

Antenna Specification Document

| Manufacturer | Part Number | 2.4GHz Gain | 5.8GHz | Tested |
|------------------|-------------------------|-------------|--------|--------|
| Cushcraft | SL2402P | 2.5dBi | — | |
| Cushcraft | SL24513P12SMF | 3dBi | | |
| Centurion | IO2450 | 3dBi | | |
| Cushcraft | SQ2403PG12NF | 3.5dBi | - | |
| Huber & Suhner | SOA 2400/360/4/20/V | 4dBi | | |
| Pacific Wireless | OD24M-5 | 5dBi | | |
| Mobile Mark | ECO5-2400RN | 5dBi | | • |
| Wanshih | Black | 3.3dBi | 5dBi | |
| Comet | SF-D53N | — | 5.5dBi | |
| Mobile Mark | ECO6-5500RN | — | 6dBi | |
| Huber & Suhner | SWA 0859/360/4/0/DFRX30 | — | 8.5dBi | |
| Mobile Mark | ECO9-5500RN | _ | 9dBi | |
| Comet | SF-5818N | — | 9.1dBi | • |

N Male Dual Band Antenna



E Plane



Test engineer:_____

Test date: 2005/3/17 at PM 09:45

H Plane



Test date: 2005/3/17 at PM 09:54



Return Loss

VSWR







Mesh SeriesTM Vertically Polarized Omni Antennas2.4GHz to 5.85GHz

Features

- Mesh Networking Vertically Polarized Omnidirectionals
- Various Gains Available: 5dBi to 12dBi
- Various Frequencies Available: 2.4GHz to 5.8GHz, also Tri-Band Model
- Type N Male Integrated Connector
- Rugged, Lightweight and Waterproof

Applications

- Mesh Networking Applications
- 2 to 6 GHz wireless applications
- Point to Multi-point Systems
- Base Station Antennas
- WiFi Access Points
- Wimax Base Stations

Description

The Mesh Series[™] Omni Directional antenna systems offered by Pacific Wireless are designed with Mesh Networking in mind. With their waterproof N Male connector they can be easily mounted to an enclosure like the Pacific Wireless Die Cast Enclosure to give total wireless coverage. Various gains and frequencies are available. They are constructed of UV resistant materials and are waterproof for a long service life.

Specifications

| Parameter | Min | Тур | Max | Units |
|------------------------------|-----|-------|----------|-------------|
| VSWR | | 1.5:1 | | |
| Impedance | | 50 | | OHM |
| Input Power | | | 10 | W |
| Rated Wind Velocity | | | 125 (56) | mph (m/sec) |
| Operating Temperature | -40 | | +70 | Deg C |



| Μοδελ | Frequency (MHz) | Gain | Vert BW | Weight | Dim (L x dia) |
|-----------------|-----------------------------------|----------------------|---------|-----------------|-------------------------|
| OD24M-5 | 2400-2485 | 5dBi | 25 deg | 0.7 lbs (0.3kg) | 14x0.6" (355x15mm) |
| OD24M-7 | 2400-2485 | 7dBi | 18 deg | 0.9 lbs (0.4kg) | 21x0.6" (540x15mm) |
| OD24M-9 | 2400-2485 | 9dBi | 14 deg | 1.1 Lbs (0.5kg) | 27x0.6" (690x15mm) |
| OD24M-12 | 2400-2485 | 12dBi | 7 deg | 1.4 Lbs (0.6kg) | 48x0.6" (1220x15mm) |
| OD35M-10 | 3400-3600 | 10dBi | 14 deg | 1.1 Lbs (0.5kg) | 27x0.6" (690x15mm) |
| OD35M-12 | 3400-3600 | 12dBi | 7 deg | 1.4 Lbs (0.6kg) | 48x0.6" (1220x15mm) |
| OD58M-12 | 5400-5850 | 12dBi | 7 deg | 1.1 Lbs (0.5kg) | 21.25x0.6" (540x15mm) |
| RD2458-5-NM | 2400-2485,5150-5350,5725- 5850 | 2dBi@2.4 5dBi@5.8 | 120 deg | 1.6oz (45.4g) | 7.6x0.5" (193 x 12.7mm) |



