

SIEMENS

SIMATIC NET

Industrial Wireless LAN

Antenna ANT897-5PN for LTE / 5G and IWLAN (Wi-Fi 6/7)

Compact Operating Instructions

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.
 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.
NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified persons are those who, because of their training and experience, are familiar with the installation, assembly, commissioning, operation, decommissioning and disassembly of the product and can recognize risks and avoid possible hazards.

Proper use of Siemens products

Note the following:

 WARNING
Siemens products may only be used for the application described in the catalog and the associated usage information. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

1 Introduction

Scope of validity of the operating instructions

These compact operating instructions apply to the ANT897-5PN antenna.

Product	Article number
ANT897-5PN	6GK5897-5PN00-0AA0

Purpose

The ANT897-5PN antenna is an omnidirectional antenna with four antenna ports for use in 5G/4G/3G/2G networks and IWLAN in the frequency range from 2300 to 7200 MHz indoors and outdoors.

Scope of delivery

The following components are supplied with the antenna:

- An ANT897-5PN antenna with four integrated cables with N-Connector female
- An information sheet

Please check that the consignment you have received is complete. If the consignment is incomplete, contact your supplier or your local Siemens office.

Accessories

The following product can be purchased as optional accessory.

Product	Article number
Mounting kit for mast and wall mounting	6GK5898-8HC00-0AA1

Security information

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept. For more information about industrial security, please visit Industrial Security (<https://www.siemens.com/industrialsecurity>)

Recycling and disposal



The products are low in pollutants, can be recycled and meet the requirements of the WEEE directive 2012/19/EU for the disposal of electrical and electronic equipment.

Do not dispose of the products at public disposal sites.

For environmentally friendly recycling and the disposal of your old device contact a certified disposal company for electronic scrap or your Siemens contact (Product return (<https://support.industry.siemens.com/cs/ww/en/view/109479891>)).

Note the different national regulations.

2 Safety information



WARNING

To avoid injury and damage, note the instructions in the operating instructions before commissioning.



WARNING

Danger due to lightning strikes

Antennas installed outdoors must be within the area covered by a lightning protection system.

- Make sure that all conducting systems entering from outdoors can be protected by a lightning protection potential equalization system.
- When implementing your lightning protection concept, make sure you adhere to the VDE 0182 or IEC 62305 standard.

NOTICE

Improper use

The device (and its components) may only be used for the application described in the catalog or the operating instructions. Combinations with devices or components of other manufacturers are permitted if they have been approved by Siemens. Correct and safe operation of the device is guaranteed only when it is transported, stored, set up, installed, used and maintained according to the recommendations.

3 Mounting

Note

Degree of protection

The degree of protection IP69K applies to the front side of the antenna and requires that no substances or gases can enter via the antenna port on the rear.

The mounting surface must be level and mechanically stable so that the gasket of the antenna can fulfill its function.

Note

Antenna power

To avoid impairing proper operation, do not mount the antenna close to overhead or high-voltage power lines.

Also keep a distance of at least 300 mm, in the direction of radiation if possible, between the antenna and nearby metal objects and surfaces.

For mounting with bracket: Attach the bracket so that the side with the mounting holes faces away from the antenna.

3.1 Mounting on a flat surface

The antenna is suitable for mounting on a flat surface (e.g. ceiling, vehicle roof) with a maximum thickness of 10 millimeters.

Proceed as follows to mount the antenna:

1. Remove corrosion, roughness, grease, oil, shavings and dust from the mounting surface.
2. Unscrew the nut and toothed lock washer from the base thread of the antenna.
3. Guide the connecting cables of the antenna through the mounting hole in the ceiling (24 mm diameter).
4. The antenna is equipped with an all-round seal on the base thread side, which is adhered to the mounting surface. Remove the covering foil on this seal.
5. Guide the base thread of the antenna through the mounting hole in the ceiling and press the antenna housing to the ceiling to adhere the all-round seal to the ceiling. IP69K degree of protection is only guaranteed with a properly adhered seal.
6. Attach the toothed lock washer to the base thread of the antenna.
7. Screw the nut to the base thread. The maximum tightening torque is 5 Nm.
8. Connect the cables.

