CERAGON

Datasheet

FibeAir IP-20E

REV. A | NOV 2016

Radio

Supported Frequency Range

71-76 GHz, 81-86 GHz

Radio Configurations

1+0, 2+0

Radio Features

BPSK to 1024 QAM w/ACM

Ethernet

Ethernet Interfaces

1 x 10/100/1000Base-T (RJ-45) used with Proprietary PoE or external DC support (adapter)

SFP cage supporting:

Regular SFP – single ETH interface

CSFP (BiDir SFP) – Dual ETH interface

1 x 10/100/1000Base-T (RJ-45) used as default management port or for traffic – management can be reassigned to any data port by configuration

Note: SFP devices must be of industrial grade (-40°C to +85°C, -40°F to +185°F)

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 OAM*

Header DeDuplication – Capacity boosting by eliminating inefficiency in all layers (L2,MPLS, L3,L4, Tunneling – GTP for LTE, GRE)**

Adaptive Bandwidth Notification ABN, also known as EOAM)

Synchronization

Synchronization Distribution

Sync Distribution over any traffic interface (GE/FE)*

SyncE (ITU-T G.8261, G.8262)*

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

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

IEEE-1588

Optimized Transport for reduced PDV*

IEEE-1588 TC*

Standards

MEF

Carrier Ethernet 2.0 (CE 2.0)

Supported Ethernet Standards

10/100/1000base-T/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

Secured protocols:

- HTTPS
- SNMPv3
- SSH
- SFTP

* Planned for future release.

** Not available for 500 MHz channels.

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.

Technical Specifications

Mechanical Specifications

Dimensions (Direct Mount HW) –
220mm(H), 198mm(W), 75mm(D), 3 kg.
8.66”(H), 7.8”(W), 2.95”(D), 6.6 lbs.

Dimensions (43dBi Integrated Antenna) –
280mm(H), 280mm(W), 110mm(D), 3.5 kg.
11.02”(H), 11.02”(W), 4.33”(D), 7.7 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

Standard Input: -48 VDC; DC Input range: -40.5 to -60 VDC

Power Consumption Specifications

Active – 43W; Standby – 36W

PoE Injector Mechanical Specifications

134mm(H), 190mm(W), 62mm(D), 1 kg.
5.28”(H), 7.48”(W), 2.44”(D), 2.2 lbs.

PoE Injector Environmental Specifications

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

PoE Injector Power Input Specifications

Standard Input: -48 or +24 VDC (Optional)

DC Input range: ±(18/40.5 to 60) VDC (+18VDC extended range is supported as part of the nominal +24VDC support)

PoE Injector Interfaces

GbE Data Port supporting 10/100/1000Base-T

Power-Over-Ethernet (PoE) Port

DC Power Port –40V to -60V (a PoE supporting two redundant DC feeds each supporting ±(18-60)V is available)

Product Images

IP-20E

Radio Specifications

Capacity

	Capacity (Mbps)	Capacity De-Dup	Capacity (Mbps)	Capacity De-Dup
Modulation	62.5 MHz		125 MHz	
BPSK	42-51	44-160	90-110	94-341
QPSK	93-114	98-355	188-230	197-715
8 QAM	139-170	146-528	279-341	293-1062
16 QAM	188-230	198-716	379-463	398-1443
32 QAM	247-302	259-939	499-610	524-1898
64 QAM	301-368	316-1145	612-748	643-2329
128 QAM	362-442	380-1377	737-900	774-2500
256 QAM	412-504	433-1569	838-1025	880-2500
512 QAM	453-554	476-1724	923-1128	969-2500
1024 QAM	505-617	530-1920	–	–
Modulation	250 MHz		500 MHz	
BPSK	180-221	189-687	362-442	–
QPSK	377-461	396-1435	755-923	–
8 QAM	559-683	587-2128	1119-1368	–
16 QAM	759-928	797-2500	1520-1858	–
32 QAM	998-1220	1048-2500	1998-2442	–
64 QAM	1225-1497	1286-2500	2451-2500	–
128 QAM	1474-1802	1548-2500	–	–
256 QAM	1653-2021	1736-2500	–	–
512 QAM	–	–	–	–
1024 QAM	–	–	–	–

Transmit Power and Receiver Threshold (RSL) (dBm @ BER = 10-6)

Frequency (GHz)	Transmit Power	62.5	125	250	500	Receiver Threshold (RSL)	62.5	125	250	500
BPSK		12	12	12	9		-83.0	-80.0	-77.0	-74.0
QPSK		12	12	12	9		-79.5	-76.5	-73.5	-70.5
8 QAM		12	12	10	8		-75.5	-72.5	-70.0	-67.0
16 QAM		11	11	9	7		-73.0	-69.5	-67.0	-64.0
32 QAM		11	11	9	7		-69.0	-66.0	-63.0	-60.0
64 QAM		10	10	8	3		-66.0	-63.0	-60.0	-57.0
128 QAM		10	10	8	–		-63.0	-60.0	-57.0	–
256 QAM		9	9	7	–		-59.5	-57.0	-54.0	–
512 QAM		8	8	-	–		-57.0	-54.0	–	–
1024 QAM		7	–	–	–		-54.0	–	–	–