Siklu

EH-1200L.v700 Datasheet

EtherHaul™-1200L.v700 – High Capacity Ethernet Wireless Solution

Introducing EtherHaul™-1200L.v700

The EtherHaul-1200L.v700 is Siklu's low cost, millimeter-wave, all-outdoor, Ethernet backhaul product. The EtherHaul-1200L.v700 features up to 700 Mbps Ethernet operating at the 71-76 GHz licensed E-Band with enhanced Adaptive Bandwidth, Coding & Modulation capabilities for maximum spectral efficiency. Designed with strenuous carrier wireless backhaul demands in mind, the EtherHaul-1200L.v700 is equally at home in the enterprise or in Ethernet service provider networks.

Radio Specifications

Standards	ETSI
Operating Frequency Range (GHz)	71-76
Air Interface	TDD, OFDM
Channel Size	500 MHz, 250 MHz(1)
RF Channel Arrangement	500 MHz: 71375 + n x 500 MHz, n=0…8 250 MHz(1): 71250 + n x 250 MHz, n=0...18
RF Channel Selection	Via EMS/NMS/CLI
Transmit Power (typical)	+5 dBm
Adaptive Bandwidth, Coding and Modulation Dynamic Range	16 dB
Typical link distance	Up to 2,500 meters(2)

Notes:

(1) Will be supported in the future

(2) Max. 4,500 m. (max. 14,765 ft.)

Antenna

Type	Integrated, Cassegrain reflector	External, Cassegrain reflector (EH-ANT-2ft)
Diameter (cm)	26	65 cm (25.6")
Gain (dBi)	42	50
3 dB Beam width	1˚	0.5˚
Radiation Pattern Envelope	Class 2 (ETSI EN 302 217-4-2 V1.5.1)	Class 2, Class 3 (ETSI EN 302 217-4-2 V1.5.1) FCC 47CFR101.115

Capacity

250 MHz(1) Channel Mode

Mode	Bandwidth (MHz)	Modulation	FEC Rate	Repetitions	L1 Rate (Mbps) (2,3,4)	
					Maximum	Minimum
0	250	QAM 16	0.5	1	350	320
1	250	QPSK	0.5	1	182	160
2	125	QPSK	0.5	2	42	39
3	62.5	QPSK	0.5	4	10	9

Notes:

(1) Will be supported in the future.

(2) Aggregated capacity. Capacity may be divided at a ratio of: 50%-50% downstream-upstream, 75%-25% downstream-upstream or 90%-10% downstream-upstream.

(3) Capacity increases when divided asymmetrically (75%-25%, 90%-10%).

(4) Capacity varies according to packet size.

500 MHz Channel Mode

Mode	Bandwidth (MHz)	Modulation	FEC Rate	Repetitions	L1 Rate (Mbps) (1,2,3)	
					Maximum	Minimum
0	500	QAM 16	0.5	1	699	642
1	500	QPSK	0.5	1	365	320
2	250	QPSK	0.5	2	85	79
3	125	QPSK	0.5	4	20	19

Notes:

(1) Aggregated capacity. Capacity may be divided at a ratio of: 50%-50% downstream-upstream, 75%-25% downstream-upstream or 90%-10% downstream-upstream.

(2) Capacity increases when divided asymmetrically (75%-25%, 90%-10%).

(3) Capacity varies according to packet size.

Receiver Threshold (dBm @ BER = 10^{-6})

250 MHz(1) Channel Mode

Mode	Bandwidth (MHz)	Modulation	FEC Rate	Repetitions	Pout (dBm)	Receiver Threshold (dBm @ BER=10^{-6})
0	250	QAM 16	0.5	1	+6	-67
1	250	QPSK	0.5	1	+7	-72
2	125	QPSK	0.5	2	+8	-76
3	62.5	QPSK	0.5	4	+8	-79

Note:

