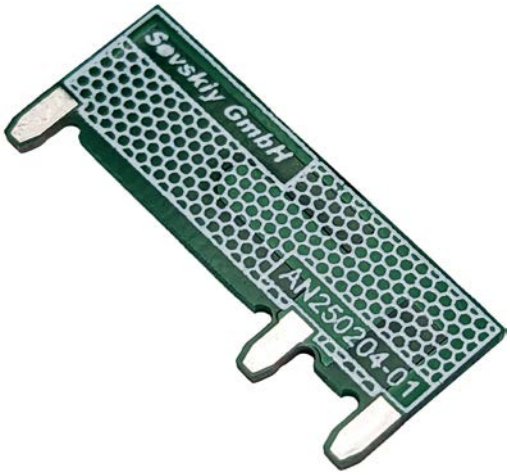
2400…2500 MHz / 5150…5850 MHz PCB Antenna (ISM, IoT, Bluetooth, WLAN, Wi-Fi)



General information

This compact PCB antenna delivers reliable dual-band wireless performance across the 2.4 GHz and 5 GHz bands, supporting Wi-Fi, Bluetooth, WLAN, and ISM applications. Designed for modern connected devices, it is ideal for routers, access points, IoT and smart home products, industrial wireless nodes, and compact communication modules where consistent RF performance is critical. With support for popular 2.4 GHz technologies such as Zigbee and Thread, the antenna provides a flexible and future-ready solution for high-density, space-limited device designs.

The antenna is manufactured on a PCB and equipped with three contacts for vertical solder mounting along the edge of the device's primary circuit board. A corresponding footprint must be included to provide both mechanical stability and proper electrical connection. Once installed, the antenna stands perpendicular to the main board, ensuring reliable performance even in compact enclosures.

Electrical data

Antenna type	Embedded / internal antenna soldered on the main PCB	
Frequency band	ISM2400, Wi-Fi 2.45/5.5 GHz, BT	
Frequency range [MHz]	2400...2500	5150…5850
Return loss [dB] [1)]	-15	-8
Peak gain [dBi]	2.6	3.5
Radiation efficiency [%]	90	85
Nominal input impedance [Ohm]	50	
Polarization	linear	
Radiation pattern	omnidirectional	
Maximum input power [W]	5	

Mechanical data

Antenna PCB dimensions [mm]	25 x 10.5 x 0.8
PCB material	FR4
Weight [g]	0.35

Additional information

All electrical data have been obtained in free space on the reference board (not included) with the following dimensions: 50mm x 35mm x 0.8mm. Please note that the performance in the lower frequency bands is dependent on the ground plane length and may degrade in case of reducing the board size.

Other mechanical designs, materials or frequency bands are possible on request.

