CABLE AML

ULTRA HIGH CAPACITY IPLINK

- **Up to 1.5 Gbps Capacity in a single 56 MHz channel XPIC**
- **Hitless Advanced Adaptive Coding and Modulation (AACM) with fixed latency 1024 QAM and Multilayer Header Compression**
- **Cross Polarization Interference Cancellation (XPIC)**
- **Physical Link Aggregation (PLA) and packet fragmentation**
- **Metro Switch with QAM and advanced VLAN, IP and MPLS QoS**
- **Ethernet Ring Protection and Spanning Tree Support**
- **Sync-E and IEEE588v2 timing over packet**
- **Secure management via HTTPS and SSH**
- **1+1 Hot Standby Support with Rapid Port Shutdown**
- **Frequency and Space Diversity**

PRODUCT APPLICATION:

The Ultra-High capacity IPLINK is a full duplex point-to-point radio link specifically designed for IP wireless backhaul. The system supports all standard licensed microwave bands from 6 to 40 GHz, with over 1000 Mbps capacity in a single 56 MHz channel using XpiC.

The radios feature QPSK through 1024 QAM modulation and fixed latency advanced adaptive Coding & Modulation (AACM).

Gigabit capacity can be realized in a single 56 MHz channel (XPIC) or with 112 MHz 2+0 configuration, using a single traffic interface due to the physical link aggregation between radios.

The system supports both fiber and copper Gigabit Ethernet interfaces with in-band and out-of-band management, and can be powered directly or over Ethernet using a PoE injector.

The system incorporates a Metro Switch that includes:

- Ethernet ring protection Switching (ERPS) with sub 50 mS convergence.
- Rapid and Multiple Spanning tree (RSTP, MSTP)
- Physical link aggregation (PLA) and 802.3ad Link Aggregation
- Ethernet operations, administration, and Maintenance (OAM) for service monitoring, fault management, and link connectivity.
- Advanced QoS for VLAN, Diffserv, and MPLS traffic, with per port and per flow control
- Synchronization. The radios include both Sync-E and IEEE1588v2 precision time protocol for timing over packet (ToP). The system stamps 1588v2 packets using standard transparent clock correction fields.

Depending on packet mix, 500 to 750 Mbps can be achieved on a single channel with the multi layer (L2 –L4) header compression feature. This is especially useful in smaller channel bandwidths when using the smaller packet sizes typically found in Carrier networks

Each transceiver terminal consists of an Indoor Unit connected by cable to an Outdoor Unit, which is mechanically integrated with a high-directivity antenna. Installation is easy thanks to a built-in LED alignment tool and easy to install mounting brackets designed to facilitate antenna pointing and alignment.

Product Specification[1]

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General Parameters		
Model Number	IDU: GigaOrio- IDU-1, ODU:HP1, HP2, HPL2 series	
Frequency Support	6-40 GHz, Frequency Division Duplex (FDD)	
Channel Size*	3.5,5,7,8.33,10,12.5,13.75/14,25,27.5/28,30,40,50,55/56,60,80,MHz	
Modulation Format	Selectable: QSPK, 8PSK, 16QAM, 32QAM, 64QAM,128QAM,256QAM,512QAM,1024QAM	
Max Uncompressed Capacity	500-700 Mbps full duplex- Varies by modulation and bandwidth selected.	
Payload Latency	100 µs typical	
Payload Types	Ethernet (IPv4 and IPv6 compatible)	
Features	ATPC (Automatic Transmit Power Control) Hitless ACM (Adaptive Coding and Modulation) LDPC Forward Error Correction XPIC (Cross Polarization Interference Cancellation)	
Regulatory Compliance*	FCC CFR47 Part 101 ETSI EN 302 217-1 ETSI EN 217-2 ETSI EN 301 489-1 EMC ETCI EN 301 489-4 EMC CANADA SRSP FCC/ANSI: FCC Part 15 Class A Unintentional Radiator	
Safety	EN60950-1	
MTBF	>18 years	
Ethernet Parameters		
Packet Size	64-9200 bytes	
Ring Protection	ERPS (G.8032), RSTP, MSTP	
Link Aggregation	802.3ad, Physical Link Aggregation (PLA)	
Quality of Services (QoS)	802.1p Port Prioritization Diffserv(DSCP) MPLS Port Mapping for Traffic Support for up to 8 Classes of Services (CoS) Bandwidth shaping per port and flow	
Data Security	AES-128 or AES-256 (option)	
Management		
Security/Authentication	2 level password (Read only, Read/Write)	
Configuration/Management	Telnet, SSH, HTTPS< Console (RS232), SNMPV2	
Remote Firmware Update	FTP/TFTP server in radio unit	
Interfaces	**Indoor Unit**	**Outdoor Unit (without antenna)**
Indicators	Ethernet speed and activity for each port; Multiplexed LED displays for RSSI, T1/E1 2 status LEDs per ODU	N/A
Payload Interface	3x GigE RJ45 (10/100/1000 BaseT) 2x GigE Fiber / Copper SFP 16x T1/E1 64 pin custom connector (option)	TX, IF, RX, IF, Telemetry
Out of Band Management	Ethernet port RJ45 10/100BaseT	Via IDU IF cable
1 + 1 Hot Standby / PLA	12 pin circular	N/A
Sync-E Input	BNC- Female	N/A
Alarm	2 inputs- CMOS; 2 outputs - dry contact closure isolated 50V 1A	Loss of lock
Power Connector	3 Pin Terminal block to support redundant power supplier	Provided by IDU
Console	DB9 RS232-115200, N, 8, 1	Via IDU IF cable
Power	**Indoor Unit**	**Outdoor Unit (without antenna)**
Power Input	-40 to -72 VDC Dual Input	-40 to -72 VDC
Power consumption	<35 Watts (all ports active)	<35 Watts per ODU (HP1 and HP2)
Mechanical and Environmental	**Indoor Unit**	**Outdoor Unit (without antenna)**
Enclosure	8.75 - inch half rackmount, 1U height	Cast Aluminum
ODU IF/Power/Control Connection	N-Female	N-Female (TX If, RX IF, Telemetry), BNC -For RSSI (HP ODU)
Dimension (height x width x length)	1.75 x 8.75 x 11.25 inches	10.5 x 10.5 x 3.5 inches (HP ODU)
Temperature Range (operational)	14° to 131°F (-10° to +55° C)	-40° to 131°F/-40° to +55°(spec) -40° to 149°F/-40° to +65° (operational)
Humidity	95% condensing	100% condensing
Weight	4.8 lbs	10.1 lbs (HP ODU)

[1] Specifications subject to change without prior notice.