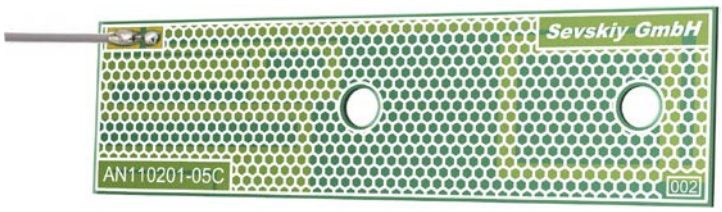
800…960 MHz / 1710…2170 MHz PCB Antenna (GSM, UMTS, ISM, IoT, RFID, 5G NR, LTE)



General information

This compact embedded PCB antenna is designed to operate in the 800…960 MHz and 1710…2170 MHz frequency ranges. These bands cover a broad set of cellular and industrial communication standards, including GSM, UMTS, LTE, ISM, RFID, NB-IoT, and LTE-M, making the antenna suitable for modern multi-standard wireless devices.

The antenna is intended for integration inside plastic enclosures and is supplied as a PCB antenna with a micro-coaxial cable terminated with an I-PEX MHF1 / Hirose U.FL (UMCC) compatible connector for easy integration into RF modules. It features linear polarization and an omnidirectional radiation pattern, ensuring stable performance in various device orientations. Thanks to its optimized geometry, the antenna provides high radiation efficiency and reliable impedance matching across all supported bands. Typical applications include IoT devices, smart meters, industrial sensors, gateways, automotive electronics, and other compact wireless products.

Electrical data

Antenna type	Embedded / internal PCB antenna	
5G bands	1, 2, 3, 5, 8, 18, 25, 26, 34, 39, 65, 66, 70, 80 - 82, 84, 86, 89, 95, 98	
4G bands	1 - 6, 8 -10, 18 - 20, 23, 25 - 27, 33 - 37, 39, 65, 66, 70	
Other frequency bands	SRD860, ISM915, GSM, UMTS	
Frequency range [MHz]	800...960	1710...2170
Return loss [dB]	-9	-10
Peak gain [dBi]	1…2.5	4.5…5.5
Radiation efficiency [%]	70…90	80…90
Nominal input impedance [Ohm]	50	
Polarization	linear	
Radiation pattern	omnidirectional	
Maximum input power [W]	5	

Mechanical data

Antenna PCB dimensions [mm]	70 x 19 x 0.8
Connector type [1]	IPEX MHF1 / Hirose U.FL (UMCC) compatible [1]
Cable type and thickness [2] [mm]	micro coax 1.13 [2]
Cable length [3] [mm]	175 [3]
PCB material	FR4

Additional information

[1] Other connector types can be offered on request.

[2] Following cable thicknesses can be used with MHF1 connector: 0.81 mm, 1.13 mm, 1.32 mm, 1.37 mm.

[3] Other cable lengths can be provided.

Antenna performance was measured using the specified cable length in free space.

Further customization, electromagnetic simulations and measurements can be offered on request.

The antenna can be additionally equipped with adhesive tape and mounting holes.

