600…7125 MHz Dipole PCB Antenna (5G NR, LTE, ISM, RFID, IoT, Wi-Fi, GNSS)

General information

The AN120503-01H is a symmetrical dipole PCB antenna covering an ultra-wide frequency range from 600 to 7125 MHz, enabling true multi-standard wireless operation. Its broadband design supports 5G NR, LTE, and legacy cellular bands, as well as ISM, Wi-Fi (2.4 and 5/6 GHz), GNSS, and sub-GHz SRD applications. The continuous spectrum coverage allows a single antenna to replace multiple narrowband solutions within one platform. High radiation efficiency across the band makes it suitable for high-data-rate and long-range communication systems.

Typical applications include 5G routers, CPE devices, IoT gateways, industrial controllers, and smart infrastructure nodes. It is also well suited for telematics units, surveillance equipment, and broadband wireless terminals.

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]	600...7125
Return loss [dB]	-10
Peak gain [dBi]	1.4…5.5
Radiation efficiency [%]	84…96
Nominal input impedance [Ohm]	50
Polarization	linear
Radiation pattern	omnidirectional
Maximum input power [W]	5

Mechanical data

Antenna PCB dimensions [mm]	174.6 x 86.3 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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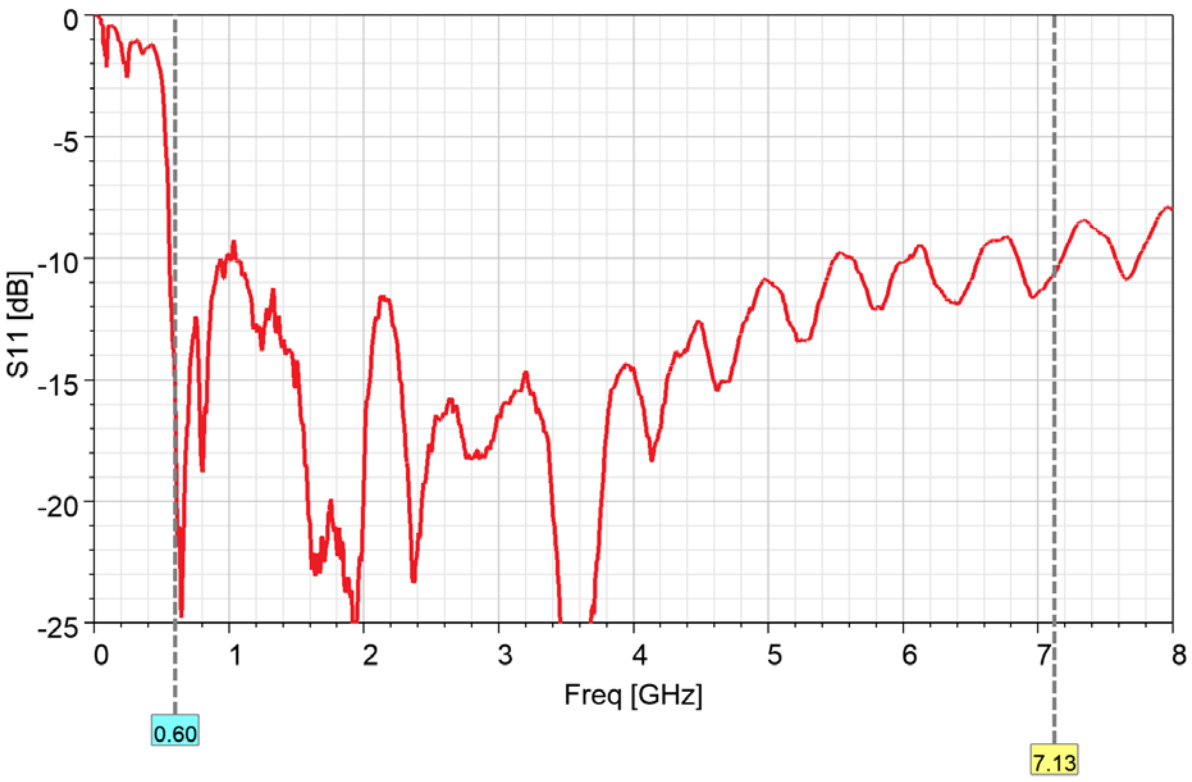
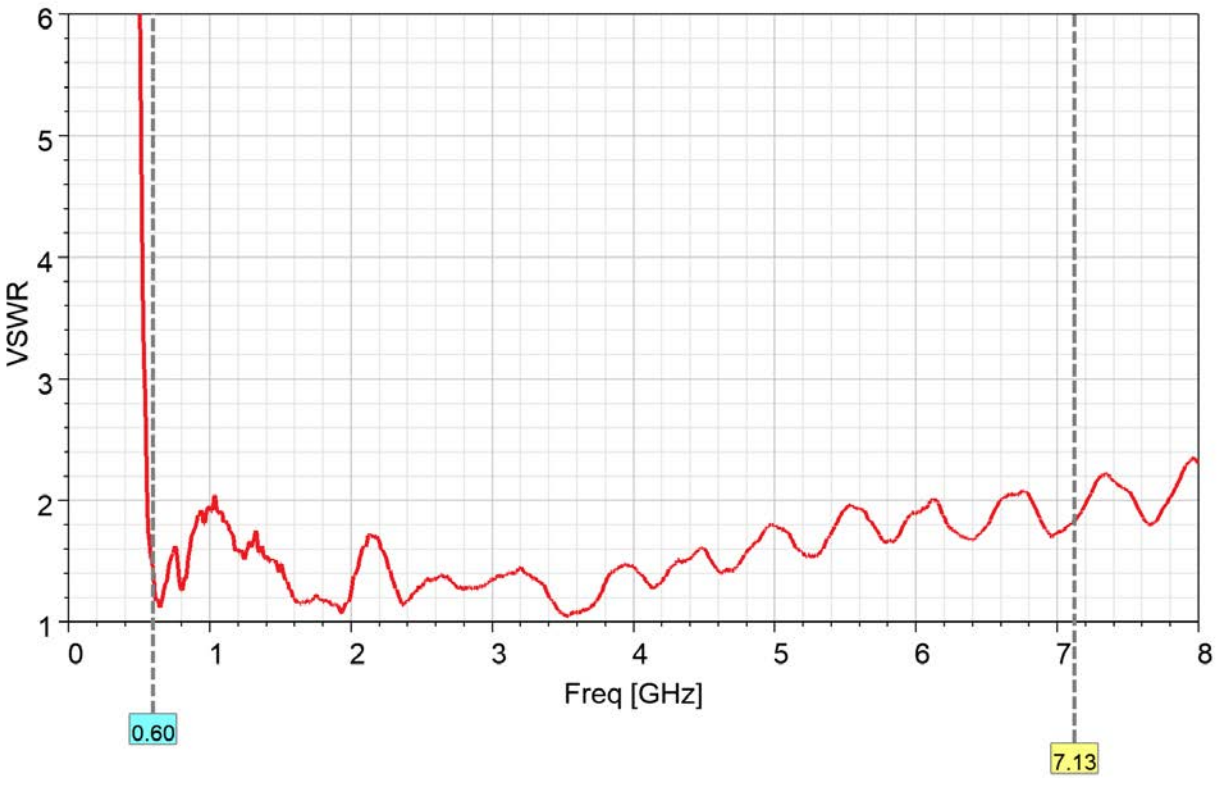
Measured input impedance matching



