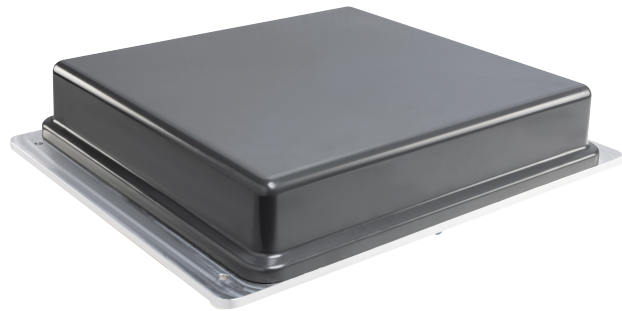


SENCITY® Rail MIMO+ 4x4 Antenna

1399.17.0303

Properties

- Enables 4x4 MIMO with true polarisation diversity for high data throughput
- Average combined condition number on the supported cellular bands of <10dB on the primary antennas
- Supporting 2G/3G/4G/5G bands between 694-4200 MHz
- Rugged design, meets EN 50155 railway standard and Fire retardant according to EN 45545-2 and NFPA130
- High Voltage and High Current protection for use under catenary lines



Electrical bands

	Band 1	Band 2	Band 3	Band 4
Name	Vertical Polarisation	Vertical Polarisation	Vertical Polarisation	Horizontal Polarisation
Frequency	617 MHz ... 960 MHz	1425 MHz ... 2690 MHz	3300 MHz ... 4200 MHz	694 MHz ... 960 MHz
Impedance	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	2	2.1	2.1	1.9
Gain	7 dBi	8 dBi	9 dBi	7 dBi
Isolation between Ports	30 dB	28 dB	35 dB	30 dB
Ambient Temperature	25 °C	25 °C	25 °C	25 °C
Composite Power max	80 W	80 W	80 W	80 W

	Band 5	Band 6
Name	Horizontal Polarisation	Horizontal Polarisation
Frequency	1515 MHz ... 2700 MHz	3300 MHz ... 4200 MHz
Impedance	50 Ω	50 Ω
VSWR	2.1	2.2
Gain	9 dBi	9 dBi
Isolation between Ports	28 dB	35 dB
Ambient Temperature	25 °C	25 °C

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	Band 5	Band 6
Composite Power max	80 W	80 W

Electrical remarks

Remarks	Ground plane: VSWR and gain values are based on a reference ground plane of 1000x500mm. The tolerance of the VSWR and Isolation values is 0.5dB. The Cellular and Wi-Fi 6E bands from 4900 - 7125 MHz are supported on the vertically polarised ports (no ground plane requirements). The isolation values are valid only for the ports with common bands. The best indicator for the actual antenna performance is the average combined condition number. The isolation values mentioned on page 1 refers to the isolation between Port 1 (vertical) and Port 2 (horizontal). The Isolation limit values between the other ports are below: Port 3 (vertical) to Port 4 (vertical): Frequency 617-960 MHz, Isolation: 16dB Frequency 1425-2700 MHz, Isolation: 22dB Frequency 3300-7125 MHz, Isolation: 25dB Port 3 (vertical) to Port 2 (horizontal): Frequency 694-960 MHz, Isolation: 23dB Frequency 1515-2700 MHz, Isolation: 30dB Frequency 3300-4200 MHz, Isolation: 35dB Port 4 (vertical) to Port 2 (horizontal): Frequency 694-960 MHz, Isolation: 21dB Frequency 1515-2700 MHz, Isolation: 29dB Frequency 3300-4200 MHz, Isolation: 33dB Port 1 (vertical) to Port 3 (vertical): Frequency 617-960 MHz, Isolation: 26dB Frequency 1425-2700 MHz, Isolation: 27dB Frequency 3300-7125 MHz, Isolation: 30dB Port 1 (vertical) to Port 4 (vertical): Frequency 617-960 MHz, Isolation: 26dB Frequency 1425-2700 MHz, Isolation: 27dB Frequency 3300-7125 MHz, Isolation: 30dB High-voltage-protection: no voltage on RF port, if the catenary line touches the antenna (EN 50124-1, 3.8 kVDC, 275 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).
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Ports				
	Port 1	Port 2	Port 3	Port 4
Port name	vertical	Horizontal	vertical	vertical
Connector	N, jack (female)	N, jack (female)	N, jack (female)	N, jack (female)
Cable type	RADOX_RF_142	RADOX_RF_142	RADOX_RF_142	RADOX_RF_142
Cable length	0.3 m	0.3 m	0.3 m	0.3 m
DC grounded	Yes	Yes	Yes	Yes

Connections				
	Port 1	Port 2	Port 3	Port 4
Port name	vertical	Horizontal	vertical	vertical
Band 1	✓		✓	✓

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1399.17.0303

Connections				
Band 2	✓		✓	✓
Band 3	✓		✓	✓
Band 4		✓		
Band 5		✓		
Band 6		✓		

Mechanical data	
Weight	6.8 kg
Dimensions	90 mm x 508.7 mm x 411.7 mm (Height x Width x Depth)
Remarks	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.

