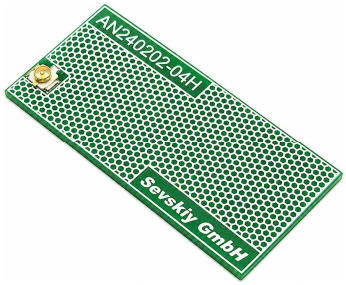
790…924 MHz / 2410…2485 MHz / 4400…5000 MHz PCB Antenna (ISM, IoT, BT, Wi-Fi, 5G, LTE)



General information

The AN240202-04H is a compact wideband embedded PCB antenna designed to support sub-GHz, 2.4 GHz, and lower 5 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, IEEE 802.11 b/g/n at 2.4 GHz, as well as WLAN operation in the 5 GHz band.

Its wide frequency coverage makes it an excellent choice for smart metering devices, IoT gateways, industrial sensors, wireless control systems, and compact communication modules requiring reliable multi-band connectivity.

The antenna is implemented on an FR-4 PCB and is equipped with an I-PEX MHF1 / Hirose U.FL (UMCC) compatible connector, enabling flexible integration via a micro-coaxial RF cable and straightforward connection to RF modules.

Electrical data

Antenna type	Embedded / internal PCB antenna		
5G bands	5, 18, 20, 26, 79, 81, 82, 89		
4G bands	5, 6, 13, 14, 18 - 20, 26, 27		
Other frequency bands	SRD860, ISM915, ISM2400		
Frequency range [MHz]	790...924	2410…2485	4400…5000
Return loss [dB]	-7	-10	-7
Peak gain [dBi]	0.2…2	5…5.5	6…9
Radiation efficiency [%]	70…90	80…90	70…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)] 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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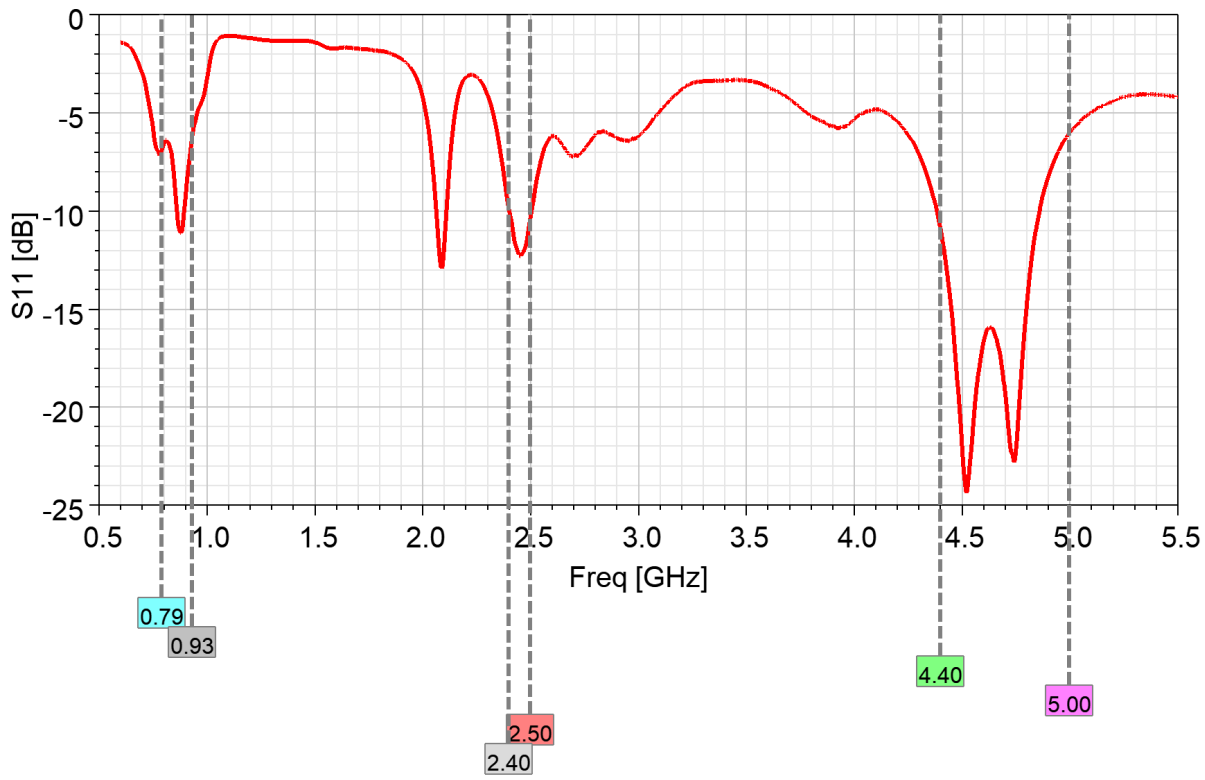
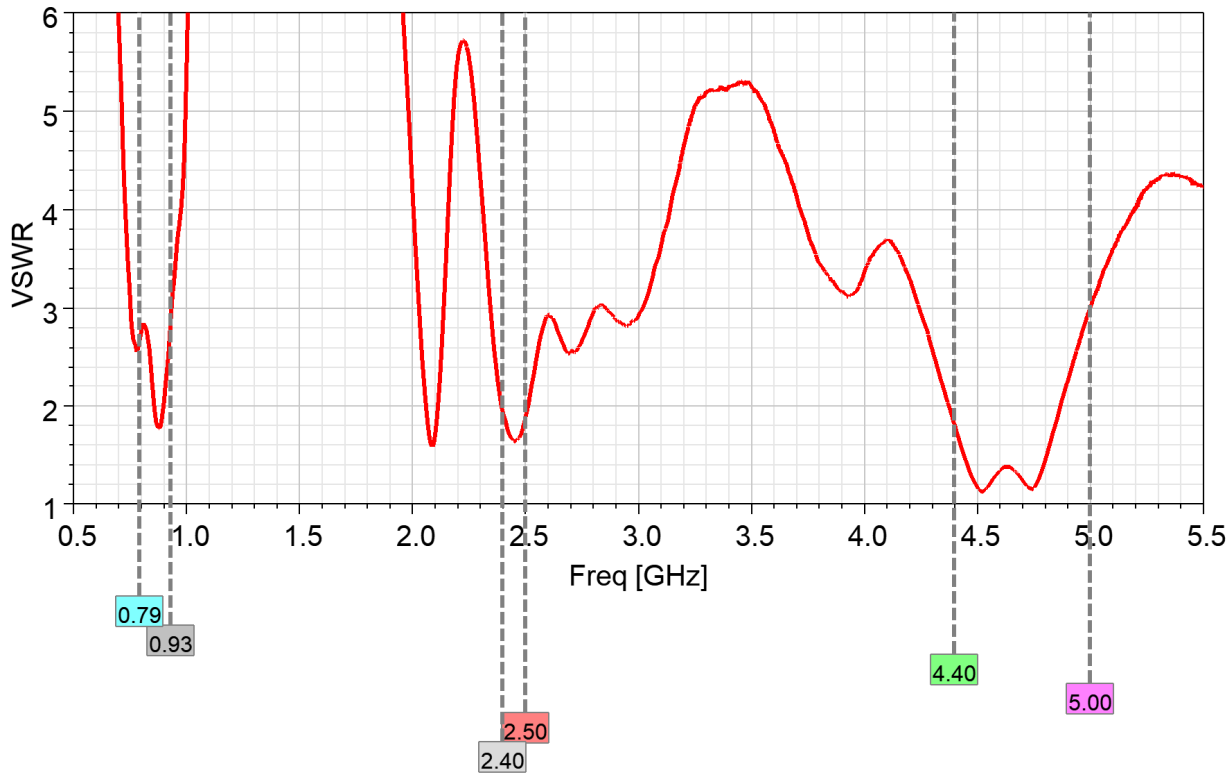
Measured input impedance matching



