850…924 MHz / 1559…1610 MHz PCB Antenna (ISM, RFID, IoT, LoRa, GNSS)

General information

The AN150202-03H is a compact multi-band embedded PCB antenna designed for sub-GHz and L-band wireless applications in the 850…924 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 IoT, LoRa, smart metering, telemetry systems, industrial monitoring, timing and synchronization units, and GNSS-enabled wireless devices.

Manufactured on an FR-4 PCB, the antenna is equipped with an onboard I-PEX MHF1 / Hirose U.FL (UMCC) compatible connector, allowing a separate micro-coax cable to be connected for RF feeding. This configuration provides flexibility in cable routing and antenna placement inside the device enclosure.

Electrical data

Antenna type	Embedded / internal PCB antenna	
Frequency band	SRD860, ISM915, GNSS	
Frequency range [MHz]	850...924	1559…1610
Return loss [dB]	-6	-7
Peak gain [dBi]	1…2.3	0.8…1.5
Radiation efficiency [%]	55…80	55…65
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] Recommended length. Cable is not included but can be customized and provided separately.

Antenna performance was measured using the recommended 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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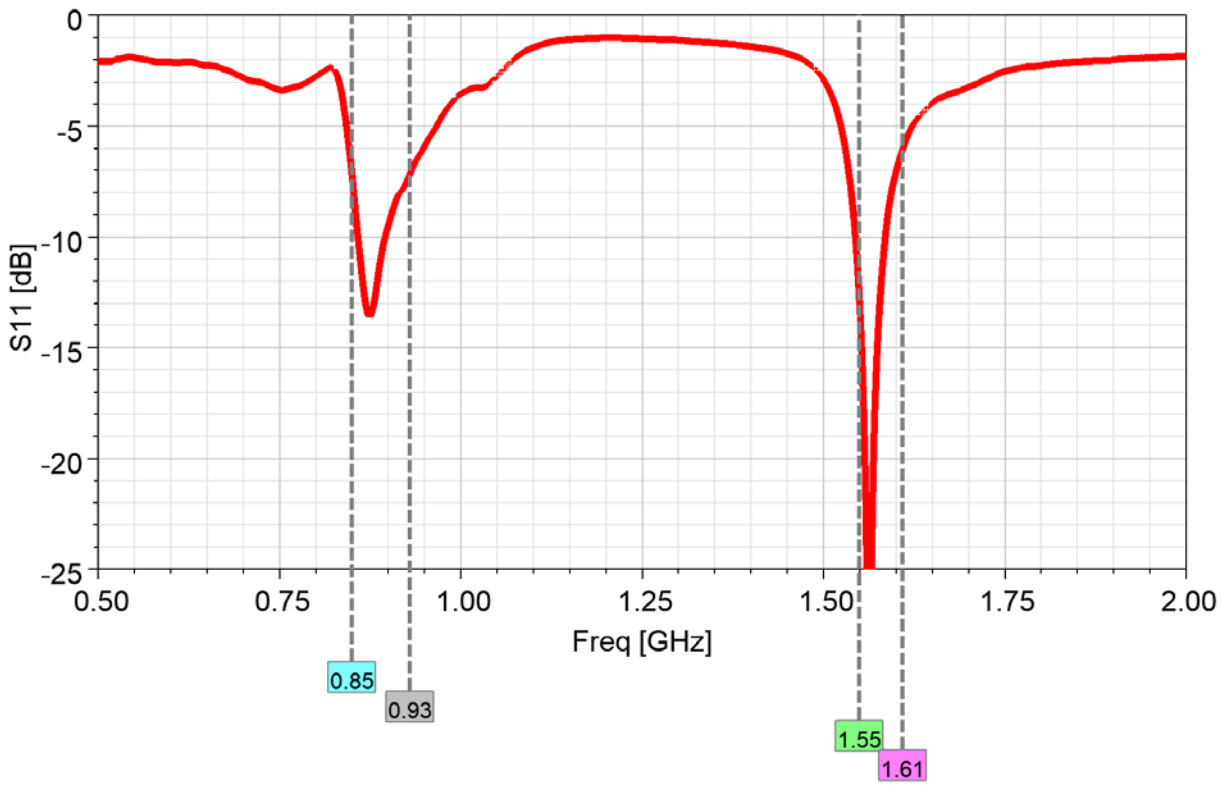
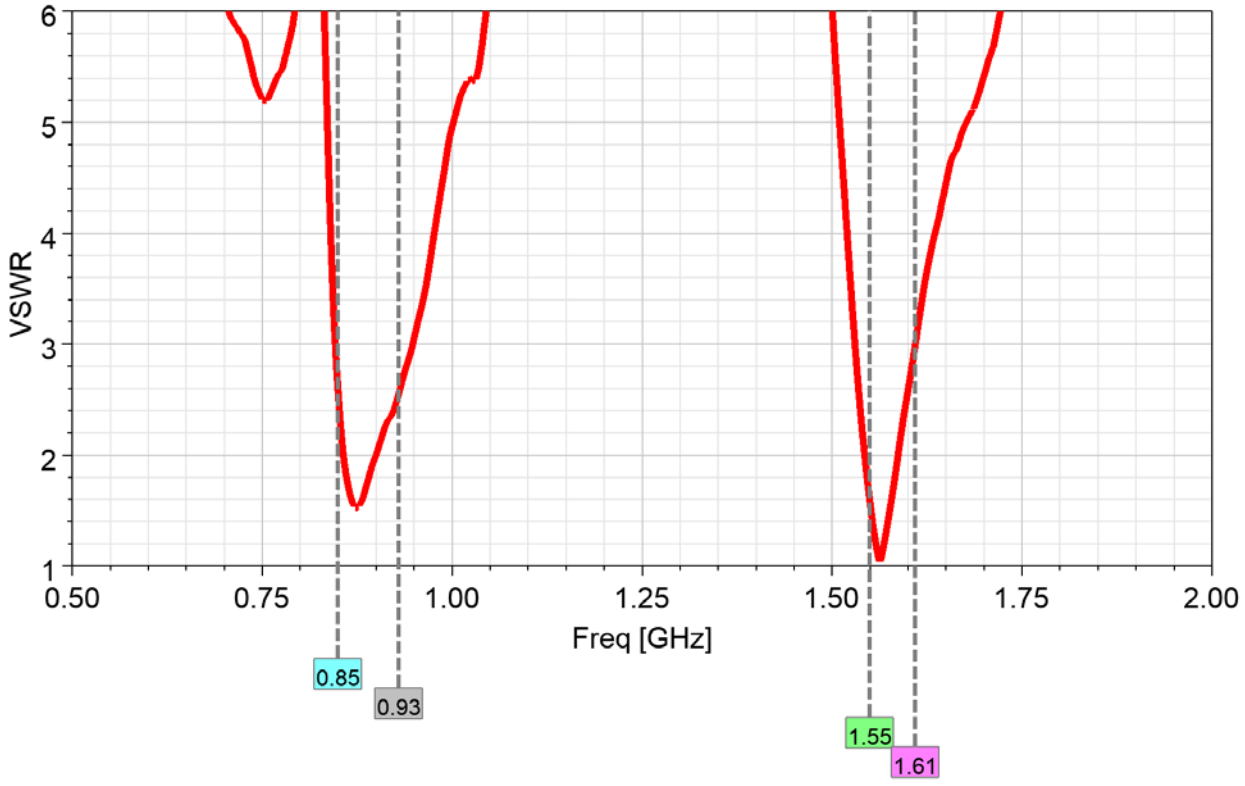
Measured input impedance matching