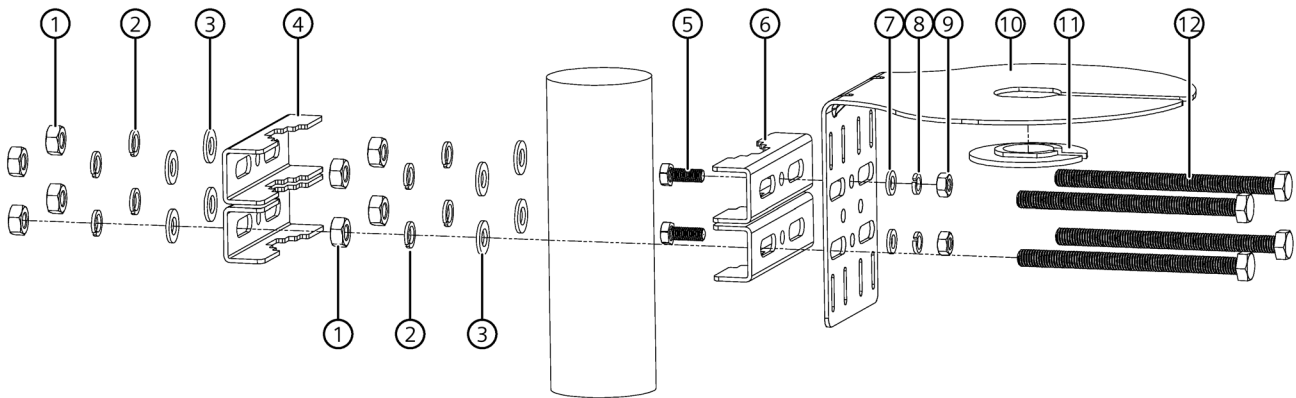
3.2 Mounting with optional bracket

Note

The bracket for mast and wall mounting is not included in the scope of supply of the antenna; see Accessories (Page 13).

3.2.1 Mast mounting

The antenna is suitable for mounting on a mast or rail with a diameter of 30 - 50 mm.



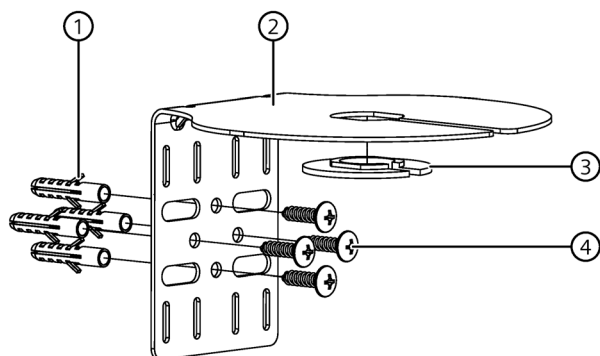
- | | |
|-----------------------------|---|
| ① M8 hexagonal nut, 8x | ⑦ M6 washer, 2x |
| ② M8 spring lock washer, 8x | ⑧ M6 spring lock washer, 2x |
| ③ M8 washer, 8x | ⑨ M6 hexagonal nut, 2x |
| ④ U-bracket, 2x | ⑩ L-bracket |
| ⑤ M6 bolts, 2x | ⑪ T-plate to reduce the diameter of opening |
| ⑥ U-bracket, 2x | ⑫ M8 bolts, 4x |

Proceed as follows to mount the antenna and the associated bracket:

1. Remove any oil, grease and other contamination from the mounting parts.
2. Place two U-brackets ⑥ horizontally on the L-bracket ⑩ and insert an M6 bolt ⑤ through the recess provided in the center. Screw the two U-brackets ⑥ with the L-bracket ⑩ with a washer ⑦, a spring lock washer ⑧ and a hexagon nut ⑨ in each case.
Tighten the bolts and nuts with the max. torque of 9 Nm (width across flats 10 mm).
3. Insert four M8 bolts ⑫ through the L-bracket. Screw a washer ③, a spring lock washer ② and a hexagon nut ① onto each M8 bolt ⑫.
Tighten the bolts and nuts with the max. torque of 20 Nm (width across flats 13 mm).
4. Place the L-bracket on the mast with the U-brackets pointing to the mast.
5. Attach the two remaining U-brackets ④ to the M8 bolts ⑫ on the opposite side of the mast.
6. Secure the U-brackets ④ on the mast with the washers ③, the spring lock washers ② and the hexagon nuts ①. Tighten the bolts ⑫ and hexagon nuts ① with the max. torque of 20 Nm (width across flats 13 mm).
7. Insert the T-plate ⑪ into the opening of the L-bracket ⑩ to reduce it.
8. Secure the antenna to the L-bracket with the supplied toothed lock washer and the nut.
The tightening torque of the nut is max. 5 Nm (width across flats 21 mm).
9. Connect the cables.
10. When mounting outdoors, seal the antenna ports with weatherproof insulating tape, e.g. self-vulcanizing adhesive tape or a shrink-on sleeve.

3.2.2 Wall mounting

The antenna is suitable for mounting on a wall. However, the material properties of the wall can impair the radiation characteristic of the antenna.



- ① Wall plugs, 4x
- ② L-bracket
- ③ T-plate to reduce the diameter of opening
- ④ Tapping screw, 4x

Proceed as follows to mount the antenna and the associated bracket:

1. Remove any oil, grease and other contamination from the mounting parts.
2. Drill four holes with a diameter of 6 mm into the wall. For the precise dimensions, refer to the drilling template (Page 18).
3. Insert the wall plugs ① in the drill holes.
4. Position the L-bracket ② on the wall and secure it with fixing screws ④.
5. Insert the T-plate ③ into the opening of the L-bracket ② to reduce it.
6. Secure the antenna to the L-bracket with the supplied toothed lock washer and the nut.
The tightening torque of the nut is max. 5 Nm (width across flats 21 mm).
7. Connect the cables.
8. When mounting outdoors, seal the antenna ports with weatherproof insulating tape, e.g. self-vulcanizing adhesive tape or a shrink-on sleeve.

4 Technical specifications

Electrical characteristics			
Frequency range	2.3 ... 2.7 GHz	2.8 ... 4.9 GHz	5.0 ... 7.2 GHz
Typical maximum antenna gain, measured in free space	3 dBi	5 dBi	7 dBi
Characteristic	Omnidirectional		
VSWR	< 2		
Impedance	50 Ω		
Polarization	Vertical		
Maximum transmit power	10 W		
Insulation	> 10 dB		

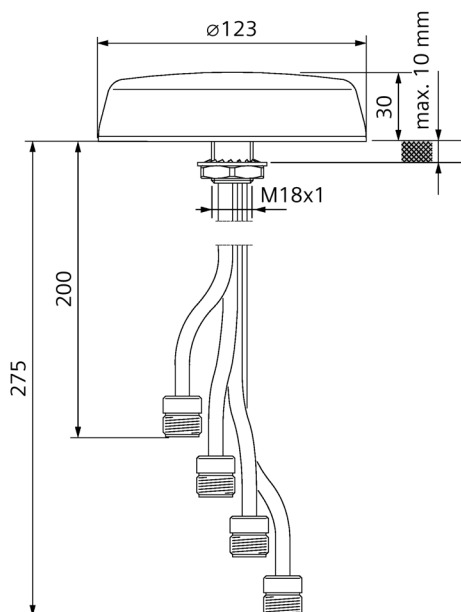
Mechanical properties / certifications		
Interfaces		4 x N-Connector female
Dimensions	Diameter	123 mm
	Height	30 mm
Material		LEXAN ELX9330
Color		White
Degree of protection		IP 69K (with correct mounting)
Storage temperature		-40 °C to +80 °C
Transport temperature		-40 °C to +80 °C
Operating temperature		-30 °C to +70 °C
Shock-resistance according to EN 62262		IK10
Silicone-free		Yes
Certifications		• RoHS 2002/95/EC • Cable flame-resistant according to – UN/ECE R 118.03 – EN6722 – EN45545-2