VSWR



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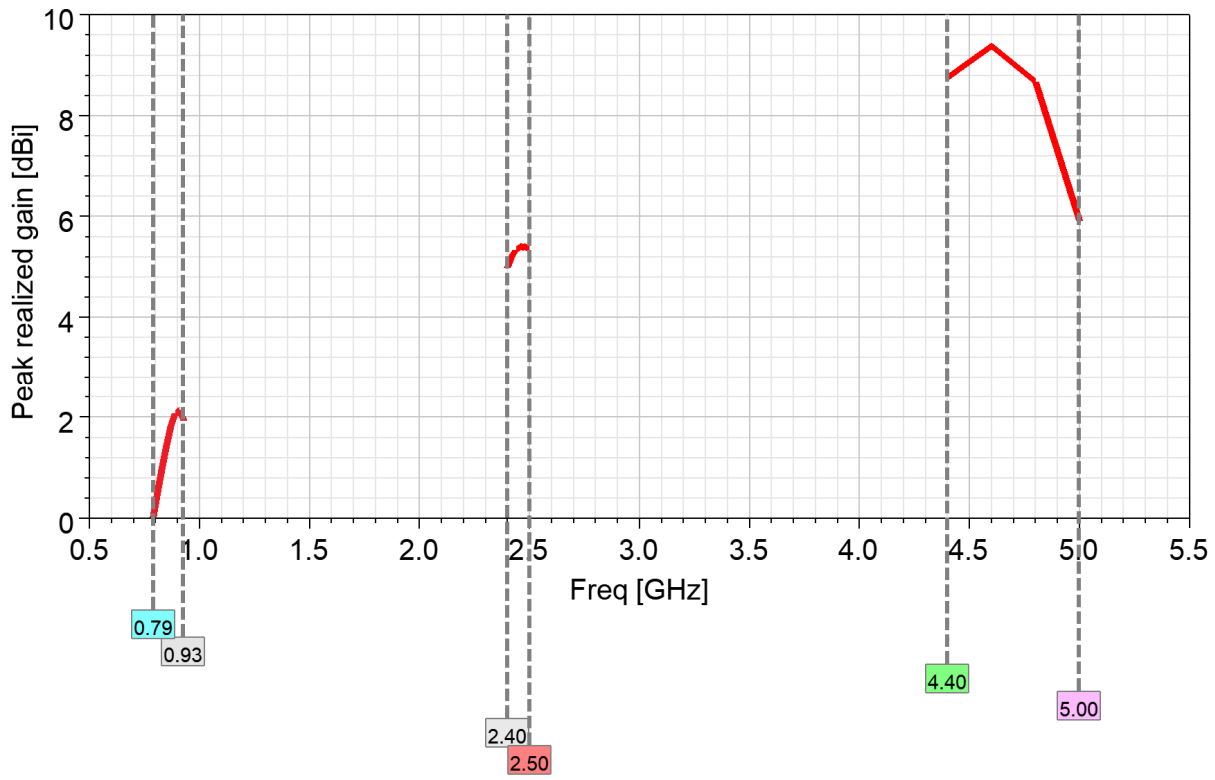
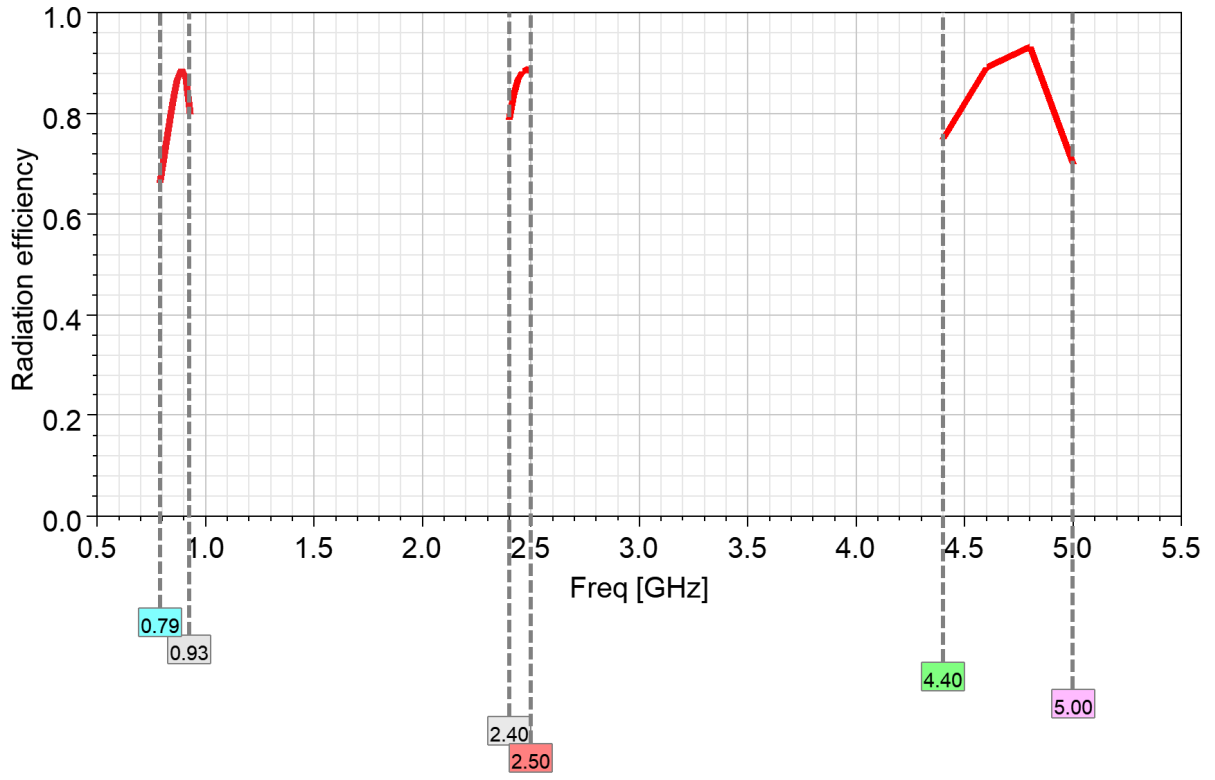
Peak realized gain