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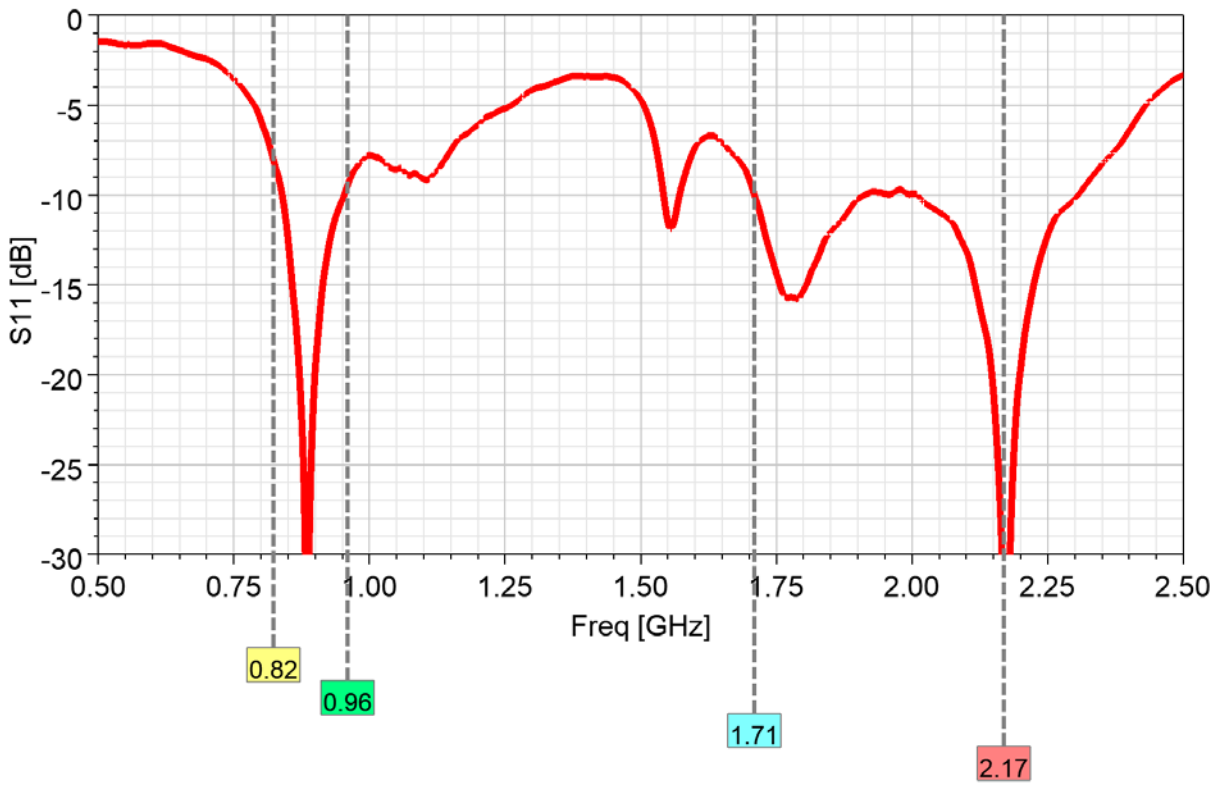
