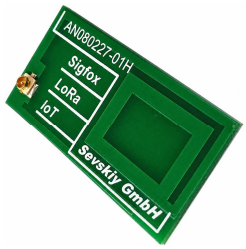
750…960 MHz / 4400…5000 MHz / 5725…6000 MHz PCB Antenna (ISM, RFID, IoT, LoRa, 5G NR, LTE)



General information

The AN080227-01H is a compact embedded multiband PCB antenna designed for use in plastic housings of mobile, industrial, and IoT devices. The antenna operates across three wide frequency ranges: 750…960 MHz, 4400…5000 MHz, and 5725…6000 MHz, enabling support for a broad set of wireless communication standards. It is suitable for sub-GHz technologies such as LoRa, Sigfox, and ISM systems, as well as cellular technologies including LTE and 5G NR (sub-6 GHz). In the higher frequency bands, the antenna supports WLAN and other ISM-based wireless links. Featuring linear polarization and an omnidirectional radiation pattern, the antenna provides reliable RF coverage for indoor and portable applications. The design is optimized for integration into space-constrained devices such as smart meters, gateways, trackers, industrial sensors, and wireless control units.

The antenna is implemented on an FR-4 board and equipped with an I-PEX MHF1 / Hirose U.FL (UMCC) compatible connector for flexible RF cable connection.

Electrical data

Antenna type	Embedded / internal PCB antenna		
5G bands	5, 8, 13, 14, 18, 20, 26, 47, 79, 81, 82, 89		
4G bands	5, 6, 8, 13, 14, 18, 19, 20, 26, 27, 47		
Other frequency bands	SRD860, ISM915, ISM5800		
Frequency range [MHz]	750...960	4400...5000	5725...6000
Return loss [dB]	-7	-6	-6
Peak gain [dBi]	-0.5…1.5	1…4.5	4…4.5
Radiation efficiency [%]	70…85	55…70	55…70
Nominal input impedance [Ohm]	50		
Polarization	linear		
Radiation pattern	omnidirectional		
Maximum input power [W]	5		

