

PTP 850S Licensed Microwave Radio



All-Outdoor / Multi-Core Specifications

RADIO

- 6-38 GHz
- 1+0, 1+1 HSB, 2+0 SP or DP (No XPIC)

Radio Features

- Protection: 1+1 HSB
- QPSK to 4096 QAM w/ACM
- Channel bandwidth: 14 to 112 MHz
- Advanced Frequency Reuse (AFR)
- Multi Band (With PTP 850E or PTP 820E)

ETHERNET

Ethernet Interfaces

- Port 1: 10/100/1000Base-T (RJ-45)
 - Management and PoE
- Port 2: SFP Cage
 - Regular SFP
 - CSFP (Dual BiDir SFP)
- Port 3: SFP+ Cage with 10G
Note: SFP devices must be of industrial grade (-40°C to +85°C, -40°F to +185°F)

Ethernet Features

- MTU – 9612 Bytes
- Layer 3 Support
 - TWAMP
 - L3-VPN
 - IGP: OSPF, ISIS, ISIS-TE, ISIS-SR
 - BGP, eBGP Option A, MP-iBGP
 - RSVP-TE

- TI-LFA
- Segment routing
- Seamless MPLS (RSVP, LDP, IGMP)
- Quality of Service
 - Multiple Classification criteria (VLAN ID, P-bits, IPv4 DSCP, IPv6 TC, MPLS EXP)
 - 8 CoS queues per port
 - Deep buffering (configurable up to 64 Mbit per queue)
 - WRED
 - P-bit marking/remarking
- 4K VLANs
- VLAN add/remove
- Y.1731 Ethernet OAM
- Y.1731 Ethernet Bandwidth Notification (ETH-BN)

MANAGEMENT

SNMP

REST

SDN Support: NETCONF/YANG

SYNCHRONIZATION

- Enhanced Ethernet Equipment Clock (eEEEC) Specification (G.8262.1)
- PTP Telecom Boundary Clock (T-BC) and Time Slave Clock (T-TSC) Specification (G.8273.2)
- PTP Telecom Transparent Clock (T-TC) Specification (G.8273.3)
- Enhanced SyncE Network Limits (G.8261, clause 9.2.1)
- Enhanced PTP Network Limits (G.8271.1)

- Ethernet Synchronization Messaging Channel (ESMC) (G.8264, clause 11)
- PTP Telecom Profile for Time (Full Timing Support) (G.8275.1)
- Precision Time Protocol (version 2, IEEE1588-2008)

STANDARD

MEF

- Carrier Ethernet 2.0 (CE 2.0)

Supported Ethernet Standards

- 10/100/1000base-T/X (IEEE 802.3)
- Optical 10Gbase-X (IEEE 802.3)
- Ethernet VLANs (IEEE 802.3ac)
- Virtual LAN (VLAN, IEEE 802.1Q)
- Class of service (IEEE 802.1p)
- Provider bridges (QinQ – 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

Security

- AES 256-bit Encryption
- Secured protocols (HTTPS, SNMPV3, SSH, SFTP)
- Radius authentication and authorization
- TACACS+ authentication and authorization (session-based)

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, CSA C22.2.60950-22

- Storage: ETSI EN 300 019-1-1 Class 1.2
- Transportation: ETSI EN 300 019-1-2 Class 2.
- Ingress Protection: IP66-compliant

TECHNICAL SPECIFICATION

Mechanical Specifications

- Dimensions (Direct Mount HW): 217mm(H), 210mm(W), 85mm(D), 4kg; 8.54”(H), 8.27”(W), 3.35”(D), 8.82 lbs.
- Pole Diameter Range (for Remote Mount Installation): 8.89cm – 11.43cm; 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

- Active:
 - 11 GHz: 45W
 - 13 - 15 GHz: 35W
 - 18 - 23 GHz: 31W
 - Standby (Muted): 15W

Specifications

TRANSMIT POWER

Transmit Power (dBm)	Frequency (GHz)											
	6	7	8	11	13	15	18	23	24	26	28-32	38
BPSK-QPSK	28	28	28	29	27	24	24	25	0	24	18	22
8 PSK	28	28	28	29	27	24	24	25	0	24	18	22
16 QAM	28	27	27	29	26	24	24	25	0	24	17	21
32 QAM	27	27	26	29	25	24	24	24	0	22	16	21
64 QAM	27	26	26	27	24	24	23	24	0	22	16	20
128 QAM	27	26	26	26	23	24	23	24	0	20	16	20
256 QAM	27	26	26	25	22	24	23	22	0	20	14	19
512 QAM	25	25	24	25	22	23	22	22	0	20	14	19
1024 QAM	25	24	24	24	20	22	21	21	0	19	13	18
2048 QAM	23	23	22	23	19	21	20	20	0	19	12	18
4096 QAM	21	21	20	21	17	19	19	-	-	-	-	-

