRED
- Queueing Schemes: SP, WRR, WFQ, Hybrid
- Egress Hierarchical QoS (per traffic class, per service)

• Synchronization

- ITU-T G.8261 / G.8262 / G.8264 (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 & Security

- 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, NTP
- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
- Statistics: Radio, Modem, G.826, Interface
- Historical Performance in the element
- DOM / DDM for SFP modules
- Radio Link Quality Monitoring and Diagnostics⁽⁵⁾
- Intracom Telecom NMS (uniMS™)
- NETCONF / YANG (for Radio and System)⁽⁶⁾
- AES 256-based payload encryption over the air⁽⁵⁾

• CE

- 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 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)

⁽³⁾ Legacy L2 software platform, Optimum Capacity modem profile, 256 Bytes frame.

⁽⁴⁾ Optimum System gain Modem profile.

⁽⁵⁾ Supported by the legacy L2 software platform. To be supported by the new Hybrid L2 & L3 software platform.

⁽⁶⁾ Supported by the new Hybrid L2 & L3 software platform only.