Antenna Patterns



OD24M-7 E-Plane







RD2458-5-NM E-Plane

Notes:

- All shipments F.O.B. Pacific Wireless Bluffdale, UT 84065
- All antennas carry a 2 Year Warranty



For further information contact:

Pa 1457 Bluff TEL FAX WWW

Pacific Wireless

14575 South Centerpoint Way Bluffdale, UT 84065 TEL (801) 572-3024 FAX (801) 572-3025 www.pacwireless.com

Suggested Accessory

Product Specifications



ECO Series Omni Antennas (Pat.Pend.)

for all 2.4 - 6.0 GHz Systems

Gain configurations from 5 dBi to 12 dBi

Economical, weatherproof and durable design for both indoors and outdoors

Optional drop ceiling mount, as well as

mobile magnetic & trunk lip mount

needed for pole or wall mount

Standard mounting kit includes all hardware





"PT" pigtail cable option for all models

ECO Series 3 - 5 Ghz Models with N female

Mobile Mark's new ECO Series Omni antennas are designed for all new data & broadband systems, including WiFi, 802.11 & 802.16 systems being planned. Using the latest PCB technology, these antennas improve highspeed broadband system performance in an economical package.

The Omni antennas provide uniform horizontal pattern and excellent frequency response. The ECO Series are free space antennas; no ground plane is required. Because they are also low profile and durable, they can even be used in a mobile application. Mounting hardware is available for a variety of uses. Standard hardware includes pole/wall mount.

The antenna element is enclosed in an extremely tough white fiberglass radome. The low profile radome is only 0.63 inches (1.6 cm) diameter, and 0.9 in (2.3 cm) at the base. Windloading on the antenna is insignificant. The antenna terminates with an integrated N-female. A "PT" pigtail cable option also provides a direct coax into the antenna and can be outfitted with a variety of connectors, such as Reverse polarity TNC or SMA. These antennas can withstand the harshest outdoor environments, yet are quite attractive for indoor use. The antennas are supplied with hardware for pole or surface mount. Other mount options include flush ceiling, drop ceiling and mobile mounts.

| Model Numbe | rs | |
|-------------|-------------------------|-------------------|
| Model | Description | Frequency |
| ECO5-2400PT | 5 dBi Omni, Pigtail | 2.4 - 2.5 GHz |
| ECO6-3500 | 6 dBi Omni | 3.4 - 3.7 GHz |
| ECO9-3500 | 9 dBi Omni | 3.4 - 3.7GHz |
| | | |
| ECO6-4900 | 6 dBi Omni | 4.9 - 5.0 GHz |
| ECO9-4900 | 9 dBi Omni | 4.9 - 5.0 GHz |
| | | |
| ECO6-5500 | 6 dBi Omni | 5.0 - 6.0 GHz |
| ECO9-5500 | 9 dBi Omni | 5.0 - 6.0 GHz |
| ECO12-5800 | 12 dBi Omni | 5.7 - 6.0 GHz |
| | | |
| add "PT" | Pigtail Direct Cable Op | otion with N male |
| (| connectors, others ava | alladie |

Special configurations may be available upon request. Please consult factory for more information.

