433 MHz / 868 MHz PCB Antenna (ISM, RFID, IoT, Sigfox, LoRa, LP-WAN, Smart meters)

General information

The AN050201-01C is a very compact multi-band PCB antenna designed for integration into plastic housings of mobile, IoT, M2M, and telemetry devices. The antenna supports the ISM 433 MHz and ISM/SRD 868 MHz frequency bands, delivering reliable performance for both short- and long-range wireless communication applications.

Manufactured on an FR-4 substrate, the antenna includes an integrated coaxial cable terminated with an I-PEX MHF1 / Hirose U.FL (UMCC) connector, allowing easy installation and flexible positioning inside the device enclosure. With its compact PCB form factor, linear polarization, and omnidirectional radiation pattern, the antenna is suitable for a wide range of applications, including ISM systems, RFID, IoT (Sigfox, LoRa), LP-WAN, smart meters, remote controls, wireless sensors, industrial monitoring, alarm and security systems, and general-purpose telemetry.

Electrical data

Antenna type	Embedded / internal PCB antenna	
Frequency band	ISM433, SRD860	
Frequency range [MHz]	433...434.8	863...870
Return loss [dB]	-11	-10
Peak gain [dBi]	-1.6	-1.7
Radiation efficiency [%]	62	45
Nominal input impedance [Ohm]	50	
Polarization	linear	
Radiation pattern	omnidirectional	
Maximum input power [W]	5	

Mechanical data

Antenna PCB dimensions [mm]	45 x 25 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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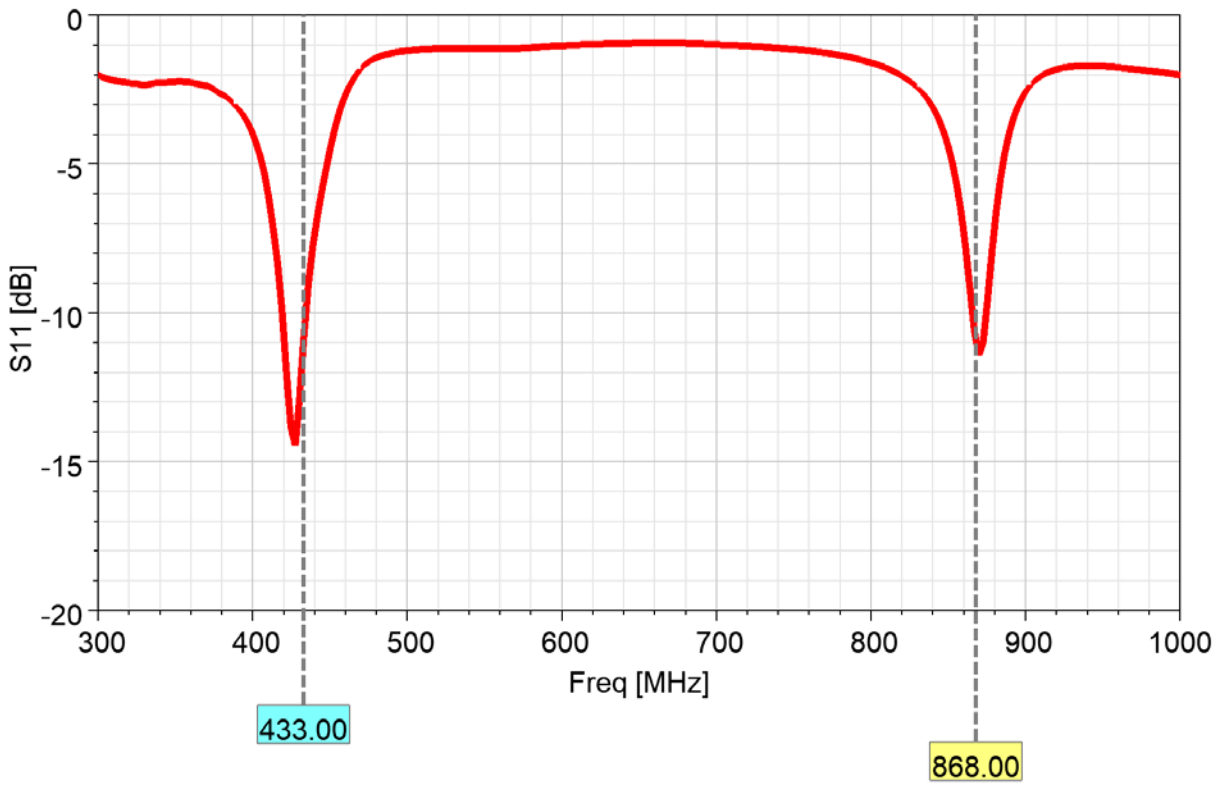
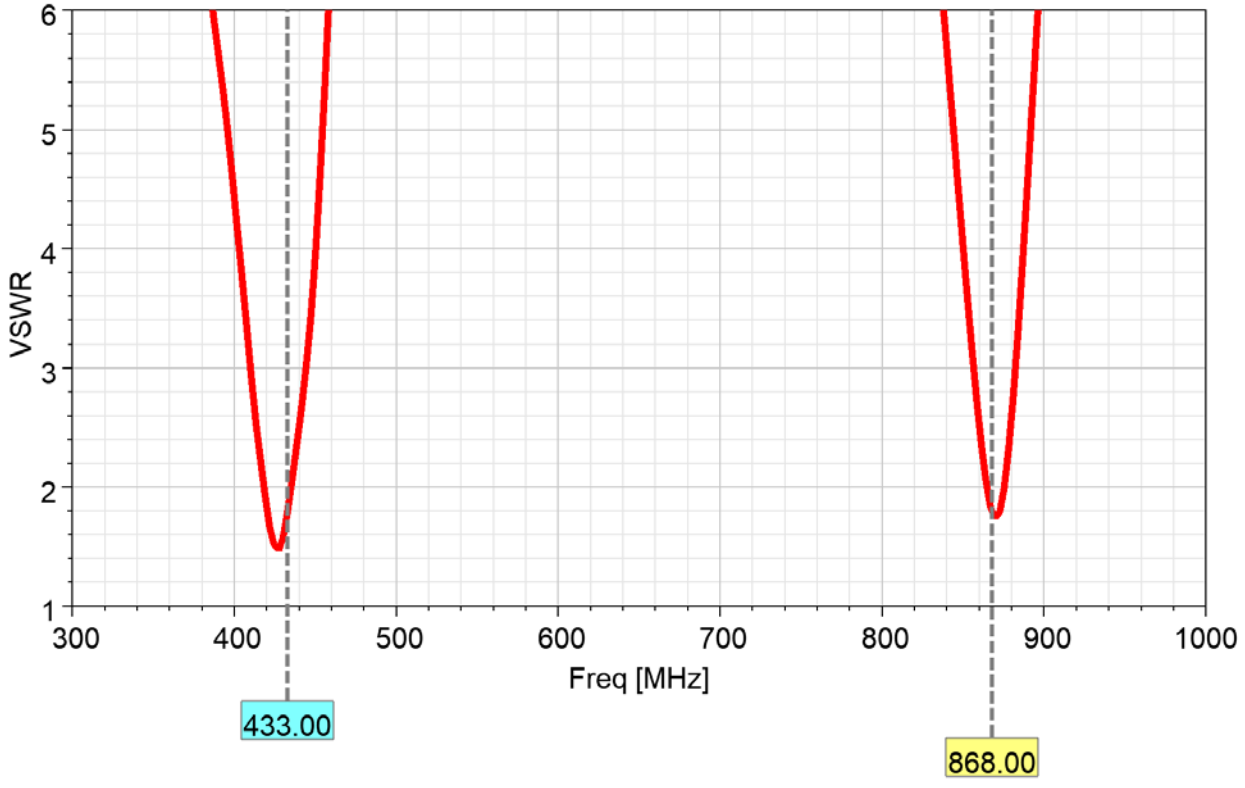
Measured input impedance matching