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

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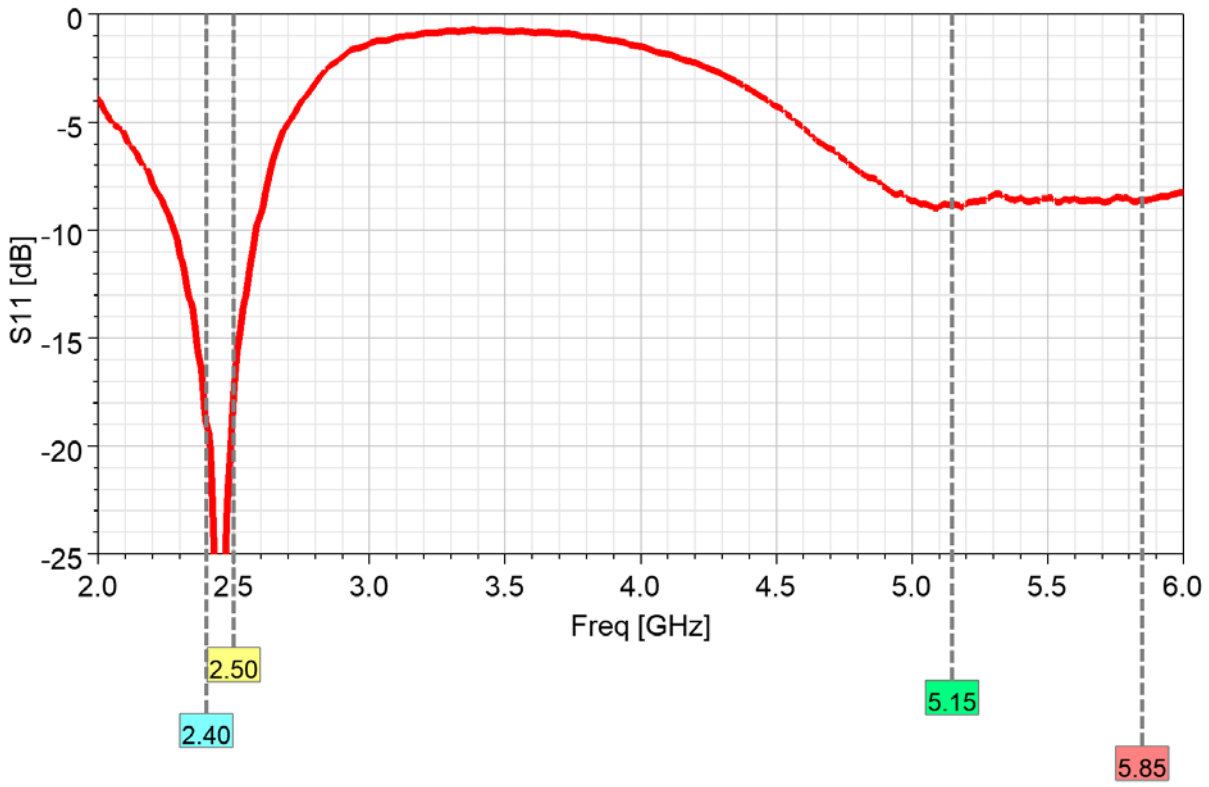
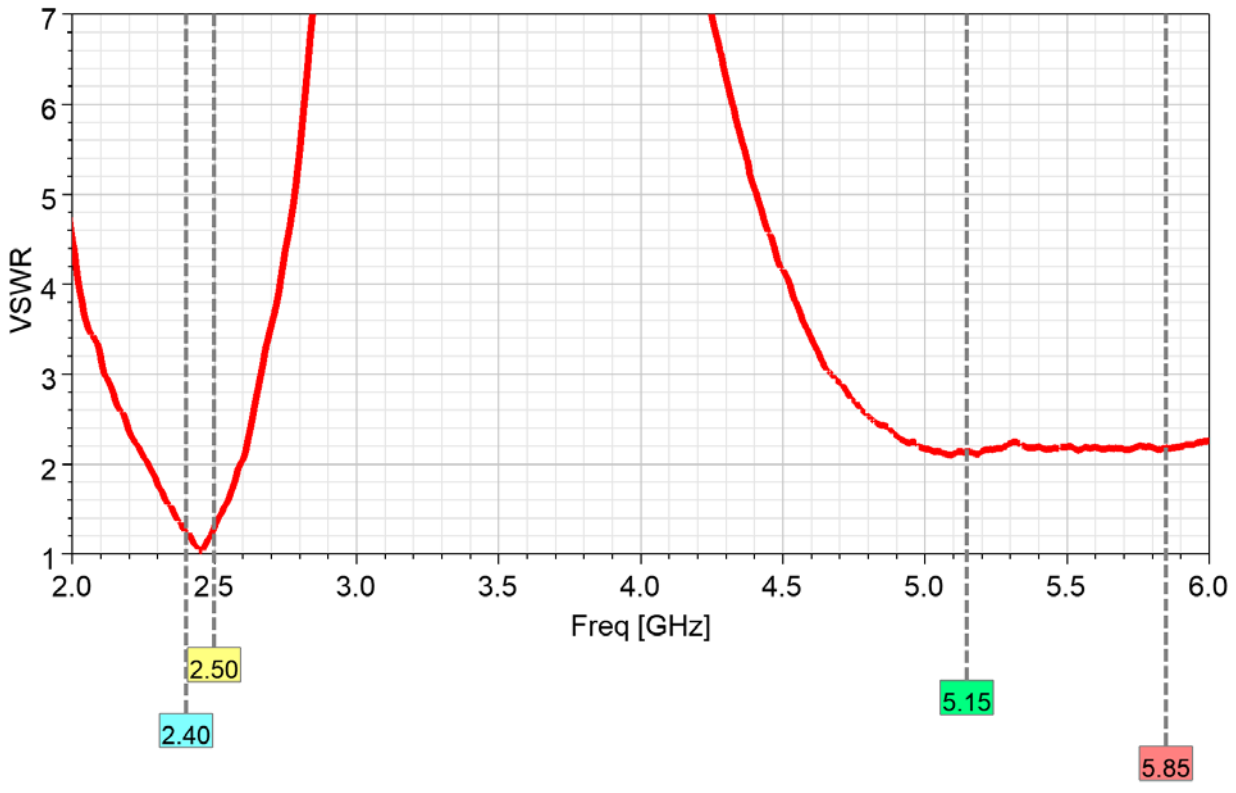
Measured input impedance matching