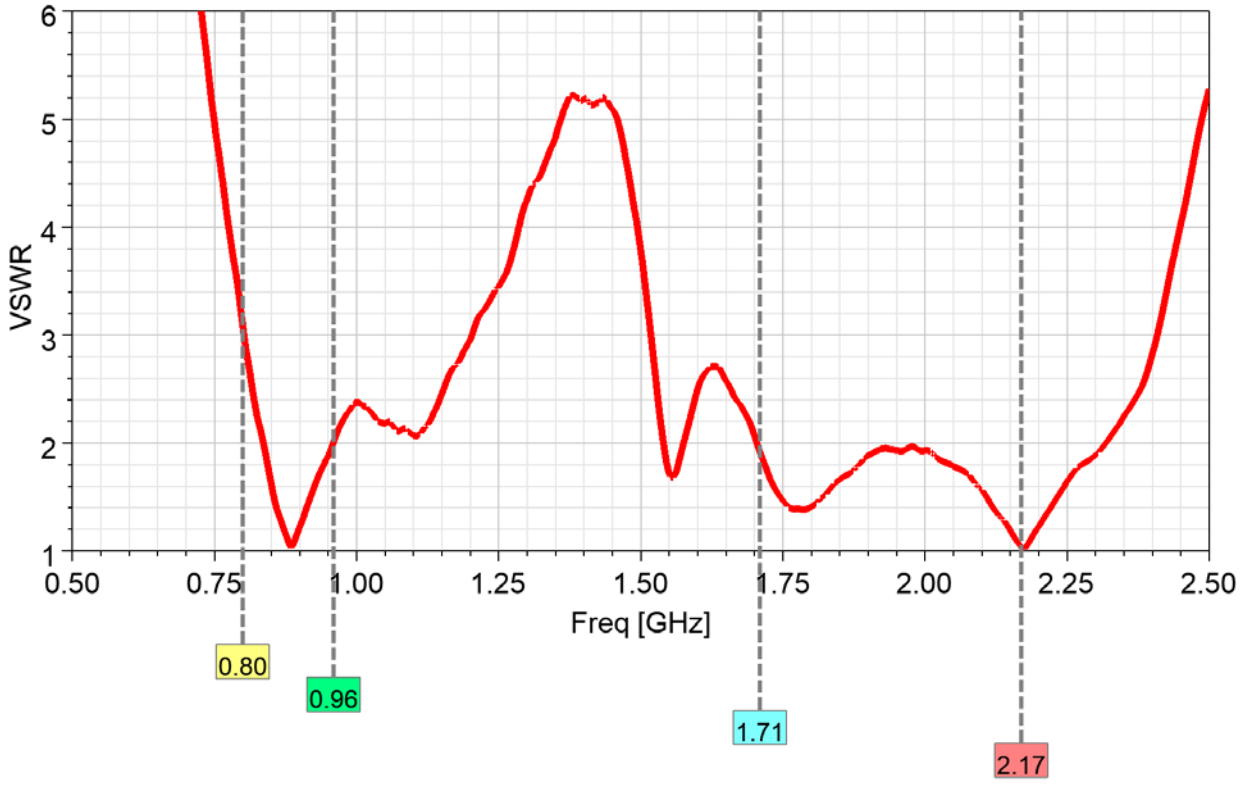
Measured input impedance matching