VSWR



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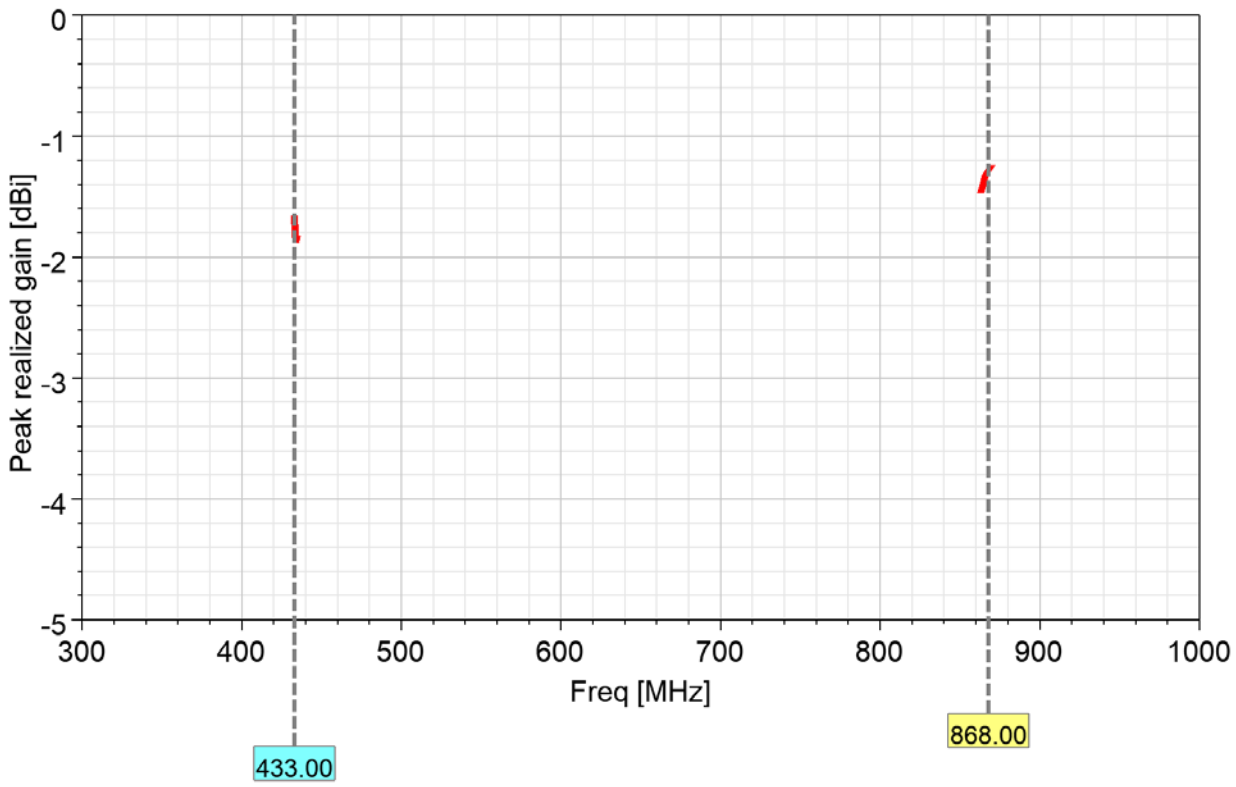
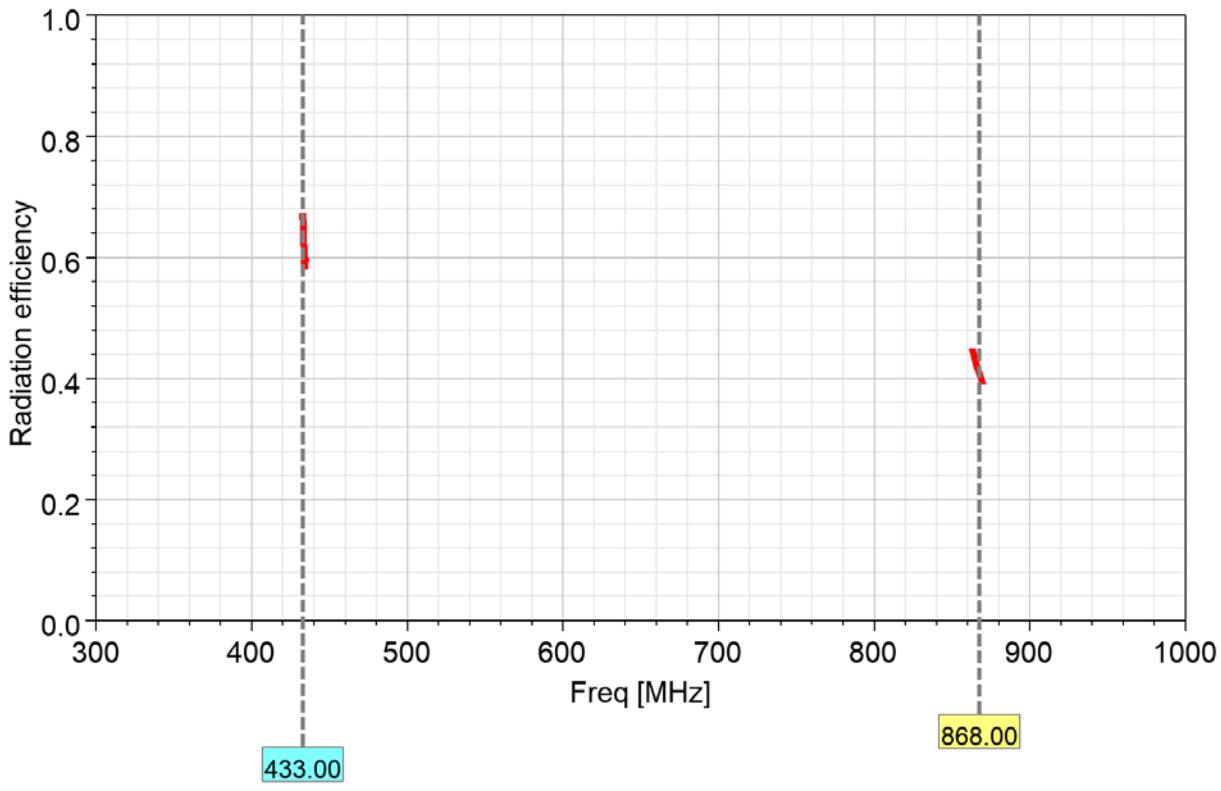
Peak realized gain