5 Dimension drawing

5.1 Antenna

Side view

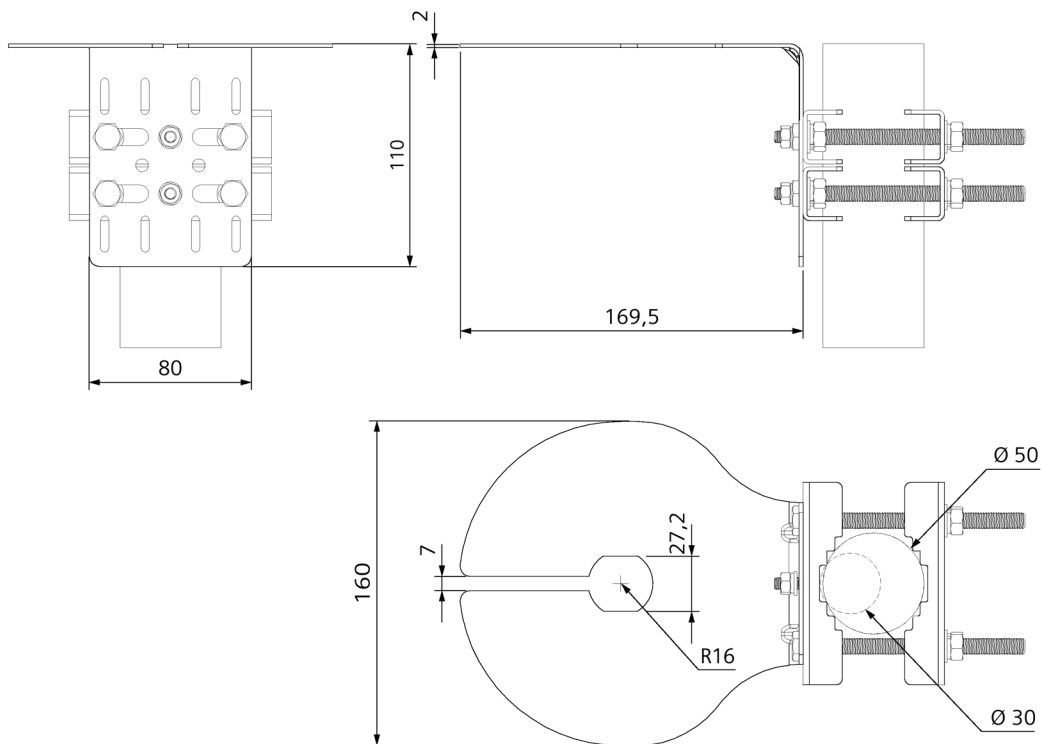
The dimensions are specified in mm.



5.2 Optional bracket for mast and wall mounting

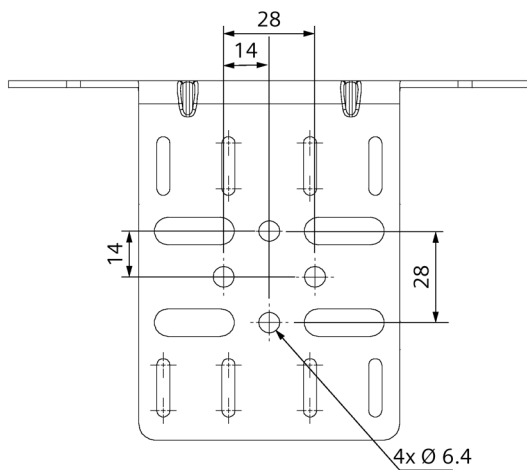
5.2.1 Bracket

The dimensions are specified in mm.