RECEIVE SENSITIVITY

Modulation	Channel Spacing	Frequency (GHz)												
		6	7	8	11	13	15	18	23	24	26	28-31	32	38
BPSK	14 MHz	-91.5	-91.0	-91.0	-91.5	-90.5	-89.5	-91.0	-90.0	-89.5	-89.5	-89.5	-89.0	-89.0
QPSK		-90.5	-90.0	-90.0	-90.5	-89.5	-88.5	-90.0	-89.0	-88.5	-88.5	-88.5	-88.0	-88.0
8 PSK		-84.5	-84.0	-84.0	-85.5	-83.5	-82.5	-84.0	-83.0	-82.5	-82.5	-82.5	-82.0	-82.0
16 QAM		-83.5	-83.0	-83.0	-83.5	-82.5	-81.5	-83.0	-82.0	-81.5	-81.5	-81.5	-81.0	-81.0
32 QAM		-80.5	-79.5	-79.5	-80.5	-79.0	-78.5	-79.5	-79.0	-78.5	-78.5	-78.0	-78.0	-77.5
64 QAM		-77.5	-76.5	-76.5	-77.0	-76.0	-75.5	-76.5	-76.0	-75.5	-75.5	-75.0	-75.0	-74.5
128 QAM		-74.0	-73.5	-73.5	-74.0	-73.0	-72.0	-73.5	-72.5	-72.0	-72.0	-72.0	-71.5	-71.5
256 QAM		-71.5	-70.5	-70.5	-71.0	-70.0	-69.5	-70.5	-69.5	-69.0	-69.5	-69.0	-69.0	-68.5
512 QAM		-68.5	-68.0	-68.0	-68.5	-67.5	-66.5	-68.0	-67.0	-66.5	-66.5	-66.5	-66.0	-66.0
1024 QAM Strong		-65.5	-65.0	-65.0	-65.5	-64.5	-63.5	-65.0	-64.0	-63.5	-63.5	-63.5	-63.0	-63.0
1024 QAM Light		-65.0	-64.0	-64.0	-64.5	-63.5	-63.0	-64.0	-63.5	-63.0	-63.0	-62.5	-62.5	-62.0
BPSK	20 MHz	-91.5	-91.5	-91.5	-92.0	-91.0	-90.0	-91.5	-90.5	-87.0	-90.0	-90.0	-89.5	-89.0
QPSK		-88.5	-88.5	-88.5	-89.5	-88.0	-87.5	-88.5	-88.0	-84.0	-87.5	-87.0	-87.0	-86.5
8 PSK		-83.5	-83.5	-83.5	-84.0	-83.0	-82.0	-83.5	-82.5	-79.0	-82.0	-82.0	-81.5	-81.0
16 QAM		-82.0	-82.0	-82.0	-82.5	-81.5	-80.5	-82.0	-81.0	-77.5	-80.5	-80.5	-80.0	-79.5
