

700...960 MHz / 1427...8000 MHz PCB Antenna (5G NR, LTE, ISM, RFID, IoT, Wi-Fi, GNSS)



General information

The AN120502-01H is a dual-band wideband PCB antenna covering 0.7...0.96 GHz and 1.427...8 GHz, enabling global sub-GHz and broadband wireless connectivity. It supports 5G NR, LTE, and legacy cellular bands, ensuring compatibility with worldwide mobile network allocations. The extended upper band also covers ISM, Wi-Fi, Bluetooth, GNSS, and SRD applications. Typical applications include 5G routers, IoT gateways, smart meters, industrial controllers, and telematics units. It can also be implemented in asset tracking systems, smart city infrastructure, surveillance devices, and connected medical equipment. The broad frequency coverage enables multi-radio platforms using a single antenna solution. It is also well suited for next-generation multi-standard devices requiring reliable wideband performance across cellular and ISM frequency bands.

Electrical data

Antenna type	External / internal PCB antenna	
5G bands	1, 2, 3, 5, 7, 8, 12, 13, 14, 18, 20, 25, 26, 28 - 30, 34, 38, 39, 40, 41, 46 - 48, 50, 53, 65, 66, 70, 74 - 84, 86, 89, 90 - 98	
4G bands	1 - 14, 17 - 30, 32 - 53, 65 - 70, 74 - 76, 85	
Other frequency bands	SRD860, ISM915, ISM2400, ISM5800, GNSS, Wi-Fi 6 GHz	
Frequency range [MHz]	700...960	1427...8000
Return loss [dB]	-8	-10
Peak gain [dBi]	0.8...2	1.8...5
Radiation efficiency [%]	64...92	74...90
Nominal input impedance [Ohm]	50	
Polarization	linear	
Radiation pattern	omnidirectional	
Maximum input power [W]	5	

Mechanical data

Antenna PCB dimensions [mm]	145 x 40.7 x 0.8
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.

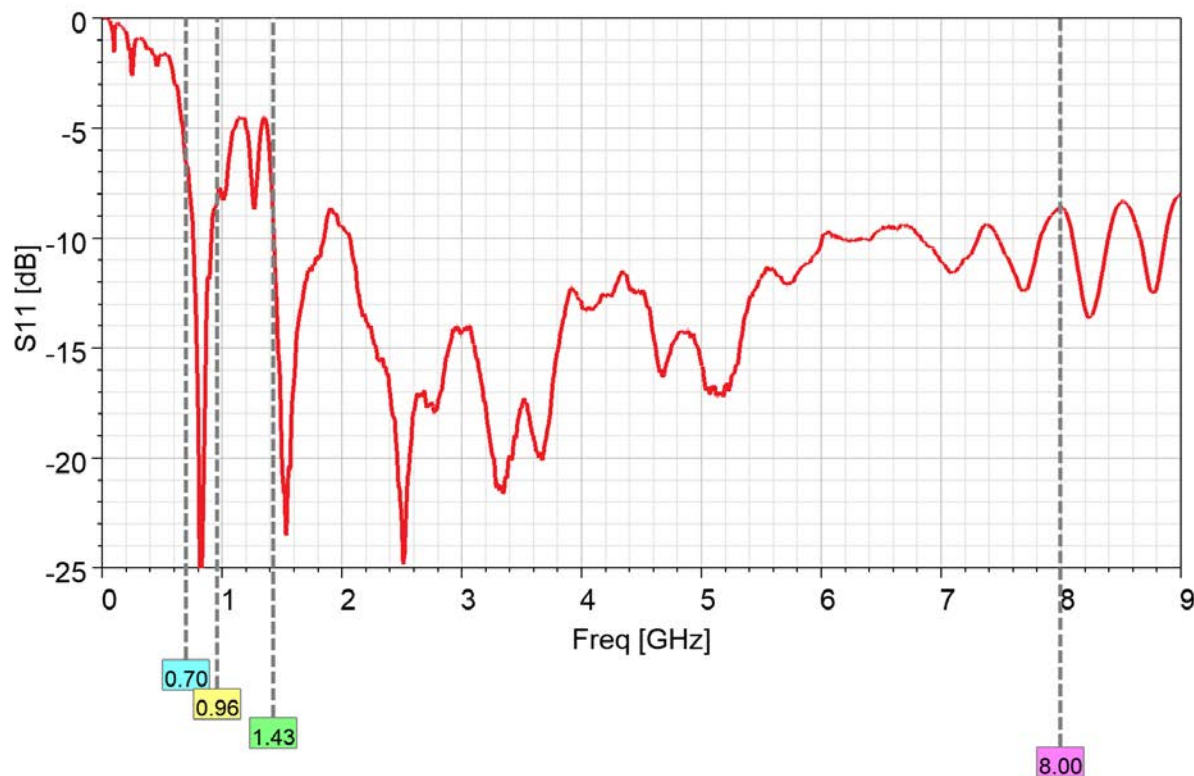
Further customization, electromagnetic simulations and measurements can be offered on request.

