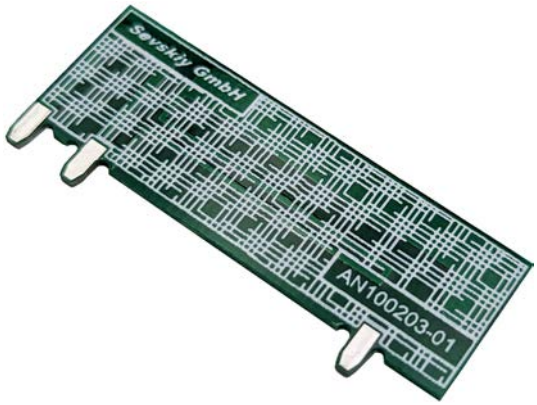
863…924 MHz PCB Antenna (ISM, RFID, IoT, Sigfox, LoRa, LP-WAN, Smart meters)



General information

This compact PCB antenna is designed for sub-GHz wireless systems, (operating frequency range 863…924 MHz) and supports standards such as SRD860, ISM915, LP-WAN technologies (e.g., LoRa, Sigfox), UHF RFID, as well as various IoT, telemetry, home-automation, industrial monitoring, and smart-metering applications. Its broad compatibility and small size make it suitable for integration into mobile devices, routers, sensors, compact gateways, and other space-constrained embedded systems.
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	SRD860, ISM915
Frequency range [MHz]	863...924
Return loss [dB] [1)]	-10
Peak gain [dBi]	2
Radiation efficiency [%]	85
Nominal input impedance [Ohm]	50
Polarization	linear
Radiation pattern	omnidirectional
Maximum input power [W]	5

Mechanical data	
Antenna PCB dimensions [mm]	39 x 15.8 x 0.8
PCB material	FR4
Weight [g]	0.9