32 QAM		-78.0	-78.0	-78.0	-79.0	-77.5	-77.0	-78.0	-77.5	-73.5	-77.0	-76.5	-76.5	-76.0
64 QAM		-75.5	-75.5	-75.5	-76.0	-75.0	-74.0	-75.5	-74.5	-71.0	-74.0	-74.0	-73.5	-73.0
128 QAM		-72.5	-72.5	-72.5	-73.0	-71.5	-71.0	-72.5	-71.5	-68.0	-71.0	-71.0	-70.5	-70.0
256 QAM		-69.0	-69.0	-69.0	-70.0	-68.5	-68.0	-69.0	-68.5	-64.5	-68.0	-67.5	-67.5	-67.0
512 QAM		-67.0	-67.0	-67.0	-67.5	-66.0	-65.5	-67.0	-66.0	-62.5	-65.5	-65.5	-65.0	-64.5
1024 QAM Strong		-64.0	-64.0	-64.0	-65.0	-63.5	-63.0	-64.0	-63.5	-59.5	-63.0	-62.5	-62.5	-62.0
1024 QAM Light		-63.0	-63.0	-63.0	-64.0	-62.5	-62.0	-63.0	-62.5	-58.5	-62.0	-61.5	-61.5	-61.0
BPSK	25MHz	-88.5	-87.5	-87.5	-88.0	-87.0	-86.5	-87.5	-86.5	-83.0	-86.5	-86.0	-86.0	-85.0
QPSK		-87.5	-86.5	-86.5	-87.0	-86.0	-85.5	-86.5	-85.5	-82.0	-85.5	-85.0	-85.0	-84.0
8 PSK		-82.5	-82.0	-82.0	-82.5	-81.5	-80.5	-82.0	-81.0	-77.5	-80.5	-80.5	-80.0	-79.5
16 QAM		-80.5	-80.0	-80.0	-80.5	-79.5	-78.5	-80.0	-79.0	-75.5	-78.5	-78.5	-78.0	-77.5
32 QAM		-77.5	-77.0	-77.0	-77.5	-76.0	-75.5	-77.0	-76.0	-72.5	-75.5	-75.5	-75.0	-74.5
64 QAM		-74.5	-74.0	-74.0	-74.5	-73.5	-72.5	-74.0	-73.0	-69.5	-72.5	-72.5	-72.0	-71.5
128 QAM		-71.5	-71.0	-71.0	-71.5	-70.5	-69.5	-71.0	-70.0	-66.5	-69.5	-69.5	-69.0	-68.5
256 QAM		-68.5	-67.5	-67.5	-68.5	-67.0	-66.5	-67.5	-67.0	-63.0	-66.5	-66.0	-66.0	-65.5
512 QAM		-66.0	-65.0	-65.0	-66.0	-64.5	-64.0	-65.0	-64.5	-60.5	-64.0	-63.5	-63.5	-63.0
1024 QAM Strong		-63.0	-62.5	-62.5	-63.0	-61.5	-61.0	-62.5	-61.5	-58.0	-61.0	-61.0	-60.5	-60.0

