1164…1300 MHz PCB Antenna (GPS L2/L5, GLONASS L2/L3, Galileo E5a/E5b/E6, BeiDou B2/B3)

General information

The AN150204-01C is a compact embedded PCB antenna specifically designed for lower-band GNSS reception, covering the frequency range from 1164 to 1300 MHz. This range includes modern high-precision navigation signals such as GPS L2/L5, GLONASS L2/L3, Galileo E5a/E5b/E6, and BeiDou B2/B3, making the antenna suitable for multi-constellation and multi-frequency GNSS systems.

The antenna is optimized for applications requiring improved positioning accuracy, ionospheric error correction, and robust performance in challenging environments. Typical use cases include precision navigation, surveying and mapping equipment, timing and synchronization systems, smart transportation, autonomous and assisted driving platforms, UAVs, and industrial GNSS receivers.

The antenna is implemented on an FR-4 PCB and features linear polarization with an omnidirectional radiation pattern, providing stable reception regardless of device orientation. It is equipped with an integrated micro-coaxial cable terminated with an I-PEX MHF1 / Hirose U.FL (UMCC) connector, allowing flexible integration into compact GNSS modules and plastic enclosures.

Electrical data

Antenna type	Embedded / internal PCB antenna
Frequency band	GPS L2/L5, GLONASS L2/L3, Galileo E5a/E5b/E6, BeiDou B2/B3
Frequency range [MHz]	1164...1300
Return loss [dB]	-8
Peak gain [dBi]	0.6…1.4
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]	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)] Other cable lengths can be provided.

