



## WIRELESS NETWORK SOLUTIONS

# PTP 800

## Licensed Ethernet Microwave



Outdoor Unit (ODU)



Compact Modem Unit (CMU)

### High-Performance, Scalable Solutions

The Motorola Point-to-Point Licensed Ethernet Microwave solutions – PTP 800 – operate in the 6 to 38 GHz<sup>1</sup> licensed bands, at up to 368 Mbps throughput<sup>2</sup> (full duplex) and with user-configured channel bandwidths from 7 to 56 MHz. With upgradeable capacity from 10 Mbps to full capacity via software key, the systems offer exceptional cost efficiency and scalability. In addition, PTP 800 bridges provide high-performance, ultra-reliable connectivity for a variety of enterprises, including corporations, carriers, service providers, schools, universities, hospitals, utility companies, railroads, municipalities and government agencies.

With its small footprint and split-mount architecture, which includes an outdoor unit (ODU) and a compact modem unit (CMU), the PTP 800 installs quickly and easily. For those network environments where rack space is scarce or non-existent, the CMU can be mounted on a wall or set on a table.

The One Point Wireless Suite's PTP LINKPlanner tool allows you to accurately project performance

characteristics prior to purchase based on your specific radio path conditions. You can plan and optimize a single link or multiple links simultaneously, obtain configuration details to speed deployment, display a comprehensive overview of your entire wireless network via Google™ Earth and receive a complete licensed-microwave Bill-of-Materials to simplify the ordering process.

### Wireless Network Solutions

Motorola delivers seamless connectivity that puts real-time information in the hands of users, giving customers the agility they need to grow their business or better protect and serve the public. Working seamlessly together with its world-class devices, Motorola's unrivalled wireless network solutions include indoor WLAN, outdoor wireless mesh, point-to-multipoint, point-to-point networks and voice over WLAN solutions. Combined with powerful software for wireless network design, security, management and troubleshooting, Motorola's solutions deliver trusted networking and anywhere access to organizations across the globe.

<sup>1</sup> PTP 800 models operating in frequencies between 6 and 38 GHz will be available in a series of product releases.

<sup>2</sup> 368 Mbps maximum throughput requires a 56 MHz channel and 256 QAM which may not be available in certain regions due to regulatory restrictions.

## SPECIFICATION SHEET

### Motorola 6 to 38 GHz Licensed Ethernet Microwave – PTP 800

Radio Technology	Remarks
RF band <sup>3</sup>	L6 GHz Band: 5.925 – 6.425 GHz      18 GHz Band: 17.7 – 19.7 GHz U6 GHz Band: 6.425 – 7.100 GHz      23 GHz Band: 21.2 – 23.6 GHz 7 GHz Band: 7.125 – 7.9 GHz          26 GHz Band: 24.25 – 26.5 GHz 8 GHz Band: 7.725 – 8.5 GHz          28 GHz Band: 27.5 – 29.5 GHz 11 GHz Band: 10.7 – 11.7 GHz        32 GHz Band: 31.8 – 33.4 GHz 13 GHz Band: 12.75 – 13.25 GHz      38 GHz Band: 37.0 – 40.0 GHz 15 GHz Band: 14.4 – 15.35 GHz
Channel size	Configurable from 7 to 56 MHz
Maximum Tx power <sup>4</sup>	30 dBm
Best Rx sensitivity <sup>5</sup>	-90.9 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	Optional FIPS-197 compliant 128/256-Bit AES Encryption
<b>Ethernet Bridging</b>	
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 <sup>6</sup>	10 to 368 Mbps at the Ethernet (full duplex); use 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 option
<b>Management &amp; Installation</b>	
Network management	Inband and out-of-band
Protocol	SNMP v1/v2c
EMS	Web GUI management, Motorola One Point Wireless Suite
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 Motorola
<b>Physical</b>	
Physical configuration	Split mount – Compact Modem Unit (CMU) and Outdoor Unit (ODU)
Dimensions	Outdoor Unit (ODU): Diameter 10.5" (26.7 cm), Depth 3.5" (8.9 cm) Compact Modem Unit (CMU): Width 7.1" (18.0 cm), Height 1.4" (3.5 cm), Depth 8.7" (22.0 cm)
Weight	Outdoor Unit (ODU): 10.1 lbs (4.6 kg) Compact Modem Unit (CMU): 2.4 lbs (1.1 kg)
Wind speed survival	Outdoor Unit (ODU): 150 mph (242 kph)
Power source	-48V DC (-40.5V DC to -60V DC)
Power consumption	80 W (max), ODU + CMU
<b>Environmental &amp; Regulatory</b>	
Operating temperature	Outdoor Unit: -27° F (-33° C) to +131° F (+55° C) – EN 300 019-1-4 Compact Modem Unit: -27° F (-33° C) to +131° F (+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

