

850...960 MHz / 1559...1610 MHz PCB Antenna (ISM, RFID, IoT, LoRa, GNSS)



General information

The AN150203-01C is a compact multi-band embedded PCB antenna designed for sub-GHz and L-band wireless applications in the 850...960 MHz and 1559...1610 MHz frequency ranges. It supports widely used standards such as SRD860, ISM915, GNSS (GPS L1 / GLONASS / Galileo / BeiDou), and LP-WAN technologies, making it suitable for both communication and positioning systems.

The antenna is optimized for integration into mobile devices, IoT nodes, trackers, sensors, gateways, and other compact wireless equipment requiring reliable connectivity and satellite navigation capability. Typical applications include 5G, LTE, IoT, LoRa, smart metering, telemetry systems, industrial monitoring, timing and synchronization units, and GNSS-enabled wireless devices.

The antenna is manufactured on an FR-4 PCB and is supplied with an integrated micro-coaxial cable terminated with an I-PEX MHF1 / Hirose U.FL (UMCC) connector. This cable-based design enables flexible antenna placement inside the device enclosure and simplifies integration with RF modules.

Electrical data

Antenna type	Embedded / internal PCB antenna	
Frequency band	SRD860, ISM915, GNSS	
Frequency range [MHz]	850...960	1559...1610
Return loss [dB]	-6	-7
Peak gain [dBi]	-0.9...2	-0.4...1.8
Radiation efficiency [%]	40...80	46...62
Nominal input impedance [Ohm]	50	
Polarization	linear	
Radiation pattern	omnidirectional	
Maximum input power [W]	5	

Mechanical data

Antenna PCB dimensions [mm]	45.2 x 20 x 1
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.

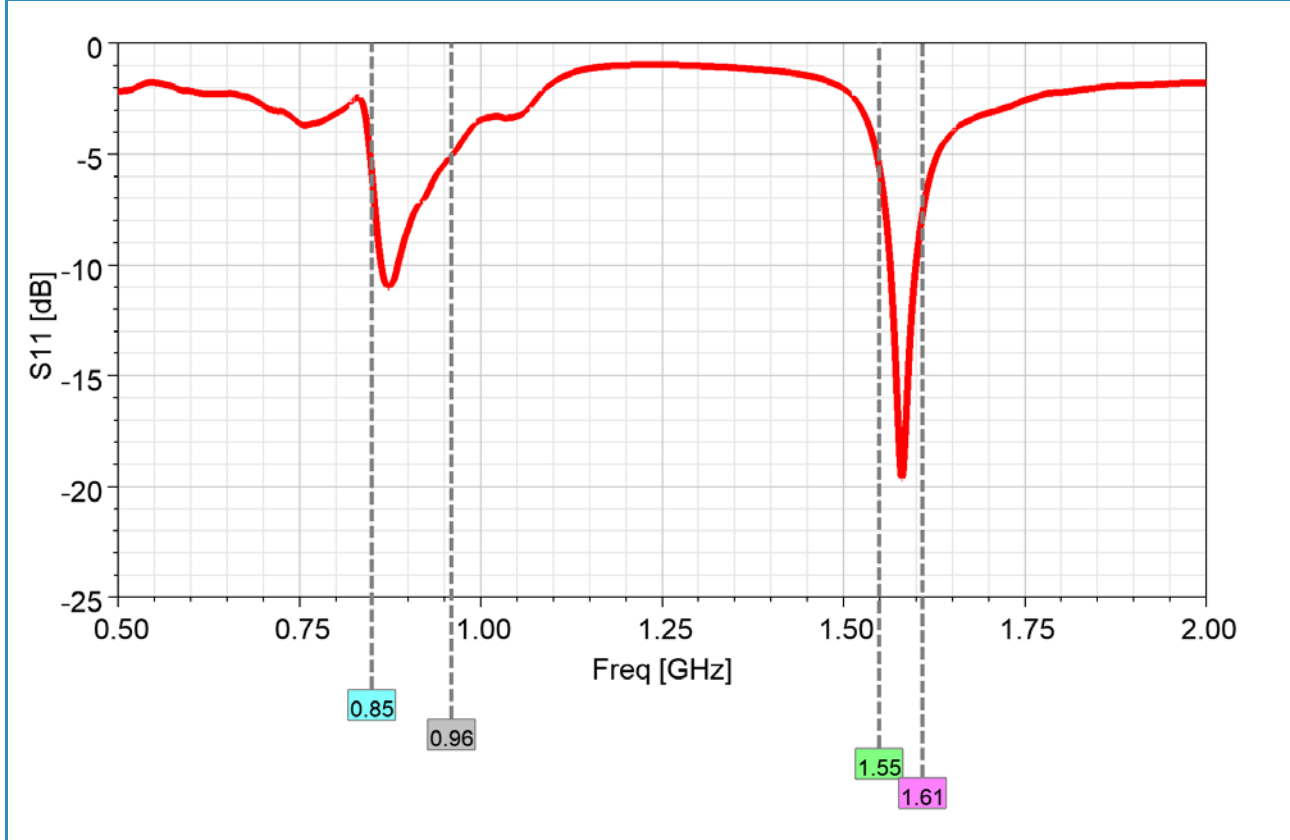
Further customization, electromagnetic simulations and measurements can be offered on request.