VSWR



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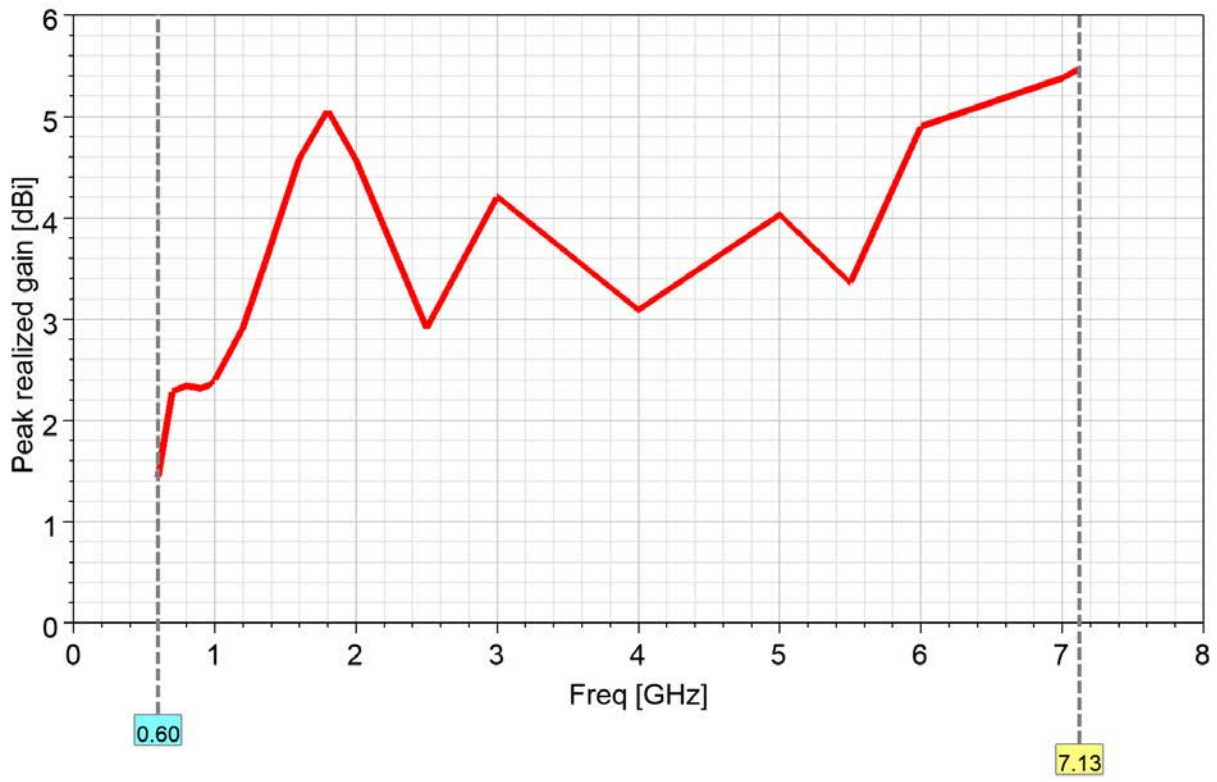
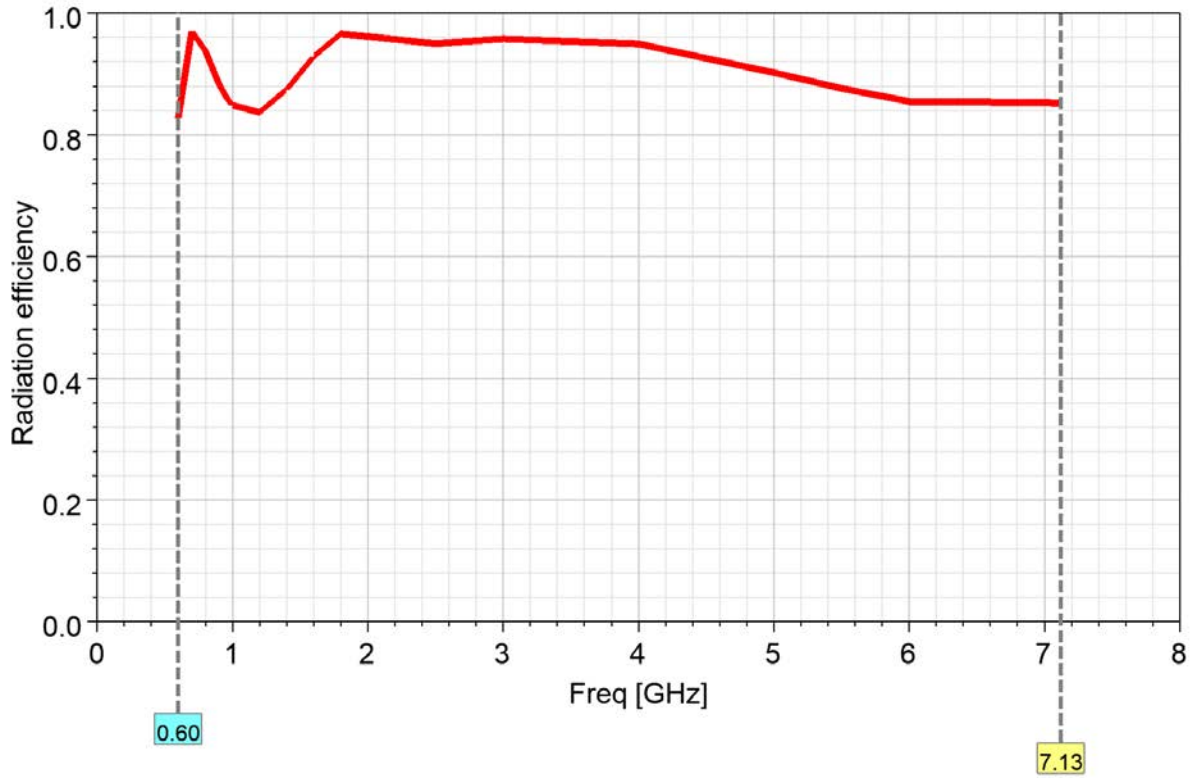
Peak realized gain



