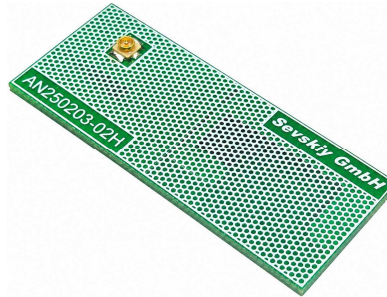


2400...2500 MHz / 4400...7125 MHz PCB Antenna (ISM, IoT, RFID, Bluetooth, WLAN, Wi-Fi 5/6E)



General information

The AN250203-02H is a dual-band internal PCB antenna developed for compact wireless equipment operating in the 2.4 GHz ISM band and the extended 5 GHz / 6 GHz spectrum up to 7.125 GHz. It provides reliable RF performance for IEEE 802.11 b/g/n applications at 2.4 GHz and IEEE 802.11 a/n/ac/ax, including Wi-Fi 6 and Wi-Fi 6E, in the higher frequency bands.

The antenna features omnidirectional radiation and linear polarization, ensuring uniform signal coverage in space-limited device enclosures. It is optimized for high-speed data communication and stable multi-band connectivity in modern WLAN and short-range wireless systems. Typical applications include wireless routers and access points, IoT hubs, smart home electronics, industrial communication units, Bluetooth, and embedded networking platforms.

Manufactured on an FR-4 PCB substrate, the antenna is equipped with an onboard I-PEX MHF1 / Hirose U.FL (UMCC) compatible connector. This configuration allows the use of a micro-coaxial RF cable of the required length, providing flexible integration depending on the device layout and enclosure design.

Electrical data

Antenna type	Embedded / internal PCB antenna	
Frequency band	ISM2400, Wi-Fi 5/6E GHz, ISM5800	
Frequency range [MHz]	2400...2500	4400...7125
Return loss [dB]	-12	-10
Peak gain [dBi]	1.7...2.3	3...6
Radiation efficiency [%]	80...90	70...90
Nominal input impedance [Ohm]	50	
Polarization	linear	
Radiation pattern	omnidirectional	
Maximum input power [W]	5	

Mechanical data

Antenna PCB dimensions [mm]	44.9 x 18 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.

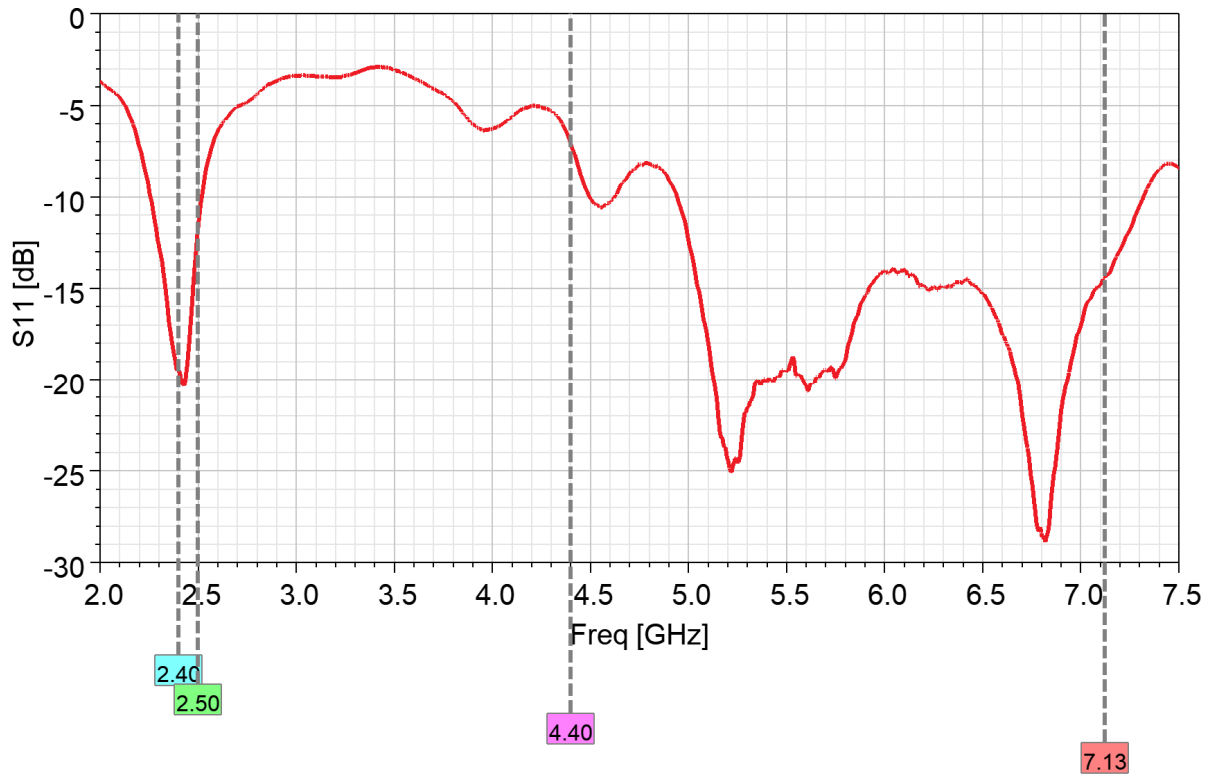
Further customization, electromagnetic simulations and measurements can be offered on request.