Additional information
All electrical data have been obtained in free space on the reference board (not included) with the following dimensions:120mm x 60mm 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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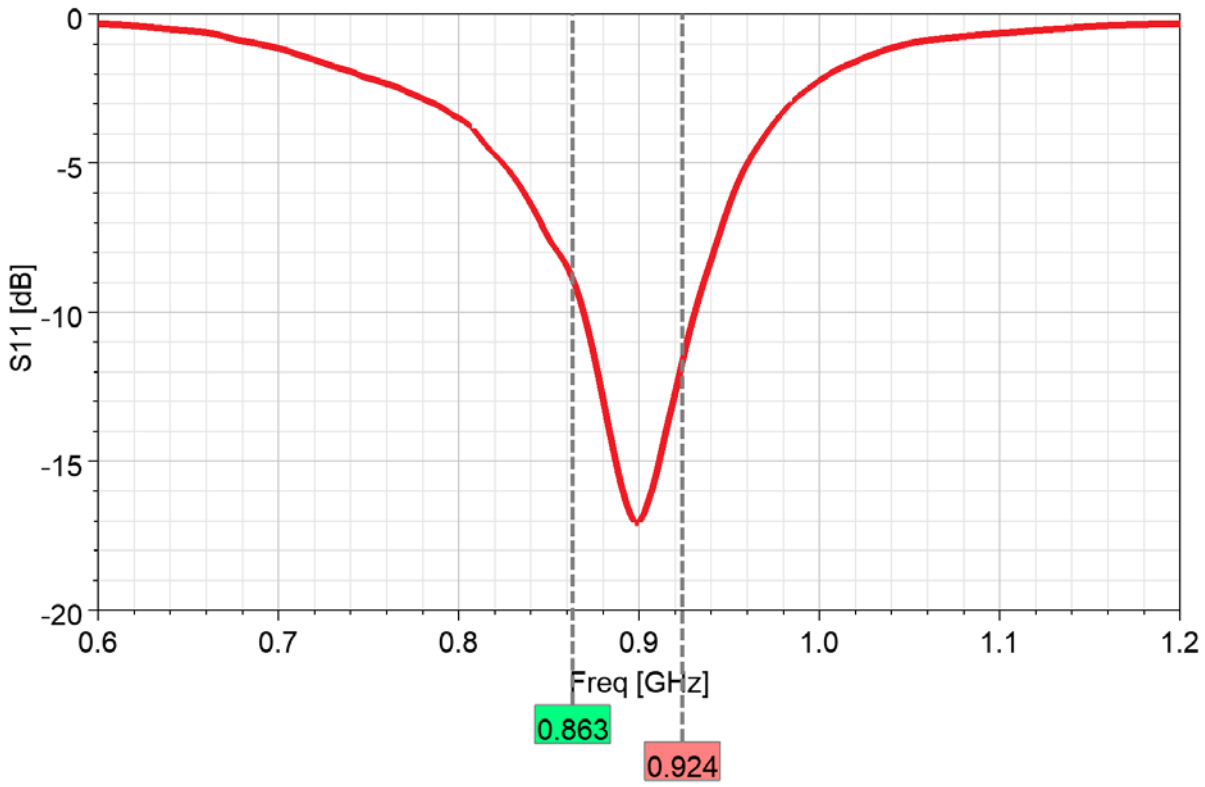
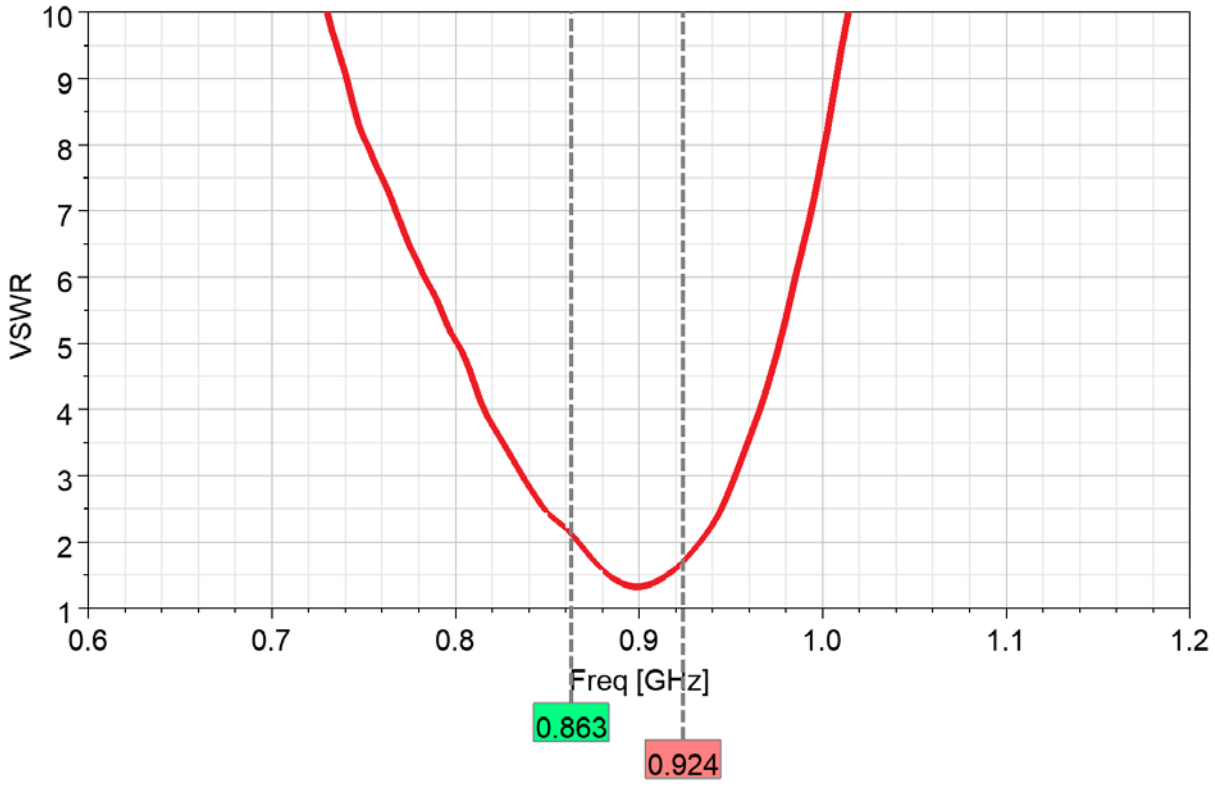
Measured input impedance matching