PTP 850S SPECIFICATION SHEET

Modulation	Channel Spacing	6	7	8	11	13	15	18	23	24	26	28-31	32	38	
1024 QAM Light	25 MHz	-62.5	-61.5	-61.5	-62.5	-61.0	-60.5	-61.5	-61.0	-57.0	-60.5	-60.0	-60.0	-59.5	
2048 QAM		-58.5	-58.0	-58.0	-58.5	-57.0	-56.5	-58.0	-57.0	-53.5	-56.5	-56.5	-56.0	-55.5	
4096 QAM		-55.5	-55.0	-55.0	-55.5	-54.0	-53.5	-55.0	-	-	-	-	-	-	
BPSK	28 MHz ESTI	-88.5	-88.0	-88.0	-88.5	-87.5	-86.5	-88.0	-87.0	-86.5	-86.5	-86.5	-86.0	-86.0	
QPSK		-87.5	-87.0	-87.0	-87.5	-86.5	-85.5	-87.0	-86.0	-85.5	-85.5	-85.5	-85.0	-85.0	
8 PSK		-83.0	-82.5	-82.5	-83.0	-82.0	-81.0	-82.5	-81.5	-81.0	-81.0	-81.0	-80.5	-80.5	
16 QAM		-81.0	-80.5	-80.5	-81.0	-79.5	-79.0	-80.5	-79.5	-79.0	-79.0	-79.0	-78.5	-78.0	
32 QAM		-77.5	-77.0	-77.0	-77.5	-76.0	-75.5	-77.0	-76.0	-75.5	-75.5	-75.5	-75.0	-74.5	
64 QAM		-74.5	-74.0	-74.0	-74.5	-73.0	-72.5	-74.0	-73.0	-72.5	-72.5	-72.5	-72.0	-71.5	
128 QAM		-71.5	-70.5	-70.5	-71.0	-70.0	-69.5	-70.5	-69.5	-69.0	-69.5	-69.0	-69.0	-68.5	
256 QAM		-68.5	-67.5	-67.5	-68.0	-67.0	-66.5	-67.5	-66.5	-66.0	-66.5	-66.0	-66.0	-65.5	
512 QAM		-66.0	-65.0	-65.0	-66.0	-64.5	-64.0	-65.0	-64.5	-64.0	-64.0	-63.5	-63.5	-63.0	
1024 QAM Strong		-63.0	-62.5	-62.5	-63.0	-61.5	-61.0	-62.5	-61.5	-61.0	-61.0	-61.0	-60.5	-60.0	
1024 QAM Light		-62.0	-61.5	-61.5	-62.0	-60.5	-60.0	-61.5	-60.5	-60.0	-60.0	-60.0	-59.5	-59.0	
2048 QAM		-58.5	-58.0	-58.0	-58.5	-57.0	-56.5	-58.0	-57.0	-56.5	-56.5	-56.5	-56.0	-55.5	
4096 QAM		-55.5	-55.0	-55.0	-55.5	-54.0	-53.5	-55.0	-	-	-	-	-	-	
BPSK		30 MHz (ANSI)	-88.5	-88.0	-88.0	-88.5	-87.0	-86.5	-88.0	-87.0	-83.5	-86.5	-86.5	-86.5	-86.0
QPSK			-87.5	-87.0	-87.0	-87.5	-86.0	-85.5	-87.0	-86.0	-82.5	-85.5	-85.5	-85.5	-85.0
8 PSK	-82.5		-81.5	-81.5	-82.5	-81.0	-80.5	-81.5	-81.0	-77.0	-80.5	-80.0	-80.0	-79.5	
16 QAM	-81.0		-80.0	-80.0	-80.5	-79.5	-79.0	-80.0	-79.0	-75.5	-79.0	-78.5	-78.5	-78.0	
32 QAM	-77.0		-76.5	-76.5	-77.0	-76.0	-75.0	-76.5	-75.5	-72.0	-75.0	-75.0	-75.0	-74.5	
64 QAM	-74.5		-73.5	-73.5	-74.0	-73.0	-72.5	-73.5	-72.5	-69.0	-72.5	-72.0	-72.0	-71.5	
128 QAM	-71.0		-70.5	-70.5	-71.0	-70.0	-69.0	-70.5	-69.5	-66.0	-69.0	-69.0	-69.0	-68.5	
256 QAM	-68.0		-67.5	-67.5	-68.0	-67.0	-66.0	-67.5	-66.5	-63.0	-66.0	-66.0	-66.0	-65.5	
512 QAM	-66.0		-65.5	-65.5	-66.0	-64.5	-64.0	-65.5	-64.5	-61.0	-64.0	-64.0	-64.0	-63.5	
1024 QAM Strong	-63.0		-62.0	-62.0	-62.5	-61.5	-61.0	-62.0	-61.0	-57.5	-61.0	-60.5	-60.5	-60.0	
