PTP 820E Microwave Radio

QUICK LOOK:

PTP 820E, a Millimeter wave radio capable of 1024 QAM with ACM

- **Support 71-76 GHz, 81-86 GHz**
- **Supports 1+0, 2+0 configuration**
- **Built-in frequency scanner to determine the current interference level for each channel**

Radio

71-76 GHz, 81-86 GHz

1+0, 2+0

Multiband with PTP 820C, PTP 820C HP, PTP 820S or third-party microwave radios

Radio Features

BPSK to 1024 QAM w/ACM

Built-in frequency scanner to determine the current interference level for each channel

Ethernet

Ethernet Interfaces

Port 1: RJ45, 10/100/1000Base-T, PoE

Port 2: SFP cage which support regular SFP 1Gb/s (Eth 2), or CSFP 1Gb/s (Eth2 + Eth3)

Port 3: Two options:

1x10/100/1000Base-T used for management only; OR

SFP cage which support regular SFP 1 Gb/s (Eth1), or SFP+ 10Gb/s (Eth1)

Note: SFP devices must be of industrial grade (-40°C to +85°C)

Ethernet - continued

Ethernet Features

MTU – 9600 Bytes

Quality of Service

- Multiple Classification criteria (VLAN ID, p-bits, IPv4, DSCP, IPv6 TC, MPLS EXP)
- 8 priority queues per port
- Deep buffering (configurable up to 64 Mbit per queue)
- WRED
- P-bit marking/remarking

4K VLANs

VLAN add/remove/translate

Frame Cut Through – controlled latency and PDV for delay sensitive applications

Y.1731 Ethernet QAM*

Y.1731 Ethernet Bandwidth Notification

Header De-Duplication – Capacity boosting by eliminating inefficiency in all layers (L2, MPLS, L3, L4, Tunneling – GTP for LTE, GRE)** Note: not available for 500MHz channel

Adaptive Bandwidth Notification (ABN), also known as EOAM

PTP 820E Millimeter Wave Radio

Management Protocols

SNMP

REST

SDN Support: NETCONF/YANG

Synchronization

Synchronization Distribution

Sync Distribution over any traffic interface (GE/FE)

Sync-E (ITU-T G.8261, G.8262)

SSM/ESMC Support for ring/mesh applications (ITU-T G.8264)

Sync-E Regenerator mode, providing PRC grade (ITU-T G.811) performance for smart pipe applications.

IEEE-1588

Optimized Transport for reduced PDV

IEEE-1588 TC

Security

Secured protocols (HTTPS, SNMPV3, SSH, SFTP)

RADIUS authentication and authorization

TACACS+ authentication and authorization (session-based)

Standard

MEF

Carrier Ethernet 2.0

Supported Ethernet Standards

10/100/1000base-T/X (IEEE 802.3)

Optical 10Gbase-X (IEEE 802.3ae)

Ethernet VLANs (IEEE 802.3ac)

Virtual LAN (VLAN, IEEE 802.1Q)

Class of service (IEEE 802.1p)

Provider bridges (Q-in-Q – IEEE 802.1ad)

Link aggregation (IEEE 802.3ad)

Auto MDI/MDIX for 1000baseT

RFC 1349: IPv4 TOS

RFC 2474: IPv4 DSCP

RFC 2460: IPv6 Traffic Classes

Standards Compliance

Radio Spectral Efficiency: EN 302 217-2-2

EMC: EN 301 489-1, EN 301 489-4, Class B (Europe), FCC 47 CFR, part 15, class B (US), ICES-003, Class B (Canada), TEC/EMI/TEL-001/01, Class B (India)

Surge: EN61000-4-5, Class 4 (for PWR and ETH1/PoE ports)

Safety: EN 60950-1, IEC 60950-1, UL 60950-1, CSA-C22.2 No.60950-1, EN 60950-22, UL 60950-22, CSAC22.2.60950-22

Ingress Protection: IP67

Storage: ETSI EN 300 019-1-1 Class 1.2

Transportation: ETSI EN 300 019-1-2 Class 2.3

Technical

Mechanical Specifications

Dimensions (Direct Mount): 220mm x 198mmx 75mm (8.66”x 7.8” x 2.95”), 3kg (6.6 lbs.)