VSWR



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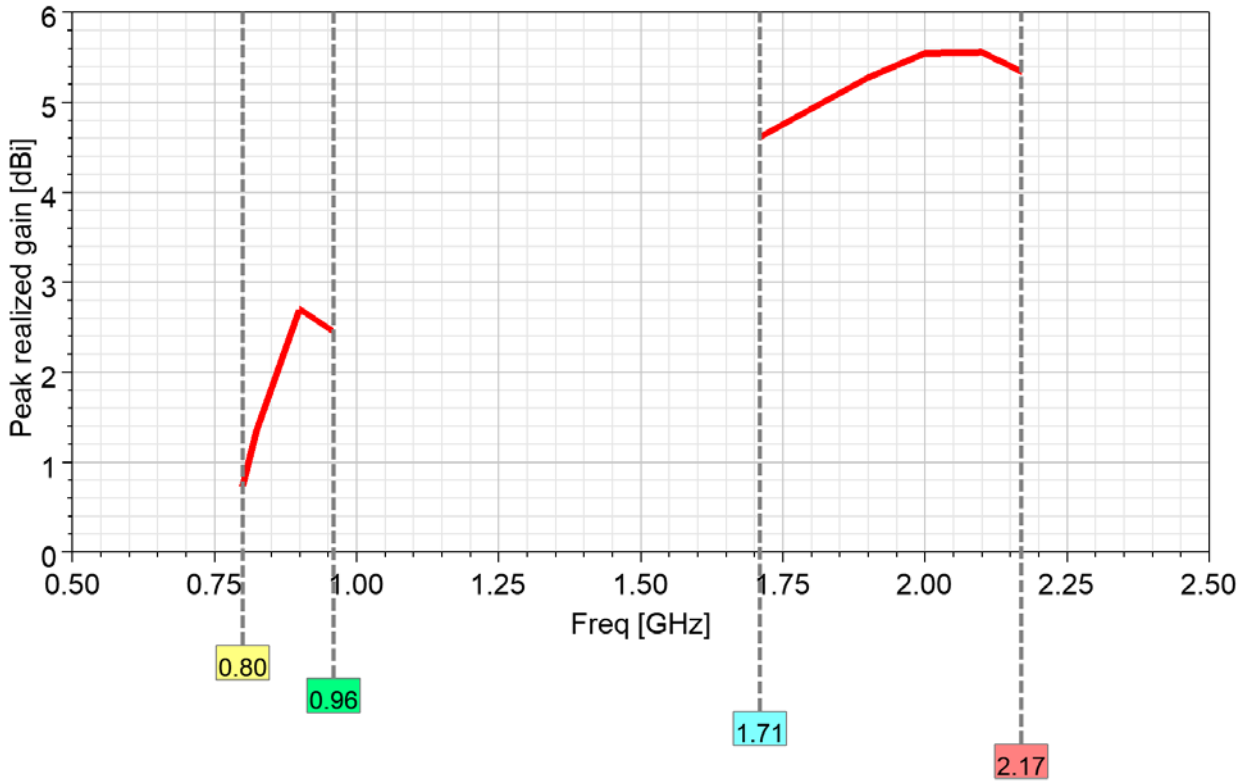
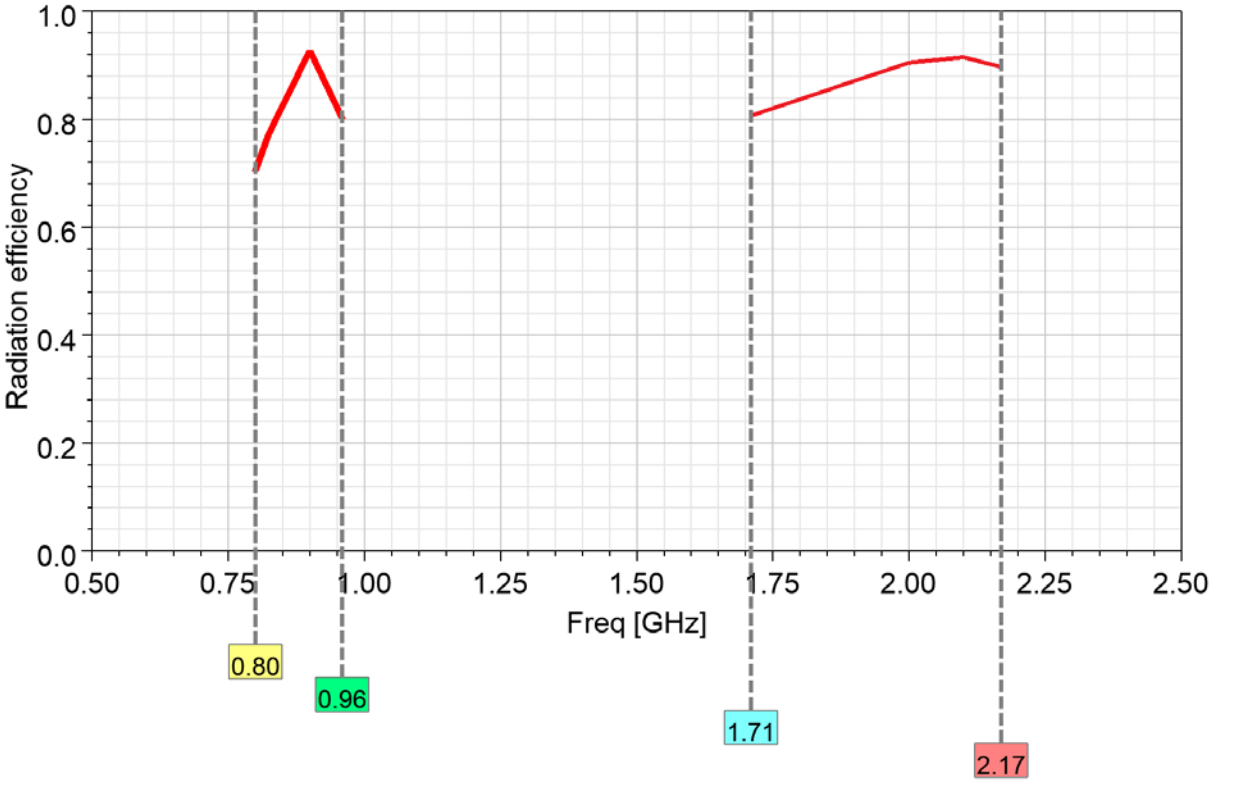
Peak realized gain



