PRODUCT SUMMARY 030 096 010 000

5G EDGE ANTENNA for Rail

For Cellular 5G, Wi-Fi 5 and GNSS train-to-ground services.

Connection provided via a single PoE input.
Includes integrated connected compute board for EDGE applications.
Rugged design meeting the EN 50155 Railway Standard.
Fire retardant according to EN 45545-2/NFPA-130.
Compliant to high-voltage and high-current standards for use under catenary lines.

KEY FEATURES

- Includes Cellular 5G and Wi-Fi radio modules
- EDGE Compute platform
- Connection via a single POE input LAN M12 X-xode female 300mm pigtail.
- Supports up to 4x4 MIMO Cellular 5G with 4G/3G fallback
- Supports 2x2 MU-MIMO Wi-Fi 5 dual-band 2.4 / 5 GHz.
- GNSS receiver supports GPS L1, Galileo E1, BeiDou B1, GLONASS G1 constellations.
- eSIM ready, dual physical eSIM option
- Application Software: Pre-installed with McLaren Applied software, separate Licence terms apply.

COMMUNICATION SERVICES

Radio Module: Sierra Wireless© EM9191
Supported Bands:

5G	n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79 (617-5000 MHz)
LTE	1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 18, 19, 20, 25, 26, 28, 29, 30, 32, 34, 38, 39, 40, 41, 42, 43, 46(LAA), 48, 66, 71*
HSPA+/WCDMA	1, 2, 3, 4, 5 ,6, 8, 9, 19
Wi-Fi	802.11ac Wave 2, 2x2 MU-MIMO (5150-5850 MHz) 802.11n Wave 1 (2400-2500 MHz)
GNSS	GPS/QZSS L1 C/A, GLONASS L10F, BeiDou B1I, Galileo E1B/C (1559 – 1610 MHz)

- Container runtime environment for user applications
- Secure IoT Platform connectivity for configuration, monitoring, and alerting
- Over the Air updates
- mFlare network aggregation option for multi-Antenna load balancing and resilience
- Dual boot operating system

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- Processor 2x ARM® Cortex-A72 1.6 GHz, 4x Cortex-A53 1.26 GHz, 2x Cortex-M4F 266 MHz
- Memory 4GB RAM
- Storage 16GB eMMc
- Operating System Embedded Linux Debian 10, Linux 5.4 kernel operating system
- Ethernet 1x TE Mini I/O Industrial Ethernet socket
- Power input PoE+ Class 4 (802.3at)
- Interfaces 1x M.2 key B, USB 3.0, 2x SIM slots (2FF) 1x mPCIe, USB 2.0, PCIe
- Status 6x LED status indicators
- SIMS 2x integrated SIM slots (2FF form factor)
  Remote SIM module connection possible
  2x eSIM (2FF) and Management platform available on request
- Software McLaren Applied application software pre-installed
- Extensibility mPCIE slot

This Product is compliant with the Radio Equipment Directive 2014/53/EU EMC: EN50121-3-2 (2016), EN50121-4 (2019), EN55032 (2016) - CISPR 32
ETSI EN 303 413 V.1.1.1 (2017-06)
ETSI EN 301 489-1 V2.2.3 (2019-03)
ETSI EN 301 489-19 V2.1.1 (2019-04)

- Environmental conditions outdoor
- Operation temperature (°C) -40 to 85
- Storage temperature (°C) -40 to 85
- Transport temperature (°C) -40 to 85
- IP rating IP69
- Flammability rating EN 45545-2 R24 HL3
- Solar radiation UL 746C, F1
- 2011/65/EU (RoHS - including 2015/863 and 2017/2102) compliant acc. Annex III
- Lead-free soldered yes
- WEEE 2012/19/EU no special marking needed
- ELV 2000/53/EC compliant
- REACH 1907/2006/EC compliant
- Flammability rating: EN45545-2:2013 + A1:2015, NFPA-130:2017
- Tested according to ISO 4589-2:2017, NFX 70-100-1:2006, ISO 5659-2:2011.
- EN 50155:2018-05
- §13.4.6 EN 60068-2-1:2008-01 Cold temperature test Ab, -40°C, 16h
- §13.4.5 EN 60068-2-2:2008-01 Dry heat test Be +85°C, 16h
- §13.4.7 EN 60068-2-30:2006-06 Damp heat cyclic test Db, +25/55°C, 2 cycles
- §13.4.10 EN 60068-2-11:2000-02 Salt mist test, 96h
- §13.4.11 EN 61373:2011-04 § 8, Cat. 1B Broadband Random Vibration
- §13.4.11 EN 61373:2011-04 § 9, Cat. 1B Increased Random Vibration
- §13.4.11 EN 61373:2011-04 § 10, Cat. 1B Mechanical shock
- §13.4.12 Ingress Protection EN 60529:2014-09 IP6X, IPX7, IPX9

