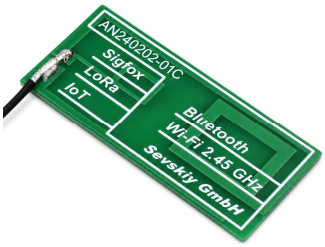
790…924 MHz / 2410…2485 MHz PCB Antenna (ISM, IoT, BT, Wi-Fi, 5G, LTE)



General information

The AN240202-01C is a compact wideband embedded PCB antenna designed to support sub-GHz and 2.4 GHz wireless systems within a single antenna solution. The antenna is well suited for ISM and SRD applications, including sub-GHz IoT and LPWAN systems, LTE bands below 1 GHz, Bluetooth, and IEEE 802.11 b/g/n operation at 2.4 GHz.

Its dual-band frequency coverage makes it an excellent choice for smart metering devices, IoT gateways, industrial sensors, wireless control systems, and compact communication modules requiring reliable connectivity across sub-GHz and 2.4 GHz bands.

The antenna is implemented on an FR-4 PCB and is supplied with a micro-coaxial RF cable terminated with an I-PEX MHF1 / Hirose U.FL (UMCC) compatible connector. This cable-integrated design simplifies mechanical integration, improves assembly robustness, and allows flexible antenna placement within the target device enclosure.

Electrical data

Antenna type	Embedded / internal PCB antenna	
5G bands	5, 18, 20, 26, 81, 82, 89	
4G bands	5, 6, 13, 18 - 20, 26, 27	
Other frequency bands	SRD860, ISM915, ISM2400	
Frequency range [MHz]	790...924	2410…2485
Return loss [dB]	-7	-20
Peak gain [dBi]	0.9…2.2	5…5.5
Radiation efficiency [%]	70…90	75…90
Nominal input impedance [Ohm]	50	
Polarization	linear	
Radiation pattern	omnidirectional	
Maximum input power [W]	5	