Mechanical data

Antenna PCB dimensions [mm]	35 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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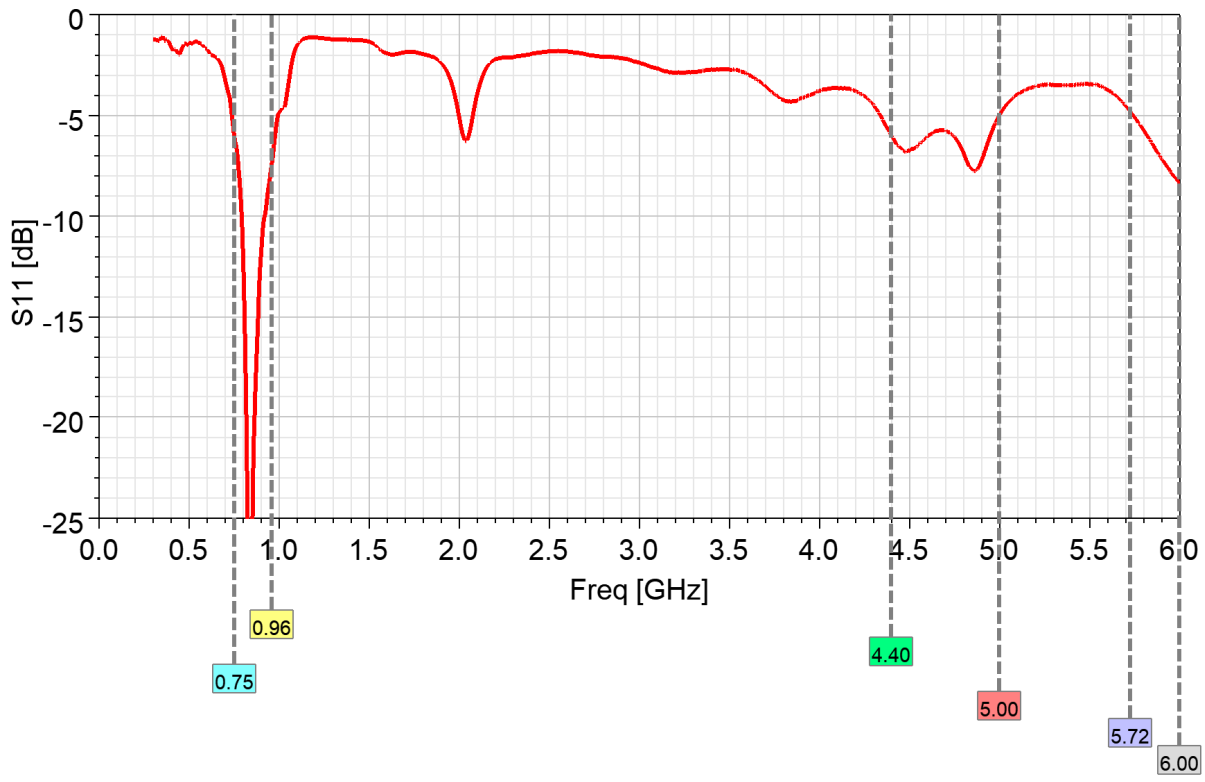
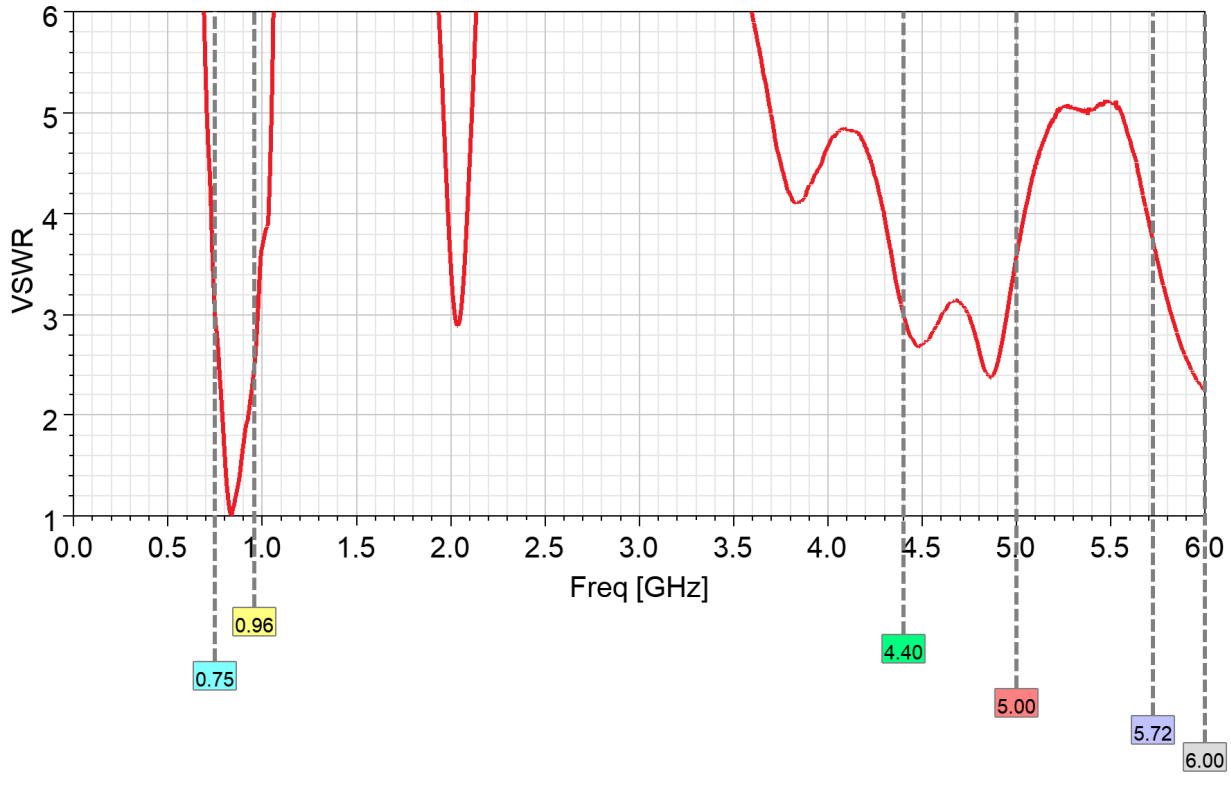
Measured input impedance matching