Block Diagram

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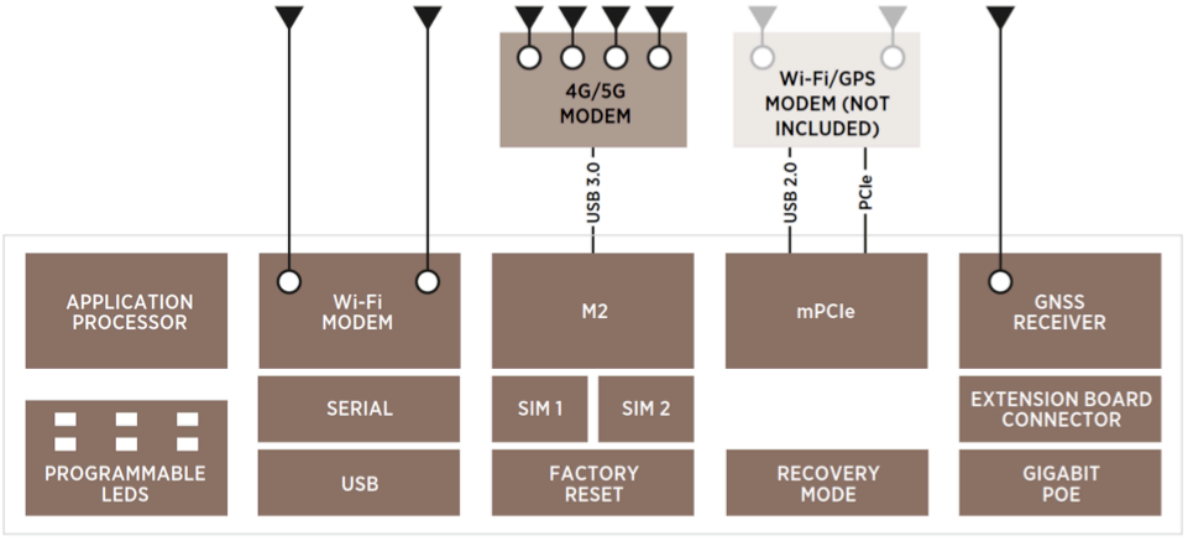
5G EDGE ANTENNA for Rail



Material Data

- Radome colour — RAL 7043 (dark grey)
- Radome material — PC (Polycarbonate)
- Back plate/base plate colour — grey
- Back plate/base plate material — Aluminium

Mechanical

- Dimensions (mm) — 84 x 368 x 425 (Height x Width x Depth)
- Weight (kg) — 7.34 (without packaging)

High-voltage-protection: no voltage on RF port, if the catenary line touches the antenna (EN 50124-1, 3.8 kVDC, 27.5 kVAC, 1min). High-current-protection: Designed acc. to UIC 533, DC-grounded antenna element (protection against lightning and short circuit with catenary lines(40kA/0.125s).
Corrosion: Low corrosion design acc. to MIL-DTL-14072(E), 96 hours Salt Spray test. Mounting: Shall be installed in longitudinal position to the wind/driving direction.
Suitable for installation on high speed trains with a maximum speed of 500 km/hr.
4x composite sealing washers included for silicone-free sealing of the mounting screws.

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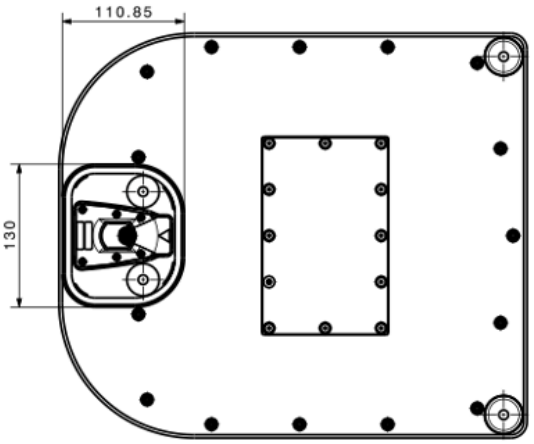