<sup>3</sup> Regulatory conditions for RF bands may vary by geographic location and should be confirmed prior to system purchase.

<sup>4</sup> Transmit power depends on frequency, modulation and regulations (ETSI/FCC).

<sup>5</sup> Receive sensitivity depends on frequency, channel bandwidth and modulation (-90.9 dBm is based on an 11 GHz model with 7 MHz channel bandwidth and the QPSK mode).

<sup>6</sup> User throughput depends on the configuration of channel bandwidth, modulation and capacity license key. Full capacity is not available for all combinations of bands and regulations.

SPECIFICATION SHEET

PTP 800 Family of Products	
PTP L6800	L6 GHz
PTP U6800	U6 GHz
PTP 07800	7 GHz
PTP 08800	8 GHz
PTP 11800	11 GHz
PTP 13800	13 GHz
PTP 15800	15 GHz
PTP 18800	18 GHz
PTP 23800	23 GHz
PTP 26800	26 GHz
PTP 28800	28 GHz
PTP 32800	32 GHz
PTP 38800	38 GHz

Radio Configuration														
Frequency (GHz)	L6	U6	7	8	11	13	15	18	23	26	28	32	38	
<b>Standard</b>	ETSI / FCC	ETSI	ETSI	ETSI	ETSI / FCC	ETSI	ETSI	ETSI / FCC	ETSI / FCC	ETSI / FCC	ETSI	ETSI	ETSI / FCC	
<b>Frequency Range (GHz)</b>	5.925 ~ 6.425	6.425 ~ 7.100	7.125 ~ 7.9	7.725 ~ 8.5	10.7 ~ 11.7	12.75 ~ 13.25	14.4 ~ 15.35	17.7 ~ 19.7	21.2 ~ 23.6	24.25 ~ 26.5	27.5 ~ 29.5	31.8 ~ 33.4	37.0 ~ 40.0	
<b>FCC</b>	<b>T/R Spacing (MHz)</b>	252.04				490, 500			1560	1200	800		700	
	<b>Channel Bandwidth (MHz)</b>	10 30				10 30 40			10 20 30 40 50	10 20 30 40			10 50	
<b>ETSI</b>	<b>T/R Spacing (MHz)</b>	252.04	340	154 161 168 196 245	119 126 208 266 311.32	490 530	266	420 490 728	1008 1010	1008 1232	1008	1008	812	1260
	<b>Channel Bandwidth (MHz)</b>	29.65	20 30 40	7 14 28	7 14 28 29.65	40	7 14 28	7 14 28 56	7 13.75 27.5 55	7 14 28 56	7 14 28 56	7 14 28 56	7 14 28 56	7 14 28 56
<b>RF Channel Selection</b>	Via Web GUI													
<b>System Configuration</b>	1 + 0													
<b>ATPC Range (dB)</b>	Transmit Power Control – Adaptive, lower power limit varies with RF band down to 1dBm minimum.													