| Specifications | | | |
|-----------------------|-----------------------------|-----------------------|--------------------------|
| Frequency/Gain: | See above | Mounting: | Pole or surface mount, |
| Bandwidth@2:1 VSWR: | See above | - | mounts up to 2" (5cm) |
| Impedance: | 50 Ohm nominal | Antenna Length: | |
| Max Power: | 25 Watts | ECO5-2400PT | 11 in (28.0 cm) |
| ECO5 Beamwidth: | 30° El, 360° Az | ECO6-3500 | 15 in (38.1 cm) |
| ECO6 Beamwidth: | 25° El, 360° Az | ECO9-3500 | 19 in (48.3 cm) |
| ECO9 Beamwidth | 14º El, 360º Az | ECO6-4900 | 11 in (28.0 cm) |
| ECO12 Beamwidth: | 7º El, 360º Az | ECO9-4900 | 15 in (38.1 cm) |
| Lightning Protection: | External recommended | ECO6-5500 | 11 in (28.0 cm) |
| Max Wind Velocity: | 100 mph, all models | ECO9-5500 | 15 in (38.1 cm) |
| Material: | White fiberglass radome, | ECO12-5800 | 19 in (48.3 cm) |
| Weight: | <0.75 lbs (< 0.340 kg) | Connector (standard): | N female direct, |
| Antenna Diameter: | 0.63 in (1.6 cm) Radome, | PT Pigtail Option: | 1ft cable (0.3 meters) & |
| | 0.9 in (2.3 cm) at the base | | N male, others available |

US Office & Headquarters: 3900-B River Road, Schiller Park, IL 60176 Tel: 800-648-2800 or 847-671-6690 Fax: 847-671-6715 UK Office: 106 Anglesey Business Park, Hednesford, Staffs. WS12 1NR UK Tel: (+44) 1543-878343 Fax: (+44) 1543-871714 Visit our web page at www.mobilemark.com. Specifications subject to change without notice (12/2005).

PRODUCT DATA SHEET

2.4 GHz, 3.5dBi PATCH ÁNTENNA

- Ultra compact, high performance
- · Omnidirectional, ISM band
- · Connector types optional
- · Ceiling mount





SQ2403PG

Model

COMMUNICATIONS ANTENNAS



SQ2403PG



Squint[™] ISM Ceiling/Surface Mount Dipole Antenna

Cushcraft recently engineered an omnidirectional Squint™ ISM band patch antenna with a 3.5 dBi dipole like pattern shape and ceiling mount feature which provides an extremely low profile for minimum visual impact. This antenna provides for reception and transmission in the 2400-2500 MHz frequency band. The radiation pattern has a 50 degree beamwidth with the maximum directed at 45 degrees from the horizontal plane. A key feature of the Squint[™] antenna is the use of a unique air dielectric design called MicroAir[™]. MicroAir™ eliminates the losses associated with etched circuit boards and provides higher performance. Measuring only 4-3/32" x 4-3/32" x 7/8" (10.4 x 10.4 x 2.2 cm), this ultracompact, high performance antenna provides coverage for large indoor open spaces, locations with high ceilings, and many places where extended coverage is needed. The total weight of the antenna is 4 ounces (114 grams). The antenna housing is vacuum thermoplastic. Standard models are white in color with a formed out of textured finish. Custom configurations of radome finish, color and texture can be provided to complement and blend within any environment, making it an ideal solution to meet the most demanding aesthetic requirements in today's workplace environments. Each Squint™ has a VSWR of 1:5:1 on 50 ohms impedance and comes with a standard 1-foot plenum coax and N-female connector, additional connector and coax configurations are available upon request. The mounting system installs to build out seamless microcellular and picocellular cell sites quickly and efficiently. Applications for Squint™ include wireless telephone booths, industrial complexes, office environments, shopping malls, parking garages, airports, hospitals, campus settings and more.