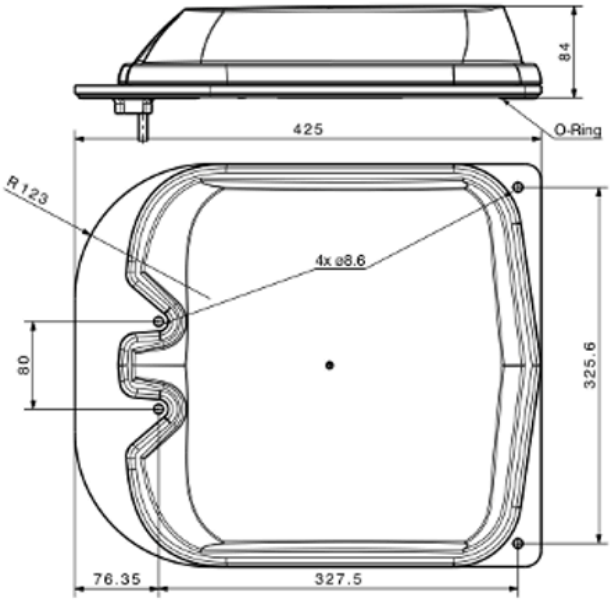

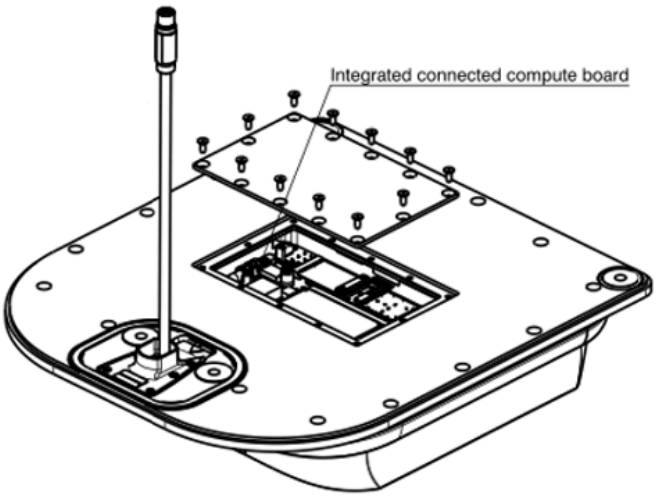

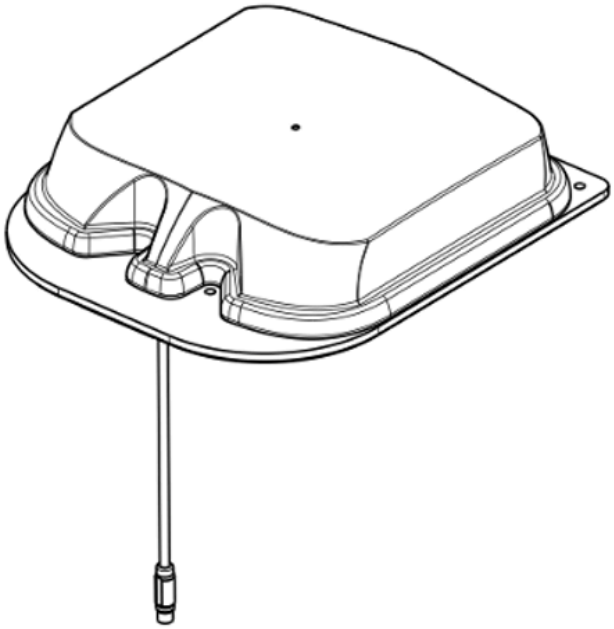

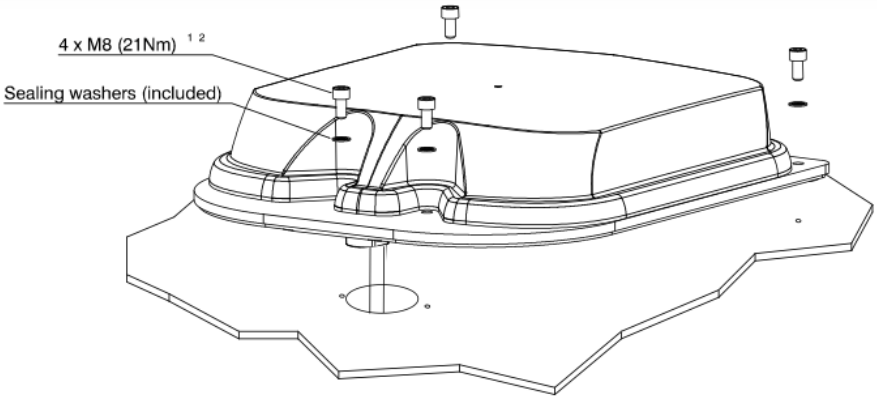

Additional Information

The antenna needs a customer specific bracket when mounted on a curved roof (not part of the delivery content of the antenna). A standard bracket is available for the antenna mounting above an existing cable breakthrough on a flat roof.
Protected by Patents: DE202015009331(U1), US10116056(B2), CN106663861B, US7327320B2,

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CN1765030B, AU2003218856A1, CA2521771C, SG114406, ZA200508290.

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