Radiation efficiency



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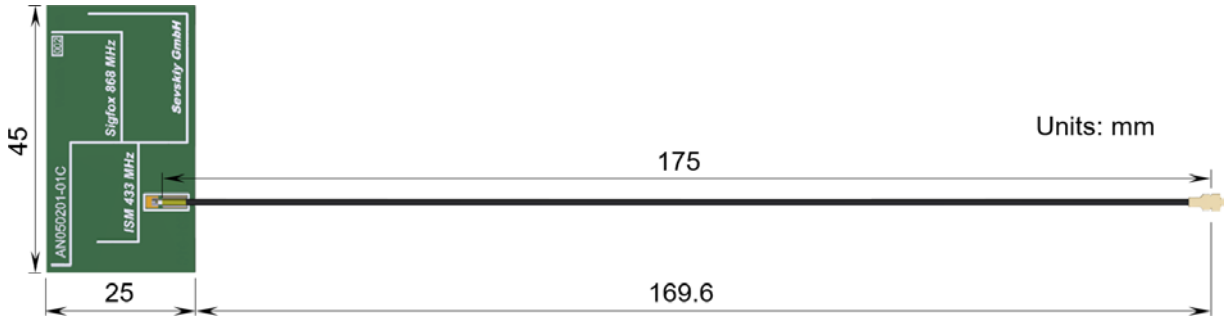
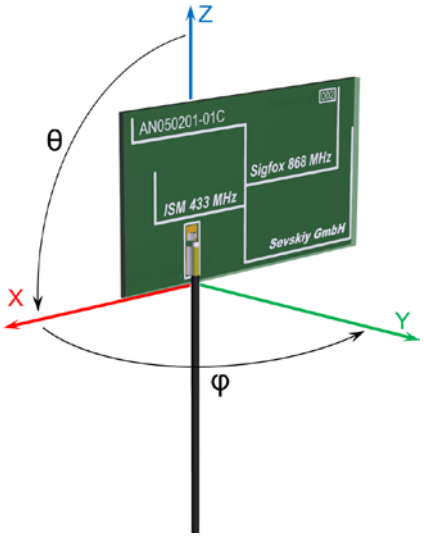
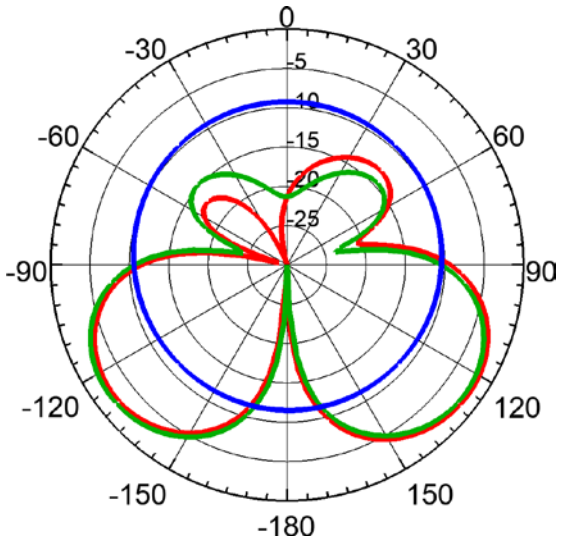
Product dimensions



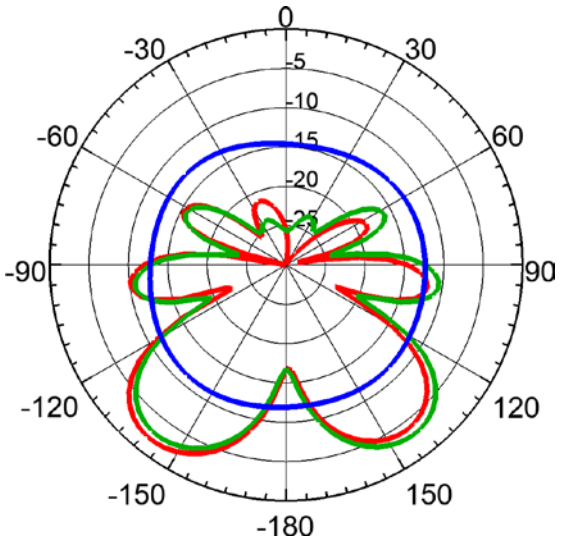
Radiation pattern



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



434 MHz



863 MHz

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