VSWR



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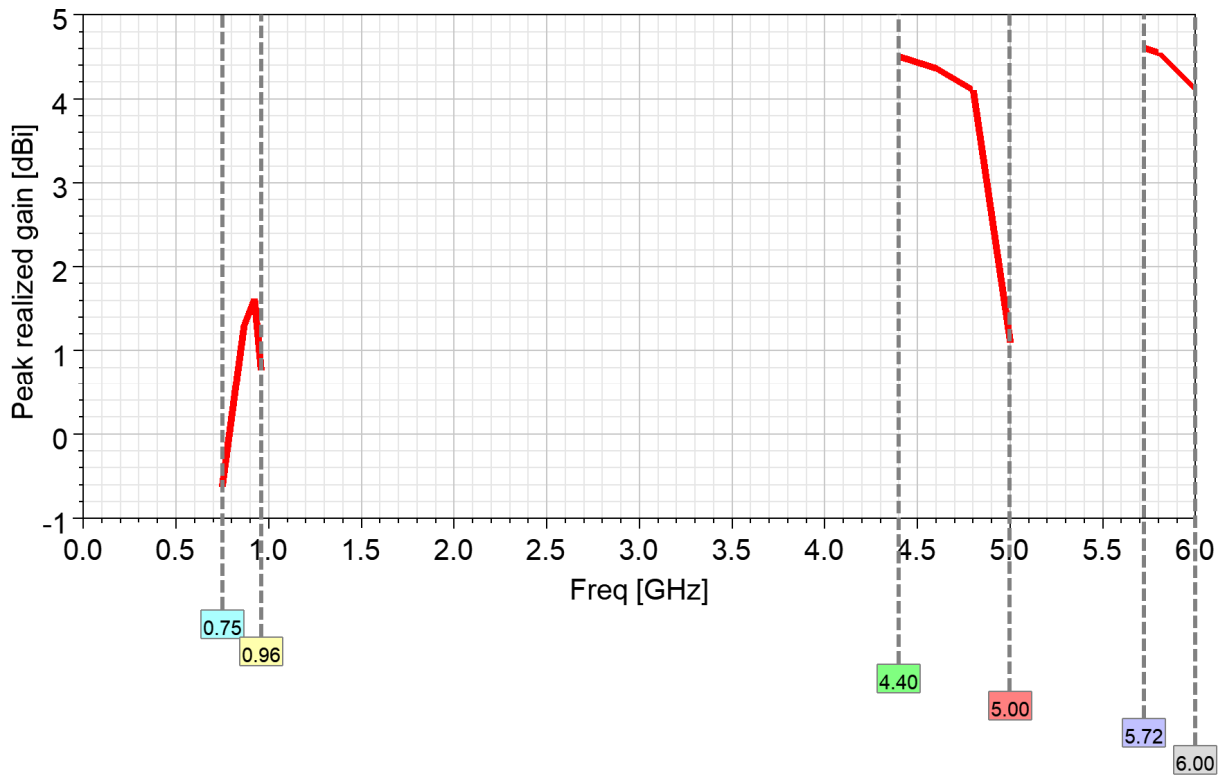
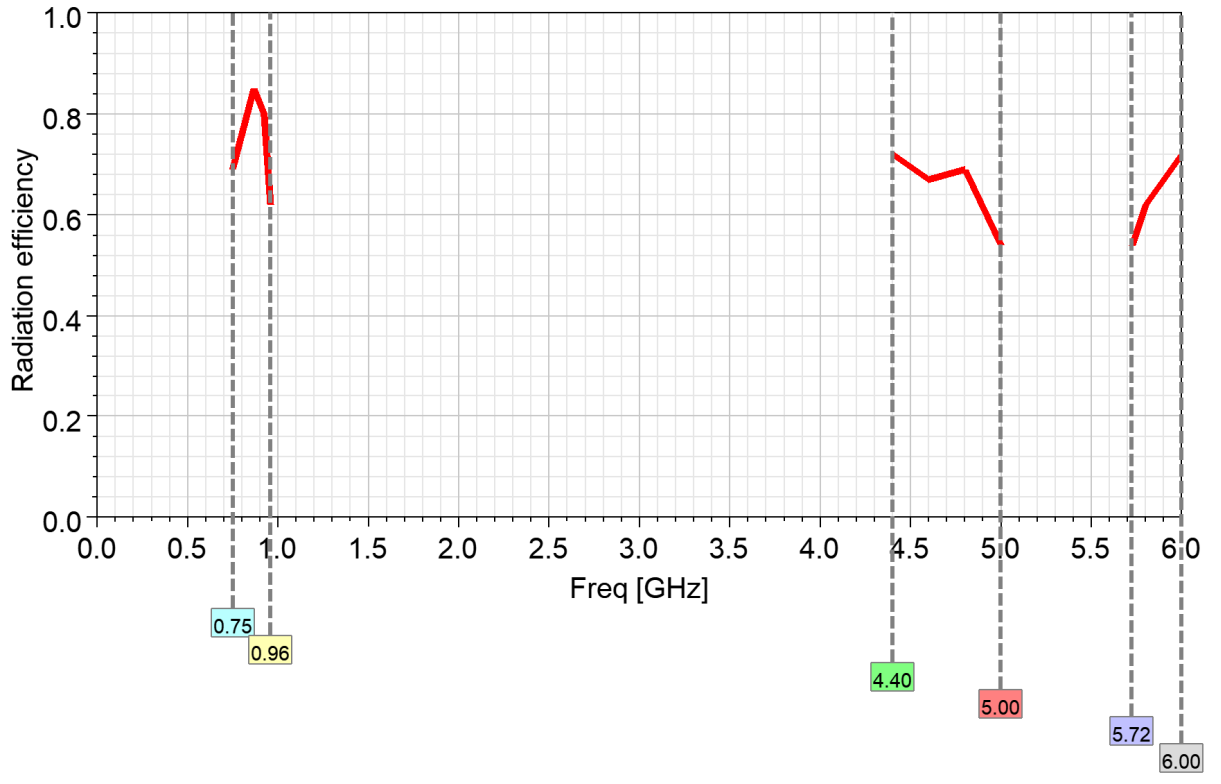
Peak realized gain



