Cambium Networks™

PTP 800i ALL-INDOOR SOLUTION

RELIABLE, LONG-DISTANCE LICENSED MICROWAVE COMMUNICATIONS

Our Point-to-Point (PTP) 800i All-Indoor Licensed Ethernet Microwave Solutions can deliver high-performance, cost-effective, reliable backhaul and backbone communications over long distances. Primarily designed for public safety agencies, utility companies, railroads, and telecommunications providers, the PTP 800i All-Indoor solution operates in the 6, FCC-7 and 11 GHz radio frequency (RF) bands at Ethernet data rates up to 236 Mbps with user-configured channel bandwidths from 10 to 40 MHz.

ALL-INDOOR ARCHITECTURE

Our PTP 800 portfolio offers you the choice between two architectures, an all-indoor architecture and a split-mount architecture. This Specification Sheet details the specifics of our All-Indoor systems. Information on our Split-Mount solution is available at PTP 800. With an All-Indoor system, you can install both the Indoor Radio Frequency Unit (IRFU) and the Compact Modem Unit (CMU) in your building

or equipment housing unit. The antenna is mounted on the tower or rooftop and connects to the IRFU with a waveguide. Any future maintenance or upgrades to the IRFU and CMU can easily be accomplished regardless of the time of year and weather conditions.

POWERFUL, SECURE AND COST-EFFECTIVE

The PTP 800i solution offers embedded spatial diversity and extremely high transmit power to provide superior connectivity and backhaul performance. Engineered with robust, multi-layered security and our proprietary encryption, the systems are designed to protect your over-the-air transmissions. Plus, you can add greater security for sensitive information with 128-bit or 256-bit Advanced Encryption Standard (AES) encryption. The system's compact size requires less equipment and can use smaller antennas to provide substantial savings on your initial investment and operating costs.

RADIO TECHNOLOGY

RF bands (GHz)[1]	6 GHz: 5.925 ~ 7.100
	11 GHz: 10.7 ~ 11.70
Channel size	Configurable from 10 to 40 MHz
Maximum Tx power[2]	34.0 dBm
Best Rx sensitivity[3]	-91.0 dBm
Modulation	QPSK to 256 QAM
	Fixed mode or Adaptive Coding and Modulation (ACM) with Adaptive Tx power
Error correction	Low Density Parity Check (LDPC) code
Duplex scheme	FDD
Security and encryption	Proprietary air interface
	Optional FIPS-197 compliant 128/256-Bit AES Encryption,
	Optional FIPS 140-2[4]
	Authenticated SNTP

ETHERNET BRIDGING

Protocol	IEEE 802.3
	802.1p/1Q (served by 8 queues)
	802.1ad (Q-in-Q)
Frame size	Up to 9600 bytes
User data throughput[5]	10 to 236 Mbps at the Ethernet (full duplex); use our Cambium PTP LINKPlanner to
	determine actual throughput for the deployment
QoS	8 Queues by VLAN tag, Layer 3 DSCP and TC
Latency	To < 115 µs @ full capacity with 64 bytes
User traffic interface	100 / 1000 Base T (RJ-45) – auto MDI/MDIX; 1000 Base SX and LX options

MANAGEMENT & INSTALLATION

Network management	Inband and out-of-band
Protocol	SNMP v1, v2c, v3
EMS	Web access via browser using HTTP or HTTPS/TLS[6]
	Cambium Wireless Manager, release 3.0 or higher
	Your existing network management system
	Motorola ASTRO® Unified Event Manager (UEM)
	Remote authentication using RADIUS
Out-of-band interface	10 / 100 Base T (RJ-45)
Installation	IRFU – RSSI output assistance for link alignment
Connection	Waveguide between antenna and IRFU; IF cable between IRFU and CMU

PHYSICAL

Physical configuration	All-Indoor – Compact Modem Unit (CMU) and Indoor Radio Frequency Unit (IRFU)
Dimensions	IRFU: 17" (43.2 cm), Depth 11" (28.0 cm), Height 4.84" (12.3 cm)
	CMU: Width 7.1" (18.0 cm), Height 1.4" (3.5 cm), Depth 8.7" (22.0 cm)
Weight	IRFU-1+0 Configuration: 17.8 lbs (8.1 kg)
	IRFU-1+1 Configuration: 26.0 lbs (11.8 kg)
	CMU: 2.4 lbs (1.1 kg)
Power source	-48V DC (-40.5V DC to -60V DC)
Power consumption	CMU: 20 Watts per end
	IRFU – 1+0 Configuration
	6 GHz: 85 Watts maximum
	11 GHz: 75 Watts maximum
	IRFU – 1+1 Configuration
	6 GHz: 158 Watts maximum
	11 GHz: 140 Watts maximum

ENVIRONMENTAL & REGULATORY

Operating temperature	IRFU: 23° to +122° F (-5° to +50° C) – EN 300 019-2-3, EN 300 019-2-2
	Compact Modem Unit: -27° to +131° F (-33° to +55° C) – EN 300 019-1-3
Humidity	IRFU: Up to 95%, non-condensing
	Compact Modem Unit: Up to 95%, non-condensing
Safety	UL 60950; IEC 60950; EN 60950; CSA 22.2 No. 60950
EMC	USA: FCC Part 15, Class B
	Europe: EN 301 489-1 and EN 301 489-4
Radio standard	FCC Regulation Title 47, Part 101
	Industry Canada Specification RSS-GEN and relevant SRSP Specifications

[1] Regulatory conditions for RF bands may vary by geographic location and should be confirmed prior to system purchase.