Radiation efficiency



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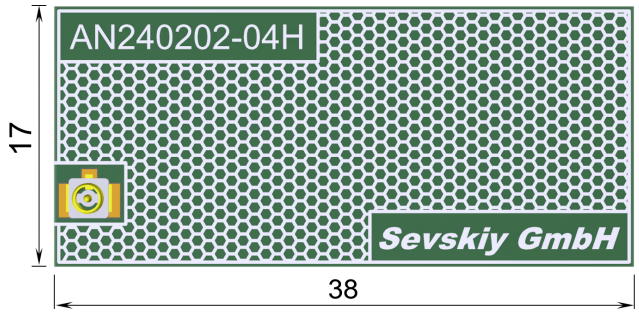
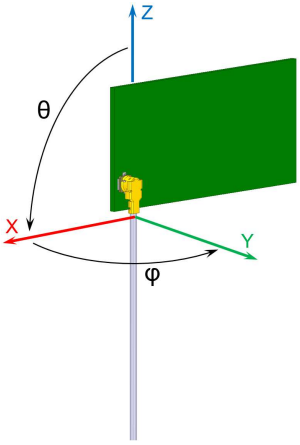
Product dimensions

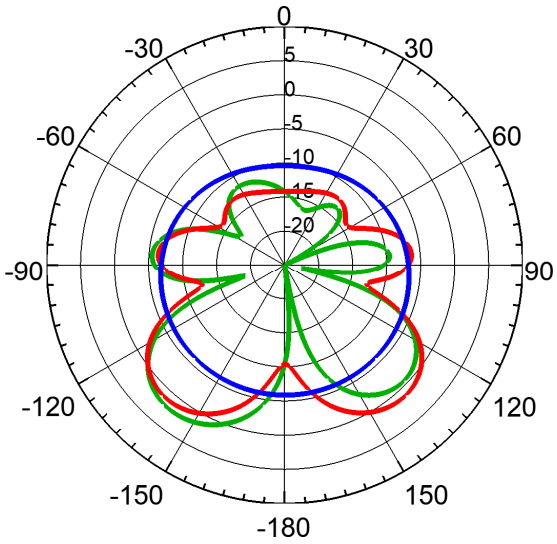


Units: mm

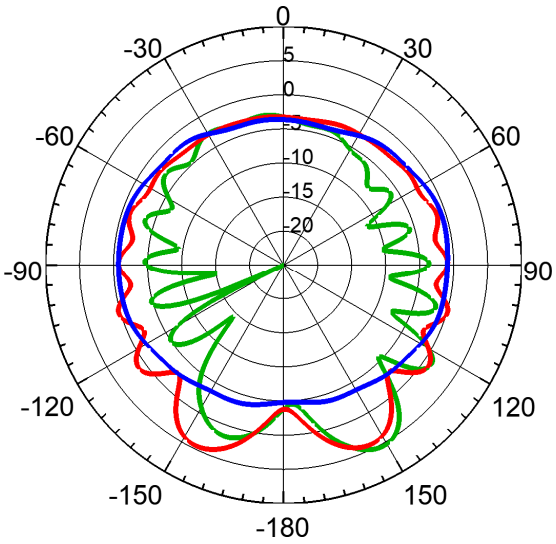
Radiation pattern



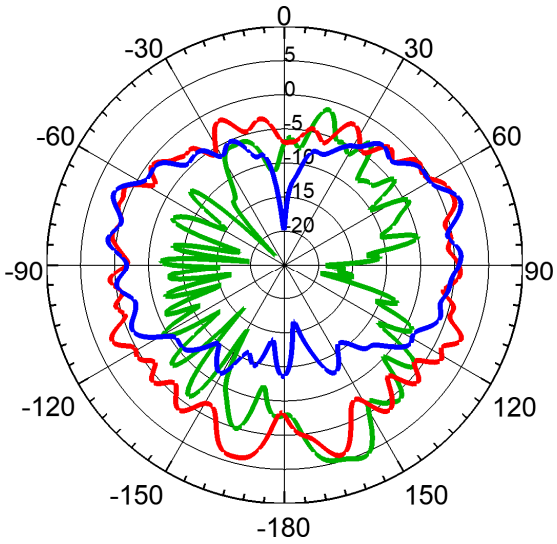
Total realized gain [dBi]
Phi=0°, plane XZ, green curve
Phi=90°, plane YZ, red curve
Theta=90°, plane XY, blue curve



910 MHz



2480 MHz



5000 MHz

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