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

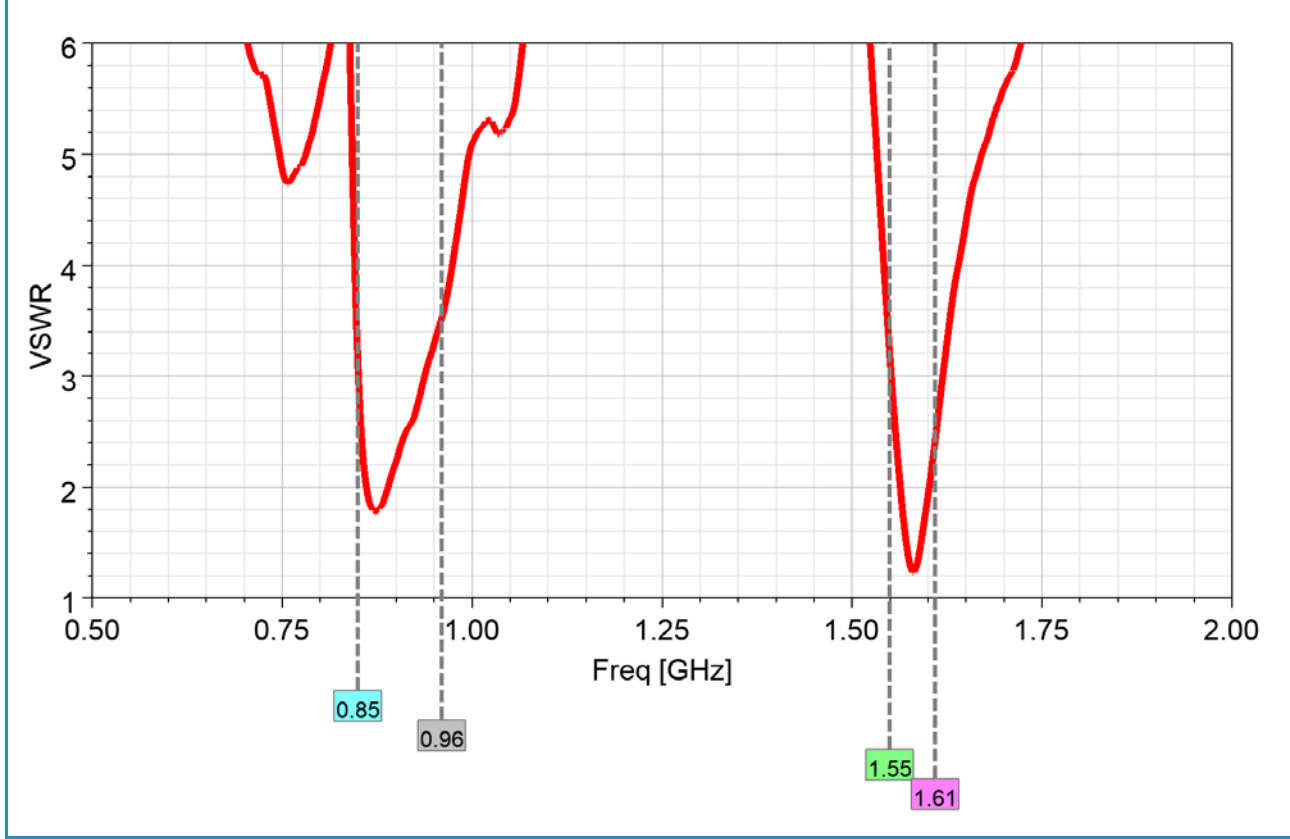
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Measured input impedance matching