User Ethernet Data Throughput													
Modulation	Maximum Throughput – Mbps (1518 Bytes/Frame)												
	Channel Bandwidth (MHz)												
	7	13.75	14	27.5	28/ 29.65	55	56	10	20	30	40	50	
<b>256 QAM-H</b>	N/A	N/A	N/A	N/A	N/A	364.9	368.6	N/A	N/A	N/A	N/A	N/A	N/A
<b>256 QAM-L</b>	N/A	N/A	N/A	166.9	170.4	343.6	347.1	N/A	113.6	177.4	236.5	301.6	
<b>128 QAM</b>	34.4	69.8	71.0	148.0	151.1	300.4	303.5	50.7	102.2	155.1	206.8	258.6	
<b>64 QAM</b>	30.0	60.7	61.8	122.7	125.3	252.6	255.2	42.2	84.9	130.4 / 135.5 <sup>7</sup>	181.8	217.4	
<b>32 QAM</b>	N/A	49.9	50.8	99.1	101.2	N/A	N/A	34.7	67.8	103.6	150.7	178.6	
<b>16 QAM</b>	20.0	40.6	41.3	73.3	74.8	150.9	152.4	28.2	58.5	77.9	103.8	150.5	
<b>8PSK</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.8	40.3	59.1	78.9	103.7	
<b>QPSK</b>	10.1	20.0	20.3	37.0	37.8	76.3	77.1	13.9	28.5	39.4	52.5	65.7	

Transmit Power													
Modulation	Maximum Transmit Power – ETSI (dBm)									Maximum Transmit Power – FCC (dBm)			
	Frequency (GHz)									Frequency (GHz)			
	6, 7, 8	11	13, 15	18	23, 26	28	32	38	L6	11	18	23, 26	38
<b>QPSK</b>	30.0	28.0	26.0	26.0	25.0	25.0	23.0	23.0	22.0	19.0	23.0	23.0	20.0
<b>8PSK</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22.0	19.0	22.0	22.0	19.0
<b>16 QAM</b>	28.0	26.0	23.0	22.0	22.0	22.0	21.0	20.0	22.0	19.0	22.0	22.0	19.0
<b>32 QAM</b>	28.0	26.0	23.0	22.0	22.0	22.0	21.0	20.0	22.0	19.0	22.0	22.0	19.0
<b>64 QAM</b>	24.0	21.0	18.0	17.0	17.0	17.0	16.0	16.0	22.0	19.0	17.0	17.0	15.0
<b>128 QAM</b>	24.0	21.0	18.0	17.0	17.0	17.0	16.0	16.0	22.0	19.0	17.0	17.0	15.0
<b>256 QAM</b>	22.0	19.0	16.0	15.0	15.0	15.0	14.0	14.0	22.0	19.0	15.0	15.0	13.0

<sup>7</sup> 135.5 Mbps is available in Lower 6 GHz.

