Product page >

Data Sheet

General Availability

ETX-203AX-T

Carrier Ethernet Services Delivery over LTE and BB

- Rapid site commissioning and extension of Ethernet services to new, out-of-reach locations, over LTE or Broadband (BB) secured access, for reduced time-to-revenue
- Cost-effective, BB- or LTE-based backup for improved service reliability and remote troubleshooting, and reduced truck rolls and time-to-repair.
- Cost optimization by splitting traffic between service-assured VPN and Best-Effort LTE or BB services
- Full suite of MEF Carrier Ethernet 2.0 capabilities enabling SLA monitoring, diagnostics, and fault detection.
- Flexible and cost-effective Ethernet service delivery over LTE or BB Internet

As business requirements for global connectivity continue to increase, service providers are looking for effective solutions to quickly expand network coverage for Carrier Ethernet based VPN services.

ETX-203AX-T, an important addition to the RAD ETX-2 family of Ethernet demarcation devices, enables service providers to rapidly roll out Ethernet services using LTE or Broadband access. It enables extending Ethernet services over LTE in locations where fixed-line access is not available. Alternatively, LTE or Broadband access may be used as backup for an optical primary connection, increasing service reliability. (See the dedicated **ETX-2 datasheet** for details on ETX-203AM, ETX-203AX, ETX-205A, and ETX-220A – members of the ETX-2 Carrier Ethernet Demarcation device family.)

This unique device provides the complete set of ETX-2 family MEF Carrier Ethernet 2.0 features, enabling delivery of service assured VPN services. At the same time, it enables secure tunneling of Ethernet EVCs over public Internet, or over a third-party IP network, with the ability to choose from an optional integrated LTE modem or go directly to the Broadband CPE/modem.

FEATURES AND BENEFITS

- Secure tunneling of Ethernet services (EVCs) over public Internet, using L2oGRE or L2TPv3 with optional IPsec encapsulation
- IPv4 fragmentation to overcome LTE/BB max MTU limitation
- Optional integrated LTE (CAT4 or CAT6) modem with global coverage and automatic fallback from 4G to 3G
- Obtains initial IP from the network using DHCP or PPP support
- QoS to give precedence to preferred services when going to the LTE/BB network
- PPPoE protocol for DSL Broadband modem connection
- MEF CE2.0-compliant service attributes
- Data and management protection with automatic switchover and switchback
- Advanced management capabilities, fully compatible with the ETX-2 family
- Full Zero Touch Provisioning to reduce OPEX
- Front access standard SIM card protected slot
- Radio Signal Strength front panel indication
- Integrated wide-range AC/DC power supply
- Compact half 19” 1RU form factor, metal enclosure, fanless

CARRIER GRADE SERVICES

ETX-203AX-T incorporates a complete set of CE 2.0-certified Ethernet service tools. It supports advanced scheduling, WRED per CoS, shaping per EVC and port, with flexible classification rules and access lists.

ETX-203AX-T delivers the following MEF services: E-Line (EVL, EVPL), E-LAN (EPLAN, EVPLAN), E-Tree (EP-TREE, EVP-TREE), and E-Access services.

SDN READY MANAGEMENT AND CONTROL

ETX-203AX-T leverages RAD’s field-proven, carrier grade operating system – integrated in the entire ETX-2 family – to provide a familiar and uniform interface for provisioning, administration, and maintenance operations.

ETX-203AX-T can be managed using RADview, RAD’s carrier-class NMS, or any SNMP-based management system. The device supports a variety of access protocols, including CLI over Telnet, SNMPv3, and TFTP, with a comprehensive security suite.

RAD

Your Network’s Edge®

ETX-203AX-T

Carrier Ethernet Services Delivery over LTE and BB

Data Sheet

Specifications

ETHERNET INTERFACES

Ports	Five GbE ports (orderable as SFP or UTP)

INTEGRATED LTE MODEM OPTIONS

LTE CAT4

L1 **EMEA, Korea, Thailand**	LTE FDD: B1, B3, B5, B7, B8, B20
	LTE TDD: 130Mbps (DL) / 35Mbps (UL)
	WCDMA: B1, B5, B8
	GSM: B3, B8
L3 **Australia, New Zealand, Taiwan, Brazil**	LTE FDD: B1, B2, B3, B4, B5, B7, B8, B28
	LTE TDD: B40
	WCDMA: B1, B2, B5, B8
	GSM: B2, B3, B5, B8
L4 **North America**	LTE FDD: B2, B4, B5, B12, B13, B14, B66, B71
	WCDMA: B2, B4, B5

LTE CAT6

L61 **EMEA, APAC, Brazil**	LTE FDD: B1, B3, B5, B7, B8, B20, B28, B32
	LTE TDD: B38, B40, B41 WCDMA: B1, B3, B5, B8
L63 **Japan**	LTE FDD: B1, B2, B3, B4, B5, B7, B8, B28
	LTE TDD: B40
	WCDMA: B1, B2, B5, B8
L64 **North America**	LTE FDD: B2, B4, B5, B7, B12, B13, B25, B26, B29, B30, B66
	LTE TDD: B41
	WCDMA: B2, B4, B5