1024 QAM Light	-62.0		-61.0	-61.0	-62.0	-60.5	-60.0	-61.0	-60.5	-56.5	-60.0	-59.5	-59.5	-59.0	
2048 QAM	-58.0		-57.5	-57.5	-58.0	-56.5	-56.0	-57.5	-56.5	-53.0	-56.0	-56.0	-56.0	-55.5	
4096 QAM	-55.0		-54.5	-54.5	-55.0	-53.5	-53.0	-54.5	-	-	-	-	-	-	
BPSK	40 MHz (ESTI and ANSI)		-87.0	-86.5	-86.5	-87.0	-86.0	-85.0	-86.5	-85.5	-85.0	-85.0	-85.0	-84.5	-84.5
QPSK			-86.0	-85.5	-85.5	-86.0	-85.0	-84.0	-85.5	-84.5	-84.0	-84.0	-84.0	-83.5	-83.5
8 PSK		-81.0	-80.5	-80.5	-81.0	-79.5	-79.0	-80.5	-79.5	-79.0	-79.0	-79.0	-78.5	-78.0	
16 QAM		-79.5	-79.0	-79.0	-79.5	-78.0	-77.5	-79.0	-78.0	-77.5	-77.5	-77.5	-77.0	-76.5	
32 QAM		-76.0	-75.0	-75.0	-75.5	-74.5	-74.0	-75.0	-74.0	-73.5	-74.0	-73.5	-73.5	-73.0	
64 QAM		-73.0	-72.0	-72.0	-73.0	-71.5	-71.0	-72.0	-71.5	-71.0	-71.0	-70.5	-70.5	-70.0	
128 QAM		-70.0	-69.0	-69.0	-70.0	-68.5	-68.0	-69.0	-68.5	-68.0	-68.0	-67.5	-67.5	-67.0	
256 QAM		-67.0	-66.0	-66.0	-66.5	-65.5	-65.0	-66.0	-65.0	-64.5	-65.0	-64.5	-64.5	-64.0	
512 QAM		-64.0	-63.5	-63.5	-64.0	-62.5	-62.0	-63.5	-62.5	-62.0	-62.0	-62.0	-61.5	-61.0	
1024 QAM Strong		-61.5	-61.0	-61.0	-61.5	-60.0	-59.5	-61.0	-60.0	-59.5	-59.5	-59.5	-59.0	-58.5	
1024 QAM Light		-60.5	-60.0	-60.0	-60.5	-59.5	-58.5	-60.0	-59.0	-58.5	-58.5	-58.5	-58.0	-58.0	
2048 QAM		-58.0	-57.0	-57.0	-58.0	-56.5	-56.0	-57.0	-56.5	-56.0	-56.0	-55.5	-55.5	-55.0	
4096 QAM		-55.0	-54.0	-54.0	-55.0	-53.5	-53.0	-54.0	-	-	-	-	-	-	
BPSK		50 MHz (ANSI)	-86.5	-85.5	-85.5	-86.0	-85.0	-84.5	-85.5	-84.5	-81.0	-84.5	-84.0	-84.0	-83.5
QPSK			-85.5	-84.5	-84.5	-85.0	-84.0	-83.5	-84.5	-83.5	-80.0	-83.5	-83.0	-83.0	-82.5
8 PSK	-80.0		-79.5	-79.5	-80.0	-79.0	-78.0	-79.5	-78.5	-75.0	-78.0	-78.0	-78.0	-77.5	
16 QAM	-78.5		-77.5	-77.5	-78.0	-77.0	-76.5	-77.5	-76.5	-73.0	-76.5	-76.0	-76.0	-75.5	
32 QAM	-74.5		-74.0	-74.0	-74.5	-73.5	-72.5	-74.0	-73.0	-69.5	-72.5	-72.5	-72.5	-72.0	
64 QAM	-71.5		-70.5	-70.5	-71.5	-70.0	-69.5	-70.5	-70.0	-66.0	-69.5	-69.0	-69.0	-68.5	
128 QAM	-68.5		-68.0	-68.0	-68.5	-67.5	-66.5	-68.0	-67.0	-63.5	-66.5	-66.5	-66.5	-66.0	
256 QAM	-66.0		-65.0	-65.0	-66.0	-64.5	-64.0	-65.0	-64.5	-60.5	-64.0	-63.5	-63.5	-63.0	
512 QAM	-63.5		-63.0	-63.0	-63.5	-62.0	-61.5	-63.0	-62.0	-58.5	-61.5	-61.5	-61.5	-61.0	
1024 QAM Strong	-60.0		-59.5	-59.5	-60.0	-58.5	-58.0	-59.5	-58.5	-55.0	-58.0	-58.0	-58.0	-57.5	