VSWR



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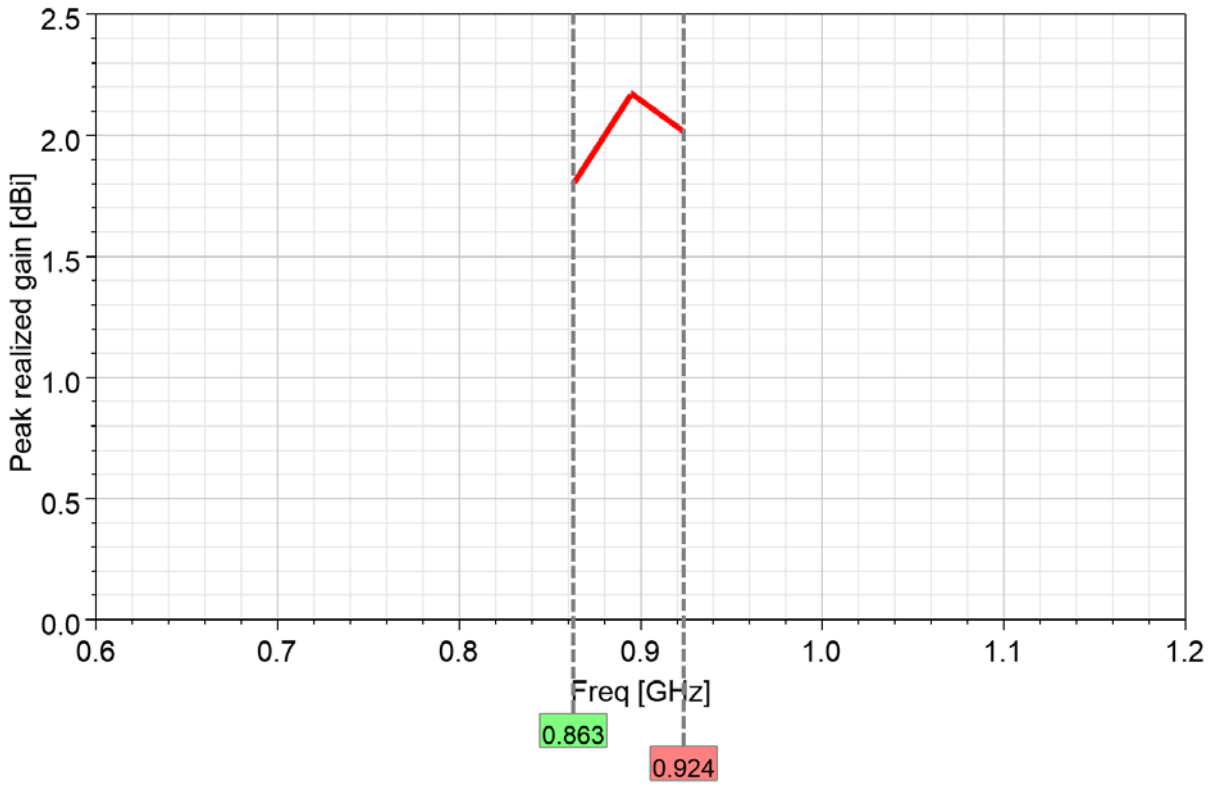
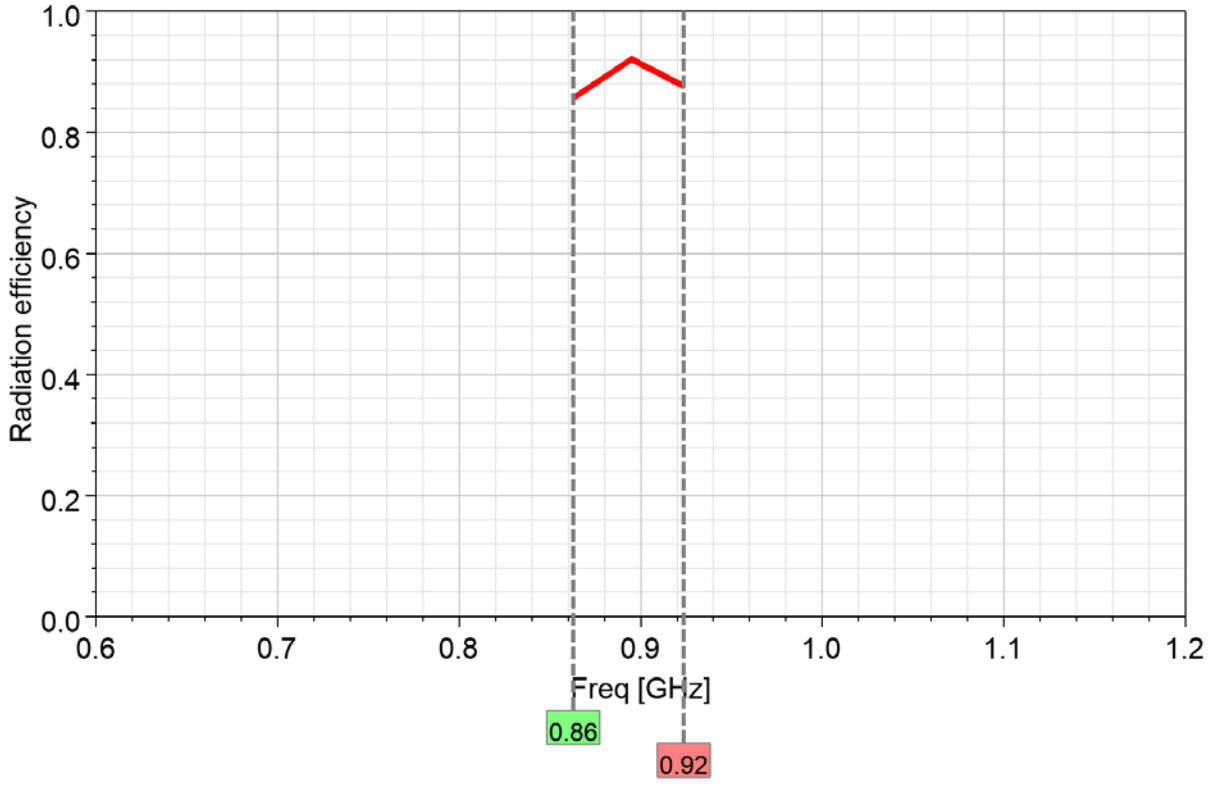
Peak realized gain



