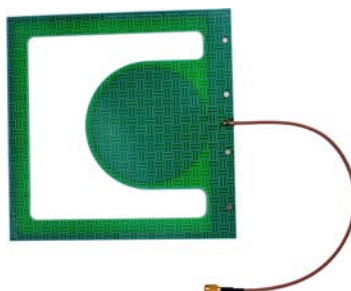


400...900 MHz Wideband PCB antenna (ISM, RFID, IoT, LoRa, Smart meters)

General information

The AN220209-01C is a planar wideband PCB antenna designed for operation in the 400...900 MHz frequency range. It is suitable for both internal integration into compact wireless devices and external installation in sub-GHz communication systems, providing reliable performance where space efficiency, low profile, and wideband operation are required. The wide operating bandwidth allows the antenna to support multiple wireless standards and services, including ISM and SRD bands, RFID systems, LoRa and other LPWAN technologies, as well as proprietary sub-GHz IoT and smart metering networks.

With linear polarization and an omnidirectional radiation pattern, the antenna is suitable for systems requiring stable coverage and predictable radiation behavior across the operating band. Typical applications include smart meters, utility monitoring devices, industrial IoT nodes, telemetry systems, wireless sensor networks, and data acquisition equipment.

The antenna is implemented on an FR-4 PCB and equipped with an SMA connector via a coaxial cable, allowing flexible placement and straightforward integration into end devices and test setups.

Electrical data

Antenna type	External / internal PCB antenna
5G bands	5, 12 - 14, 18, 20, 26, 28, 29, 71, 82, 83, 89
4G bands	5, 6, 12 - 14, 17 - 20, 26 - 29, 31, 44, 67, 68, 71 - 73, 85 - 88
Frequency range [MHz]	400...900
Return loss [dB]	-5...-10
Peak gain [dBi]	-1.5...3
Radiation efficiency [%]	80...90
Nominal input impedance [Ohm]	50
Polarization	linear
Radiation pattern	omnidirectional
Maximum input power [W]	5

Mechanical data

Antenna PCB dimensions [mm]	160 x 160 x 1
Connector type ¹⁾	SMA male
Cable type, diameter [mm]	RG316, 2.5
Cable length ²⁾ [mm]	250 ²⁾
Weight [g]	40

Additional information

¹⁾ Other connector types can be offered on request.

²⁾ The cable length may be changed without prior notice.

Antenna performance was measured using the recommended cable length in free space.