Interface and material data	
Radome material	PC (Polycarbonate)
Radome colour	RAL 7043 (dark grey)
Back plate/base plate material	Aluminium
Back plate/base plate colour	Grey

Environmental data	
Operation temperature	-55 °C ... 85 °C
Storage temperature	-55 °C ... 85 °C
Transport temperature	-55 °C ... 85 °C
Environment (application)	Indoor/Outdoor
Ingress protection (IP Rating)	IP69K
Flammability rating	EN 45545-2 R24 HL3

Environmental remarks
Environmental tests: EN 50155:2022-06

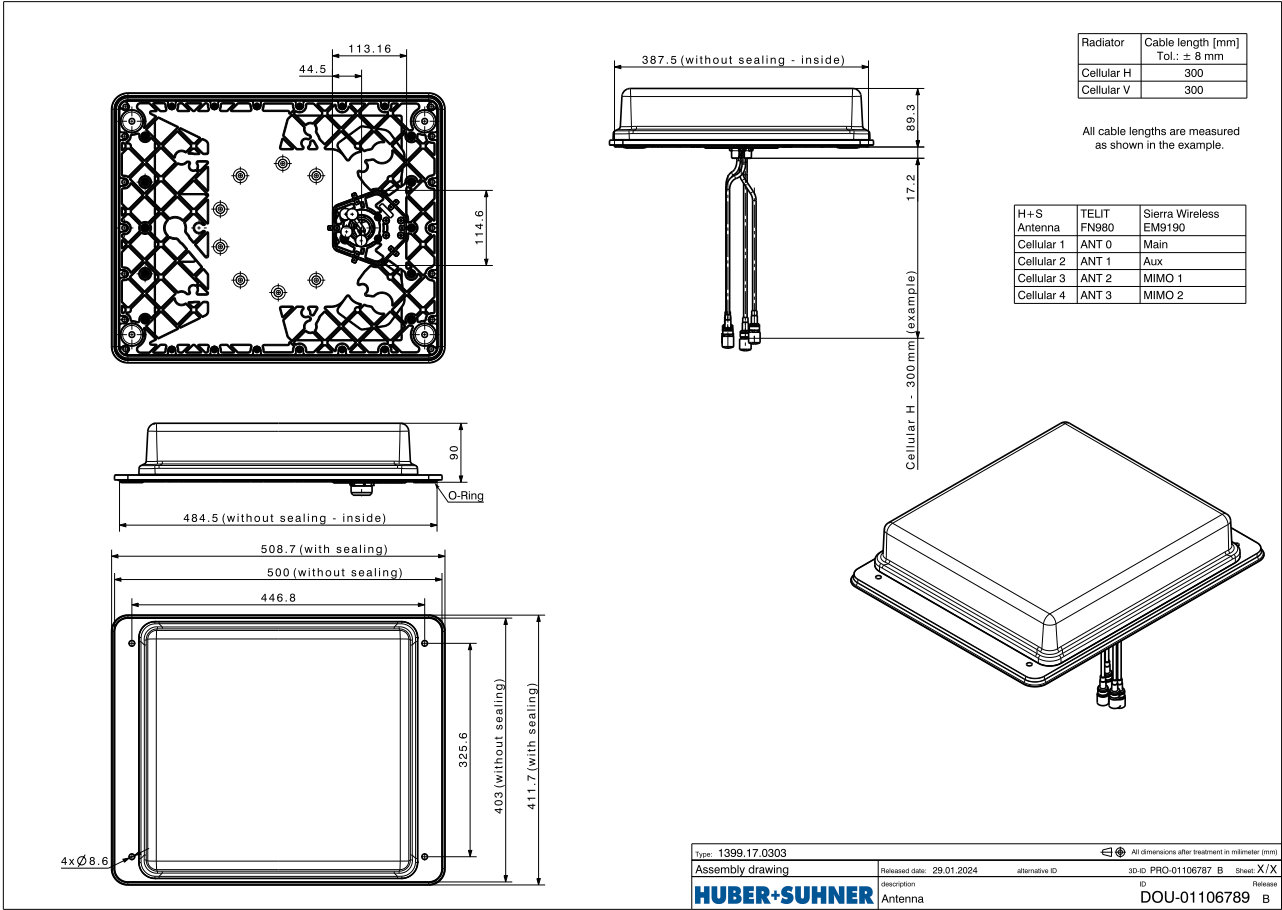
§13.4.6 EN 60068-2-1:2007 Cold temperature test Ab, -55°C, 16h
 §13.4.5 EN 60068-2-2:2007 Dry heat test Be +85°C, 16h
 §13.4.7 EN 60068-2-30:2005 Damp heat cyclic test Db, +25/55°C, 2 cycles
 §13.4.10 EN 60068-2-11:2021 Salt mist test, 96h
 §13.4.11 EN 61373:2011-04 § 8, Cat. 1B Broadband Random Vibration
 §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

Flammability rating: EN45545-2:2020-10 + A1:2015, NFPA-130:2020
 Tested according to ISO 4589-2:2017, NFX 70-100-1:2006, ISO 5659-2:2011.

Additional Information
Accessories:
9091.99.0236: Cable Conduit Kit
9091.99.0235: Grounding Kit

SENCITY® Rail MIMO+ 4x4 Antenna
1399.17.0303

Outline drawing



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