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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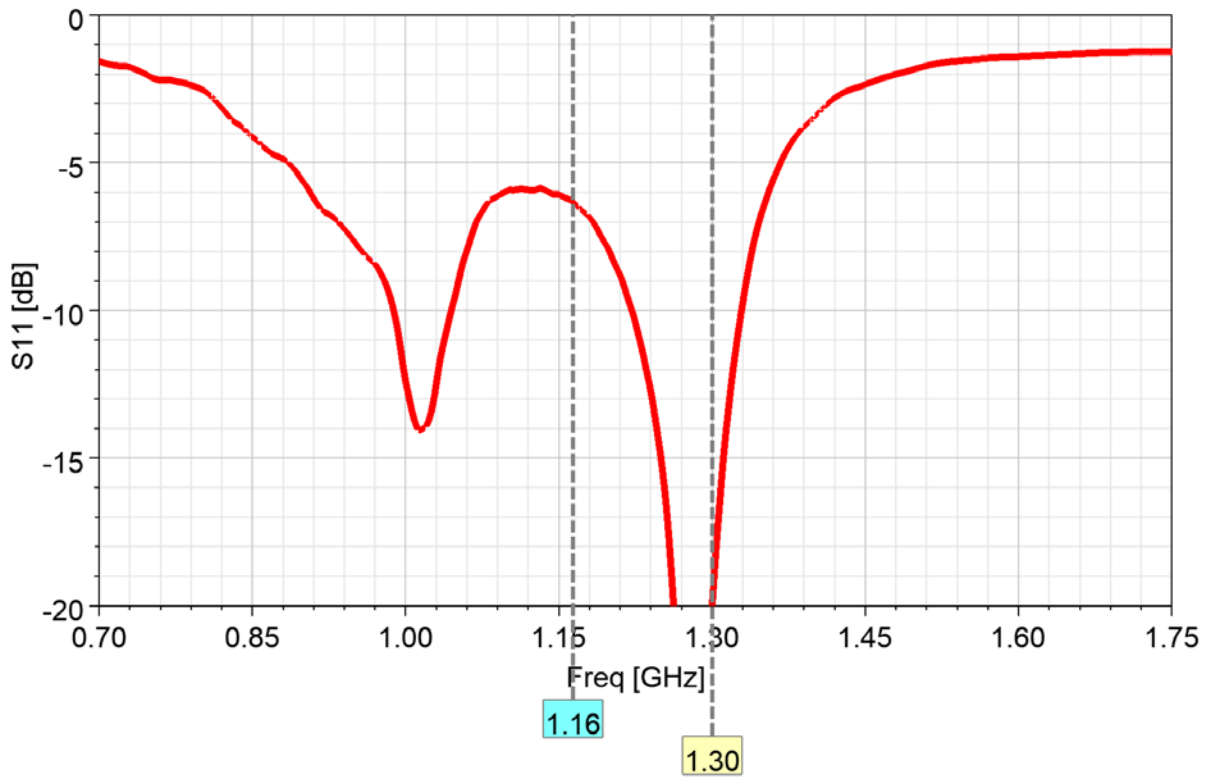
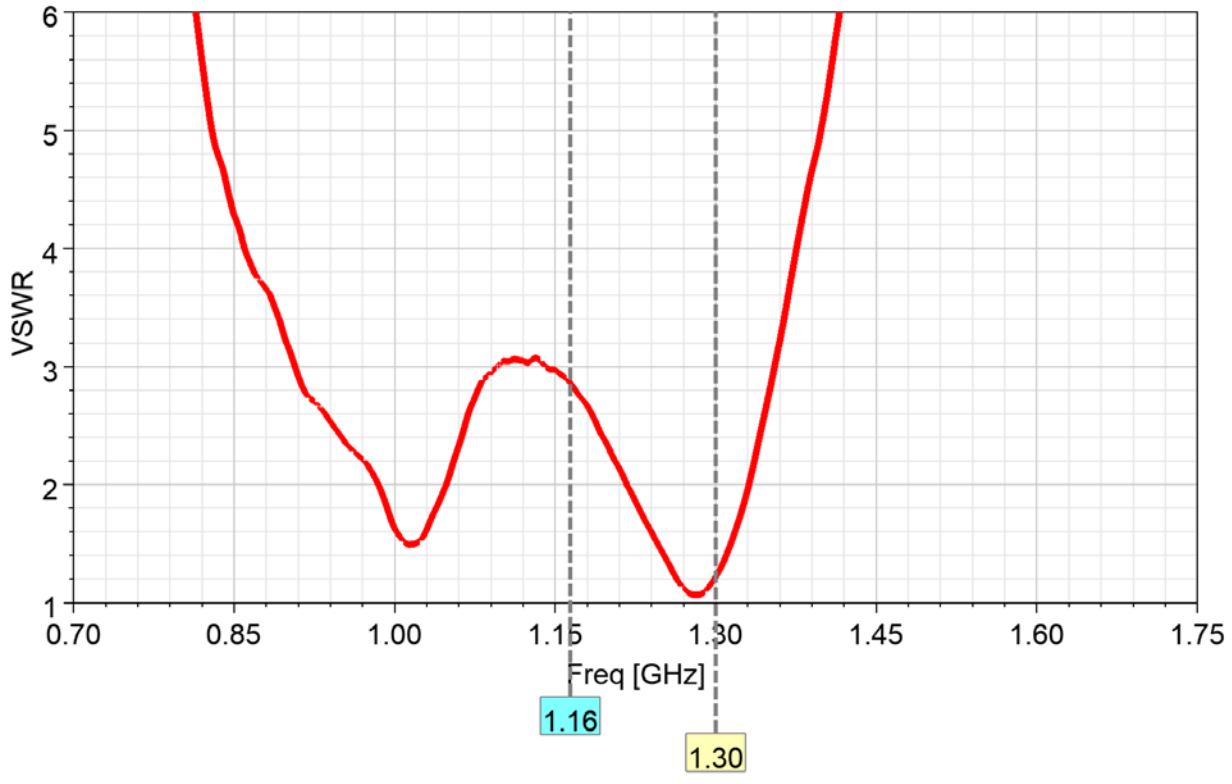
Measured input impedance matching