Mechanical data

Antenna PCB dimensions [mm]	38 x 17 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 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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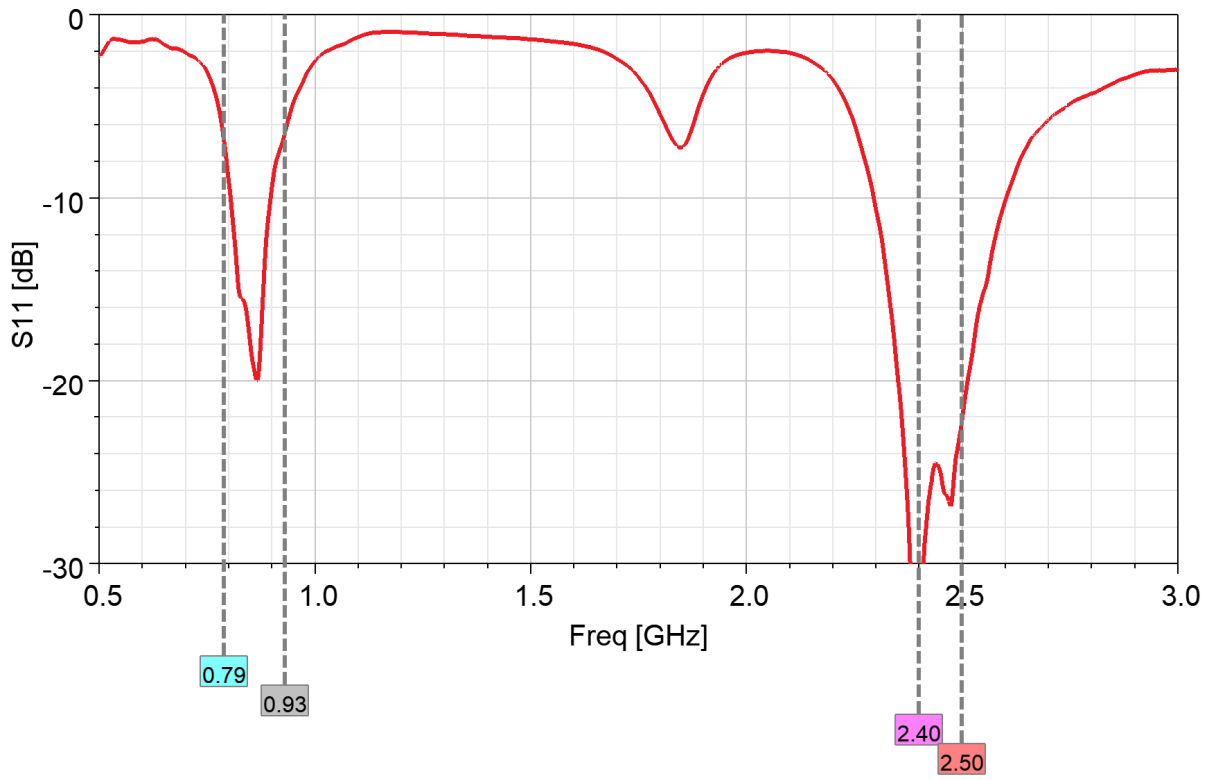
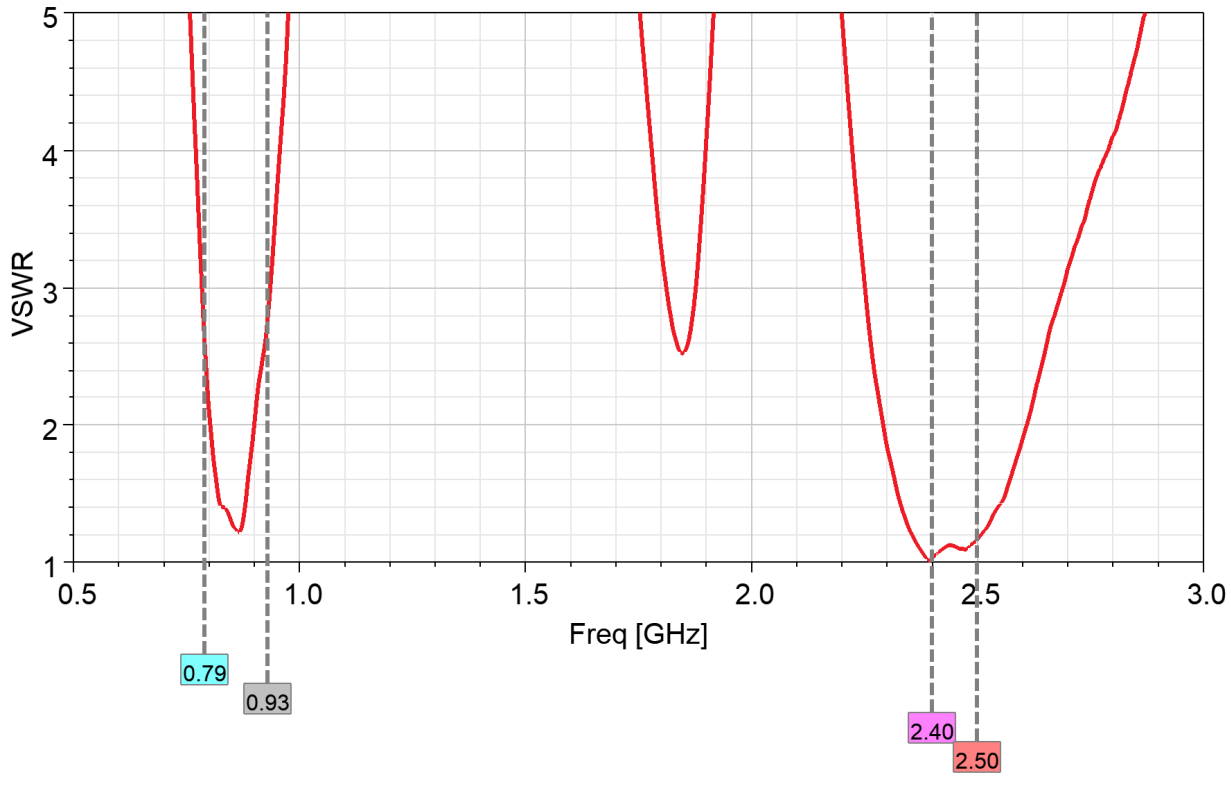
Measured input impedance matching