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

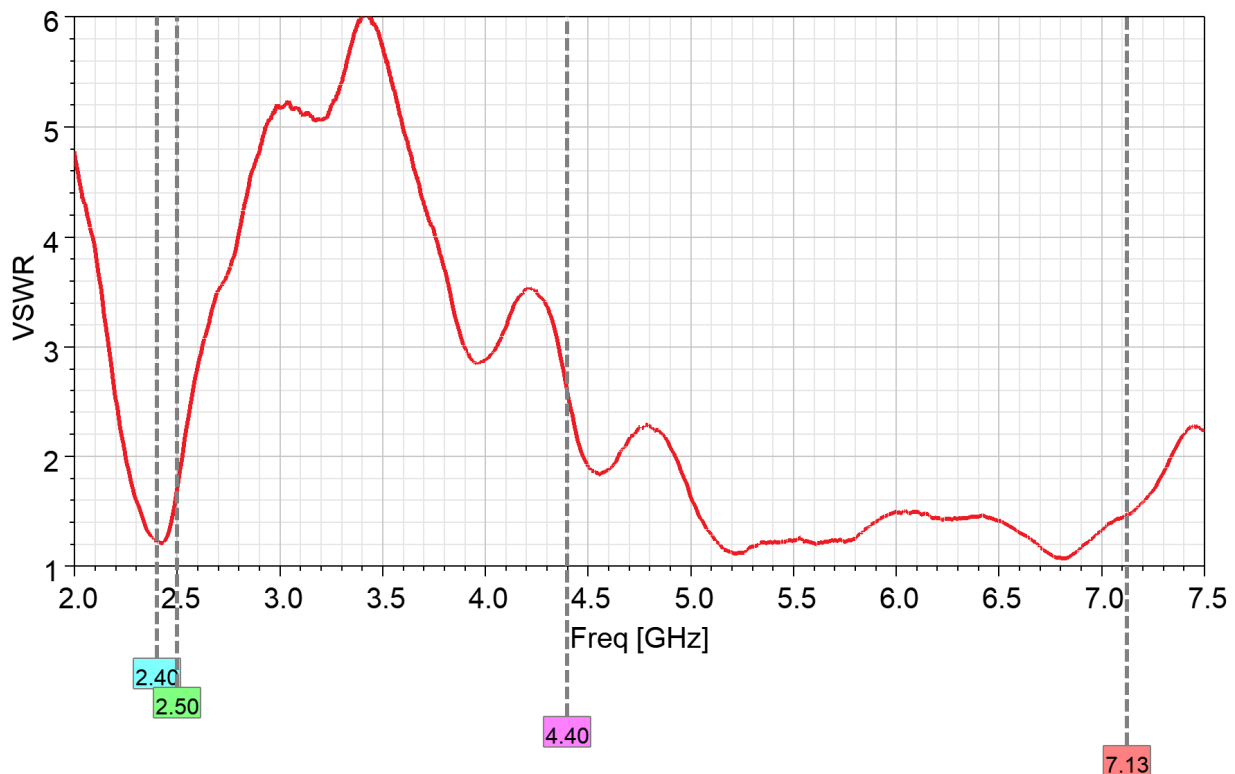
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Measured input impedance matching