VSWR



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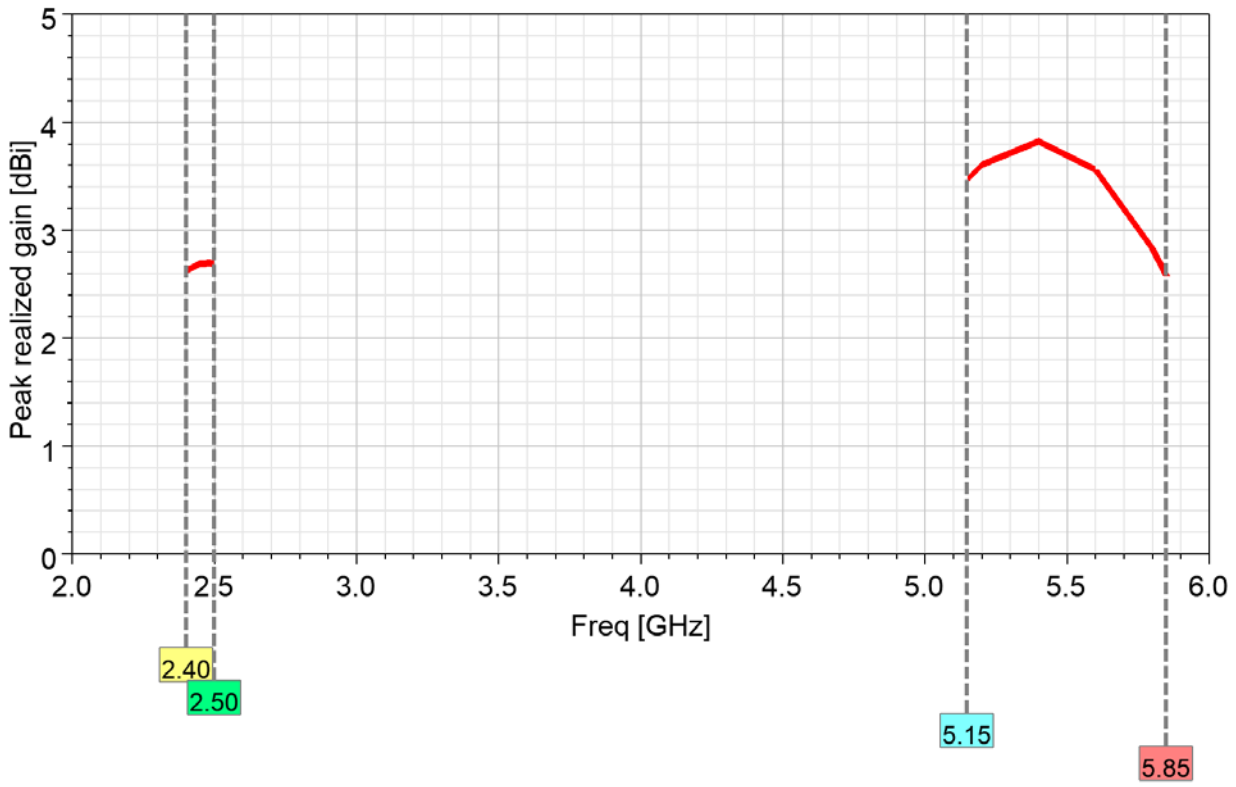
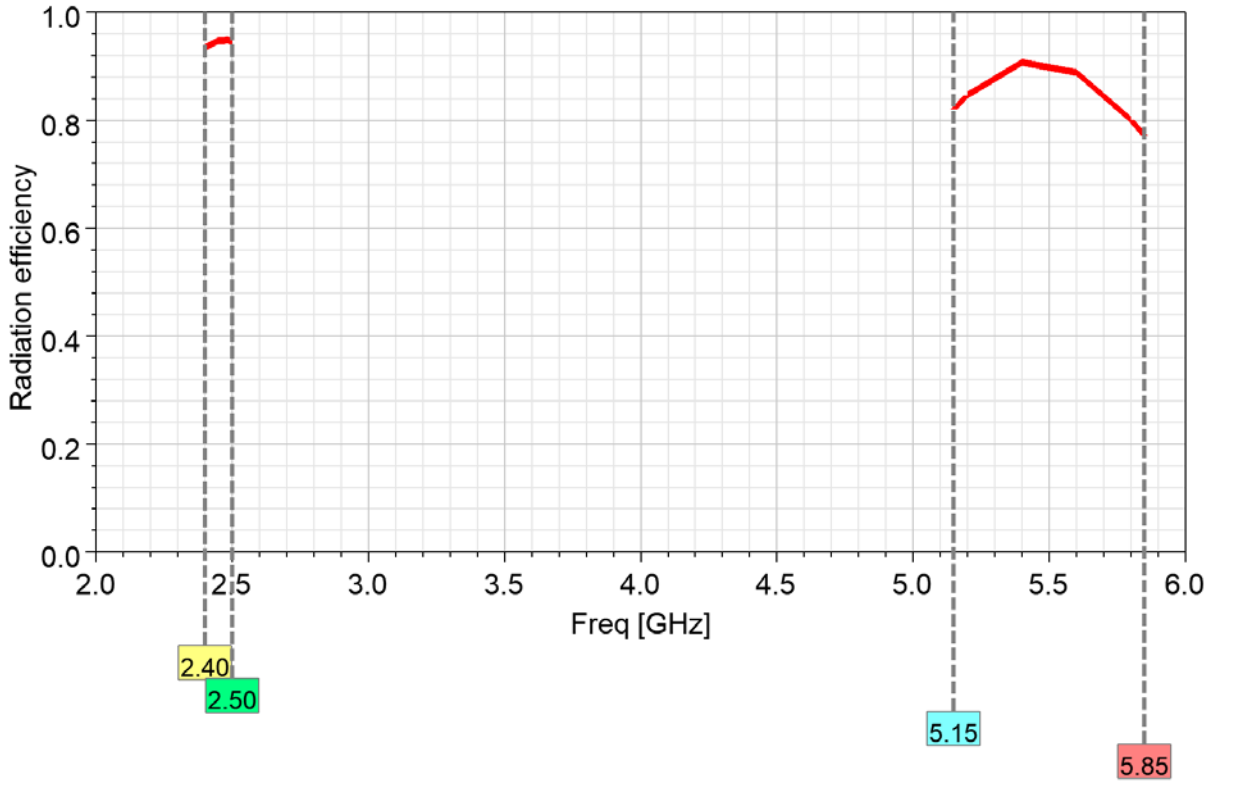
Peak realized gain