Radiation efficiency



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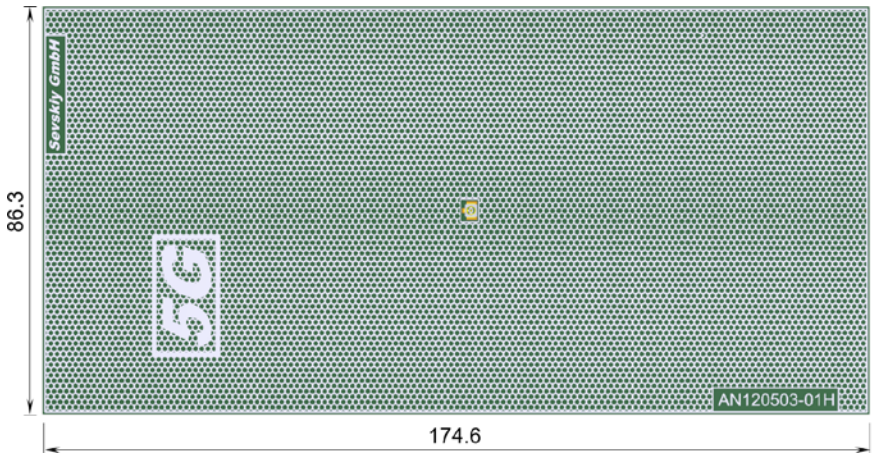
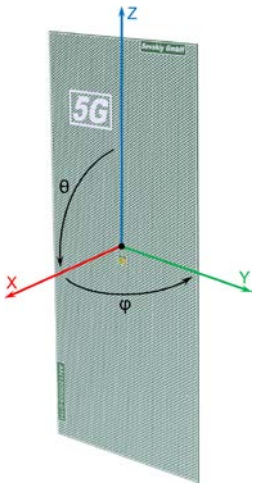
Product dimensions

