FibeAir® IP-20E
Compact, All-outdoor, High-performance, E-band Virtual-fiber
FibeAir® IP-20E
Compact, All-outdoor, High-performance, E-band Virtual-fiber Node

The high-performance FibeAir IP-20E provides capacity and security for demanding network applications in E-band. Whether the need is for small-cell backhaul, metro-network aggregation or any other E-band transport application, ultra-high capacity FibeAir IP-20E delivers a cost-efficient, comprehensive solution.

Equipped with Ceragon’s advanced modem technology, FibeAir IP-20E ensures a high level of service, security and ultra-high capacity, even under extreme link conditions.

FibeAir IP-20E offers future-proof connectivity with networks that require full-duplex, gigabit Ethernet. This solution scales to 2.5Gbps of capacity, making it ideal for capacity-demanding network applications, especially in growing and dynamic heterogeneous networks (HetNets).

FibeAir IP-20E provides capacity at a fraction of the cost of buried fiber alternatives; its dedicated wireless technology proves much more economical than leasing high-capacity services over fiber.

Like all other IP-20 solutions, the FibeAir IP-20E ensures interoperability with all other IP-20 solutions via the CeraOS operating system, a unified, simple-to-operate-and-manage approach for building, expanding and maintaining wireless backhaul. Programmable network processors ensure a long life of flexible, cost-effective operation.

FibeAir IP-20E can be deployed in conjunction with the FibeAir IP-20N multi-technology aggregation node for comprehensive backhaul and aggregation-point settings, especially appropriate for fast, efficient installation and long-term functionality.

Wireless Virtual Fiber

- Ultra-high capacity
- Full-duplex, 2.5Gbps radio capacity
- Advanced wideband modem design and latest in-house RFIC technology
- Rapid deployment
- Small form fit consumes less space; ideal for wall and rooftop installations
- Narrow beam with high reuse factor
- All-outdoor and split-mount configurations
- Attractive licensing schemes with light licensing
- Carrier-grade wireless solution
- Integrated Carrier Ethernet switch, MEF CE 2.0-compliant
- Comprehensive service and link OAM capabilities
Radio

Supported Frequency Range
- 71.76 GHz, 81-86 GHz

Configurations
- 1+0, 2+0

Radio Features
- Protection: 1+1 HS5*
- BPSK to 256 QAM w/ACM**

Ethernet

Ethernet Features
- SFP devices must be of industrial grade
- Frame Cut Through
- VLAN
  - 4K VLANs
- Quality of Service
  - 8 priority queues
  - Deep buffering (configurable up to 64 Mbit per queue)
- WRED
- Hierarchical QoS – high service granularity*
- P-bit marking/remarking
- 4K VLANs
- VL AN add/remove/translate
- Frame Cut Through - controlled latency and PDV for delay sensitive applications
- Header DeDuplication – Capacity boosting by eliminating inefficiency in all layers (L2, MPLS, L3, L4, Tunneling – GFP for LTE, GRE)*
- Ethernet OAM – EFM (IEEE 802.3ah), CFM (IEEE 802.1ag), ITU-T Y.1731*

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

Standards Compliance
- 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 2.3

Technical Specifications

Mechanical Specifications
- Dimensions
  - Direct Mount: 198mm(H), 220mm(W), 75mm(D), 3kg (direct mount)
  - 38dBi Integrated antenna: 210mm(H), 220mm(W), 102mm(D), 3kg
  - 43dBi Integrated antenna: 280mm(H), 280mm(W), 110mm(D), 3.5kg
- Pole Diameter Range (for Remote Mount Installation) – 8.89 cm – 11.43 cm

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
- Dimensions – 134mm(H), 190mm(W), 62mm(D), 1 kg

PoE Injector Environmental Specifications
- 33°C to +55°C (-45°C to +60°C 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)

* Planned for future release.
** 256 QAM is planned for future release.
*** Certification pending.
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<th>Channel Spacing (MHz)</th>
<th>Transmit Power (dBm)</th>
<th>RSL (dBm @ BER = 10^-6)</th>
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<table>
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<tr>
<th>Channel Spacing (MHz)</th>
<th>Capacity (Mbps)</th>
<th>Capacity De-Dup</th>
<th>Capacity (Mbps)</th>
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**Notes:** For LTE-Optimized Header De-Duplication, the capacity figures are for LTE packets encapsulated inside GTP tunnels with IPv4/UDP encapsulation and double VLAN tagging (QinQ). Capacity for IPv6 encapsulation is higher. Header De-Duplication is planned for future release. Support for 125 and 500 MHz channels is planned for future release. Support for 256 QAM is planned for future release.