Radiation efficiency



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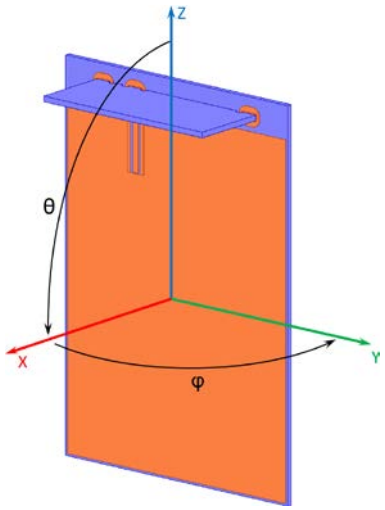
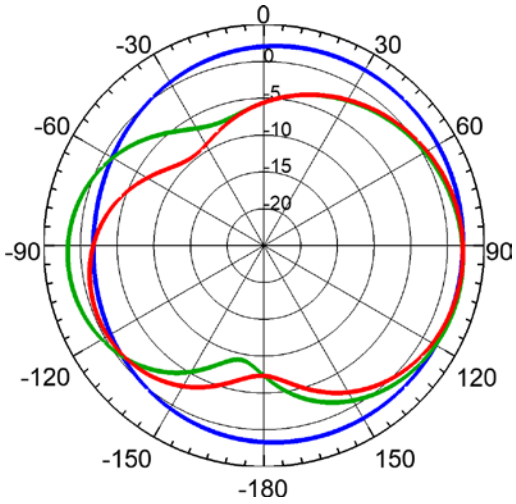
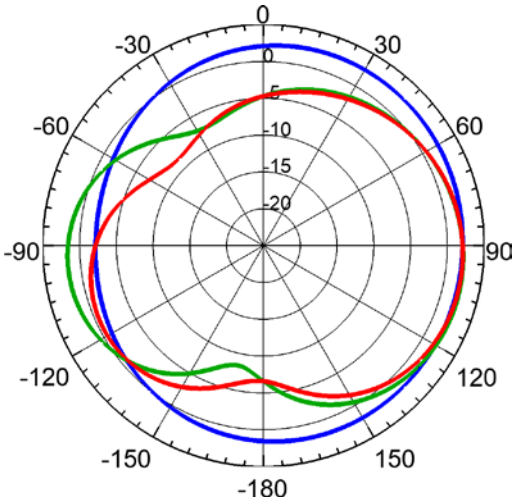
Radiation pattern