5.2.2 Drilling template

The dimensions are specified in mm.



6 Antenna patterns

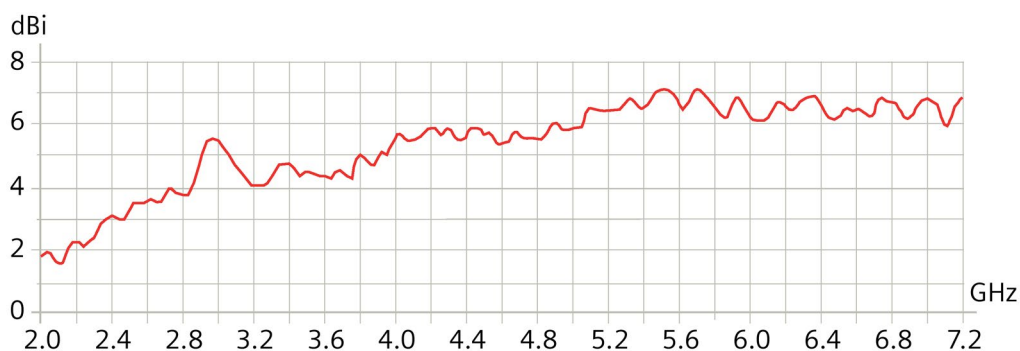
Note

Measuring conditions

The following diagrams are based on measurements in free space. Installation on a conductive surface may impact the antenna performance.

6.1 Antenna gain

The graph shows the typical maximum antenna gain when all antenna elements are fed without connecting cables.



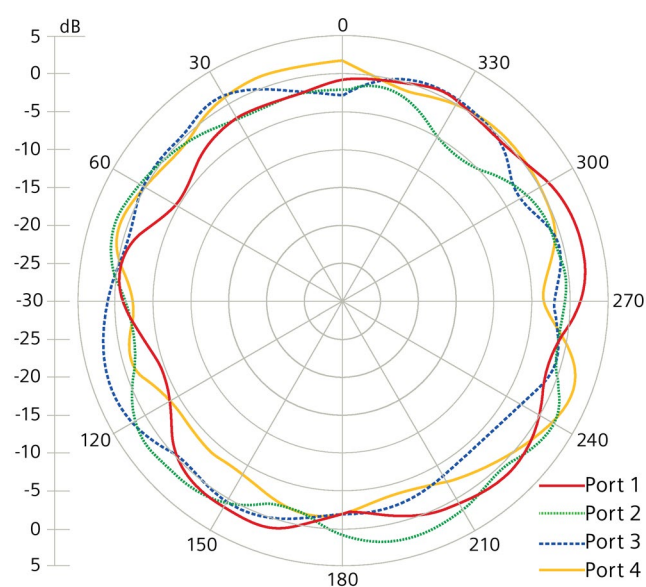
6.2 Field diagrams

The field diagrams contain characteristic curves for all ports of the antenna. The characteristic curves differ with respect to line type and color. Refer to the legend under the diagrams for an explanation of the characteristic curves.