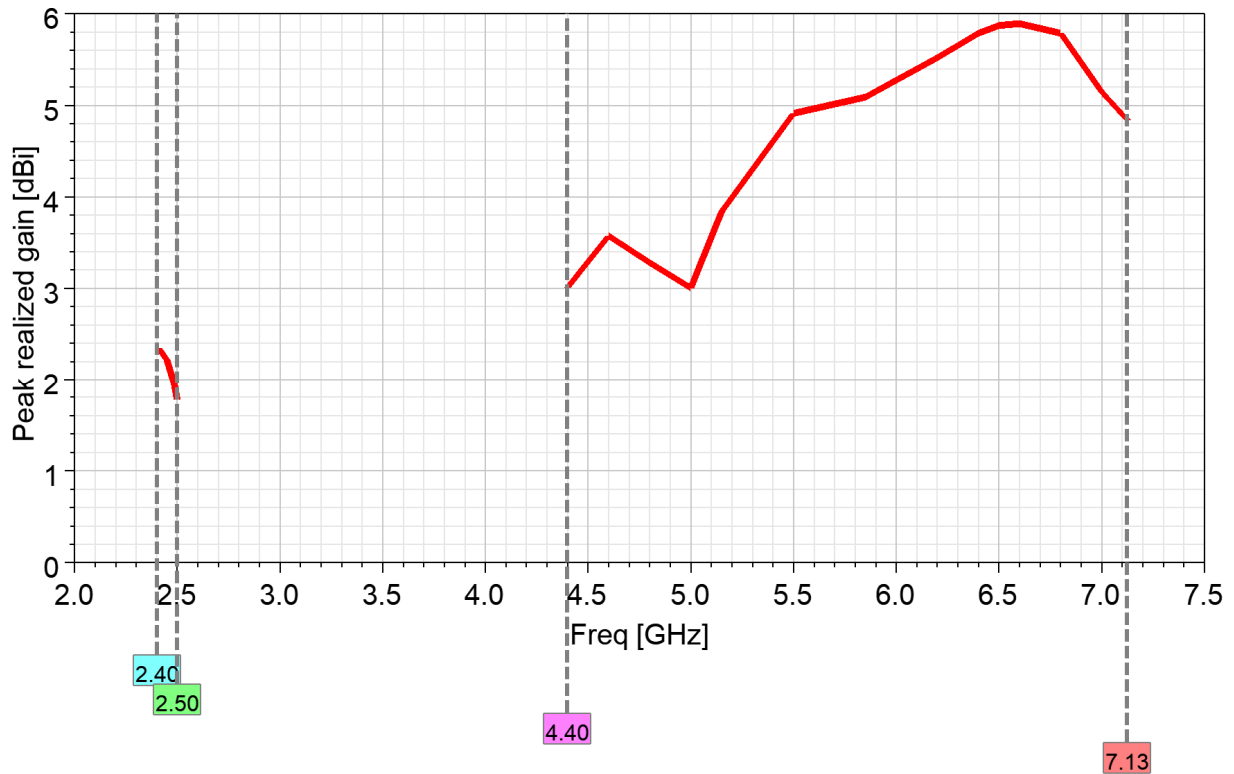
VSWR



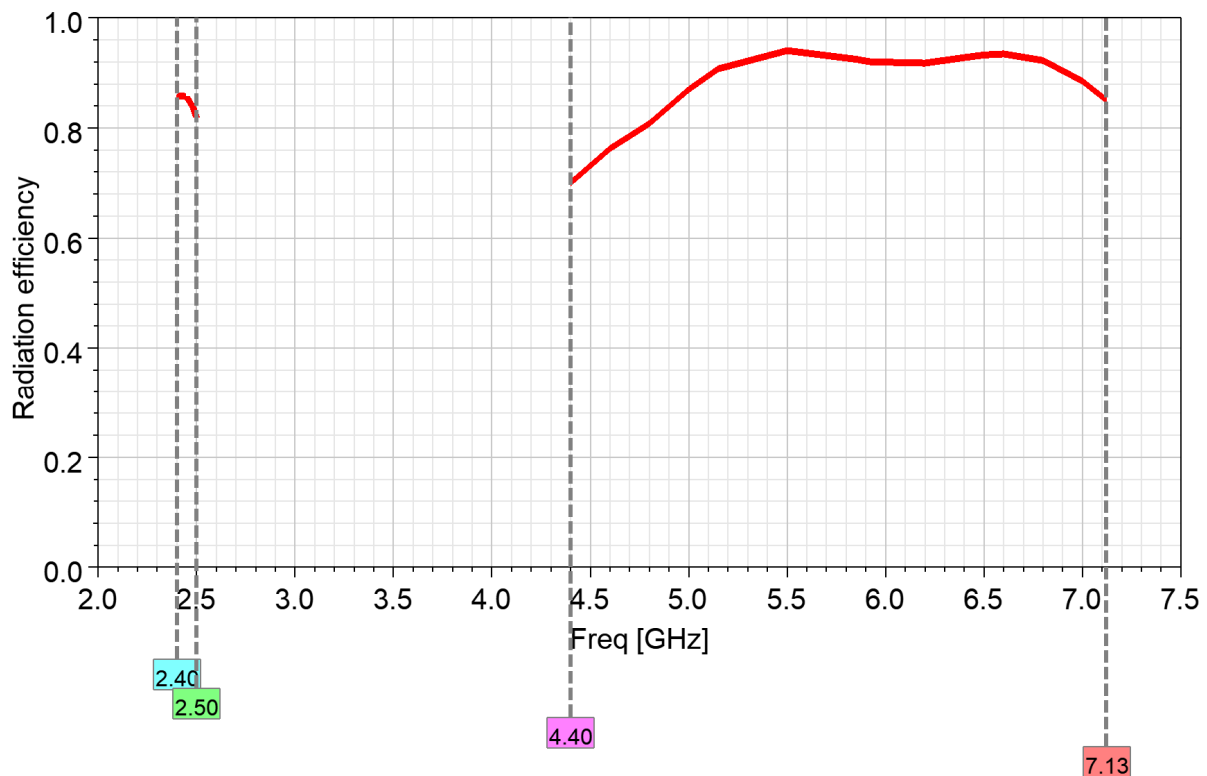
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Peak realized gain



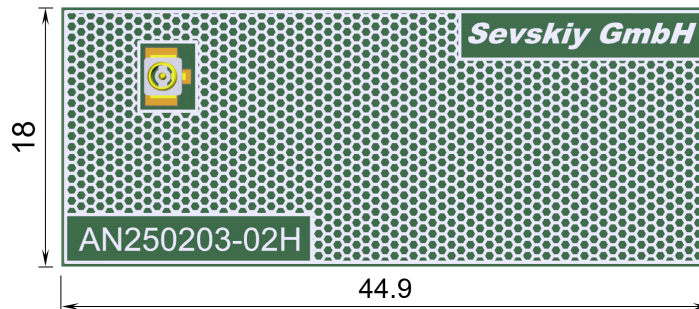
Radiation efficiency



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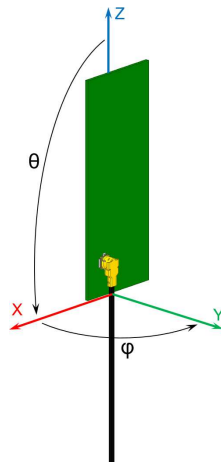
2400...2500 MHz / 4400...7125 MHz PCB Antenna (ISM, IoT, RFID, Bluetooth, WLAN, Wi-Fi 5/6E)