Radiation efficiency



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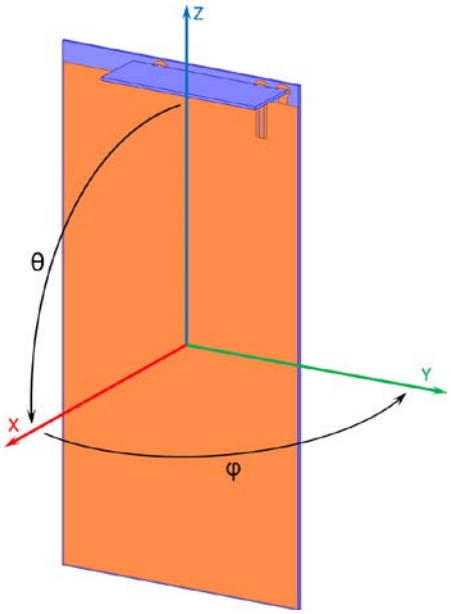
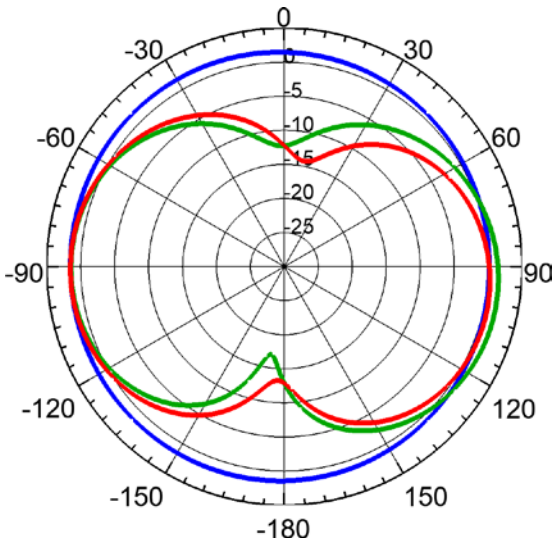
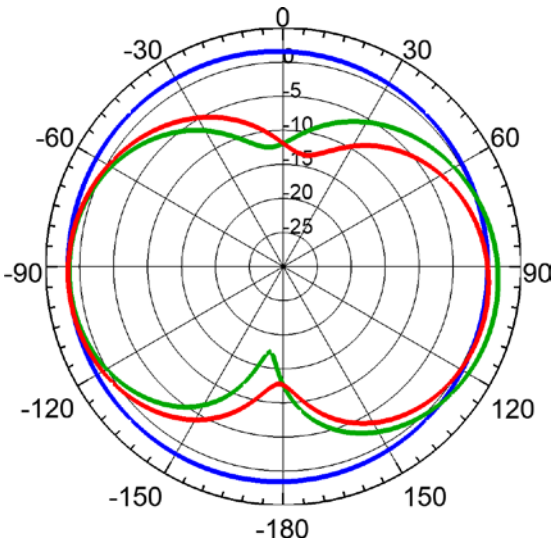
Radiation pattern