PTP 850S SPECIFICATION SHEET

Modulation	Channel Spacing	6	7	8	11	13	15	18	23	24	26	28-31	32	38	
1024 QAM Light	50 MHz (ANSI)	-59.0	-58.0	-58.0	-59.0	-57.5	-57.0	-58.0	-57.5	-53.5	-57.0	-56.5	-56.5	-56.0	
2048 QAM		-57.0	-56.0	-56.0	-56.5	-55.5	-55.0	-56.0	-55.0	-51.5	-55.0	-54.5	-54.5	-54.0	
4096 QAM		-54.0	-53.0	-53.0	-53.5	-52.5	-52.0	-	-	-	-	-	-	-	
BPSK	56 MHz (ESTI)	-85.5	-85.0	-85.0	-85.5	-84.0	-83.5	-85.0	-84.0	-83.5	-83.5	-83.5	-83.0	-82.5	
QPSK		-84.5	-84.0	-84.0	-84.5	-83.0	-82.5	-84.0	-83.0	-82.5	-82.5	-82.5	-82.0	-81.5	
8 PSK		-80.0	-79.0	-79.0	-79.5	-78.5	-78.0	-79.0	-78.0	-77.5	-78.0	-77.5	-77.5	-77.0	
16 QAM		-77.5	-77.0	-77.0	-77.5	-76.0	-75.5	-77.0	-76.0	-75.5	-75.5	-75.5	-75.0	-74.5	
32 QAM		-74.0	-73.0	-73.0	-73.5	-72.5	-72.0	-73.0	-72.0	-71.5	-72.0	-71.5	-71.5	-71.0	
64 QAM		-70.5	-70.0	-70.0	-70.5	-69.5	-68.5	-70.0	-69.0	-68.5	-68.5	-68.5	-68.0	-68.0	
128 QAM		-68.0	-67.0	-67.0	-67.5	-66.5	-66.0	-67.0	-66.0	-65.5	-66.0	-65.5	-65.5	-65.0	
256 QAM		-64.5	-64.0	-64.0	-64.5	-63.5	-62.5	-64.0	-63.0	-62.5	-62.5	-62.5	-62.0	-62.0	
512 QAM		-62.5	-62.0	-62.0	-62.5	-61.5	-60.5	-62.0	-61.0	-60.5	-60.5	-60.5	-60.0	-60.0	
1024 QAM Strong		-59.0	-58.5	-58.5	-59.0	-58.0	-57.0	-58.5	-57.5	-57.0	-57.0	-57.0	-56.5	-56.5	
1024 QAM Light		-58.0	-57.5	-57.5	-58.0	-57.0	-56.0	-57.5	-56.5	-56.0	-56.0	-56.0	-55.5	-55.5	
2048 QAM		-55.5	-54.5	-54.5	-55.0	-54.0	-53.5	-54.5	-53.5	-53.0	-53.5	-53.0	-53.0	-52.5	
4096 QAM		-52.5	-51.5	-51.5	-52.0	-51.0	-50.5	-	-	-	-	-	-	-	
BPSK		60 MHz (ANSI)	-86.0	-85.0	-85.0	-85.5	-84.0	-83.5	-85.0	-84.0	-83.5	-83.5	-83.5	-83.0	-82.5
QPSK	-85.0		-84.0	-84.0	-84.5	-83.0	-82.5	-84.0	-83.0	-82.5	-82.5	-82.5	-82.0	-81.5	
8 PSK	-80.5		-79.0	-79.0	-79.5	-78.5	-78.0	-79.0	-78.0	-77.5	-78.0	-77.5	-77.5	-77.0	
16 QAM	-78.0		-77.0	-77.0	-77.5	-76.0	-75.5	-77.0	-76.0	-75.5	-75.5	-75.5	-75.0	-74.5	
32 QAM	-74.5		-73.0	-73.0	-73.5	-72.5	-72.0	-73.0	-72.0	-71.5	-72.0	-71.5	-71.5	-71.0	
64 QAM	-71.5		-70.0	-70.0	-70.5	-69.5	-68.5	-70.0	-69.0	-68.5	-68.5	-68.5	-68.0	-68.0	
128 QAM	-69.0		-67.0	-67.0	-67.5	-66.5	-66.0	-67.0	-66.0	-65.5	-66.0	-65.5	-65.5	-65.0	
256 QAM	-65.5		-64.0	-64.0	-64.5	-63.5	-62.5	-64.0	-63.0	-62.5	-62.5	-62.5	-62.0	-62.0	
512 QAM	-63.5		-62.0	-62.0	-62.5	-61.5	-60.5	-62.0	-61.0	-60.5	-60.5	-60.5	-60.0	-60.0	
1024 QAM Strong	-60.0		-58.5	-58.5	-59.0	-58.0	-57.0	-58.5	-57.5	-57.0	-57.0	-57.0	-56.5	-56.5	