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

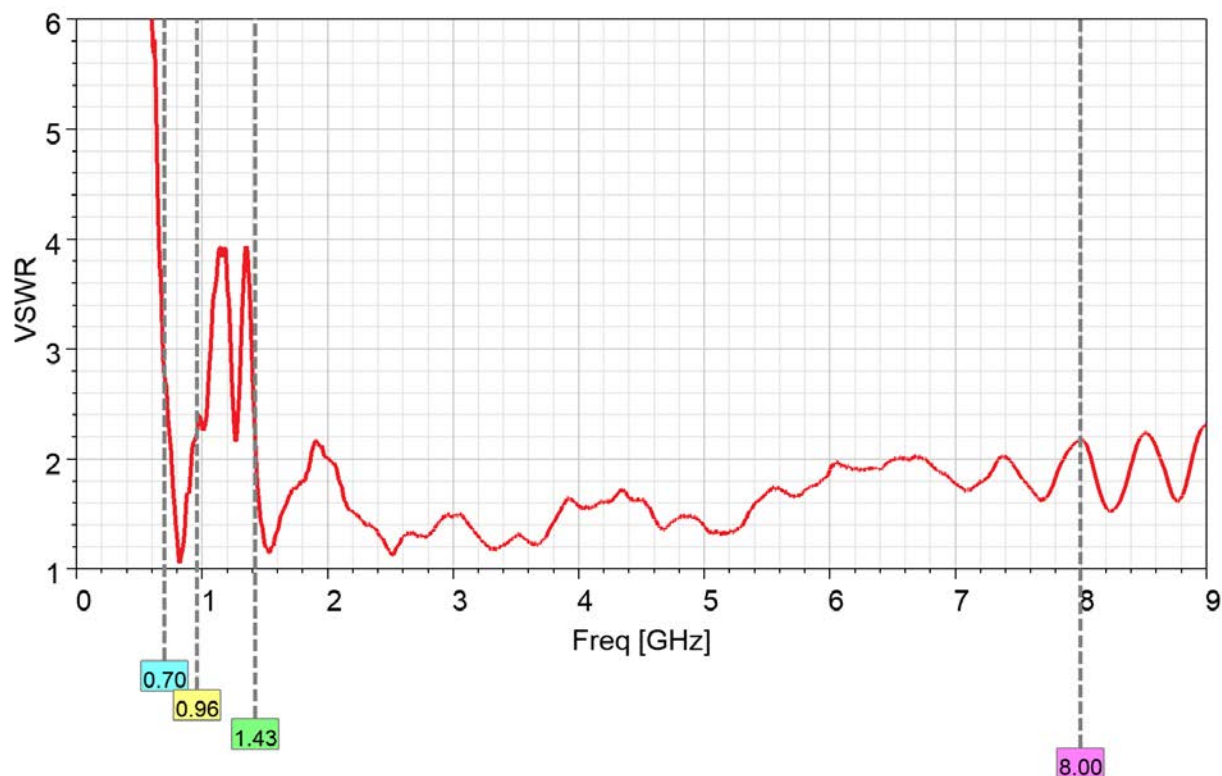
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Measured input impedance matching