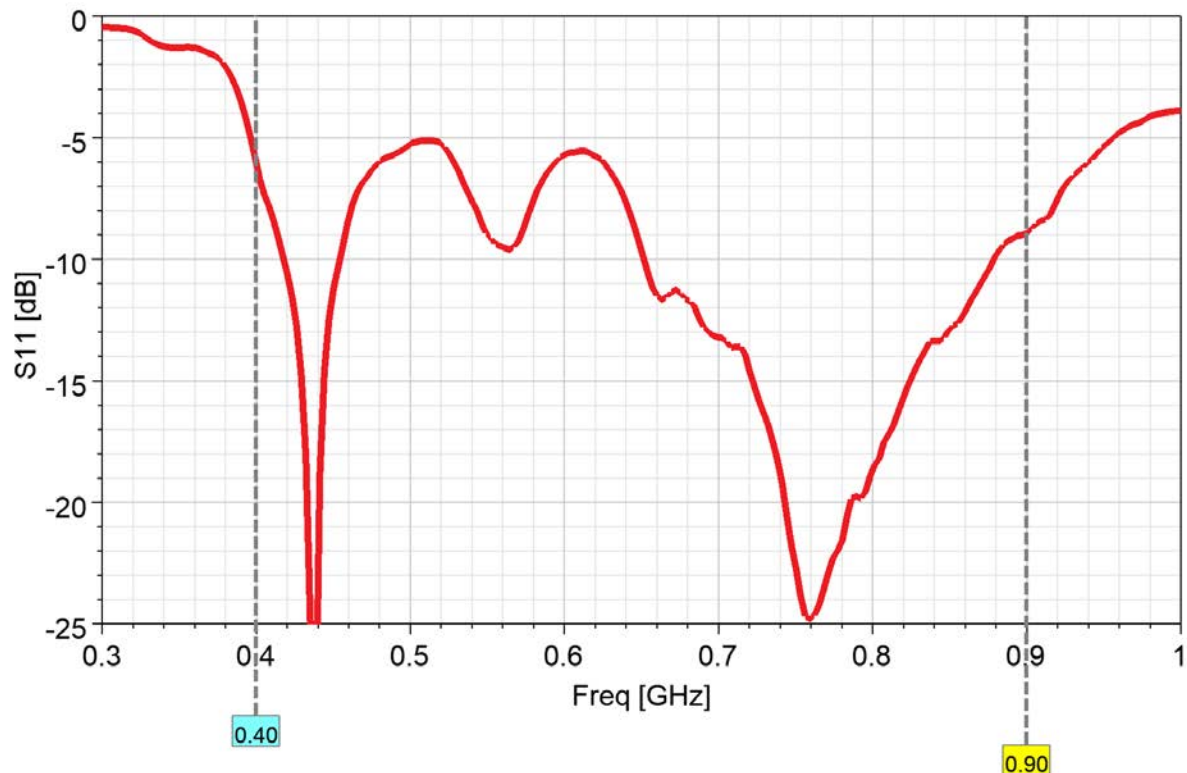
Further customization, electromagnetic simulations and measurements can be offered on request.

The antenna can be additionally equipped with adhesive tape and mounting holes.

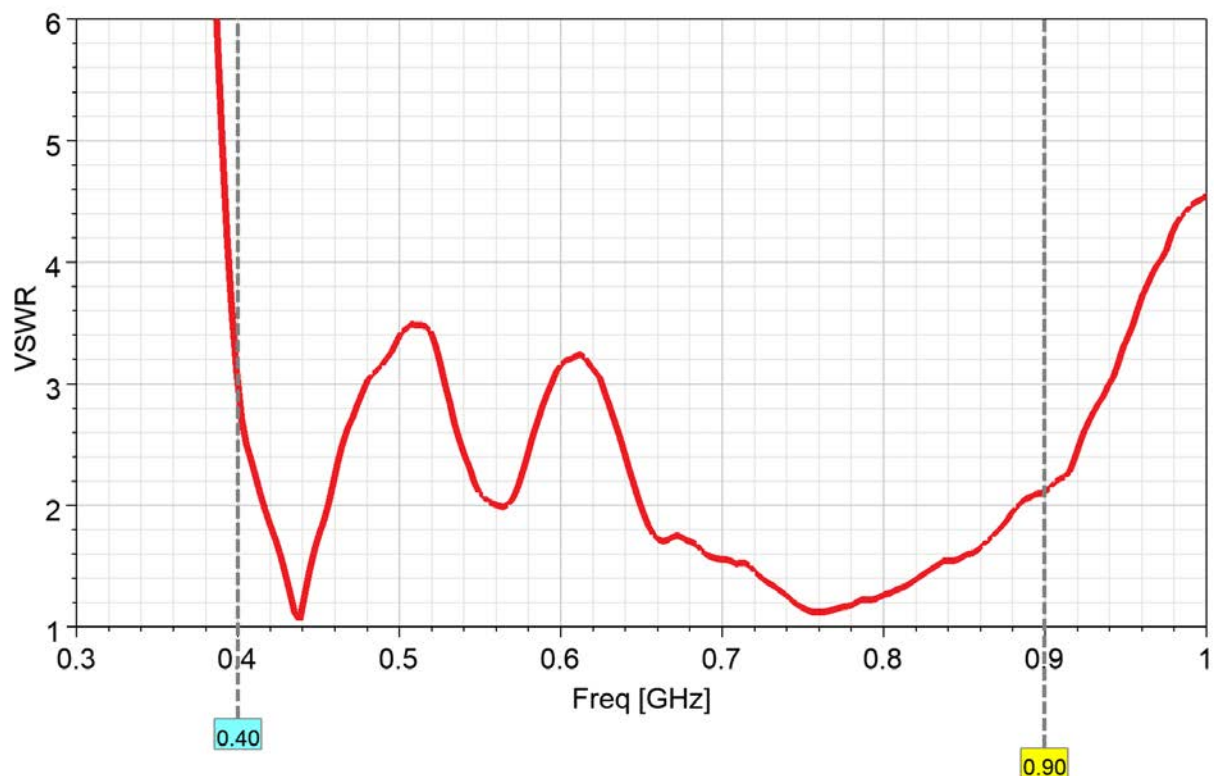
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Measured input impedance matching