VSWR



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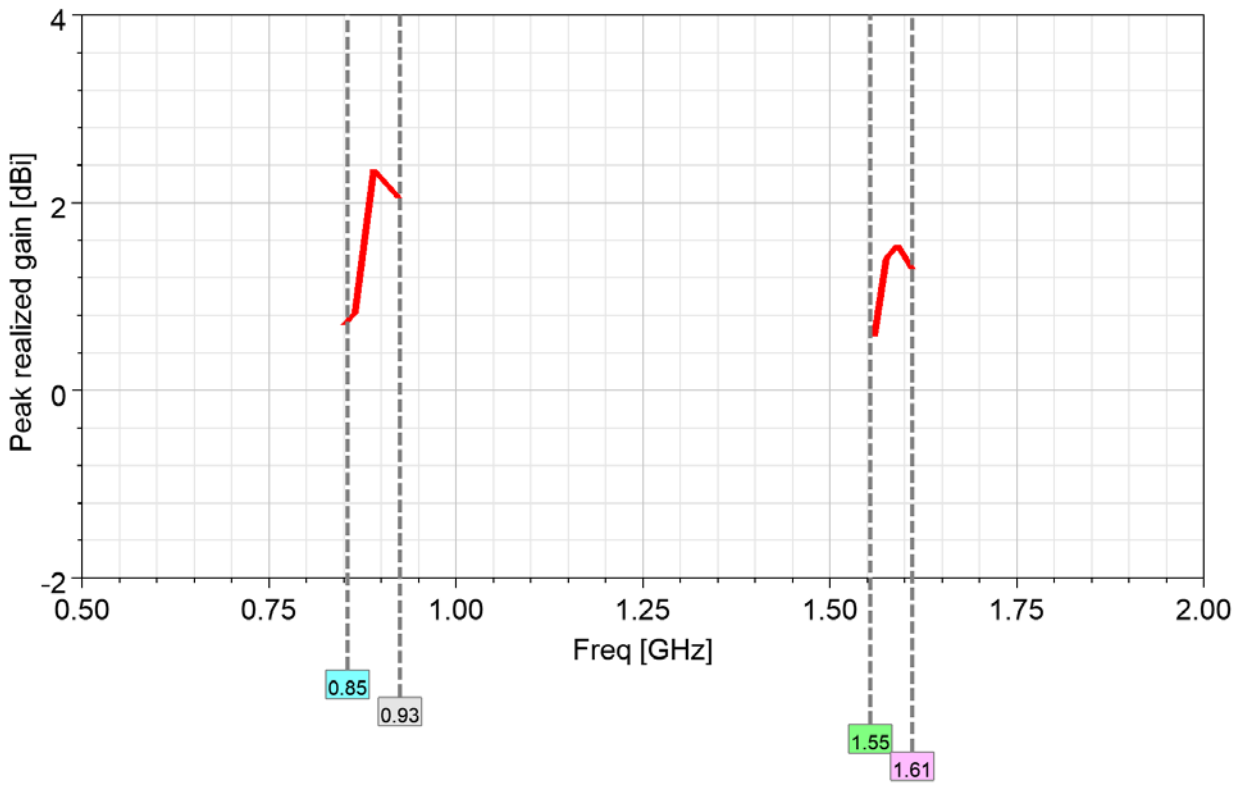
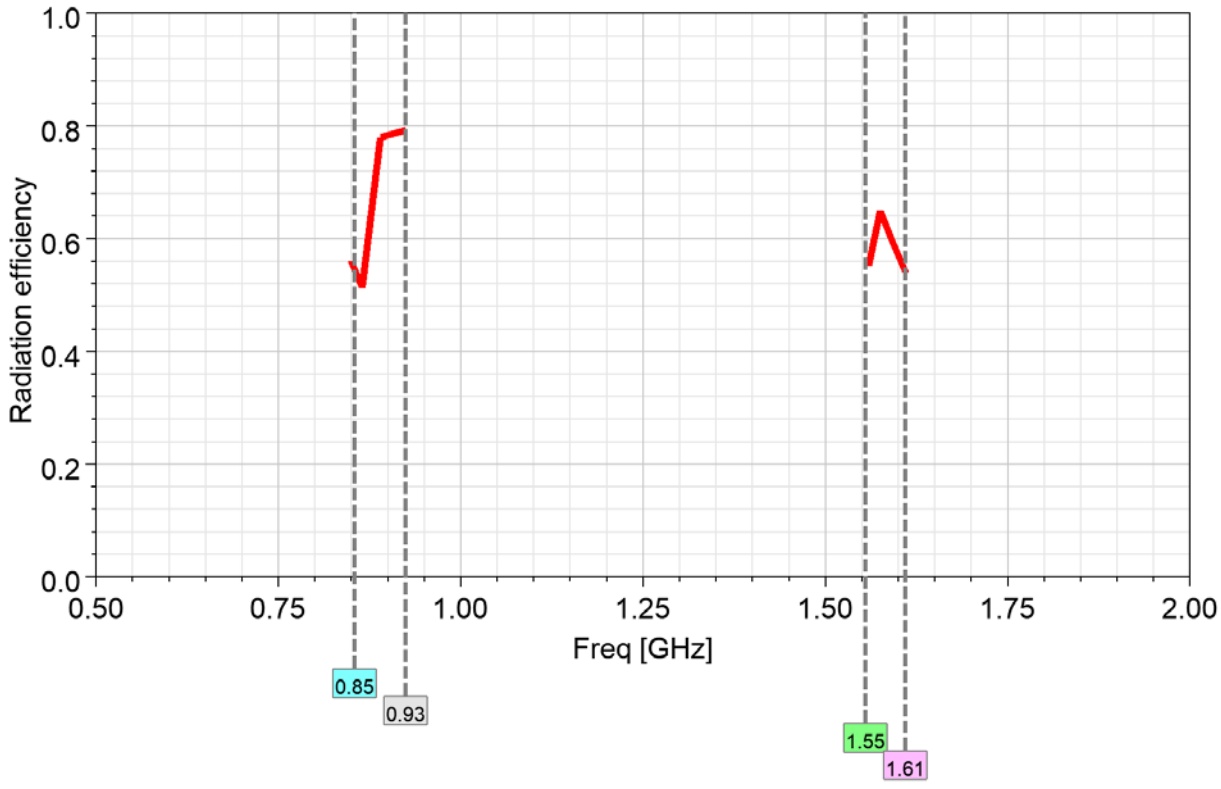
Peak realized gain