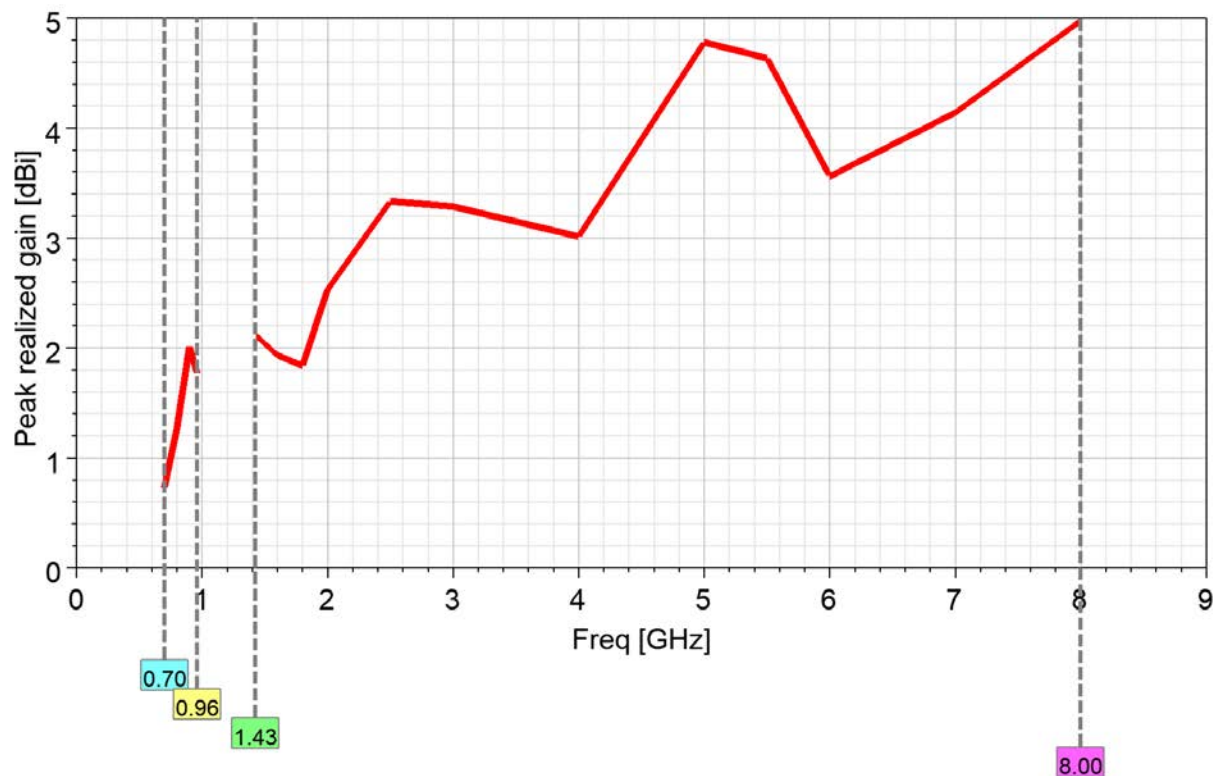
VSWR



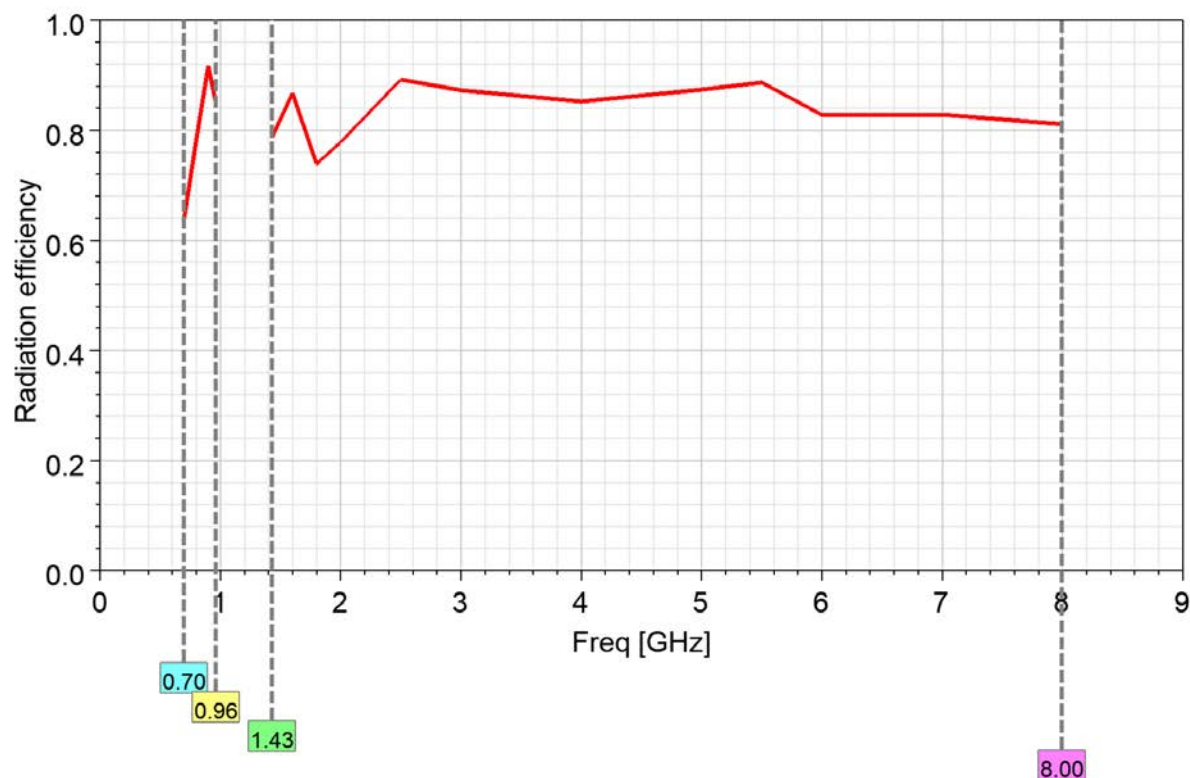
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Peak realized gain