Radiation efficiency



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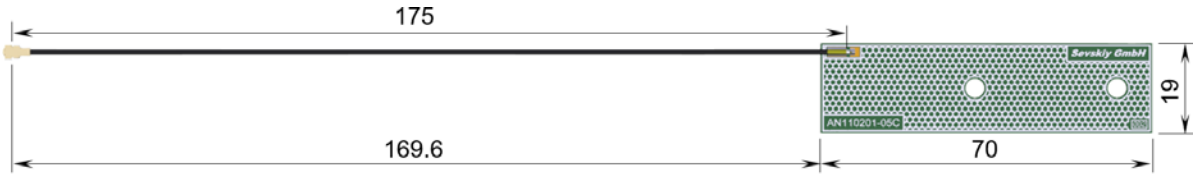
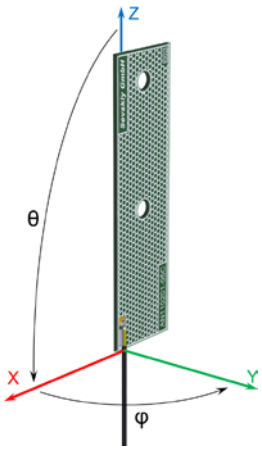
Product dimensions

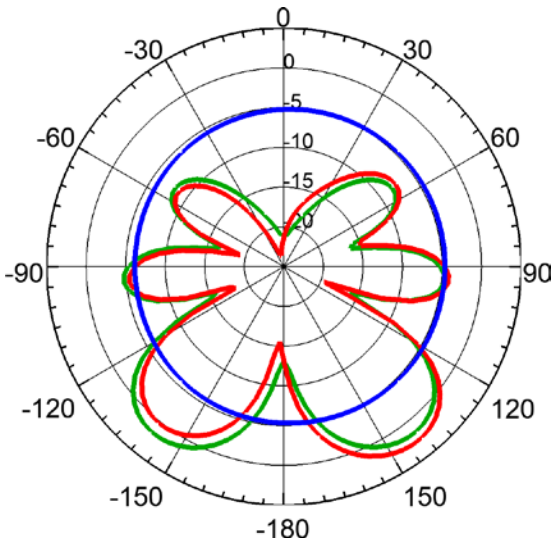


Units: mm

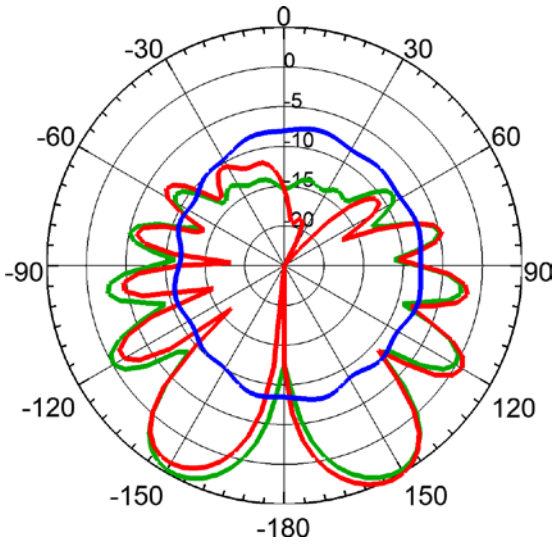
Radiation pattern



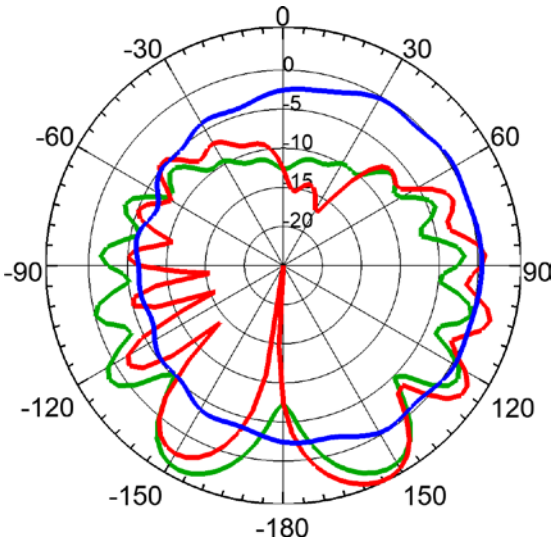
Total realized gain [dBi]
Phi=0°, plane XZ, green curve
Phi=90°, plane YZ, red curve
Theta=90°, plane XY, blue curve



900 MHz



1900 MHz



2170 MHz

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