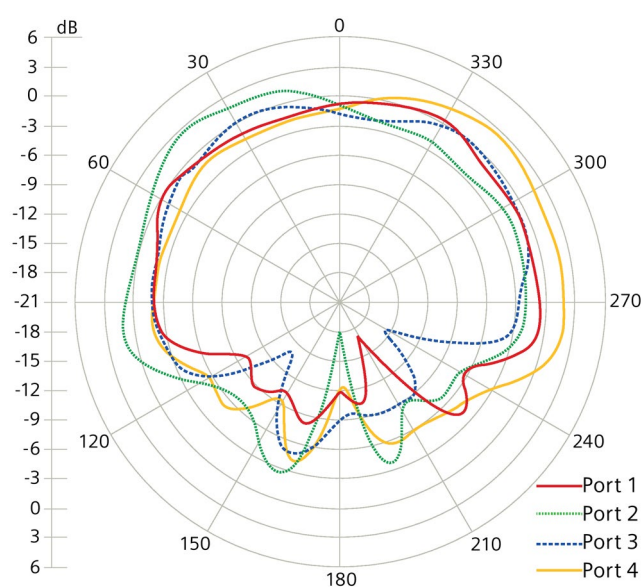
6.2.1 Field diagrams 2.4 GHz

Measured in free space

Horizontal



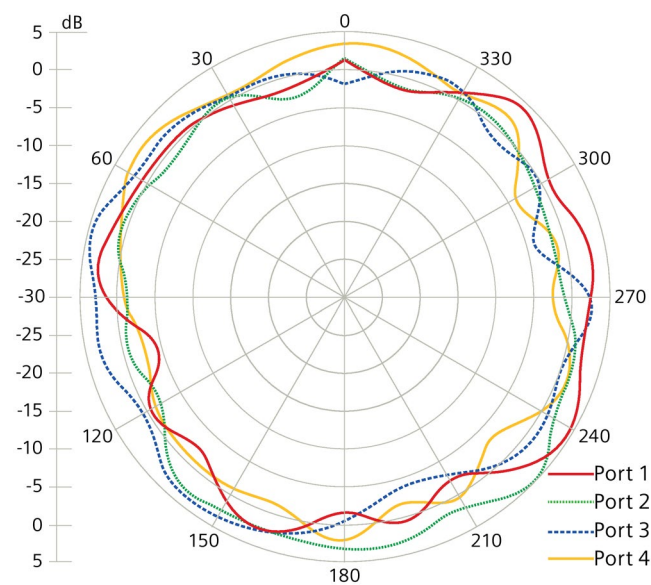
Vertical



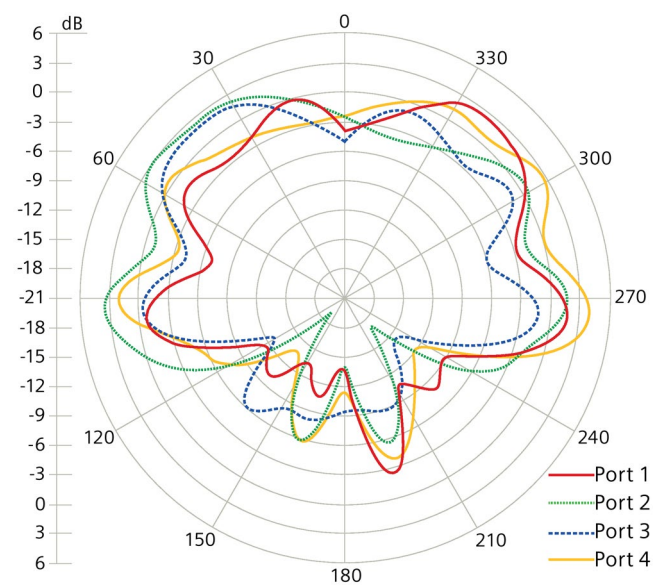
6.2.2 Field diagrams 3.8 GHz

Measured in free space

Horizontal



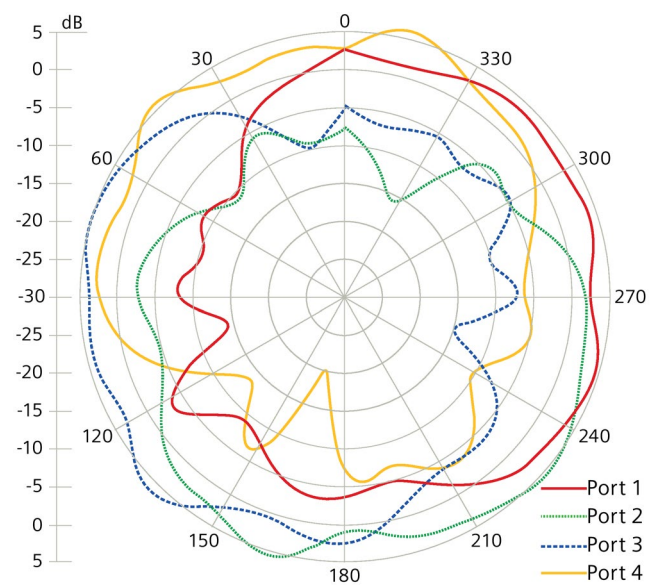
Vertical