SQUINT[™] SPECIFICATION CHART

Frequency Impedance Gain VSWR Polarization Beamwdth **RF** Connector Dimensions Mount Weight MHz (Ohms) dBi E-Plane, deg In (cm) Style lb (kg) SQ2403PG12NF 2400-2500 Ceiling 50 3.5 1.5:1 Linear 50° (Peak @ 45°) Ν 4x4x7/8 (10.2x10.2x2.2) .52 (.23) SQ1852PG12NF 1850-1990 50 2.5 1.5:1 Linear 50° (Peak @ 45°) Ν 4x4x7/8 (10.2x10.2x2.2) Ceiling .20 (.01)

> 48 Perimeter Road, Manchester, NH 03103 • Phone: 603-627-7877 • Fax: 603-627-1764 • E-mail: sales@cushcraft.com Web Site: www.cushcraft.com

PRODUCT DATA SHEET

OMNIDIRECTIONAL **CEILING MOUNT ANTENNA:** · High performance omni is small package · Mounting hardware adjusts height from ceiling · Coax pigtail length can be modified Additional mounting options available Pattern data represents a ceiling mounted antenna E-Plane SL24513P125MF 2450 MHz 5250 MHz

COMMUNICATIONS ANTENNAS





Tri-mode, dual band 802.11b/a/g ceiling mounted omnidirectional panel antenna

The Cushcraft SL24513P12SMF tri-mode, dual band omnidirectional panel antenna provides 3 dBi gain omnidirectional coverage for ceiling mount applications. The antenna is a diminutive 2.2" X 2.2" X 0.7" in size and the installation hardware is comprised of mounting clips that are integrated into the antenna design.

The sleek low profile design is a perfect choice for providing multimode, high performance, omnidirectional coverage with minimal aesthetic impact.

Typical applications include access points installed in offices, shopping, business and health care complexes as well as transportation centers where high speed 802.11 high speed wireless data connectivity is offered. The antennas incorporate a single RF port allowing them to support access point radio devices utilizing any combination

of 802.11b/a/g multimode chip sets as well as access points utilizing 802.11b, 802.11a or 802.11g single mode chip sets.

The antenna features extremely symmetrical and uniform omnidirectional coverage. They are best suited to supporting high performance, high capacity data connectivity systems where the ability to identify each coverage zone can optimize the overall system performance characteristics.

The antenna comes standard with a 12" plenum rated coax pigtail and SMA female connector. However, any popular 802.11 access point connector option is available upon request.

SPECIFICATION CHART

| Model / Part Number: | SL24513P12SMF |
|-------------------------------|--------------------------|
| Frequency MHz: | 2400 - 2500 5150-5350 |
| Gain dBi: Peak | 3.0 |
| VSWR: | 2.0:1 |
| E-Plane (3 dB beamwidth): | 120°/80° |
| H-Plane (3 dB beamwidth): | Omnidirectional |
| Polarization: | Linear |
| Weight lbs. (kg) (w/12'cable) | .15 (68) |
| Mounting Style: | Ceiling Grid |
| Dimensions in (cm): | 22x22x7 (5.1x5.1x1.8) |
| Enclosure: | ABS/PVC |
| Power (Watts): | 10 |
| RF Connector | SMA (f) |
| Pigtail: | 12" |

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PRODUCT DATA SHEET

OMNIDIRECTIONAL CEILING MOUNT ANTENNA:

 High performance omni is small package
 Mounting hardware adjusts height from ceiling
 Coax pigtail length can be modified

Additional mounting options available





SL2402P

C O M M U N I C A T I O N S A N T E N N A S





2.5 dBi Omnidirectional Ceiling Mount Antenna

The SL2402P antenna offers characteristics that one normally expects from much larger antennas, offering"no compromise" performance in an attractive small package. The SL2402P, 2.5 dBi omnidirectional ceiling mount antenna is designed for use in the ISM band from 2400 - 2500 MHz. The antenna dimensions are only 2" X 2" X 0.7".

Since the antenna's omnidirectional pattern is very uniform and symmetrical, it is perfectly suited to contemporary in-building wireless systems applications. A very well defined coverage area with high levels of radiated

energy within each cell is critical to maintaining system-wide in-building performance especially if capacity related issues are driving the system design.