VSWR



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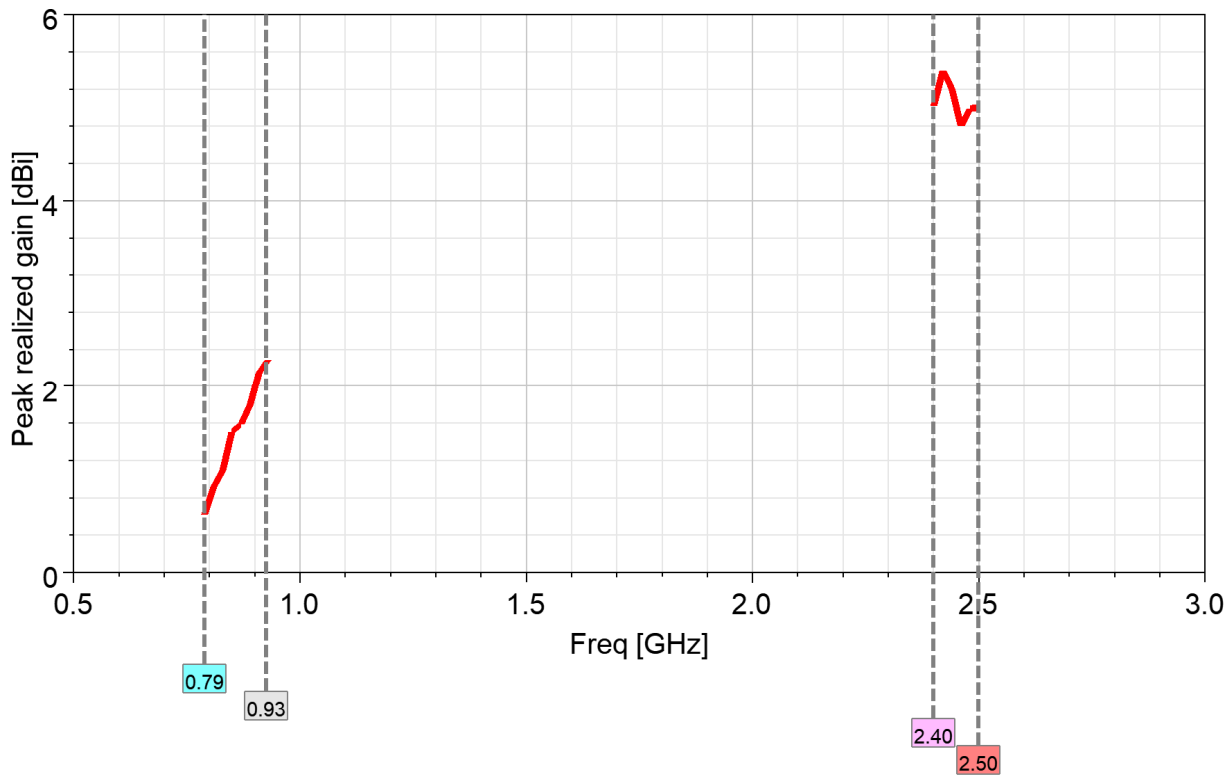
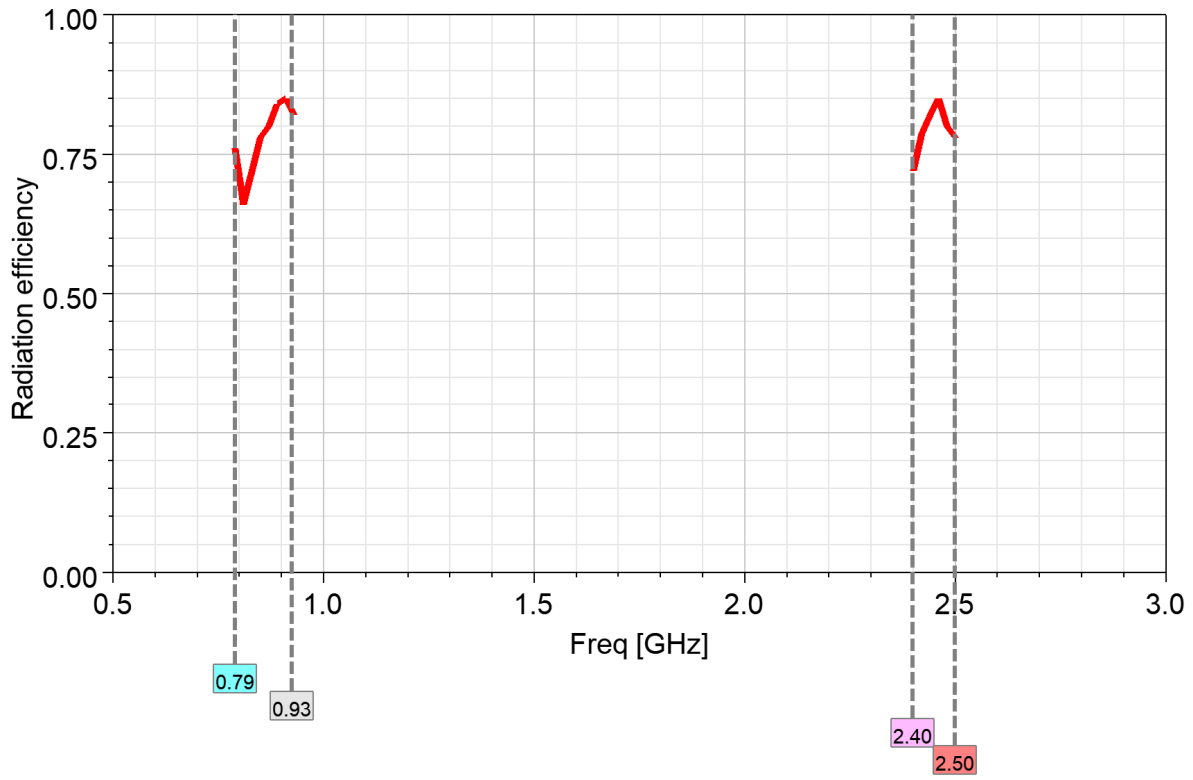
Peak realized gain



