Nokia Smart cEDD
Compact Ethernet Demarcation Device

The Nokia Smart compact Ethernet Demarcation Device (cEDD) is an ultra-compact and low-power, carrier-class media converter supporting Two-port MAC Relay (TPMR) and Ethernet OAM functionality. It is ideally suited when space, price, and power dissipation requirements are tight, and when the application does not warrant a fully featured Network Interface Device (NID) at the UNI demarcation point. As a carrier class Ethernet access demarcation device it is used for mobile backhaul, business retail/wholesale and cloud Carrier Ethernet applications. The small form factor combined with a “plug-and-play” remote management function and integrated web-based GUI ease installation and operations on cell sites and customer premises.

The Smart cEDD is well equipped to be deployed as a network termination unit for demarcation, media conversion and distance extension applications as part of a Carrier Ethernet services offering. Its compact front access chassis fits in any wiring closet. OAM greatly simplifies service turn-up, maintenance and strict service level assurance. Connectivity issues can be diagnosed right up to the subscriber’s premises.

The robust, full-metal, fan-less design makes it an ideal solution for field deployment where environment conditions are not optimal.

It can be deployed unmanaged or can be remotely managed from a metro node, which implements a special proxy remote management function acting as a gateway for alarm reporting and configuration.

The Smart cEDD is used in case the Layer 2 OAM Smart SFP cannot be used for regulatory or operational reasons (physical demarcation required by the customer).
Features

- Compact front access chassis
- Two GbE SFP interfaces
- Optical GbE or electrical GbE support
- Network demarcation using IEEE 802.1ag Connectivity Fault Management (CFM) OAM for link fault management
- IEEE 802.1aj TPMR operation
- Link Pass Through (LPT)
- Jumbo frames
- Dying gasp message
- Low power consumption

Benefits

- Cost-effective solution for demarcation and media conversion
- Reduce CAPEX with lower cost, smaller space requirement and fewer SFP interfaces
- Reduce OPEX with Ethernet OAM, plug-and-play operation, integrated Web GUI for ease of installation and operation, and low power

Technical specifications

Interfaces

- 2 x 1GbE interfaces (SFP-based): one customer interface, one network interface
- Supported optical SFPs: SX, LX, ZX, BX20U/D, BX40U/D, CWDM (40 km, 80 km, 8 colors each) with Digital Diagnostic Monitoring (DDM)
- Supported electrical SFP: 100/1000Base-T dual-rate (RJ-45)
- Telecom-grade power input with secure locking

Synchronization

- Transparent to Synchronous Ethernet ITU-T G.8261/G.8262/G.8264 in the downstream direction (network interface to customer interface)

Ethernet

- Jumbo frames (9600 bytes)
- Auto-negotiation fallback
- Flow control
- MDI/MDI-X auto-detection
- IEEE 802.1aj TPMR Bridging
- Low latency and wire-speed throughput
- Layer 2 Control Protocol (L2CP) tunneling

Ethernet OAM

- ITU-T Y.1731/IEEE 802.1ag Ethernet Service OAM (Continuity Check Message (CCM), Remote Defect Indication (RDI) and Loopback (LB) Responder) on port-based Down MEP, MEG Level 0, on network interface for link level monitoring
- CFM parameters configured remotely from metro node
- LPT, a.k.a. Link Loss Forwarding (from network interface to customer interface)
- Dying gasp message
Installation and management
• Simple installation
• Integrated Web GUI
• Local management via Web GUI through Network Interface port with electrical SFP (out of service)
• Plug-and-play proxy remote management from Nokia 1830 Photonic Service Switch (PSS) 11QPE24 and 11QCE12X muxponders (in-service) using in-band communication, providing configuration and monitoring of relevant parameters
• System- and port-level LED indicators for installation and maintenance
• Flexible mounting options

Dimensions and weight
• Height: 20 mm (0.79 in)
• Width: 124 mm (4.88 in)
• Depth: 153 mm (6.0 in)
• Weight: max. 360 g (0.8 lb)

Power
• DC: -48/-60 V DC nominal
• Both Mesh and Star grounding
• Range -40.5/-72 V DC (ETS 300 132-2 / ETS 300132-2 Annex A)
• Range -40.0/-56.7 V DC according to ANSI T1.315
• Current drain: 200 mA max at -60 V DC
• Power consumption: 5 W typical, 7 W maximum (including two SFPs)
• External AC adapter: 100 V AC to 240 V AC
• Telecommunications Energy Efficiency Ratio (TEER) of 500 Mb/s/W according to ATIS-0600015.2009 Energy Efficiency for Telecommunication Equipment
• Telecommunication Equipment Energy Efficiency Rating (TEEER) of 8.7 according to Verizon VZ.TPR.9205 Issue 1, January 2009 TEEER Metric Quantification
• Natural convection cooling without fan

Environmental
• ETSI EN 300 019-2-1 v2.1.2 (2000-09) 1.2 Storage
• ETSI EN 300 019-2-2 V2.1.2 (1999-09) 2.3 Public transportation
• ETSI EN 300 019-2-3 V2.2.2 (2003-04) 3.1E Operational conditions
• Operating temperature: -5ºC to +55ºC (+23ºF to +131ºF)
• Humidity: 5% to 95%, non-condensing
• ETSI EN 300 019-2-3 V2.2.2 (2003-04) Earthquake
• ITU-T K.20 / K.21 (2008-04)
• GR-63-CORE Issue 3
  – Temperature up to 55ºC
  – Altitude (temperature compensation method up to 61ºC)
  – Fire resistance
  – Handling
  – Earthquake, Office Vibration and Transport
  – Airborne Contaminants
  – Acoustic Noise
  – Illumination
• NEBS Level 3, Type 2 equipment certificate of compliance
• VCCI 2010.04, CISPR 22 Ed. 5.2 Conducted and Radiated Emission
• FCC 47 CFR Ch.1 Part 15, Subpart B:2009-10 Radiated Emission up to 40 GHz
Regulatory and standards compliance

• UL/CSA 60950-1
  • CSA Certificate of Compliance class 3862 13 (CSA 60950-1-07, second edition)
  • CSA Certificate of Compliance class 3862 93 (UL60950-1, second edition certified to U.S. Stds)
• IEC 60825-1, 60825-2 Laser Safety
• IEC 60950-1:2006/A11:2009, CB test certificate, CE mark

• EN 300 386 Electromagnetic Compatibility (Class B compliant)
• EN 50022 Class B: radiated and conducted emissions
• EN 61000-4-2, -3, -4, -5 and -6 EMC/ESD/EMI/Surge
• GR-1089-CORE Issue 4 Electromagnetic Compatibility and Electrical Safety