The antenna employs versatile easy to install clips for mounting to the ceiling support T-bar. The antenna mounting system is even adjustable for ceiling tile depth variances of as much as 0.5" from the grid support system. The antenna comes standard with N female connector and Cushcraft makes jumper cables available in varying lengths and connector options.

SPECIFICATION CHART

| Model / Part Number: | SL2402P |
|----------------------------|--------------------------|
| Frequency MHz: | 2400 - 2500 |
| Gain dBi: | 2.5 |
| VSWR: | 1.7:1 |
| E-Plane (3 dB beamwidth): | 160° |
| H-Plane (3 dB beamwidth): | Omnidirectional |
| Polarization: | Linear |
| Weight lbs (g): w/12"cable | .15 (68) |
| Mounting Style: | Ceiling Grid |
| Dimensions in.(cm): | 2 x 2 x .7 (5.1x5.1x1.8) |
| Enclosure: | ABS/PVC |
| Power (Watts): | 10 |
| RF Connector: | Type N (f) |
| Pigtail: | 12" |

48 Perimeter Road, Manchester, NH 03103
Phone: 603-627-7877
Fax: 603-627-1764
E-mail: sales@cushcraft.com
Web Site: www.cushcraft.com

SF-D53N

5GHz Omnidirectional Antenna

Specifications:

- 5000-5900MHz 802.11a standard
- Gain: 5.5dBi
- VSWR: Less than 1.2:1
- Length: 7 inches
- Weight: 2.3ozs
- Vertical beam-width: 25 degrees
- Connector: Integral N-Male
- Radome: UV stabilized fiberglass
- Mast mounting hardware and mobile lip mounts optional

Vertical radiation pattern





MB-100 Optional mast mount

Features:

- High-gain omnidirectional pattern
- Commercial grade quality and construction
- Integral male N-type connector
- Optional stainless steel mast mounting bracket (MB-100) and mobile mounts available
- Perfect for the high speed 802.11a standard



NCG Company 1275 N. Grove St. Anaheim, CA 92806-2114 Phone: 800.962.2611 Fax: 714.630.7024 Email: micks@natcommgroup.com

SF-5818N

COMET

5.8GHz Omni-directional A/P Antenna

Specifications:

- 5725-5825MHz
- Gain: 9.1 dBi
- Length: 17.5 inches
- Weight: 4.7 oz
- -3dB Beam-width: 8 degrees
- Cross Polar Rejection: 15dB +
- Max Power: 50 watts
- Max wind survival: 150MPH +
- Wind Load: 7.1 sq in
- Connector: Integral N-male
- Radome: White UV stabilized
 fiberglass
- Mast mounting hardware optional



NCG Company

1275 N. Grove St. Anaheim, CA 92806-2114

Phone: 714.630.4541 Fax: 714.630.7024 Email: sales@natcommgroup.com

Vertical radiation pattern



FEATURES:

- 802.11a compatible
- Designed as a A/P antenna in a mesh network system
- Male N-connector for easy installation
- Compact gain antenna for point-to-multipoint applications
- Heavy duty fiberglass for durability
- Weather proof for indoor or outdoor installation
 MOUNTING OPTIONS:
- MB-100: 1"-2.5" mast mount



MB-100 mast mount

Manufactured by: COMET Company Ltd.





Specifications

2.4 GHz Sphere

Omnidirectional In-Building Antenna

Model Number: IO2450

Specifications:

| Element Type | Air-Loaded Patch |
|---------------------------|--------------------|
| Frequency Range | 2.4 – 2.5 GHz |
| Peak Gain | 3 dBi |
| Polarization ¹ | Linear |
| Impedance | 50 ohms |
| Maximum Input Power | 50 watts |
| VSWR (Min. Performance) | 1.5:1 |
| Dimensions (L x W x H) | 6.4 x 6.3 x 1.7 cm |
| Housing | ABS |
| Operating Temperature | -40° to +70°C |
| Storage Temperature | -40° to +70°C |

¹Contains both vertical and horizontal components, the ratio of which varies with the spatial location.