[2] Transmit power depends on frequency, modulation and regulations.

[3] Receive sensitivity depends on frequency, channel bandwidth and modulation (-91.0 dBm is based on a 6 GHz model with 10 MHz channel bandwidth and QPSK mode).

[4] FIPS 140-2 certification status may be confirmed at: http://csrc.nist.gov/groups/STM/cmvp/inprocess.html

[5] User throughput depends on the configuration of channel bandwidth, modulation and capacity license key. Radios ship with factory-set 10 Mbps throughput capacity cap; additional capacity may be purchased at time of order or anytime after deployment. Full capacity is not available for all combinations of bands and regulations.

[6] Web access via HTTPS/TLS is available on AES-enabled radios.

Radio Configuration

Frequency (GHz)	6	11
Frequency Range (GHz)	5.925 ~ 6.425 (FCC/IC L6 GHz) 6.525 ~ 6.875 (FCC U6 GHz) 6.875 ~ 7.100 (FCC 7 GHz)	10.7 ~ 11.7 (FCC/IC)
Channel Bandwidth (MHz)	10, 30 (L6, U6) 25 (7 GHz)	10, 30, 40
Modulation	QPSK to 256 QAM	
Adaptive Coding & Modulation	Hitless and Errorless	
RF Channel Selection	Via Web GUI	
System Configuration	1 + 0, 1+1, 1+1 with SD, 2+0	
ATPC (dB)	Up to 21 dB	
Antenna Port Flange	WR-137 / CPR-137G	WR-90 / CPR-90G

User Ethernet Data Throughput

Modulation	Maximum Throughput – Mbps (1518 Bytes/Frame)			
	Channel Bandwidth (MHz)			
	10	25	30	40
256 QAM	56.0	151.5	187.8	236.6
128 QAM	50.2	130.5	177.4	206.4
64 QAM	40.6	111.1	154.8	180.1
32 QAM	31.2	90.6	136.0	150.5
16 QAM	27.9	70.8	102.6	111.2
8PSK	21.0	50.8	83.4	78.6
QPSK	12.6	31.8	58.9	52.5

Transmit Power

Modulation	IRFU – HP	
	Frequency (GHz)	
	6	11
256 QAM	29	26
128 QAM	30	27
64 QAM	31	28
32 QAM	32	29
16 QAM	33	30
8 PSK	33	30
QPSK	34	31

Receive Sensitivity

BER = 1e–6	Modulation	Frequency (GHz)		
		6	FCC 7	11
Receive Sensitivity @40 MHz Channel (dBm)	256 QAM	N/A	N/A	-67.1
	128 QAM	N/A	N/A	-70.1
	64 QAM	N/A	N/A	-72.6
	32 QAM	N/A	N/A	-74.5
	16 QAM	N/A	N/A	-79.1
	8PSK	N/A	N/A	-81.4
	QPSK	N/A	N/A	-85.2
Receive Sensitivity @30 MHz Channel (dBm)	256 QAM	-68.7	N/A	-68.2
	128 QAM	-71.9	N/A	-71.4
	64 QAM	-74.1	N/A	-73.6
	32 QAM	-77.7	N/A	-77.2
	16 QAM	-80.8	N/A	-80.3
	8PSK	-83.1	N/A	-82.6
	QPSK	-86.8	N/A	-86.3
Receive Sensitivity @25 MHz Channel (dBm)	256 QAM	N/A	-69.6	N/A
	128 QAM	N/A	-72.9	N/A
	64 QAM	N/A	-75.5	N/A
	32 QAM	N/A	-78.0	N/A
	16 QAM	N/A	-81.5	N/A
	8PSK	N/A	-83.9	N/A
	QPSK	N/A	-87.3	N/A
Receive Sensitivity @10 MHz Channel (dBm)	256 QAM	-72.7	N/A	-72.2
	128 QAM	-75.0	N/A	-74.5
	64 QAM	-79.3	N/A	-78.8
	32 QAM	-81.9	N/A	-81.4
	16 QAM	-83.9	N/A	-83.4
	8PSK	-85.7	N/A	-85.2
	QPSK	-91.0	N/A	-90.5

PTP 800i High-Power (HP) All-Indoor Unit

PTP 06800i	6 GHz
PTP 11800i	11 GHz

NOTE: While the information presented herein is, to the best of our knowledge, true and accurate, the information provided in this document is subject to change without notice.

For more information, refer to the Cambium PTP 800 Series Brochure or visit cambiumnetworks.com.

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