Receive Sensitivity									
BER = 1e-6	Modulation	Frequency (GHz)							
		6, 7, 8	11	13, 15	18	23, 26	28	32	38
Receive Sensitivity @ 56 MHz channel (dBm)	256 QAM-H	N/A	N/A	-63.7	N/A	-63.2	-62.7	-62.2	-61.2
	256 QAM-L	N/A	N/A	-65.6	N/A	-65.1	-64.6	-64.1	-63.1
	128 QAM	N/A	N/A	-68.3	N/A	-67.8	-67.3	-66.8	-65.8
	64 QAM	N/A	N/A	-71.3	N/A	-70.8	-70.3	-69.8	-68.8
	32 QAM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	16 QAM	N/A	N/A	-77.7	N/A	-77.2	-76.7	-76.2	-75.2
	8PSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	QPSK	N/A	N/A	-83.5	N/A	-83.0	-82.5	-82.0	-81.0
Receive Sensitivity @ 55 MHz channel (dBm)	256 QAM-H	N/A	N/A	N/A	-63.8	N/A	N/A	N/A	N/A
	256 QAM-L	N/A	N/A	N/A	-65.7	N/A	N/A	N/A	N/A
	128 QAM	N/A	N/A	N/A	-68.4	N/A	N/A	N/A	N/A
	64 QAM	N/A	N/A	N/A	-71.4	N/A	N/A	N/A	N/A
	32 QAM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	16 QAM	N/A	N/A	N/A	-77.8	N/A	N/A	N/A	N/A
	8PSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	QPSK	N/A	N/A	N/A	-83.6	N/A	N/A	N/A	N/A
Receive Sensitivity @ 50 MHz channel (dBm)	256 QAM	N/A	N/A	N/A	-65.8	-65.3	N/A	N/A	-62.3
	128 QAM	N/A	N/A	N/A	-69.0	-68.5	N/A	N/A	-65.5
	64 QAM	N/A	N/A	N/A	-72.0	-71.5	N/A	N/A	-68.5
	32 QAM	N/A	N/A	N/A	-74.3	-73.8	N/A	N/A	-70.8
	16 QAM	N/A	N/A	N/A	-76.3	-75.8	N/A	N/A	-72.8
	8PSK	N/A	N/A	N/A	-79.6	-79.1	N/A	N/A	-76.1
	QPSK	N/A	N/A	N/A	-84.2	-83.7	N/A	N/A	-80.7
Receive Sensitivity @ 40 MHz channel (dBm)	256 QAM	N/A	-67.3	N/A	-67.3	-66.8	N/A	N/A	N/A
	128 QAM	-69.5	-70.0	N/A	-70.0	-69.5	N/A	N/A	N/A
	64 QAM	-71.9	-72.4	N/A	-72.4	-71.9	N/A	N/A	N/A
	32 QAM	N/A	-74.5	N/A	-74.5	-74.0	N/A	N/A	N/A
	16 QAM	N/A	N/A	N/A	-79.4	-78.9	N/A	N/A	N/A
	8PSK	N/A	N/A	N/A	-81.6	-81.1	N/A	N/A	N/A
	QPSK	N/A	N/A	N/A	-85.2	-84.7	N/A	N/A	N/A
Receive Sensitivity @ 30 MHz channel (dBm)	256 QAM	-68.0	-68.5	N/A	-68.5	-68.0	N/A	N/A	N/A
	128 QAM	-70.7	-71.2	N/A	-71.2	-70.7	N/A	N/A	N/A
	64 QAM	-73.0	-74.2	N/A	-74.2	-73.7	N/A	N/A	N/A
	32 QAM	N/A	-76.8	N/A	-76.8	-76.3	N/A	N/A	N/A
	16 QAM	N/A	N/A	N/A	-80.6	-80.1	N/A	N/A	N/A
	8PSK	N/A	N/A	N/A	-82.8	-82.3	N/A	N/A	N/A
	QPSK	N/A	N/A	N/A	-86.4	-85.9	N/A	N/A	N/A
Receive Sensitivity @ 28/29.65 MHz channel (dBm)	256 QAM	-68.2	N/A	-68.7	N/A	-68.2	-67.7	-67.2	-66.2
	128 QAM	-70.9	N/A	-71.4	N/A	-70.9	-70.4	-69.9	-68.9
	64 QAM	-73.9	N/A	-74.4	N/A	-73.9	-73.4	-72.9	-71.9
	32 QAM	-76.4	N/A	-76.9	N/A	-76.4	-75.9	-75.4	-74.4
	16 QAM	-80.3	N/A	-80.8	N/A	-80.3	-79.8	-79.3	-78.3
	QPSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	QPSK	-86.1	N/A	-86.6	N/A	-86.1	-85.6	-85.1	-84.1