VSWR



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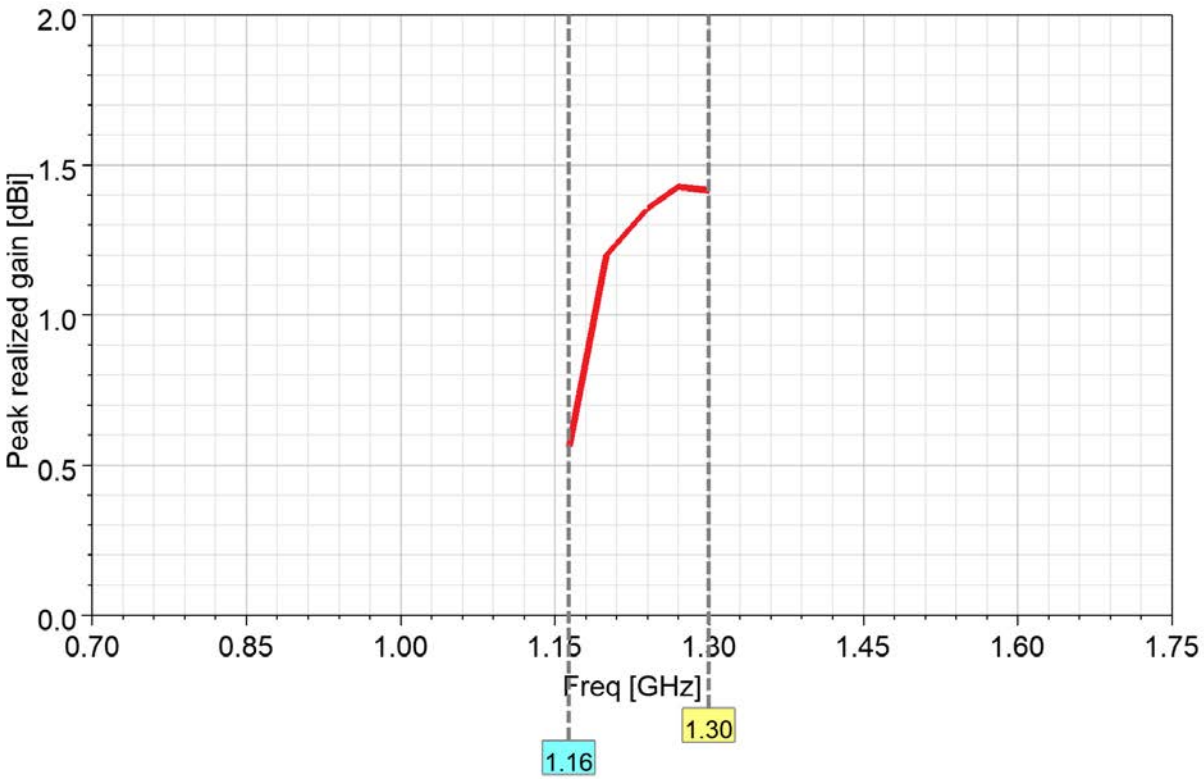
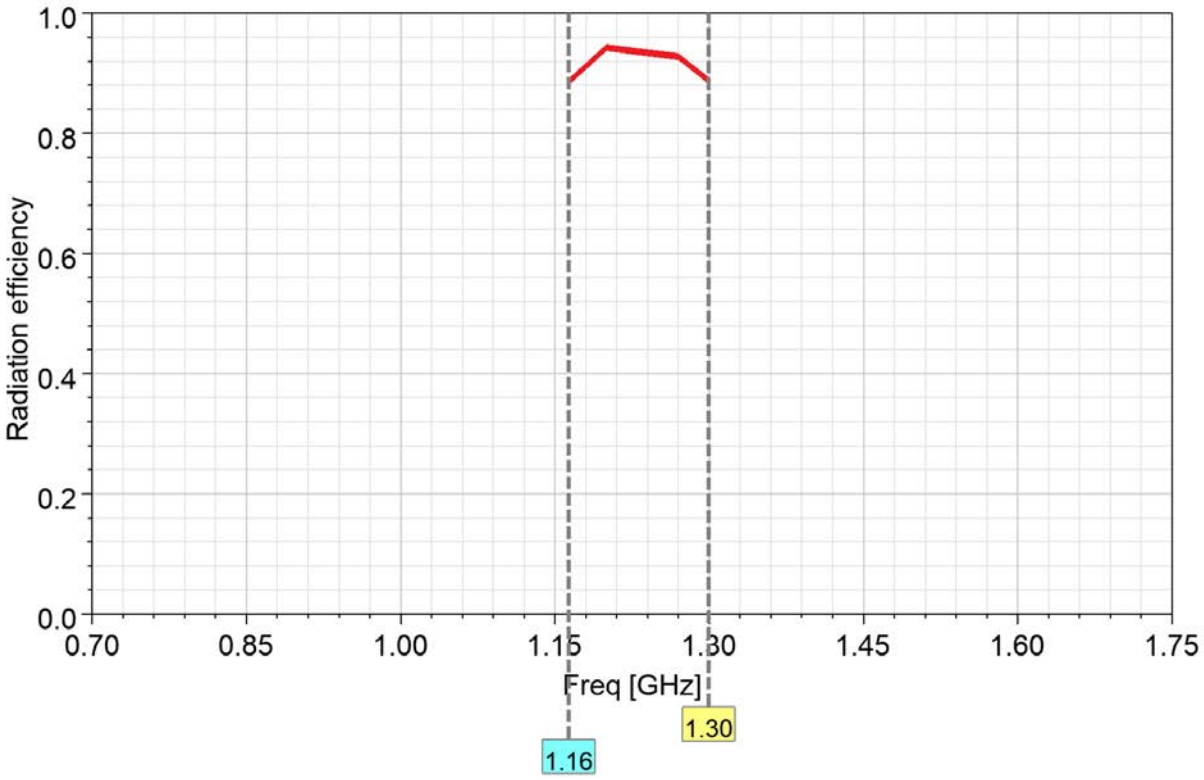
Peak realized gain