Product dimensions

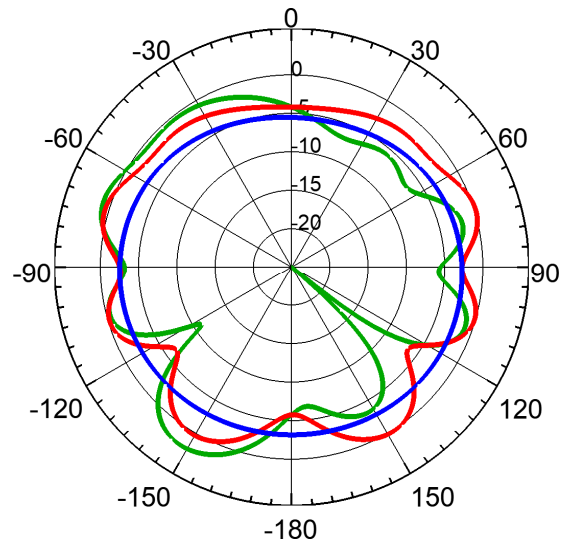


Units: mm

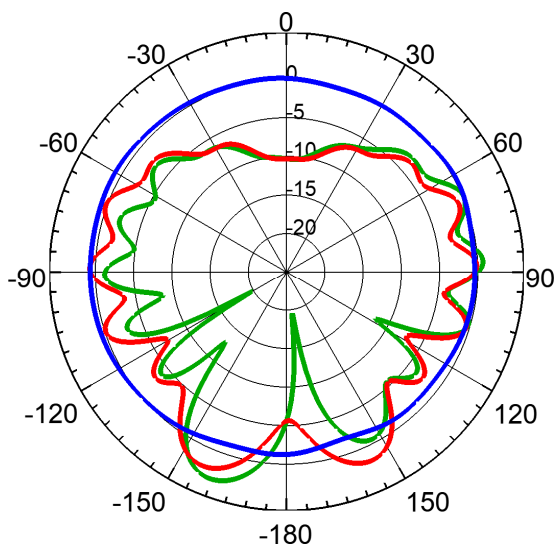
Radiation pattern



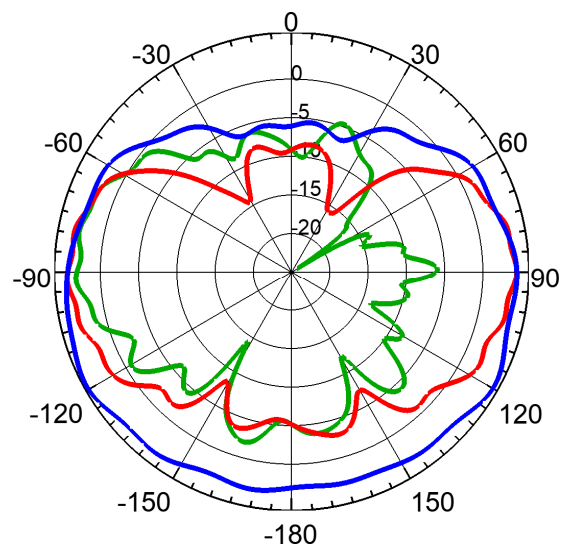
Total realized gain [dBi]
Phi=0°, plane XZ, green curve
Phi=90°, plane YZ, red curve
Theta=90°, plane XY, blue curve



2410 MHz



4600 MHz



6800 MHz

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