DATA RATES (MAXIMUM SPEEDS)

CAT4

LTE	LTE FDD: 150Mbps (DL)/50Mbps (UL)
	LTE TDD: 130Mbps (DL)/35Mbps (UL)
UMTS	DC-HSDPA: 42Mbps (DL)
	HSUPA: 5.76Mbps (UL)
	WCDMA: 384kbps (DL)/384kbps (UL)
GSM	EDGE: 296kbps (DL)/236.8kbps (UL)
	GPRS: 107kbps (DL)/85.6kbps (UL)

CAT6

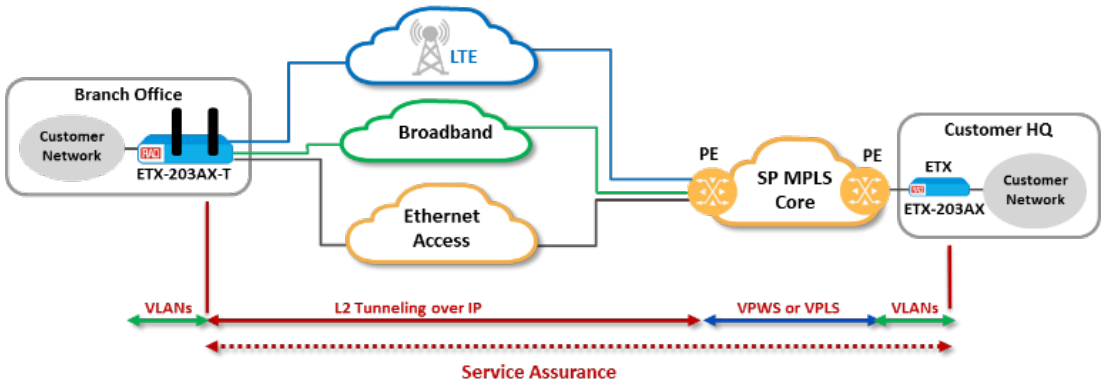
LTE	LTE FDD: 300Mbps (DL)/50Mbps (UL)
	LTE TDD: 226Mbps (DL)/28Mbps (UL)
UMTS	DC-HSDPA+: 42Mbps (DL)/5.76Mbps (UL)
	WCDMA: 384kbps (DL)/384kbps (UL)

BRIDGING

Compliance	IEEE 802.1D, 802.1Q, 802.1ad
Max. Frame Size	9600 bytes
Operation Mode	VLAN-aware, VLAN-unaware
VLAN Editing	Inner/outer VLAN editing per VLAN and p-bit values

RESILIENCY

Dual Homing	Dual homed link redundancy
Ethernet Path Protection	G.8031 for linear 1:1 protection Automatic fallback from 4G to 3G on the LTE modem
Ethernet Ring	G.8032v2 rings with sub 50 ms protection for Ethernet traffic
Link Aggregation	IEEE 802.1ax (802.3ad) 1:1 LAG with LACP for pairs of network or user Ethernet ports



ETX-203AX-T

Carrier Ethernet Services Delivery over LTE and BB

POWER

Power Supply	Wide-range AC/DC power supply with auto detection
	AC: 100 to 240 VAC (-10%, +6%), 50/60 Hz DC: 48 VDC (40 to 72 VDC)
Power Consumption	23W maximum

DIAGNOSTICS

Connectivity Fault Management (CFM)	Per IEEE 802.1ag
EFM Link-fault OAM	Per IEEE 802.3ah
Counters	RMON2 port-level counters
Delay and Loss Measurements	Per MEF 36
ICMP Echo	Over L2 and L3 services
	Tests IP connectivity (PING)
KPI Measurements	Accurate one-way KPI measurements
Link-level OAM	Per IEEE 802.3-2005
Limiting Multicast Traffic Flooding	DHCP and MLDv2 snooping
Loop Prevention	Using MSTP and RSTP
Loopback Tests	Non-disruptive loopback per flow, with MAC/IP address swap
	Loopbacks at Ethernet port level
	On-demand Layer-2 and 3 loopbacks
LLDP Discovery	Per IEEE 802.1AB
Service Activation Tests	RFC-2544: Eight built-in wirespeed testers
	ITU-T Y.1564: Eight built-in wirespeed testers
Service Utilization and Performance Monitoring	Per ITU-T Y.1731.2012, including synthetic loss measurement
TWAMP	TWAMP light generator and responder (SW license)
	ITU-T Y.1731 PM (SLM; DM)
	RFC 5618 TWAMP responder and receiver
	TWAMP sender