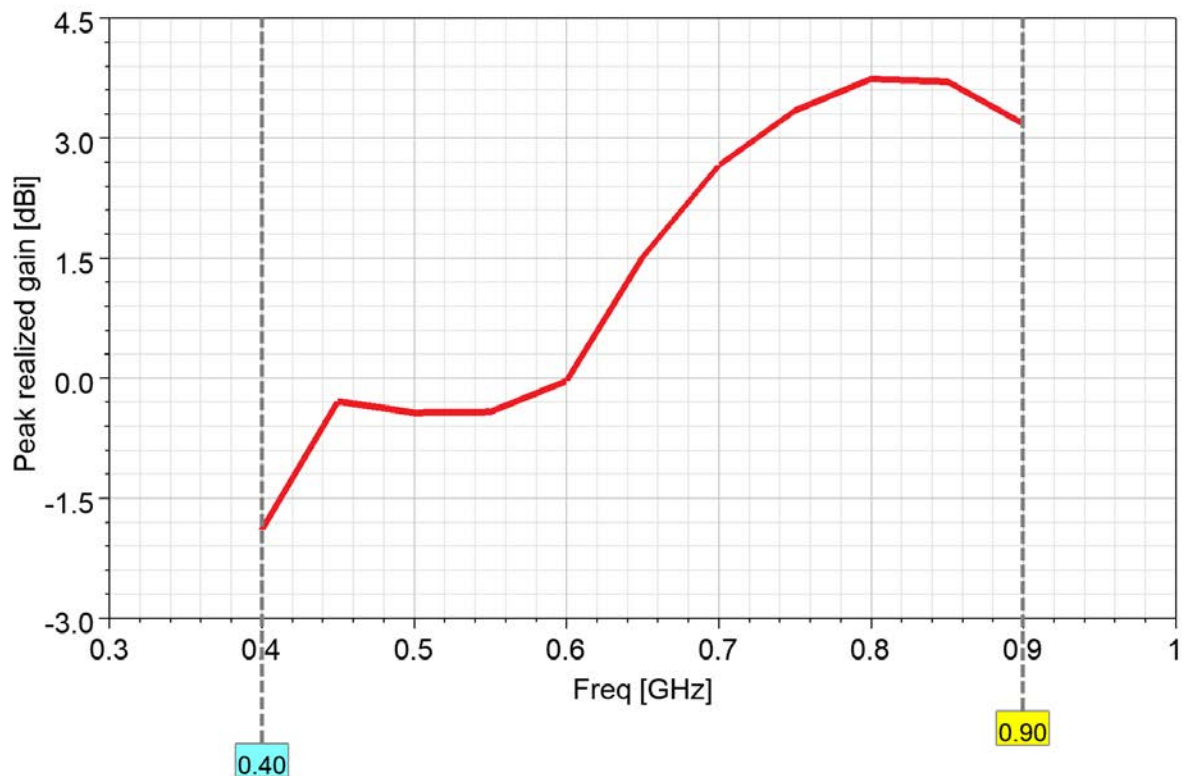
VSWR



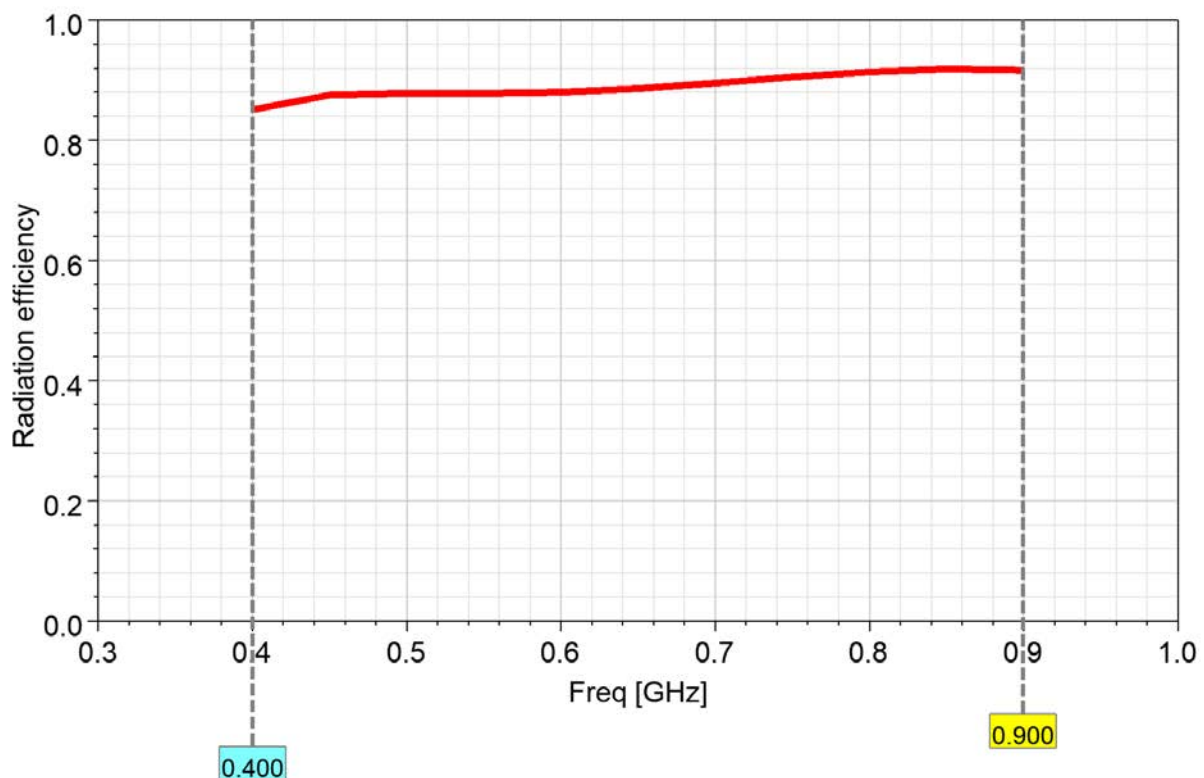
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Peak realized gain



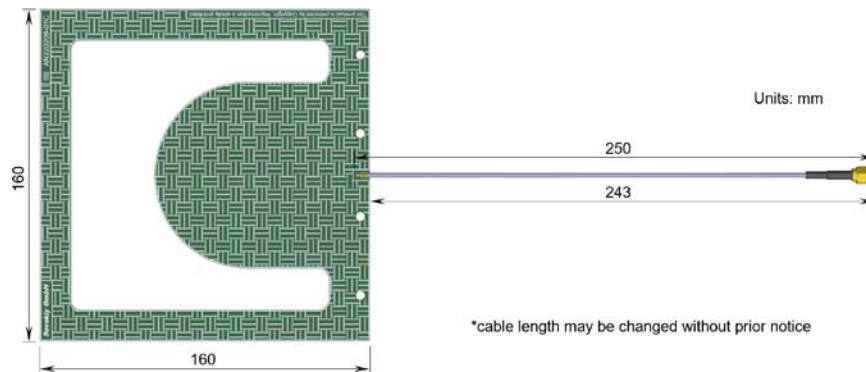
Radiation efficiency



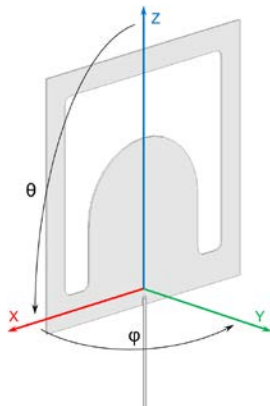
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400...900 MHz Wideband PCB antenna (ISM, RFID, IoT, LoRa, Smart meters)