Dimensions (43dBi integrated Antenna): 280mm x 280mm x 110mm (11.02” x 11.02” x 4.33”), 3.5kg (7.7 lbs.)

Pole Diameter Range (for Remote Mount Installation):

8.89 cm – 11.43 cm (3.5” – 4.5”)

Environmental Specifications

-33°C to +55°C (-45°C to +60°C extended), -27°F to +131°F (-49°F to +140°F extended)

Power Input Specifications

Standard Input: -48 VDC

IDU DC Input range: -40.5 to -60 VDC

Power Consumption Specifications

Active: 43W; Standby: 36W

PTP 820E Millimeter Wave Radio

Capacity Throughput

	Capacity (Mbps)	Capacity De-Dup	Capacity (Mbps)	Capacity De-Dup
Modulation	**14 MHz**		**28 MHz**	
BPSK	6-8	7-25	17-21	18-64
QPSK	17-20	17-63	38-46	39-143
8 QAM	135-165	28-100	57-70	60-218
16 QAM	-	-	79-97	83-302
32 QAM	-	-	106-129	111-401
64 QAM	-	-	131-160	137-497
128 QAM	-	-	158-193	166-600
256 QAM	-	-	180-220	189-685
512 QAM	-	-	199-244	209-758
	62.5 MHz		**125 MHz**	
BPSK	39-48	41-149	87-106	91-330
QPSK	90-110	95-343	185-226	194-704
8 QAM	136-166	143-518	276-337	290-1050
16 QAM	185-227	195-706	376-460	395-1431
32 QAM	244-298	256-928	496-606	521-1885
64 QAM	298-364	313-1134	609-744	640-2316
128 QAM	359-439	377-1365	734-897	770-2500
256 QAM	410-501	430-1558	835-1021	877-2500
512 QAM	450-550	473-1712	920-1125	966-2500
1024 QAM	502-613	527-1908	-	-
	250 MHz		**500 MHz**	
BPSK	177-217	186-675	354-433	372-1348
QPSK	374-457	393-1423	748-914	785-2500
8 QAM	556-680	584-2116	1112-1359	1168-2500
16 QAM	756-925	794-2500	1512-1849	1588-2500
32 QAM	995-1217	1045-2500	1990-2433	2090-2500
64 QAM	1222-1494	1283-2500	2443-2500	2500-2500
128 QAM	1471-1799	1545-2500	-	-
256 QAM	1650-2017	1733-2500	-	-

PTP 820E Millimeter Wave Radio

Transmit Power (dBm)

Transmit Power (dBm)	14 MHz	28 MHz	62.5 MHz	125 MHz	250 MHz	500 MHz
BPSK	18	18	18	18	18	15
QPSK	18	18	18	18	18	15
8 PSK	18	18	18	18	16	11
16 QAM	-	17	17	17	15	10
32 QAM	-	17	17	17	15	10
64 QAM	-	16	16	16	14	9
128 QAM	-	16	16	16	14	-
256 QAM	-	15	15	15	13	-
512 QAM	-	14	14	14	-	-
1024 QAM	-	-	13	-	-	-

Receive Sensitivity (dBm @BER=10-6) - continued

Receiver Threshold (RSL) (dBm @ BER = 10-6)	14 MHz	28 MHz	62.5 MHz	125 MHz	250 MHz	500 MHz
BPSK	-90.5	-87.5	-83.0	-80.0	-77.0	-74.0
QPSK	-87.2	-84.6	-79.5	-76.5	-73.5	-70.5
8 PSK	-83.1	-80.6	-75.5	-72.5	-70.0	-67.0
16 QAM	-	-77.4	-73.0	-69.5	-67.0	-64.0
32 QAM	-	-73.9	-69.0	-66.0	-63.0	-60.0
64 QAM	-	-70.8	-66.0	-63.0	-60.0	-57.0
128 QAM	-	-67.6	-63.0	-60.0	-57.0	-
256 QAM	-	-64.6	-59.5	-57.0	-54.0	-
512 QAM	-	-62.4	-57.0	-54.0	-	-
1024 QAM	-	-	-54.0	-	-	-

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