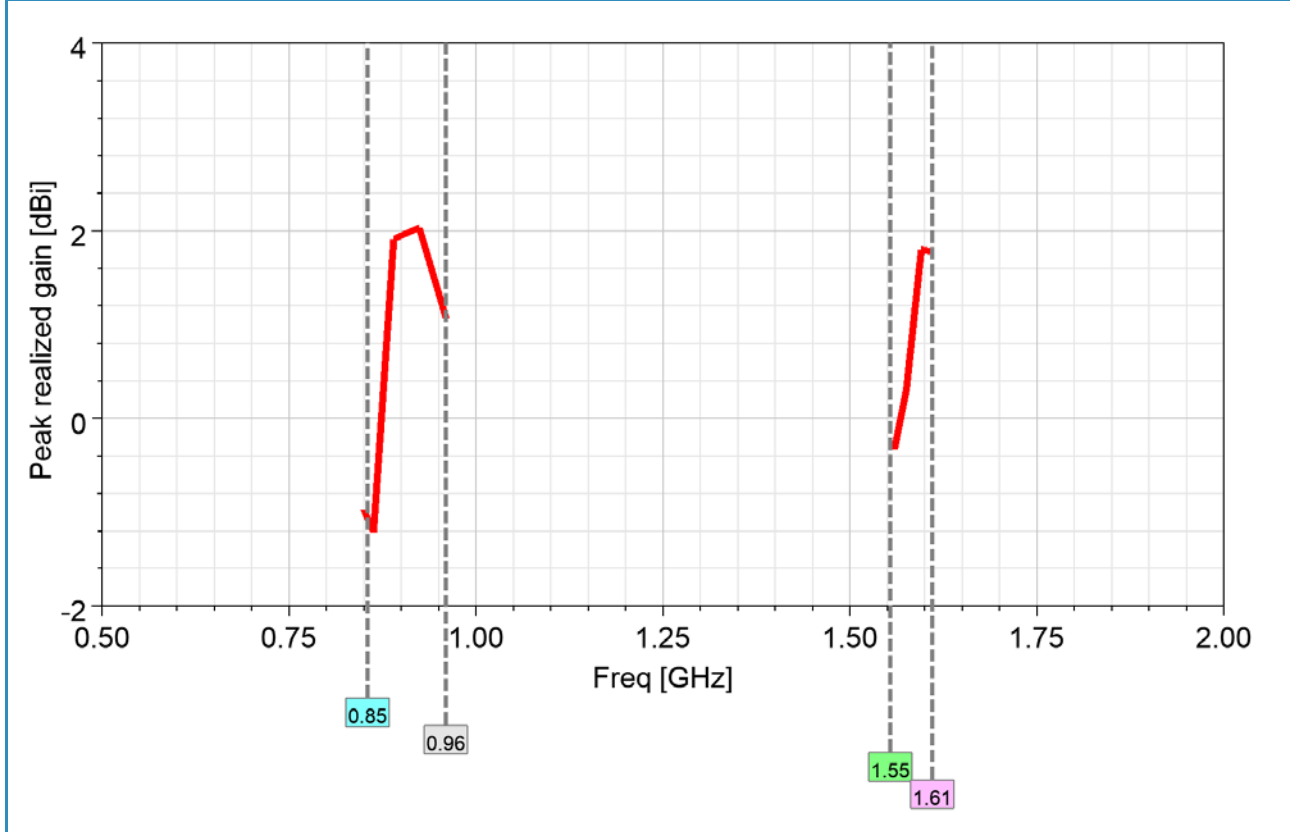
VSWR



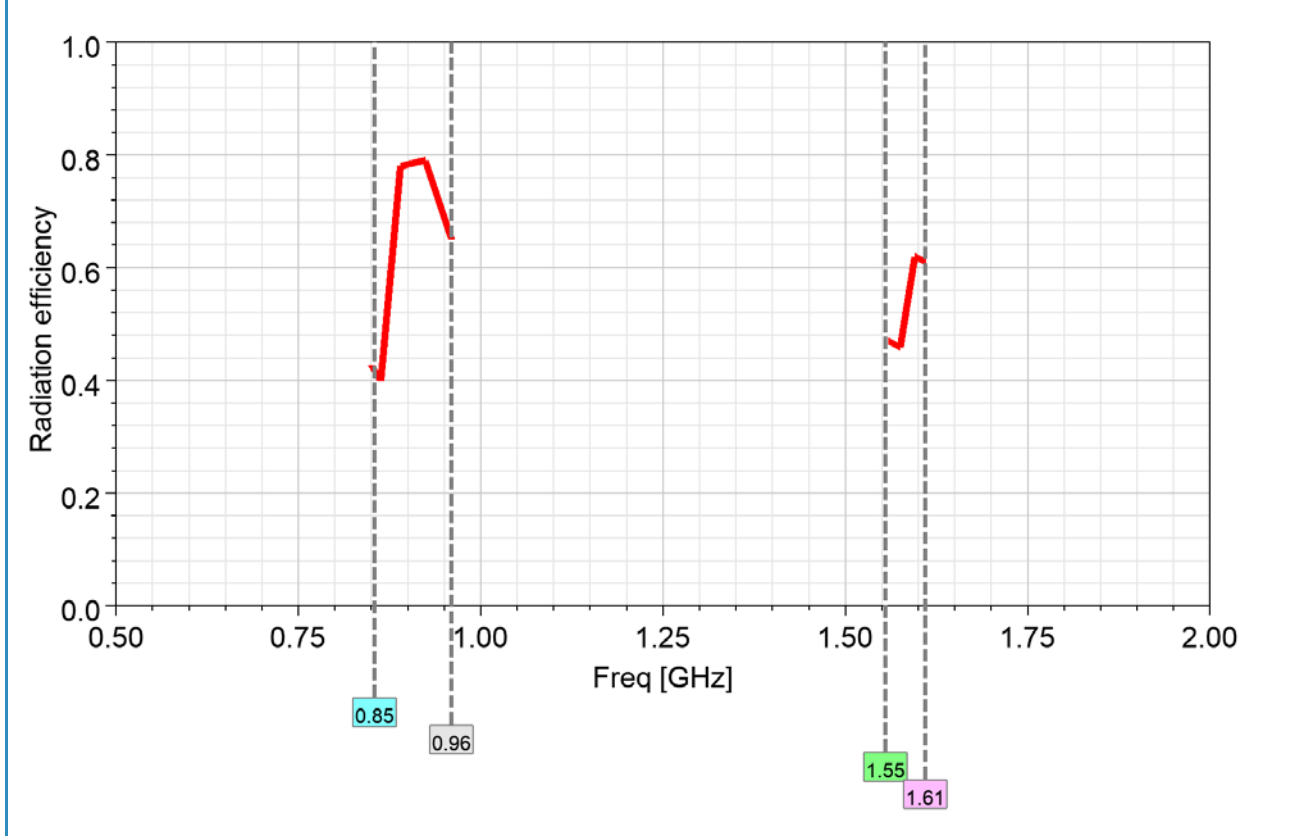
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Peak realized gain