Mounting:

Includes metal clip for mounting to a ceiling tile grid

Cables & Connectors:

| Model # | Reference # | Plenum Rated Coax | Connector |
|-------------|-------------|---------------------|----------------------|
| IO2450-NF06 | CAF94166 | 6" RG-142 | N-Female |
| IO2450-NF12 | CAF94170 | 12" RG-142 | N-Female |
| IO2450-RN12 | CAF94120 | 12" RG-142 | RP-N-Female |
| IO2450-SM12 | CAF94101 | 12" RG-142 | SMA-Male |
| IO2450-MX17 | CAF95991 | 17" RG-142 & RG-316 | Straight MMCX Plug |
| IO2450-LU18 | CAF95977 | 18" RG-142 & RG-178 | Straight Lucent Plug |
| IO2450-NM18 | CAF94119 | 18" RG-142 | N- Male |
| IO2450-RT36 | CAF94150 | 36" RG-142 | RP-TNC |
| IO2450-RT60 | CAF94674 | 60" RG-142 | RP-TNC |
| IO2450-RT84 | CAF94672 | 84" RG-142 | RP-TNC |



Pattern data files for LANPlanner are available at www.centurion.com or www.wirelessvalley.com.



Azimuth

RION

la.

CEN



Elevation Plane phi=0

Specifications subject to change without notice.

3425 N.44th Street, LINCOLN, NE 68504 USA PHONE: 402.467.4491 • FAX: 402.467.4528 TECHNICAL SUPPORT: 888.454.6914 www.centurion.com • sales@centurion.com



.4 cm

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Omni Plane phi=90

IO2450a - 4/12/04



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HyperLink Technologies



Range:

Routers

(RLAN)

Applications

Police, Security

4.9 GHz - 5.8 GHz Frequency

802.11a Access Points and

♦ 5.3 GHz/5.8 GHz UNII/ISM

♦ Public Safety Services: Fire,

♦ Radio Local Area Networks

♦ Homeland Security

♦ WiMAX Technology

2.3 GHz to 6 GHz Super Broadband 3 dBi Omnidirectional Ceiling Wireless LAN Antenna - Model: HG2458CU

Applications and Features

Applications:

- 2.3 GHz 2.6 GHz Frequency Range:
 - ♦ 802.11b & 802.11g Access Points and Routers
 - \diamond 2.4 GHz ISM Applications
 - ♦ WiFi Systems
 - ♦ Bluetooth® Applications
 - ♦ Public Wireless Hotspots
 - ♦ 2.3 GHz WCS/CDMA Applications
 - ♦ Wireless Two-Way Voice, Data,
 - and Video Services
 - ♦ 2.6 GHz MMDS Band Applications
 - ♦ 802.16 and 802.20 Applications

Features:

- Superior performance
- Broadband/Multi-Band operation
- Compact size, low profile
- Compatible with wireless hotspot applications
- Easy to mount
- 12 inch coax lead

Description

The HyperGain® Model HG2458CU is a high performance broadband/multi-band ceiling mount WiFi antenna designed to operate from 2.3 GHz to 6 GHz. The Multi-Band design of this antenna eliminates the need to purchase different antennas for each frequency. This simplifies installations since the same antenna can be used for a wide array of in-building wireless applications where wide coverage is desired. See above for applications by frequency range.

The compact and aesthetically pleasing design of this antenna makes it ideal for use in almost any indoor environment. It can be easily mounted through a single 11/16" hole in a solid or suspended ceiling up to 1" thick.

This antenna features a 12 inch coax lead terminated with a N-Female connector. Special order connectors are also available.