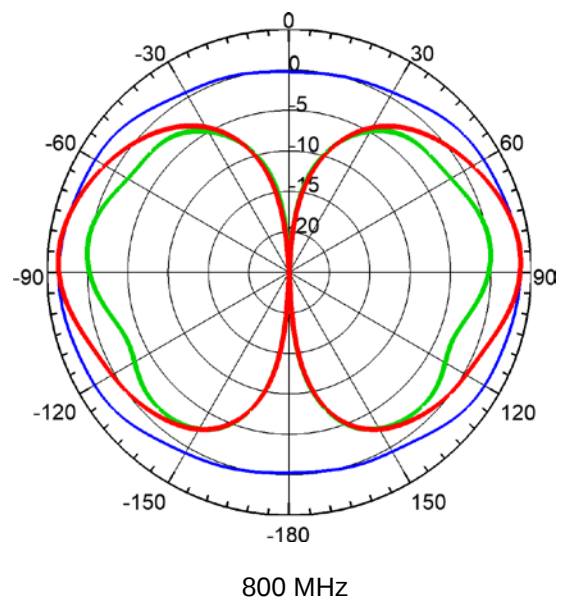
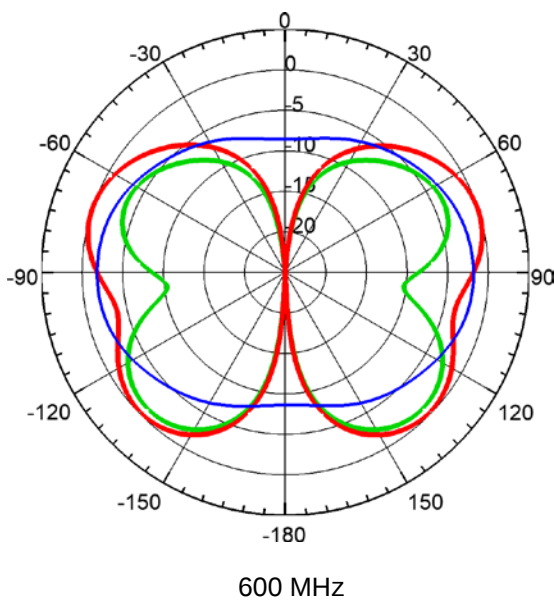
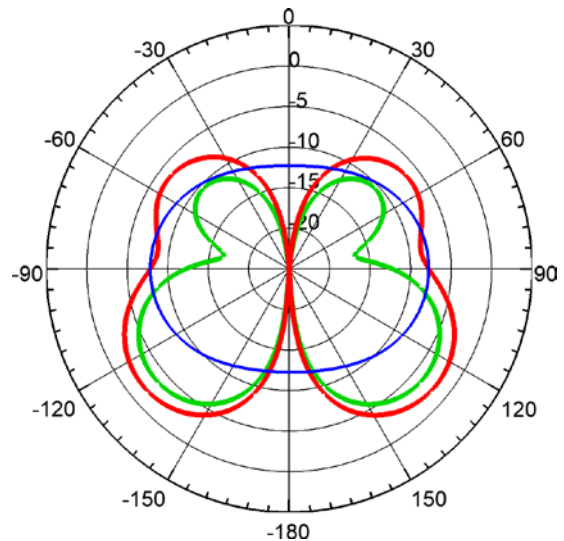
Product dimensions



Radiation pattern



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



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