Radiation efficiency



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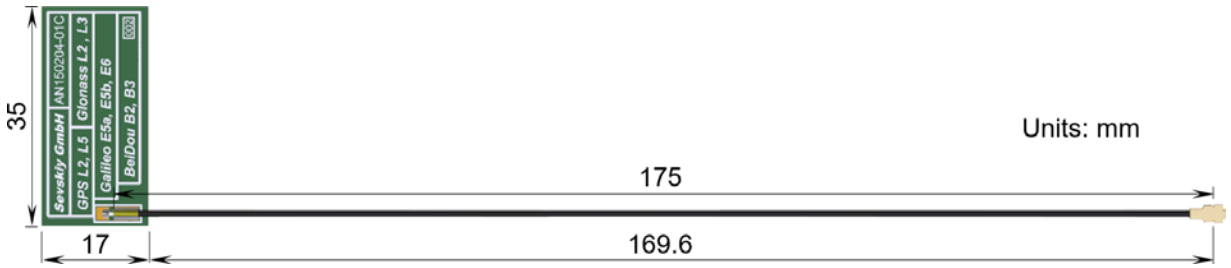
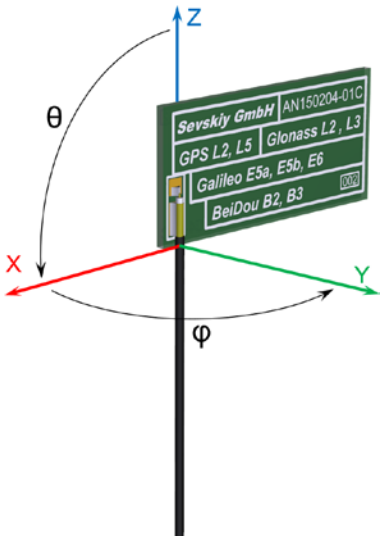
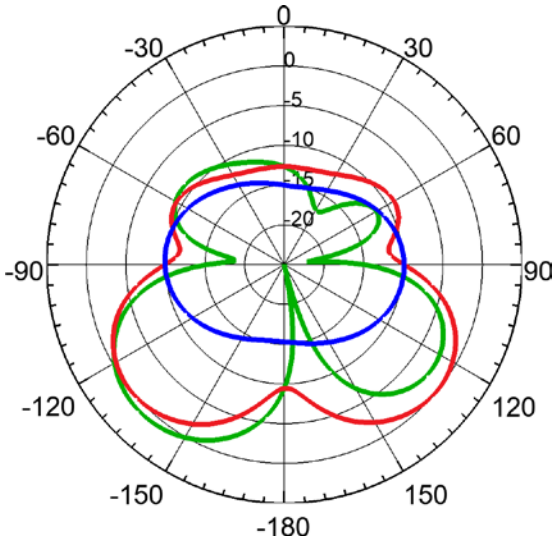
Product dimensions



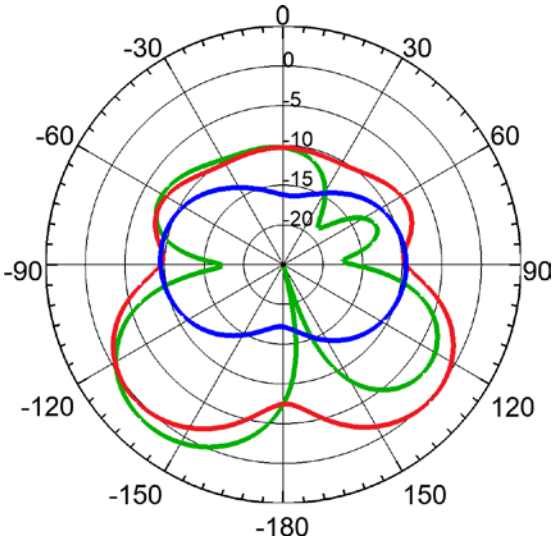
Radiation pattern



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



1200 MHz



1300 MHz

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