Mounting Details



Specifications

Electrical Specifications

| Frequency Range | 2300-6000 MHz | |
|-----------------------|---------------|-----|
| Gain | 3 dBi | - j |
| Horizontal Beam Width | 360 degrees | |
| Vertical Beam Width | 90 degrees | |
| Impedance | 50 Ohm | |
| Max. Input Power | 50 Watt | |
| VSWR | < 1.5:1 avg. | |
| Lightning Protection | DC Grounded | |

Mechanical Specifications

| Weight | 0.3 lbs. (.13 Kg) |
|-----------------------|------------------------------------------|
| Dimensions | 4.9" (125 mm) Dia x 1.8" (46 mm) |
| Operating Temperature | -40° C to to 85° C (-40° F to 185° F) |
| Mounting | .687" (17.4 mm) diameter hole |
| Polarization | Vertical |







RF Antenna Gain Patterns



Guaranteed Quality

This product is backed by Hyperlink's Limited Warranty





HUBER+SUHNER[®] SENCITY[®]RAIL ANTENNA FOR WIRELESS COMMUNICATION



SWA 0859/360/4/0/DFRX30

Multiband antenna: GSM 900, GSM 1800, GSM/PCS 1900, UMTS, 2.4, 3.5, 5.3 and 5.8 GHz Bands and GPS including LNA

Technical Data

Electrical Properties Broaband Antenna

| Frequency range (MHz) | 870 - 960 | 1710-2170 | 2400 - 2700 | 3400 - 3700 | 5150 - 5875 |
|----------------------------------------------|------------------|-----------|-------------|-------------|-------------|
| mpedance | 50 Ω | | | | |
| VSWR | < 1.5 | < 1.5 | < 1.5 | < 1.5 | < 2.0 |
| Polarization | linear, vertical | | | | |
| Gain (using a 1 m ² ground plane) | 6 dBi | 8.5 dBi | 9.5 dBi | 9.5 dBi | 8.5 dBi |
| Max. power | 400 W (CW) a | t 50°C | | | |

Electrical Properties GPS Antenna

| Licentical in openies of s America | | | | | |
|------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------|-----------------|-----------------------|-----------------|
| Frequency range | 1575.42 ± 1. | 023 MHz | | | |
| Impedance | 50 Ω | 50 Ω | | | |
| VSWR | ≤ 1.8 | ≤ 1.8 | | | |
| Polarization | right hand circ | right hand circular polarized (RHCP) | | | |
| Antenna gain (using a 1 m ² ground plane) | 6 dBi (ref. to c | 6 dBi (ref. to a circularly polarized isotropic antenna) | | | |
| Gain LNA | 27 ± 2 dB | 27 ± 2 dB | | | |
| Noise figure | ≤ 2.7 dB, typ. | ≤ 2.7 dB, typ. 2 dB | | | |
| Operating voltage | 3.0 to 5.5 VD | 3.0 to 5.5 VDC feed at centre conductor of GPS antenna | | | |
| Current consumption | ≤ 25 mA, typ | ≤ 25 mA, typ. 20 mA | | | |
| Out of band attenuation | > 20 dB at $f_0 \pm 50$ MHz > 40 dB at $f_0 \pm 100$ MHz | | | | |
| Isolation between ports | > 30 dB | > 40 dB | > 40 dB | > 37 dB | > 28 dB |
| Mechanical Properties | 1 | | | | |
| Dimensions | 260 x 100 x 9 | 90 mm (10.24" x 3.9 | 4" x 3.54") wit | hout mounting accesso | ry 9091.99.0189 |
| Weight | 1.2 kg (2.65 | bs.) | | | |
| Housing material | aluminium powder painted RAL 7043 (dark grey) | | | | |
| Radome material | high impact acrylic styrene acrylonitrile (HRA150) | | | | |
| Radome color | RAL 7043 (dark grey) | | | | |
| Operating temperature range | - 30°C to + 85°C | | | | |
| Storage temperature range | - 40°C to + 80 |)°C | | | |

Meets the following requirements:

- Protected against the effects of continuous immersion in water IP68 (only if correctly installed).

- EN 50155, electronic equipment used on rolling stock.