(1) Will be supported in the future

(2) Receiver threshold levels are typical

500 MHz Channel Mode

Mode	Bandwidth (MHz)	Modulation	FEC Rate	Repetitions	Pout (dBm)	Receiver Threshold (dBm @ BER=10^{-6})
0	500	QAM 16	0.5	1	+5	-64
1	500	QPSK	0.5	1	+6	-69
2	250	QPSK	0.5	2	+7	-73
3	125	QPSK	0.5	4	+8	-77

Note: Receiver threshold levels are typical

Ethernet Interfaces

Supported Ethernet Interfaces	2 x 100/1000Base-T (RJ45) 2 x 1000Base-X (SFP)
Supported SFP Types	1000Base-LX (1310 nm), SX (850 nm)

Carrier Ethernet Functionality

Latency over the radio link (typical)(1)	400 µsec @ highest mode of operation
Jumbo frames support	Up to 9,200 Bytes
Carrier Ethernet Switch	4096 active VLANs MAC address learning with 4K MAC addresses IEEE 802.1ad Provider Bridge (QinQ) IEEE 802.1d Transparent Bridging Link state propagation
Quality of Service	Per interface CoS based packet queuing / buffering (8 CoS served by 8 queues) Flexible scheduling schemes (SP/WFQ) Traffic shaping Traffic policing
Performance Monitoring	Per Ethernet port statistics Per VLAN statistics Per queue statistics Enhanced radio Ethernet statistics
Encryption	AES 128, AES 256

Notes:

(1) Latency varies according to packet size and load

Network Management, Diagnostics, Status and Alarms

NMS Interface Protocol	SNMP v2/v3
Element Management	Web-based EMS, CLI,
Management Channels & Protocols	SSH HTTPS
Authentication, Authorization & Accounting	User access control SYSLOG
Management Interface	Via the Ethernet interfaces
RSSI Indication	Accurate power reading available at ODU and EMS

Mechanical

Form Factor		All-outdoor	
Dimensions	ODU (H x W x D): Antenna - 26 cm, 10.3” (Dia. x Depth): Antenna - 65 cm, 25.6” (Dia. x Depth):	24.5 cm x 22.5 cm x 5 cm 26 cm x 10 cm 65 cm x 37 cm	(9.7” x 8.9” x 2”) (10.3” x 3.9”) (25.6” x 14.6”)
Weights	ODU+ antenna (26 cm, 10.3”): ODU: Antenna (26 cm, 10.3”): Antenna (65 cm, 25.6”):	3 kg 2 kg 1 kg 8 kg	(6.6 lbs) (4.4 lbs) (2.2 lbs) (18 lbs)
Mounting kit		EH-MK-1ft (26cm antenna) EH-MK-2ft (EH-ANT-2ft)	

Environmental

Operating Temperature (°C)	-45° ÷ +55°C
Relative Humidity	0 to 100%
Ingress Protection Rating	IP67
Altitude (m)	4,500

Power Input and Consumption

Standard Input	±48 VDC, ±24 VDC
DC Input Range	±21 ÷ ±57 VDC
Power over Ethernet Input	IEEE 802.3at-2009
Power Consumption (typical)	25W

Standard Compliance

CE	CE Marked
RF	EN 302 217-3 1.3.1
EMC	EN 301 489-4
Safety	UL 60950
Operation	EN 300 019-1-4 Class 4.1E
Storage	EN 300 019-1-1 Class 1.2
Transportation	EN 300 019-1-2 Class 2.2

About Siklu

Siklu redefines wireless backhaul by optimizing every aspect of mm-wave system design to enable service providers to boost network capacity and performance, while dramatically reducing costs by 80%. By re-engineering mm-wave system components, and leveraging silicon-based technologies, Siklu provides gigabit-per-second wireless connectivity at the lowest price point in the industry. Siklu's solutions are easily scalable enabling service providers to evolve their networks from 2G/3G to HSPA and 4G and incorporate capabilities to support future topologies. In addition, Siklu's environmentally friendly design results in easier and quicker deployment and adoption.

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