Radiation efficiency



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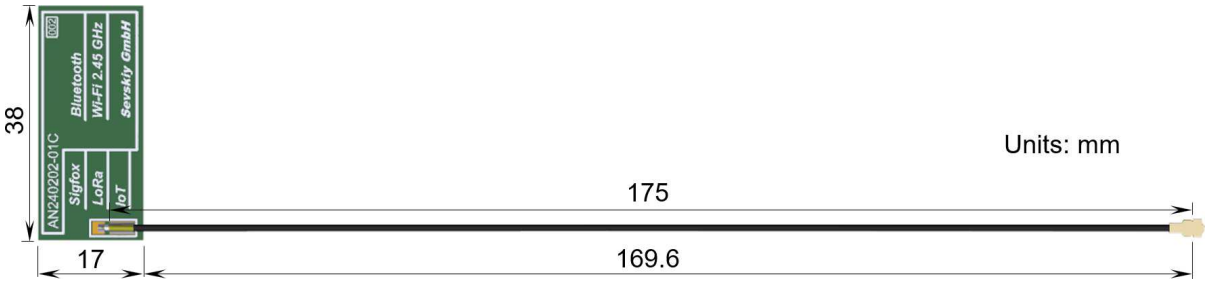
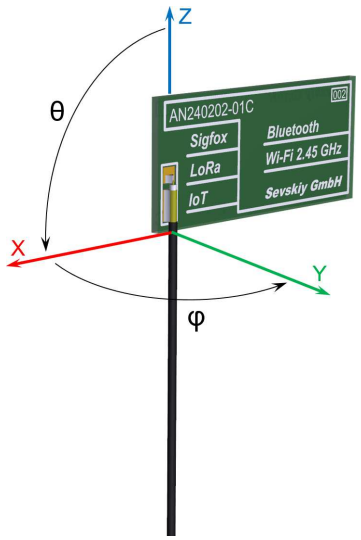
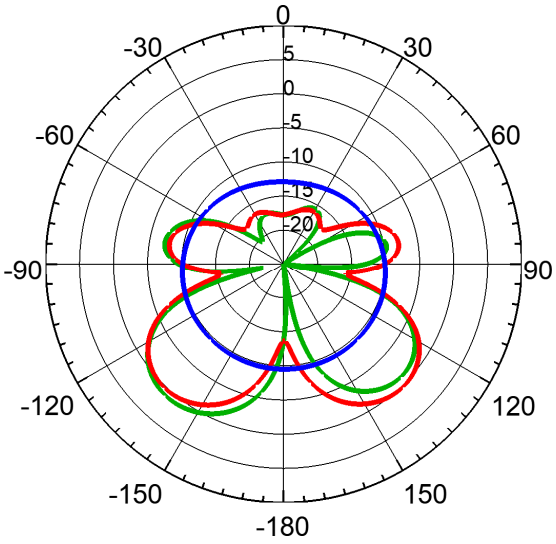
Product dimensions



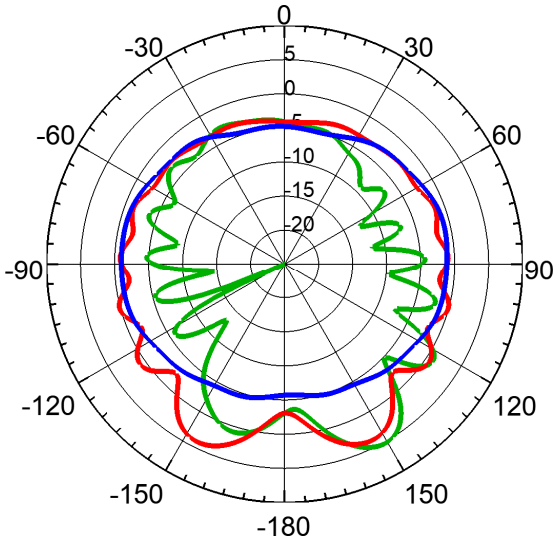
Radiation pattern



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



830 MHz



2420 MHz

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