Radiation efficiency



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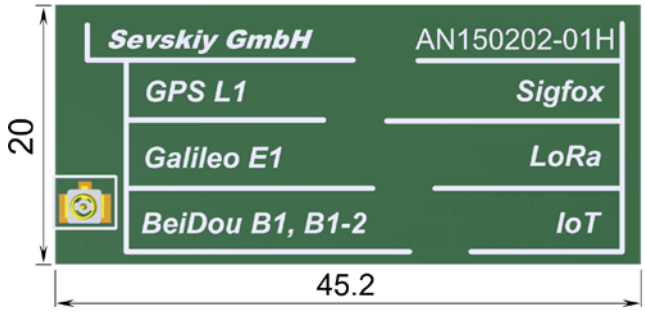
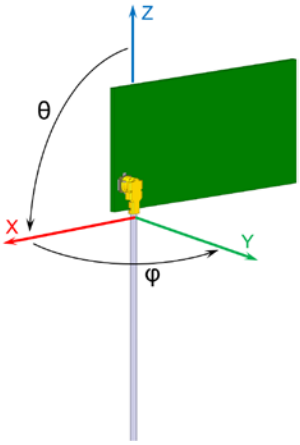
Product dimensions

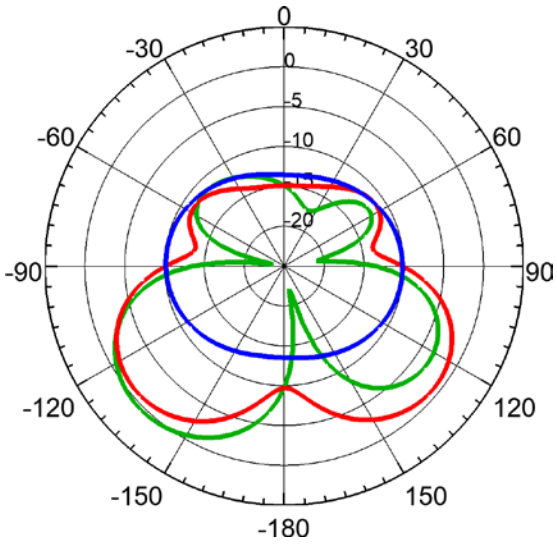


Units: mm

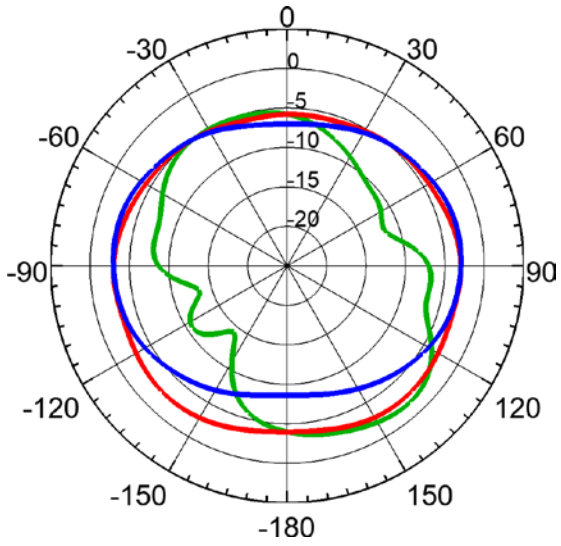
Radiation pattern



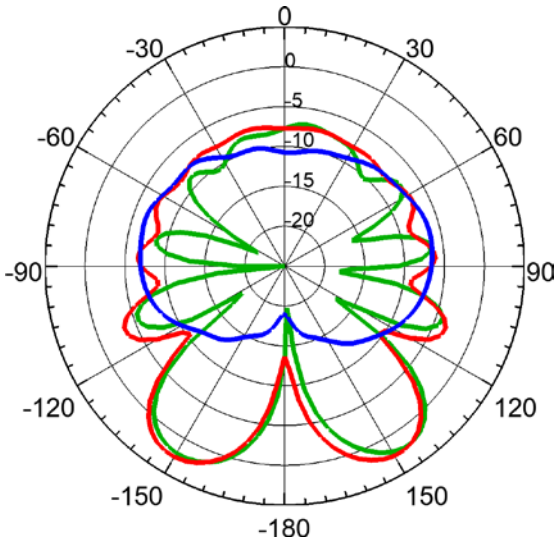
Total realized gain [dBi]
Phi=0°, plane XZ, green curve
Phi=90°, plane YZ, red curve
Theta=90°, plane XY, blue curve



890 MHz



1610 MHz



2410 MHz

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