1024 QAM Light	-59.0		-57.5	-57.5	-58.0	-57.0	-56.0	-57.5	-56.5	-56.0	-56.0	-56.0	-55.5	-55.5	
2048 QAM	-56.5		-54.5	-54.5	-55.0	-54.0	-53.5	-54.5	-53.5	-53.0	-53.5	-53.0	-53.0	-52.5	
4096 QAM	-53.5		-51.5	-51.5	-52.0	-51.0	-50.5	-	-	-	-	-	-	-	
BPSK	80 MHz (ESTI and ANSI)		-85.0	-85.0	-85.0	-85.5	-84.5	-83.5	-85.0	-84.0	-83.5	-83.5	-83.5	-83.0	-83.5
QPSK		-82.5	-82.5	-82.5	-83.0	-82.0	-81.5	-82.5	-81.5	-81.0	-81.5	-81.0	-81.0	-81.0	
8 PSK		-79.0	-79.0	-79.0	-79.5	-78.5	-77.5	-79.0	-78.0	-77.5	-77.5	-77.5	-77.0	-77.5	
16 QAM		-76.0	-76.0	-76.0	-76.5	-75.0	-74.5	-76.0	-75.0	-74.5	-74.5	-74.5	-74.0	-74.0	
32 QAM		-72.5	-72.5	-72.5	-73.0	-71.5	-71.0	-72.5	-71.5	-71.0	-71.0	-71.0	-70.5	-70.5	
64 QAM		-69.0	-69.0	-69.0	-70.0	-68.5	-68.0	-69.0	-68.5	-68.0	-68.0	-67.5	-67.5	-67.5	
128 QAM		-66.5	-66.5	-66.5	-67.0	-66.0	-65.0	-66.5	-65.5	-65.0	-65.0	-65.0	-64.5	-65.0	
256 QAM		-63.5	-63.5	-63.5	-64.0	-63.0	-62.0	-63.5	-62.5	-62.0	-62.0	-62.0	-61.5	-62.0	
512 QAM		-61.0	-61.0	-61.0	-62.0	-60.5	-60.0	-61.0	-60.5	-60.0	-60.0	-59.5	-59.5	-59.5	
1024 QAM Strong		-58.0	-58.0	-58.0	-58.5	-57.5	-56.5	-58.0	-57.0	-56.5	-56.5	-56.5	-56.0	-56.5	
1024 QAM Light		-57.0	-57.0	-57.0	-58.0	-56.5	-56.0	-57.0	-56.5	-56.0	-56.0	-55.5	-55.5	-55.5	
2048 QAM		-54.5	-54.5	-54.5	-55.5	-54.0	-53.5	-54.5	-54.0	-53.5	-53.5	-53.0	-53.0	-	
BPSK		112 MHz (ESTI)	-82.0	-81.5	-81.5	-82.0	-80.5	-80.0	-81.5	-80.5	-80.0	-80.0	-80.0	-79.5	-79.0
QPSK			-81.0	-80.5	-80.5	-81.0	-79.5	-79.0	-80.5	-79.5	-79.0	-79.0	-79.0	-78.5	-78.0
8 PSK	-76.5		-75.5	-75.5	-76.0	-75.0	-74.5	-75.5	-74.5	-74.0	-74.5	-74.0	-74.0	-73.5	
16 QAM	-74.0		-73.5	-73.5	-74.0	-72.5	-72.0	-73.5	-72.5	-72.0	-72.0	-72.0	-71.5	-71.0	
32 QAM	-70.5		-69.5	-69.5	-70.0	-69.0	-68.5	-69.5	-68.5	-68.0	-68.5	-68.0	-68.0	-67.5	
64 QAM	-67.0		-66.5	-66.5	-67.0	-66.0	-65.0	-66.5	-65.5	-65.0	-65.0	-65.0	-64.5	-64.5	
128 QAM	-64.5		-63.5	-63.5	-64.0	-63.0	-62.5	-63.5	-62.5	-62.0	-62.5	-62.0	-62.0	-61.5	
256 QAM	-61.0		-60.5	-60.5	-61.0	-60.0	-59.0	-60.5	-59.5	-59.0	-59.0	-59.0	-58.5	-58.5	
512 QAM	-59.0		-58.5	-58.5	-59.0	-58.0	-57.0	-58.5	-57.5	-57.0	-57.0	-57.0	-56.5	-56.5	
1024 QAM Strong	-55.5		-55.0	-55.0	-55.5	-54.5	-53.5	-55.0	-54.0	-53.5	-53.5	-53.5	-53.0	-53.0	
1024 QAM Light	-54.5		-54.0	-54.0	-54.5	-53.5	-52.5	-54.0	-53.0	-52.5	-52.5	-52.5	-52.0	-52.0	
2048 QAM	-52.0		-51.0	-51.0	-51.5	-50.5	-50.0	-51.0	-50.0	-49.5	-50.0	-49.5	-49.5	-	