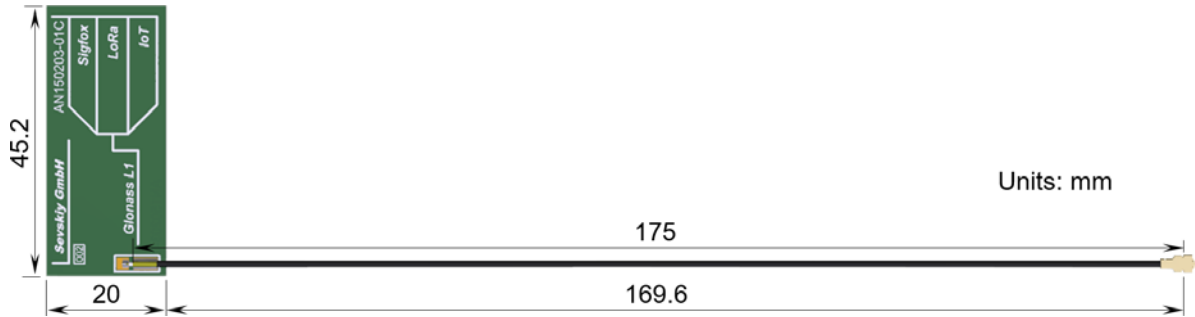
Radiation efficiency



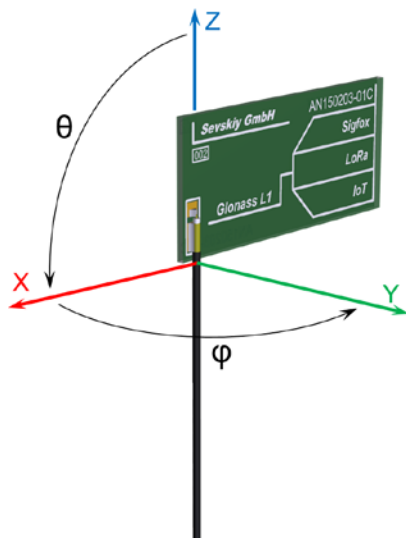
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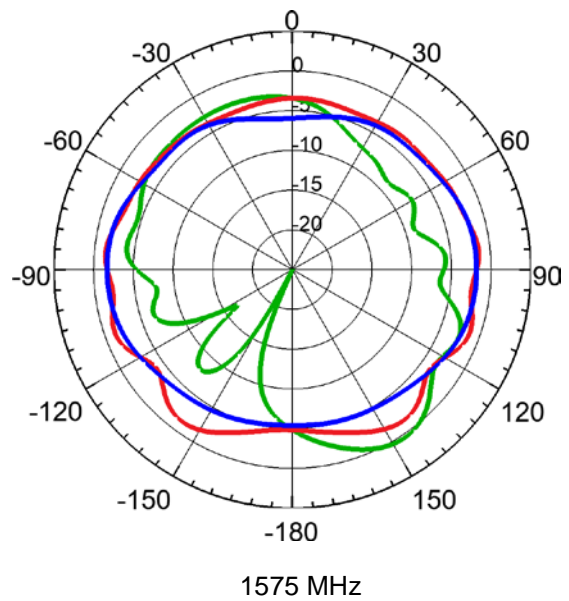
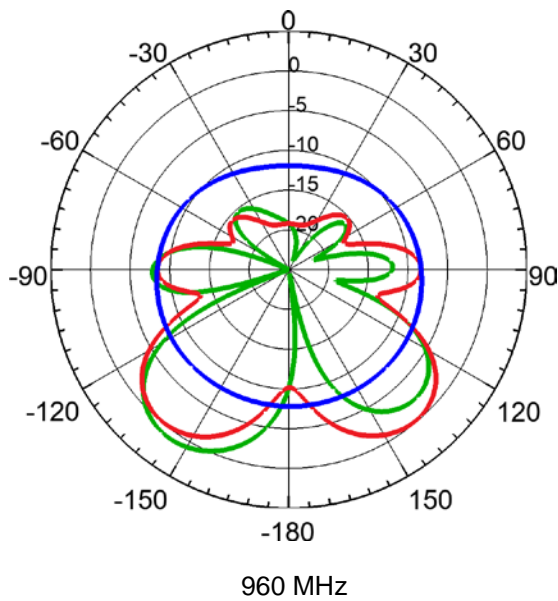
Product dimensions



Radiation pattern



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



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