Receive Sensitivity									
BER = 1e-6	Modulation	Frequency (GHz)							
		6, 7, 8	11	13, 15	18	23, 26	28	32	38
Receive Sensitivity @ 27.5 MHz channel (dBm)	256 QAM	N/A	N/A	N/A	-68.8	N/A	N/A	N/A	N/A
	128 QAM	N/A	N/A	N/A	-71.5	N/A	N/A	N/A	N/A
	64 QAM	N/A	N/A	N/A	-74.5	N/A	N/A	N/A	N/A
	32 QAM	N/A	N/A	N/A	-77.0	N/A	N/A	N/A	N/A
	16 QAM	N/A	N/A	N/A	-80.9	N/A	N/A	N/A	N/A
	8PSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	QPSK	N/A	N/A	N/A	-86.7	N/A	N/A	N/A	N/A
Receive Sensitivity @ 20 MHz channel (dBm)	256 QAM	N/A	N/A	N/A	-70.6	-70.1	N/A	N/A	N/A
	128 QAM	N/A	N/A	N/A	-72.6	-72.1	N/A	N/A	N/A
	64 QAM	N/A	N/A	N/A	-75.9	-75.4	N/A	N/A	N/A
	32 QAM	N/A	N/A	N/A	-78.3	-77.8	N/A	N/A	N/A
	16 QAM	-80.1	N/A	N/A	-80.6	-80.1	N/A	N/A	N/A
	8PSK	N/A	N/A	N/A	-83.6	-83.1	N/A	N/A	N/A
	QPSK	N/A	N/A	N/A	-87.6	-87.1	N/A	N/A	N/A
Receive Sensitivity @ 14 MHz channel (dBm)	128 QAM	-73.5	N/A	-74.0	N/A	-73.5	-73.0	-72.5	-71.5
	64 QAM	-75.8	N/A	-76.3	N/A	-75.8	-75.3	-74.8	-73.8
	32 QAM	-77.8	N/A	-78.3	N/A	N/A	N/A	N/A	N/A
	16 QAM	-80.7	N/A	-81.2	N/A	-80.7	-80.2	-79.7	-78.7
	8PSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	QPSK	-87.4	N/A	-87.9	N/A	-87.4	-86.9	-86.4	-85.4
Receive Sensitivity @ 13.75 MHz channel (dBm)	128 QAM	N/A	N/A	N/A	-74.0	N/A	N/A	N/A	N/A
	64 QAM	N/A	N/A	N/A	-76.3	N/A	N/A	N/A	N/A
	32 QAM	N/A	N/A	N/A	-78.3	N/A	N/A	N/A	N/A
	16 QAM	N/A	N/A	N/A	-81.2	N/A	N/A	N/A	N/A
	8PSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	QPSK	N/A	N/A	N/A	-87.9	N/A	N/A	N/A	N/A
Receive Sensitivity @ 10 MHz channel (dBm)	128 QAM	-74.1	-74.6	N/A	-74.6	-74.1	N/A	N/A	-71.1
	64 QAM	N/A	N/A	N/A	-77.8	-77.3	N/A	N/A	-74.3
	32 QAM	N/A	N/A	N/A	-79.8	-79.3	N/A	N/A	-76.3
	16 QAM	N/A	N/A	N/A	-82.7	-82.2	N/A	N/A	-79.2
	8PSK	N/A	N/A	N/A	-85.0	-84.5	N/A	N/A	-81.5
	QPSK	N/A	N/A	N/A	-89.4	-88.9	N/A	N/A	-85.9
Receive Sensitivity @ 7 MHz channel (dBm)	128 QAM	-76.5	N/A	-77.0	-77.0	-76.5	-76.0	-75.5	-74.5
	64 QAM	-78.8	N/A	-79.3	-79.3	-78.8	-78.3	-77.8	-76.8
	32 QAM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	16 QAM	-83.7	N/A	-84.2	-84.2	-83.7	-83.2	-82.7	-81.7
	8PSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	QPSK	-90.4	N/A	-90.9	-90.9	-90.4	-89.9	-89.4	-88.4

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.



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