NETWORKING CAPABILITIES

Services	Ethernet E-LAN, E-Line, E-Tree
	MEF CE2.0 compliant
	Layer-2 services with available bandwidth
Layer-2 Forwarding	Jumbo frame support
Flow Classification Rules	Outer VLAN or outer + inner VLAN
	PCP
	TOS/DSCP
	EtherType
	IP/MAC source/destination address
Policing	Color aware/unaware dual token bucket with user-configurable CIR + CBS and EIR + EBS
	2-rate/3-color policing per EVC.CoS
	Hierarchical envelope policer per MEF 10.3
Scheduling	8 × CoS per EVC scheduling elements
	Strict Priority (SP) and Weighted Fair Queue (WFQ)
Shaping	Per EVC
	Per EVC.CoS
EVC Tunneling over IP Networks	Ethernet encapsulation: L2oGRE and L2TPv3 Optional encryption using IPsec

ENVIRONMENTAL

Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Temperature	0 to 50°C (32 to 122°F), fanless
Humidity	5% to 90%, non-condensing

PHYSICAL

Height	43.7 mm (1.7 in)
Width	215.5 mm (8.5 in)
Depth	301 mm (11.9 in)
Weight	2.12 kg (4.7 lb)

ETX-203AX-T

Carrier Ethernet Services Delivery over LTE and BB

MANAGEMENT AND SECURITY

Protocols and Security	SSH (Secure CLI)
	Telnet
	SNMPv3
	SFTP
	Dual stack IPv4 and IPv6 routing
	IP forwarding
	Static routing
	Password-protected access
	Authorization levels
	RADIUS or TACACS+ authentication
	Access Control List (ACL)
Large Deployments	Plug and play zero touch provisioning (DHCP, PPPoE, XML configuration files download via TFTP/SCP)
	Configuration backup and restore
Management Options	Local management via LAN port or serial port
	Remote management via inband VLAN
	Remote management over Internet using secure tunneling

Control Port

Interface	V.24/RS-232 DCE
Connector	RJ-45
Format	Asynchronous
Data Rate	9.6, 19.2, or 115.2 kbps

Ethernet Management Port

Type	10/100/1000BASE-T
Connector	RJ-45

STANDARDS COMPLIANCE

CE	CE 2.0
MEF	MEF 2.0, MEF 3.0, MEF 9, MEF10, MEF 14, MEF 20, MEF 36, MEF 46
	MEF 6: E-Line: EPL and EVPL E-LAN: EPLAN and EVPLAN
IEEE	802.3, 802.3u, 802.1D, 802.1Q, 802.1p, 802.3ad, 802.3-2005, 802.1ax, 802.1ag
ITU-T	Y.1731, G.8031, G.8032v2, G.8262, G.8265, RFC-2544, Y.1564

ETX-203AX-T

Carrier Ethernet Services Delivery over LTE and BB

Data Sheet

Ordering

The information below represents examples of supported configurations. For additional configuration options, please contact your local RAD partner.

ETX-2 SOFTWARE

ETX-2-SW TWAMP

License to activate and operate TWAMP related functionalities in ETX-203AX-T.

ETX-203AX-T HARDWARE

(See **Ordering Options** below for options explanations.)

ETX-203AX-T/LTE/2SFP/3UTP/L1

ETX-203AX-T/LTE/2SFP/3UTP/L3

ETX-203AX-T/LTE/2SFP/3UTP/L4

ETX-203AX-T/LTE/2SFP/3UTP/L61

ETX-203AX-T/LTE/2SFP/3UTP/L63

ETX-203AX-T/LTE/2SFP/3UTP/L64

ETX-203AX-T/2SFP/3UTP

ORDERING OPTIONS

Some options are not supported by all models. Some option combinations are invalid or may require a minimum order. To determine the BOM for your application, please contact your local RAD partner.

Ethernet Network or User port	2SFP	2 SFP Ethernet ports
Ethernet User port	3UTP	3 10/100/1000BaseT UTP ports
Interface type	L1	LTE CAT4 modem for EMEA, Korea, Thailand
	L2	LTE CAT4 modem for North America AT&T
	L3	LTE CAT4 modem for Australia, New Zealand, Taiwan, Brazil
	L4	LTE CAT4 modem for North America, Verizon wireless + AT&T
	L61	LTE CAT6 modem for EMEA, APAC, Brazil
	L63	LTE CAT6 modem for Japan
	L64	LTE CAT6 modem for North America
Platform	Default	No LTE modem
	LTE	Integrated LTE
Software package	Default	FE ports
	GE	1 Gbps per port
	GE30	1 Gbps per port, 30 shaped EVCs
Temperature range	H	Temperature hardened

SUPPLIED ACCESSORIES

AC power cord

Two cellular antennas for /LTE option

OPTIONAL ACCESSORIES

CBL-RJ45/D9/F/6FT
Control port cable with male RJ-45 and female DB-9 connector

RM-35/P1
Mounting kit for mounting one unit in a 19-inch rack

RM-35/P2
Mounting kit for mounting two units in a 19-inch rack

WM-35
Mounting kit for mounting one unit on the wall

ETX-ANT4G/2M
Outdoor cellular antenna with 2m connecting cable kit

ETX-ANT4G/5M
Outdoor cellular antenna with 5m connecting cable kit

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