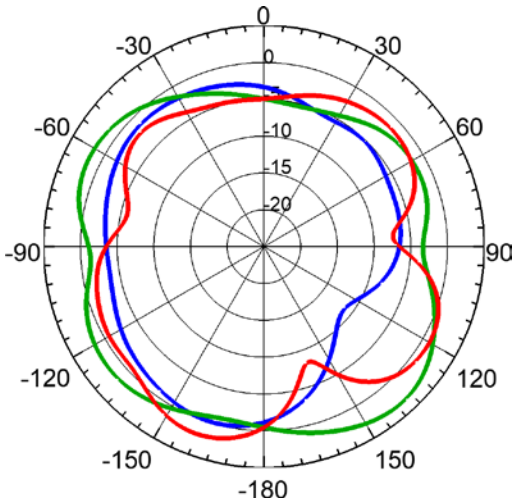
Total realized gain [dBi]
Phi=0°, plane XZ, green curve
Phi=90°, plane YZ, red curve
Theta=90°, plane XY, blue curve



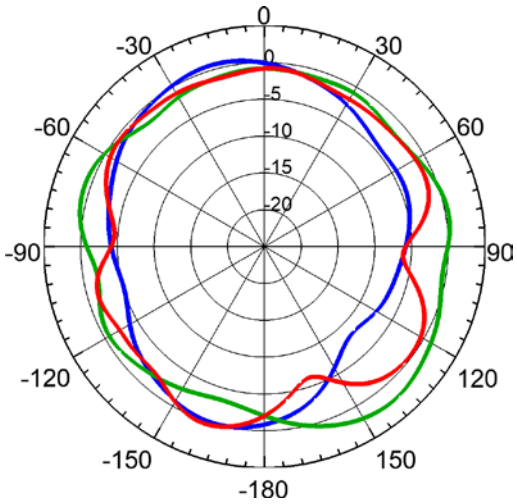
2400 MHz



2500 MHz



5150 MHz



5850 MHz

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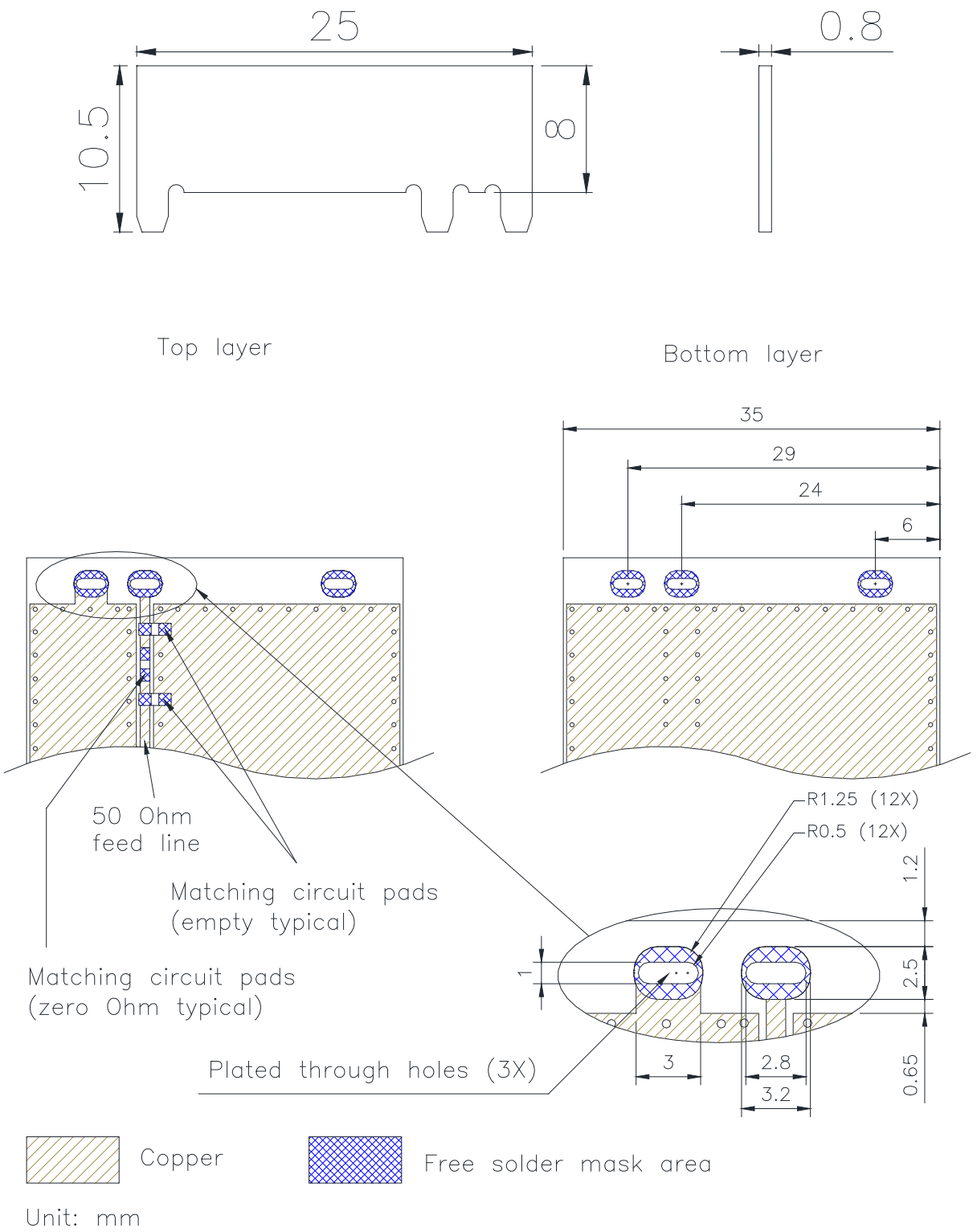
Product dimensions and recommended layout