ETHERNET THROUGHPUT

ESTI Channel	Capacity (Mbps)	Capacity De-Dup	Capacity (Mbps)	Capacity De-Dup	Capacity (Mbps)	Capacity De-Dup
Modulation	14 MHz		28 MHz		40 MHz	
BPSK	6-8	7-25	18-22	19-68	26-31	27-97
QPSK	17-20	17-63	40-49	42-152	55-67	58-209
8 QAM	26-32	28-100	59-72	62-225	83-102	87-317
16 QAM	38-46	39-143	84-103	89-321	114-140	120-435
32 QAM	50-62	53-192	112-137	118-426	152-185	159-577
64 QAM	63-77	66-238	139-170	146-527	187-228	196-710
128 QAM	76-93	80-290	167-205	176-637	227-277	238-862
256 QAM	87-107	92-333	193-236	203-734	244-298	256-927
512 QAM	97-119	102-369	206-251	216-782	267-327	281-1016
1024 QAM Strong	103-126	108-391	225-274	236-854	303-371	319-1026
1024 QAM Light	109-133	115-415	238-291	250-906	323-394	339-1026
2048 QAM	–	–	260-318	273-989	349-427	367-1026
4096 QAM	–	–	277-339	291-1026	369-451	388-1026
ESTI Channel	56 MHz		80 MHz		112 MHz	
BPSK	40-49	42-153	55-67	57-208	80-97	84-303
QPSK	84-103	88-320	111-136	117-424	163-200	172-622
8 QAM	124-151	130-471	159-195	167-606	244-299	256-929
16 QAM	173-212	182-658	228-279	240-869	333-407	350-1026
32 QAM	229-280	240-870	301-367	316-1026	439-536	461-1026
64 QAM	281-344	296-1026	369-451	387-1026	539-659	566-1026
128 QAM	341-416	358-1026	436-533	458-1026	652-797	685-1026
256 QAM	394-481	414-1026	502-614	528-1026	746-912	784-1026
512 QAM	424-518	445-1026	552-675	580-1026	810-990	851-1026
1024 QAM Strong	461-564	484-1026	601-735	631-1026	879-1037	923-1026
1024 QAM Light	490-599	515-1026	638-780	670-1026	933-1037	980-1026
2048 QAM	531-649	558-1026	676-826	710-1026	1002-1037	1002-1026
4096 QAM	547-668	574-1026	–	–	–	–

ANSI Channel	Capacity (Mbps)	Capacity De-Dup	Capacity (Mbps)	Capacity De-Dup	Capacity (Mbps)	Capacity De-Dup
	20 MHz		25 MHz		30 MHz	
BPSK	11-13	11-40	14-17	15-54	18-22	19-68
QPSK	25-30	26-94	33-40	34-124	40-49	42-152
8 QAM	39-47	41-148	50-61	53-191	59-72	62-225
16 QAM	54-66	57-206	69-85	73-264	84-103	89-321
32 QAM	72-88	76-275	93-113	97-352	112-137	118-426
64 QAM	90-109	94-340	114-140	120-435	139-170	146-527
128 QAM	109-133	114-413	138-169	145-526	167-205	176-637
256 QAM	124-151	130-470	158-193	166-601	193-236	203-734
512 QAM	135-165	142-515	175-214	184-665	206-251	216-782
1024 QAM Strong	144-176	151-548	186-227	195-708	225-274	236-854
1024 QAM Light	153-187	161-583	198-242	208-752	238-291	250-906
2048 QAM	–	–	212-260	223-808	260-318	273-989
4096 QAM	–	–	230-281	242-875	277-339	291-1026

PTP 850S SPECIFICATION SHEET

ANSI Channel	Capacity (Mbps)	Capacity De-Dup	Capacity (Mbps)	Capacity De-Dup	Capacity (Mbps)	Capacity De-Dup
	40 MHz		50 MHz		60 MHz	
BPSK	26-31	27-97	33-40	35-126	40-49	42-153
QPSK	55-67	58-209	68-83	71-257	84-103	88-320
8 QAM	83-102	87-317	106-130	111-403	124-151	130-471
16 QAM	114-140	120-435	145-177	152-552	173-212	182-658
32 QAM	152-185	159-577	183-224	192-696	229-280	240-870
64 QAM	187-228	196-710	237-290	249-901	281-344	296-1026
128 QAM	227-277	238-862	277-339	291-1026	341-416	358-1026
256 QAM	244-298	256-927	329-402	345-1026	394-481	414-1026
512 QAM	267-327	281-1016	357-437	375-1026	424-518	445-1026
1024 QAM Strong	303-371	319-1026	389-475	408-1026	461-564	484-1026
1024 QAM Light	323-394	339-1026	413-505	434-1026	490-599	515-1026
2048 QAM	349-427	367-1026	446-545	468-1026	531-649	558-1026
4096 QAM	369-451	388-1026	463-565	486-1026	547-668	574-1026
	80MHz					
BPSK	55-67	57-208				
QPSK	111-136	117-424				
8 QAM	159-195	167-606				
16 QAM	228-279	240-869				
32 QAM	301-367	316-1026				
64 QAM	369-451	387-1026				
128 QAM	436-533	458-1026				
256 QAM	502-614	528-1026				
512 QAM	552-675	580-1026				
1024 QAM Strong	601-735	631-1026				
1024 QAM Light	638-780	670-1026				
2048 QAM	676-826	710-1026				