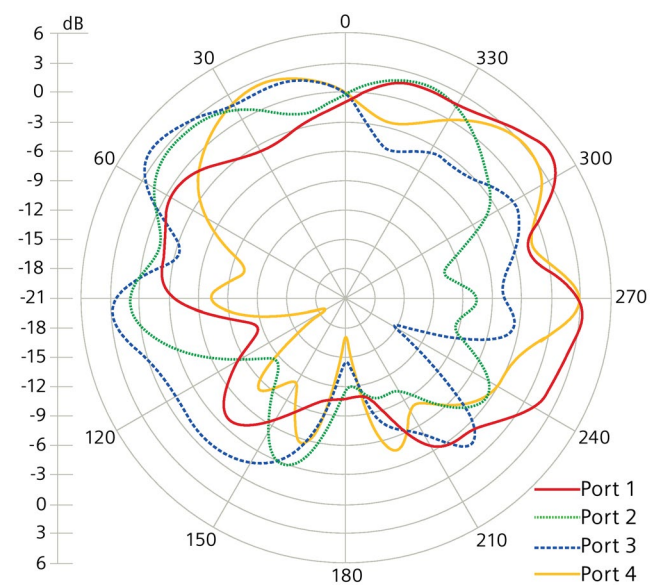
6.2.3 Field diagrams 5.15 GHz

Measured in free space

Horizontal



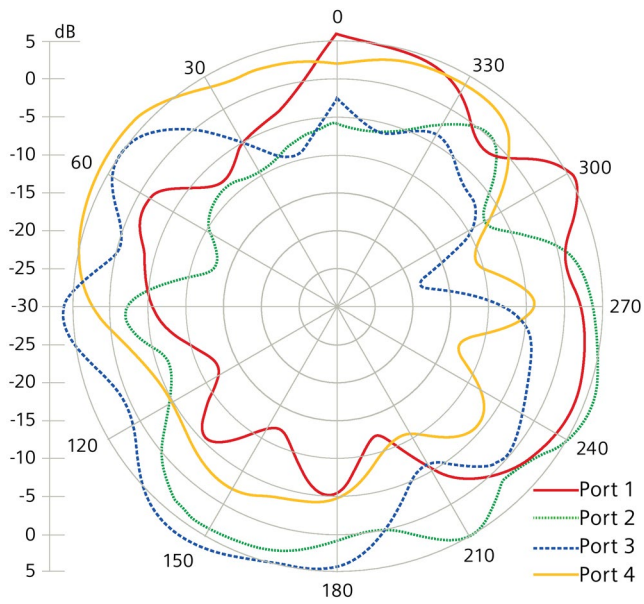
Vertical



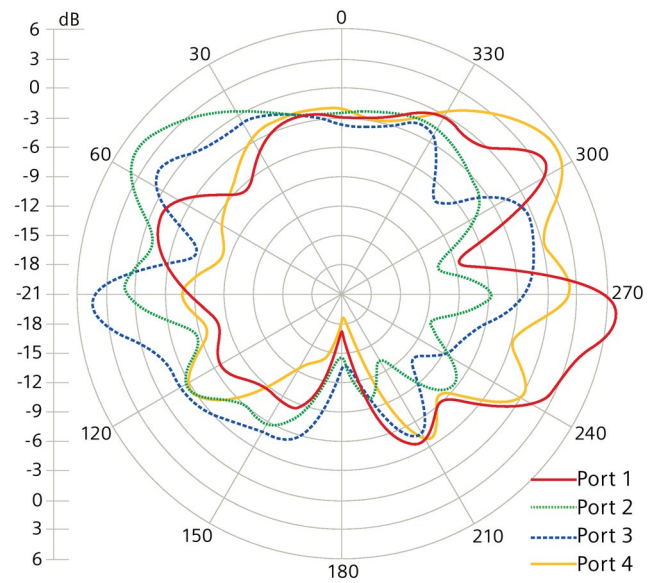
6.2.4 Field diagrams 6.2 GHz

Measured in free space

Horizontal



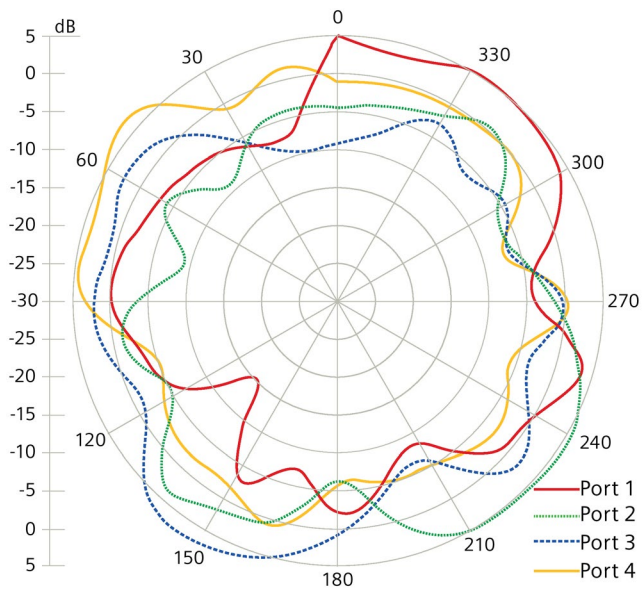
