CAMBIUM PTP 800 SERIES

HIGH-SPEED LICENSED MICROWAVE FOR FEDERAL NETWORKS

Our Cambium Point-to-Point (PTP) 800 Licensed Ethernet Microwave solutions can efficiently and affordably transport the data, voice and video that your U.S. Federal Government applications require. With models in the 7 GHz and 8 GHz dedicated bands, you do not have to contend with other communicators in your chosen radio-frequency (RF) band.

NTIA-COMPLIANT

Our 7 and 8 GHz PTP 800 models are National Telecommunications and Information Administration (NTIA) compliant and operate at speeds up to 301 Mbps[1] (full duplex) over user-configurable channel bandwidths from 10 to 50 MHz. The radios provide high-performance, ultra-reliable and secure connectivity and backhaul for a wide array of Department of Defense (DoD) and non-DoD applications such as:

- Leased-line and fiber replacements and extensions
- Video surveillance extensions beyond a wired infrastructure
- Network redundancy for a wired or fiber network
- Building-to-building and office campus connectivity
- Added capacity for voice and video communications
- High-capacity backhaul for WiMAX and LTE networks
- Border security connectivity and backhaul

EXTREME DURABILITY

PTP systems have logged more than four billion field hours. As a result, our radios are proven to withstand the rigors of outdoor use. Radios perform steadfastly in winds up to 150 miles per hour (242 kph) and temperatures from -27° to 131° F (-33° to 55° C).

RADIO TECHNOLOGY

RF bands[2]	7 GHz Band: 7.125 – 7.75 GHz 8 GHz Band: 7.75 – 8.47 GHz
Channel size	Configurable from 10 to 50 MHz
Maximum Tx power[3]	22 dBm
Best Rx sensitivity[4]	-90.0 dBm
Modulation	QPSK, 8PSK, 16/32/64/128/256 QAM Fixed mode or Adaptive Coding and Modulation (ACM)
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[5]

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[6]	10 to 301 Mbps at the Ethernet (full duplex); use our Cambium PTP LINKPlanner to determine actual throughput for the deployment
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
System management	IPv6/IPv4 dual-stack management support Web access via browser using HTTP or HTTPS/TLS[7] SNMP v1, v2c, v3, MIB II, and proprietary PTP MIB Cambium Wireless Manager, release 3.0 or higher Remote authentication using RADIUS and syslog
Out-of-band interface	10 / 100 Base T (RJ-45)
Installation	ODU – RSSI output assistance for link alignment
Connection	IF cable between outdoor unit (ODU) and compact modem unit (CMU); distance up to 1000 ft. (300 meters) using the LMR600 cable; 630 ft. (190 meters) is achievable with the CNT400 IF cable available from Cambium Networks.

PHYSICAL

Physical configuration	Split mount – Compact Modem Unit (CMU) and Outdoor Unit (ODU)
Dimensions	ODU: Diameter 10.5" (26.7 cm), Depth 3.5" (8.9 cm) CMU: Width 7.1" (18.0 cm), Height 1.4" (3.5 cm), Depth 8.7" (22.0 cm)
Weight	ODU: 10.1 lbs (4.6 kg) CMU: 2.4 lbs (1.1 kg)
Wind speed survival	ODU: 150 mph (242 kph)
Power source	-48V DC (-40.5V DC to -60V DC)
Power consumption	1+0 Configuration (per end) 7 & 8 GHz: 71 Watts maximum 1+1 Configuration (2-ODUs + 2-CMUs per end) 7 & 8 GHz: 120 Watts maximum

ENVIRONMENTAL & REGULATORY

Operating temperature	Outdoor Unit: -27° to +131° F (-33° to +55° C) – EN 300 019-1-4 Compact Modem Unit: -27° to +131° F (-33° to +55° C) – EN 300 019-1-3
Humidity	Outdoor Unit: Up to 100% 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	ETSI Harmonized Standard EN 302 217-2-2 FCC Regulation Title 47, Part 101 Industry Canada Specification RSS-GEN and relevant SRSP Specifications NTIA Redbook

Radio Configuration – 7 and 8 GHz			
Frequency (GHz)		7	8
Standard		FCC / NTIA	FCC / NTIA
Frequency Range (GHz)		7.125 ~ 7.75	7.75 ~ 8.47
FCC	T/R Spacing (MHz)	300	360
FCC	Channel Bandwidth (MHz)	10 20 30 40 50	10 20 30 40 50
RF Channel Selection		Via Web GUI	
System Configuration		1 + 0, 1+1 HSB and 2+0	
ATPC Range (dB)		Transmit Power Control – Adaptive, lower power limit varies with RF band down to 9dBm minimum.	

Transmit Power – 7 and 8 GHz	
Modulation	Maximum Transmit Power FCC / NTIA (dBm)
	7 and 8 GHz Frequencies
QPSK	22
8PSK	22
16 QAM	22
32 QAM	22
64 QAM	22
128 QAM	22
256 QAM	22

Cambium PTP 800 NTIA Models	
PTP 07800	7 GHz
PTP 08800	8 GHz

User Ethernet Data Throughput – 7 and 8 GHz					
Modulation	Maximum Throughput – Mbps (1518 Bytes/ Frame)				
	Channel Bandwidth (MHz)				
	10	20	30	40	50
256 QAM	N/A	113.6	177.4	236.7	301.6
128 QAM	50.9	102.2	155.1	206.9	258.6
64 QAM	42.8	84.9	135.5	181.9	217.4
32 QAM	33.7	67.8	103.6	150.7	178.6
16 QAM	29.1	58.5	77.9	103.9	150.5
8PSK	20.4	40.3	59.1	78.9	103.7
QPSK	13.8	28.5	39.4	52.6	65.7

Receive Sensitivity – 7 and 8 GHz					
Modulation	BER = 1e-6				
	7 and 8 GHz Receive Sensitivity (dBm) At Each Channel (MHz)				
	50	40	30	20	10
256 QAM	-65.3	-66.8	-67.8	-69.9	-
128 QAM	-68.5	-69.5	-70.7	-72.0	-74.2
64 QAM	-71.5	-71.9	-73.0	-75.4	-77.4
32 QAM	-73.8	-74.0	-76.3	-77.8	-80.0
16 QAM	-75.8	-78.9	-80.1	-80.1	-82.5
8PSK	-79.1	-81.1	-82.3	-83.1	-85.1
QPSK	-83.7	-84.7	-85.9	-87.1	-90.0

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.

[1] 301 Mbps maximum throughput requires a 50 MHz channel and 256 QAM which may not be available in certain regions due to regulatory restrictions.

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

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

[4] Receive sensitivity depends on frequency, channel bandwidth and modulation (-90.0 dBm is based on a 7 GHz model with 10 MHz channel bandwidth and the QPSK mode).

[5] While FIPS 140-2 is compatible with existing systems, certain hardware limitations may apply. Certification status may be confirmed at: http://csrc.nist.gov/groups/STM/cmvp/inprocess.html

[6] 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.

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

Cambium Networks™

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PTP 800 06-00 7-8 GHz SS 100413