- EN 50124-1, insulation coordination (27.5 KV AC and 3.8 KV DC).

- High voltage and high current protection according to Deutsche Bahn specifications (protection against short circuits of 40 KA).

- EN 50121-3-2, electromagnetic compatibility.

| Available Types | Article no. | |
|-------------------|-------------|----------------------------|
| 1399.17.0044 | 84002818 | 2 x N female |
| | La contra | |
| Mounting Hardware | Article no. | |
| 9091.99.0189 | 84008192 | Adapter panel ¹ |
| | | |

: Allowing the replacement of the antenna from another antenna manufacturer, without any modifications of the original mounting holes located on the vehicle's roof. Using this interface, the mounting holes dimension for the broadband and GPS connectors have to be

17 ... 42 mm and 3542 mm respectively (ref. to mounting instruction). The antenna has to be secured using four M10 screws.

| Documents | |
|------------|----------------------|
| 01.02.0777 | security instruction |
| 01.02.1045 | mounting instruction |

| - | | | | |
|-----------|----------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Material: | The antenna is designed according the military standard MIL-F-14072D, which guarantees a long-life without corrosion. | | | |
| Mounting: | g: On a plane conductive surface clear of paint and other contaminants. | | | |
| 242 | To ensure a correct sealing between the antenna and the roof, the connector mounting hole dimensions have to be 17 42 mm for the | | | |
| | broadband antenna and 35 12 mm for CPS antenna. The antenna has to be secured using four M8 screws | | | |



HUBER+SUHNER[®] SENCITY[®]RAIL ANTENNA FOR WIRELESS COMMUNICATION

SWA 0859/360/4/0/DFRX30

Dimensions (mm)





HUBER+SUHNER® SENCITY[®]RAIL ANTENNA FOR WIRELESS COMMUNICATION

SWA 0859/360/4/0/DFRX30



Adapter panel 9091.99.0189 optional

HUBER+SUHNER is certified according to ISO 9001 and ISO 14001

WAIVER!

It is exclusively in written agreements that we provide our customers with warrants and representations as to the technical contained specifications and/or the fitness for any particular purpose. The facts and figures herein are carefully compiled to the best of our knowledge, but they are intended for general informational purposes only.

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HUBER+SUHNER® OMNI ANTENNA FOR WIRELESS COMMUNICATION



SOA 2400/360/4/20/V

Technical Data

| Electrical Properties | | |
|------------------------------|-------------------|--|
| Frequency range | 2400 - 2500 MHz | |
| Impedance | 50 Ω | |
| VSWR | 1.5 | |
| Polarization | linear, vertical | |
| Gain | 4.0 dBi | |
| 3 dB beamwidth horizontal | 360° | |
| 3 dB beamwidth vertical | 25° | |
| Downtilt | 20° | |
| Max. power | 75 W (CW) at 25°C | |

Mechanical Properties

| Ø 86 x 43 mm |
|--------------------------|
| (Ø 3.39" x 1.69") |
| 0.3 kg (0.66 lbs.) |
| aluminium |
| ASA |
| RAL 7035 (light grey) |
| - 40°C to + 80°C |
| - 40°C to + 80°C |
| 10 N at 160km/h (100mph) |
| EN 50155 |
| |

| Available Types | Article no. | | |
|-----------------|-------------|------------|--|
| 1324.17.0026 | 23004161 | N female | |
| 1324.19.0035 | 23009880 | SMA female | |

Mounting Hardware

Ceiling mounting material included.

Documents

| 01.02.0777 | security instruction | |
|------------|----------------------|--|
| 01.02.1089 | mounting instruction | |

Radiation Pattern







HUBER+SUHNER® OMNI ANTENNA FOR WIRELESS COMMUNICATION

SOA 2400/360/4/20/V

Dimensions (mm)



HUBER+SUHNER is certified according to ISO 9001 and ISO 14001

WAIVER!

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