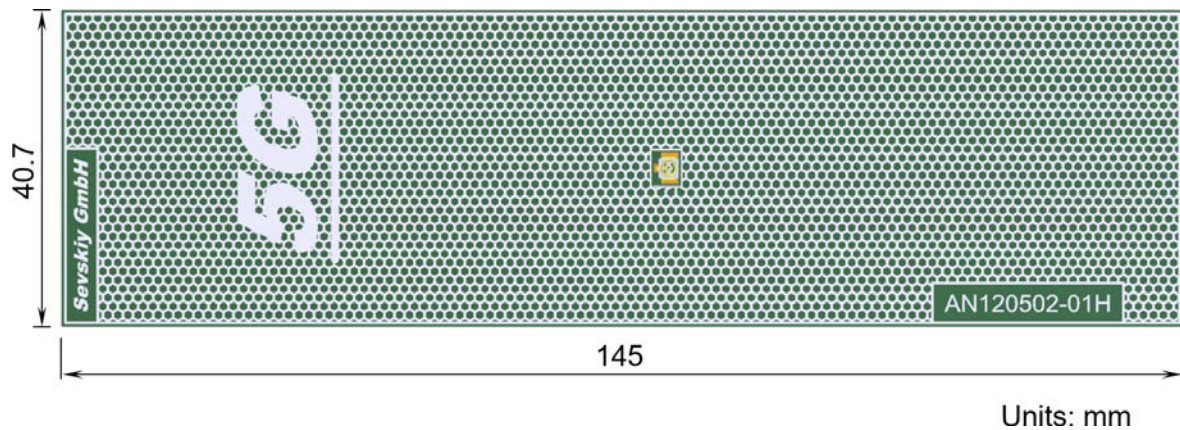
Radiation efficiency



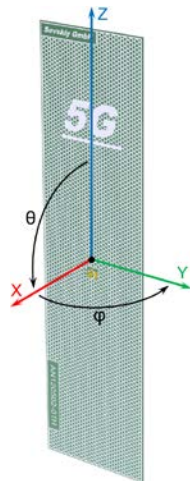
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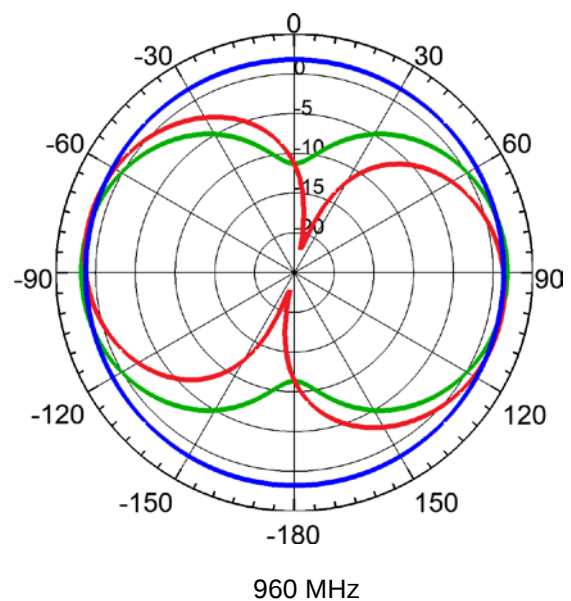
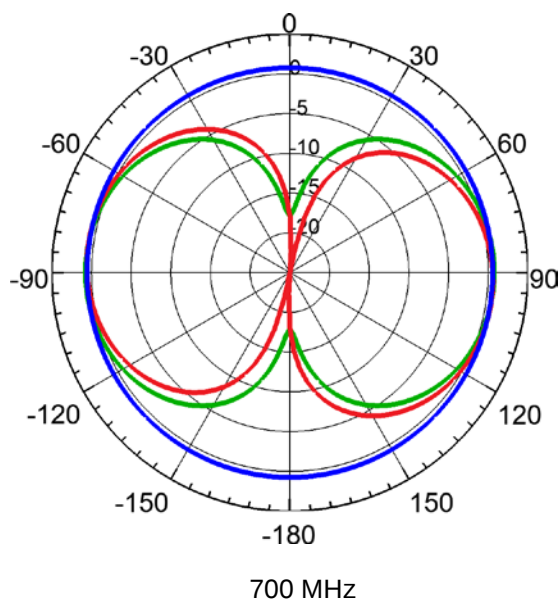
Product dimensions