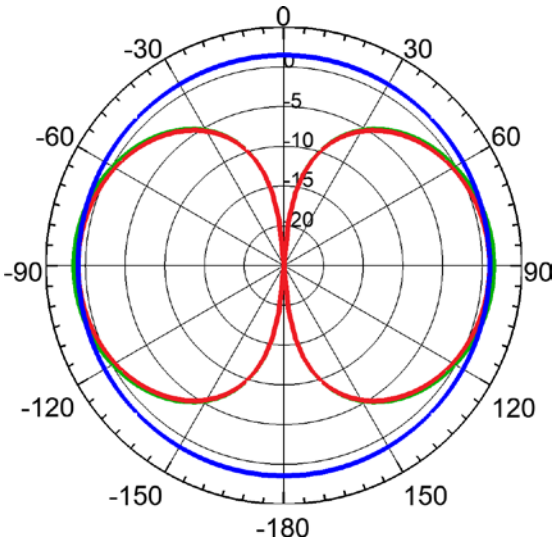


Units: mm

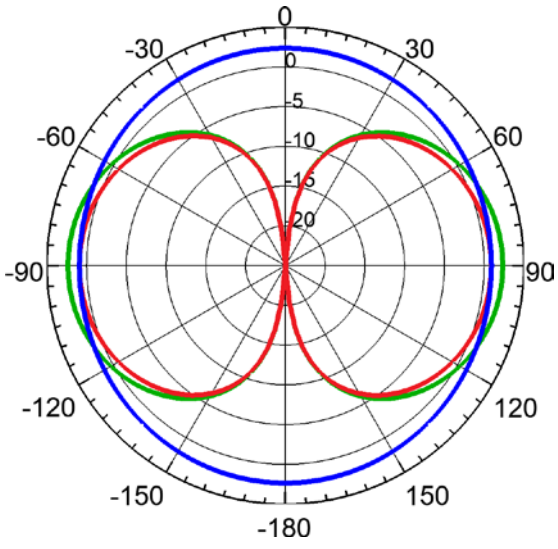
Radiation pattern



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



600 MHz



960 MHz

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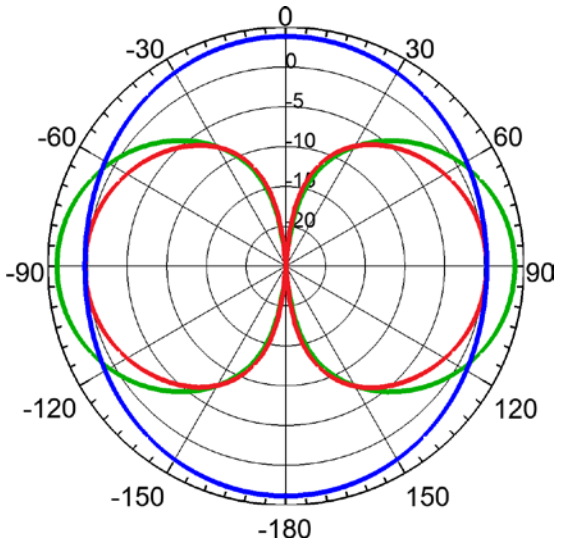
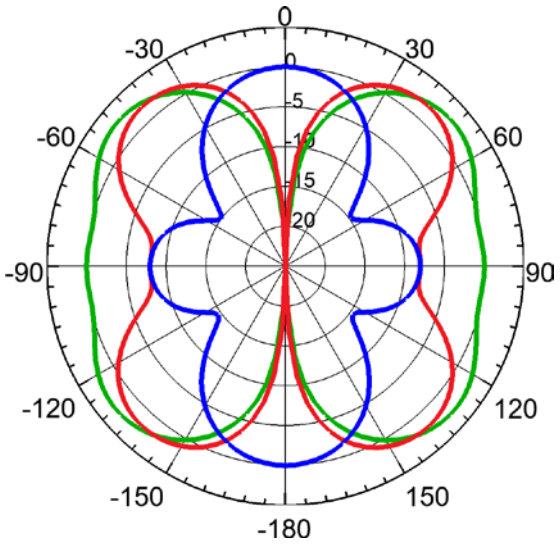
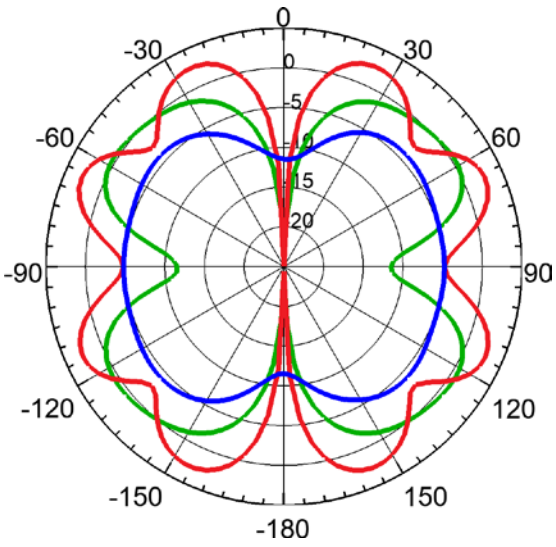
Radiation pattern



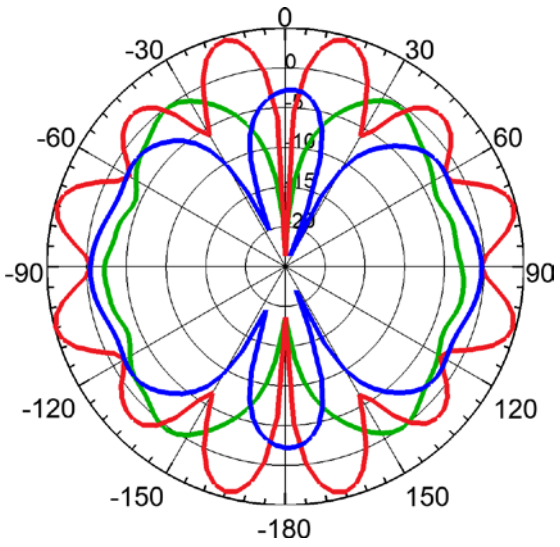
1427 MHz



2500 MHz



4000 MHz



6000 MHz

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