Radiation efficiency



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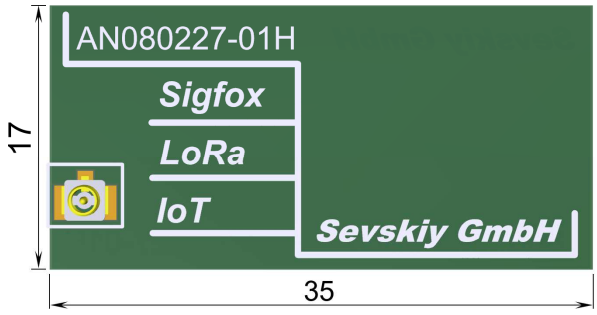
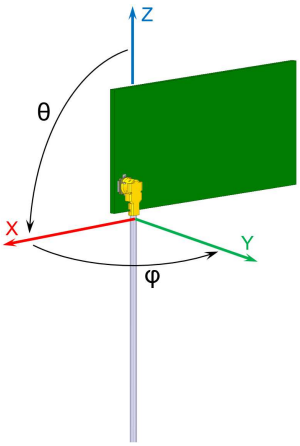
Product dimensions

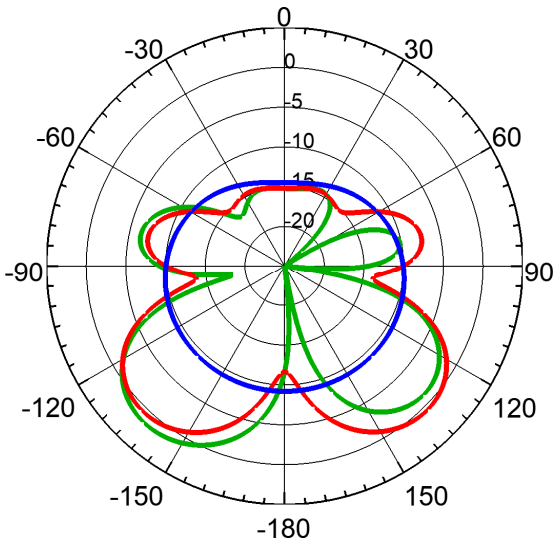


Units: mm

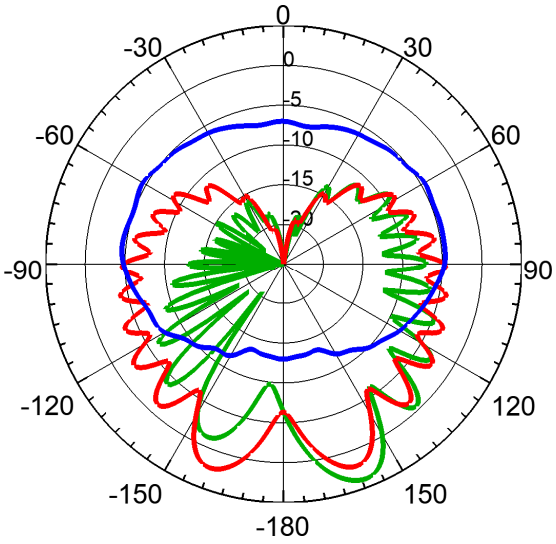
Radiation pattern



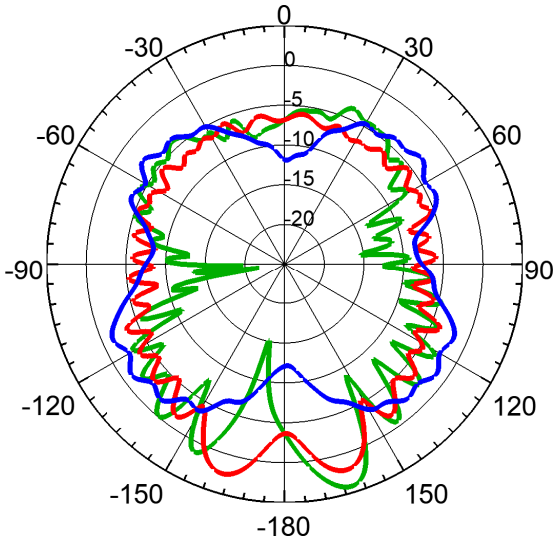
Total realized gain [dBi]
Phi=0°, plane XZ, green curve
Phi=90°, plane YZ, red curve
Theta=90°, plane XY, blue curve



924 MHz



4400 MHz



5725 MHz

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