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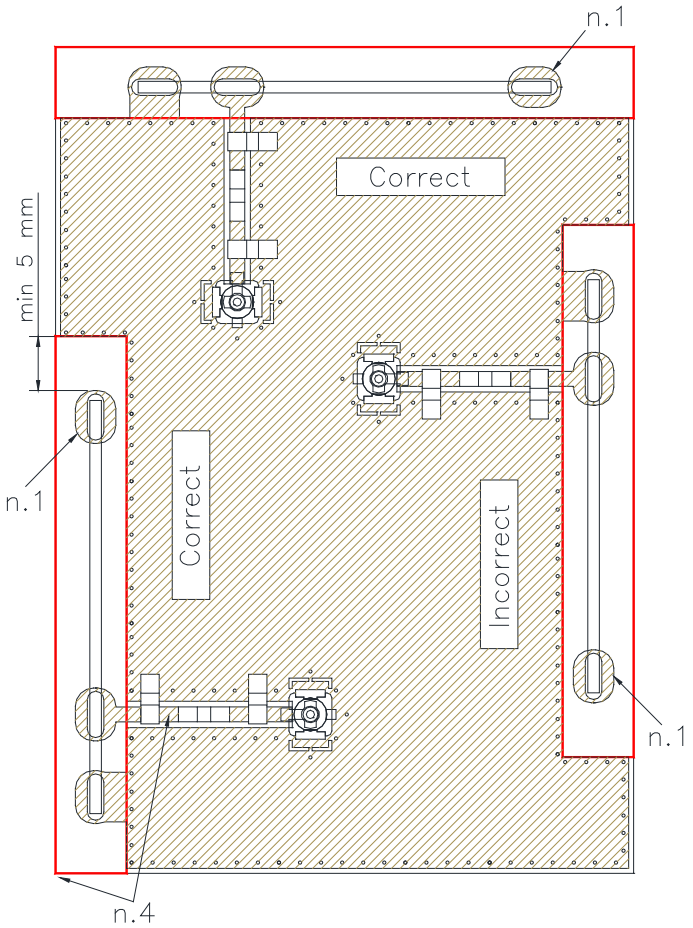
Antenna placement



Copper

Copper keep–out area through the all PCB layers

Notes:
1. Mechanical mounting pads (without GND connection)
2. Reference board size: 50x35mm
3. Antenna must be mounted on the PCB board edge
4. The feedline should be placed as close as possible to the PCB corner

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