Radiation pattern



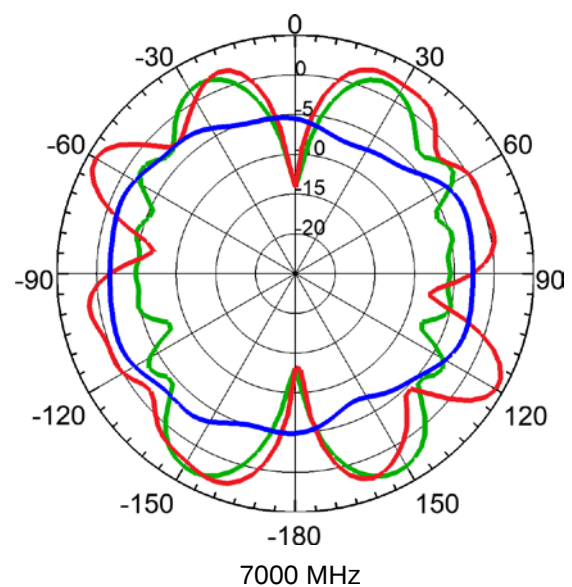
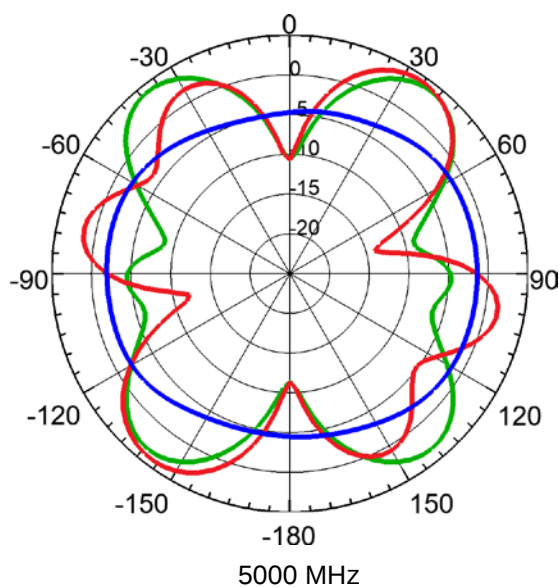
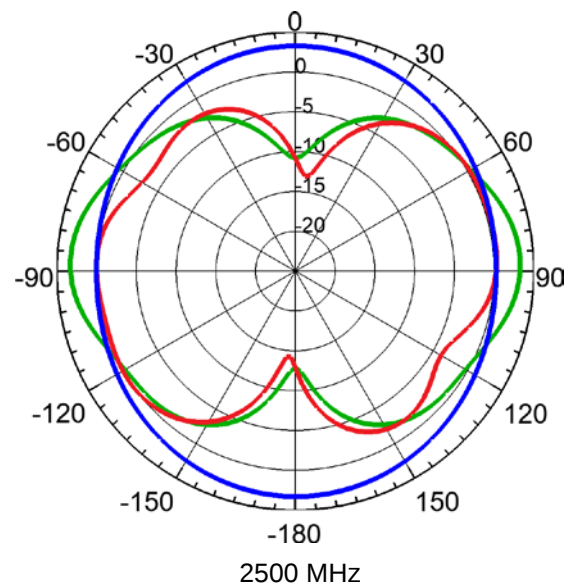
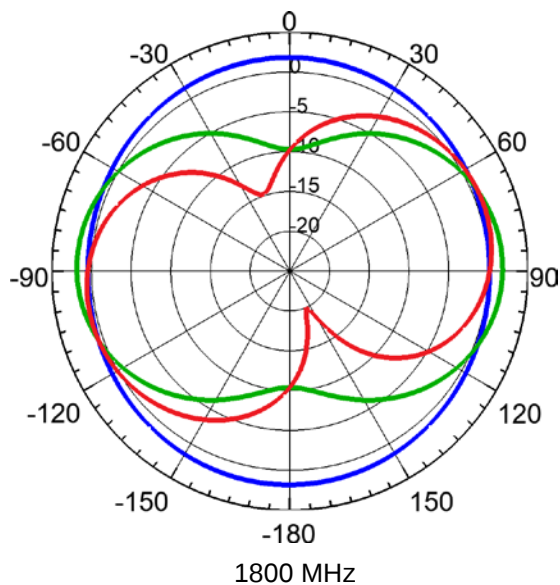
Total realized gain [dBi]
Phi=0°, plane XZ, green curve
Phi=90°, plane YZ, red curve
Theta=90°, plane XY, blue curve



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Radiation pattern



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