Vertical



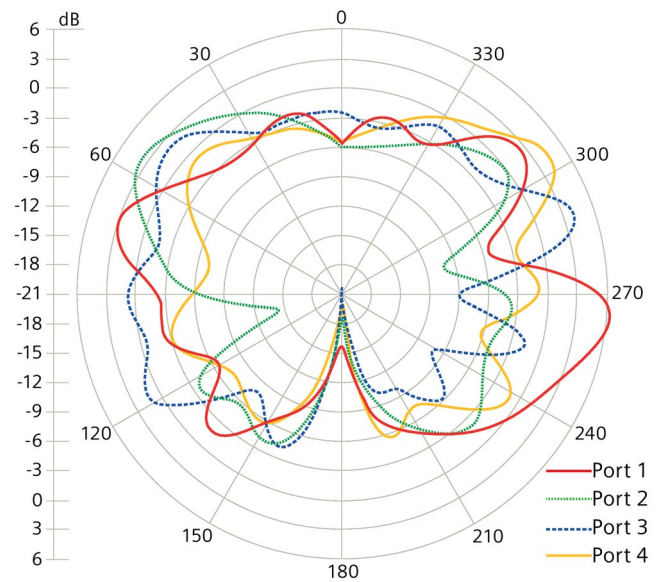
6.2.5 Field diagrams 7.0 GHz

Measured in free space

Horizontal



Vertical



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Siemens Aktiengesellschaft
Digital Industries
Postfach 48 48
90026 NÜRNBERG
GERMANY

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