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



868 MHz



924 MHz

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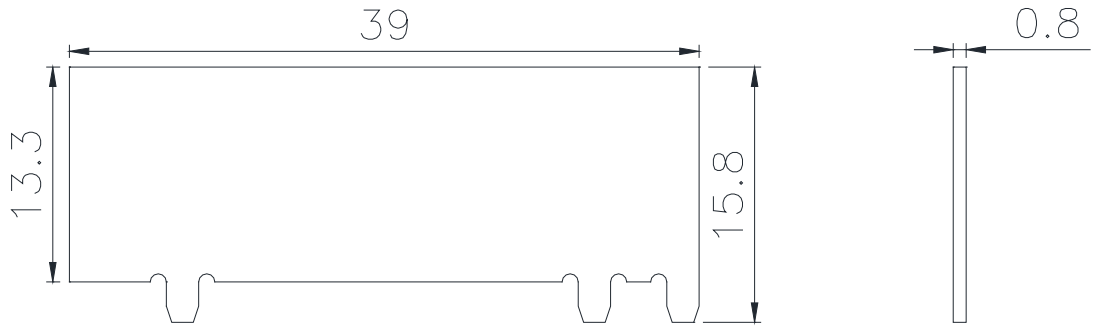
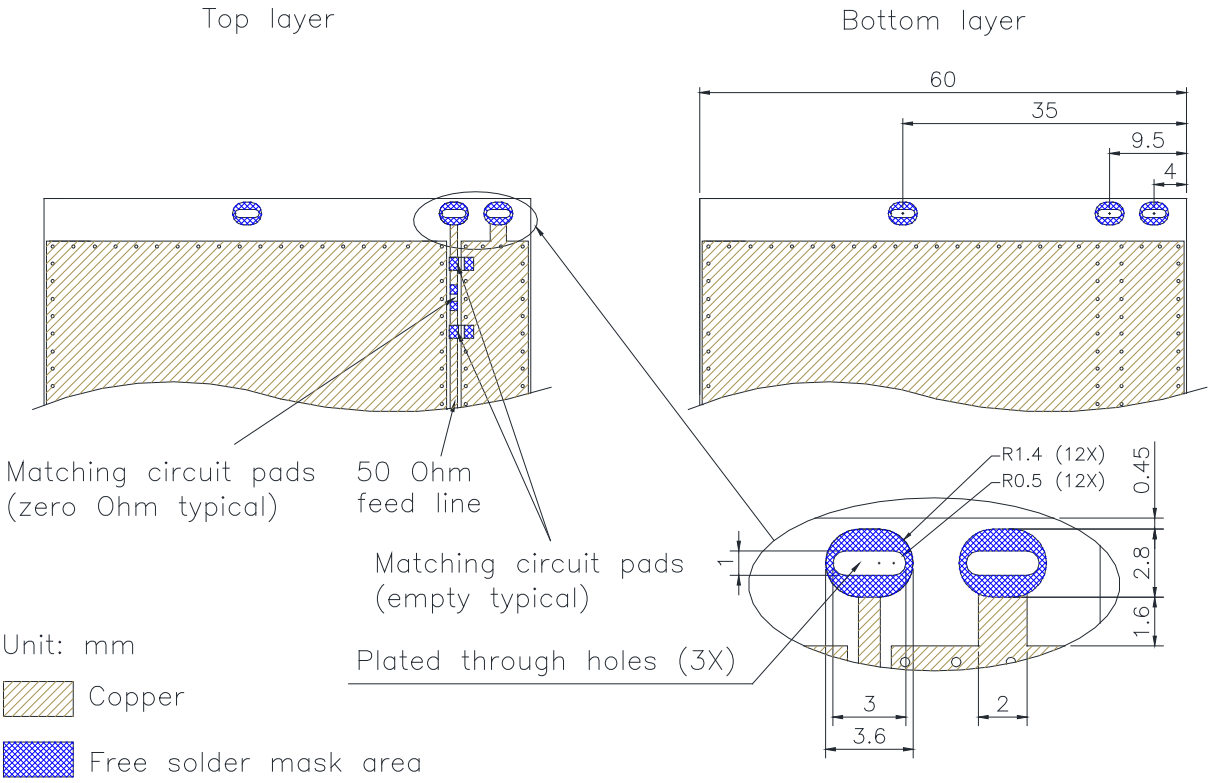
Product dimensions and recommended layout





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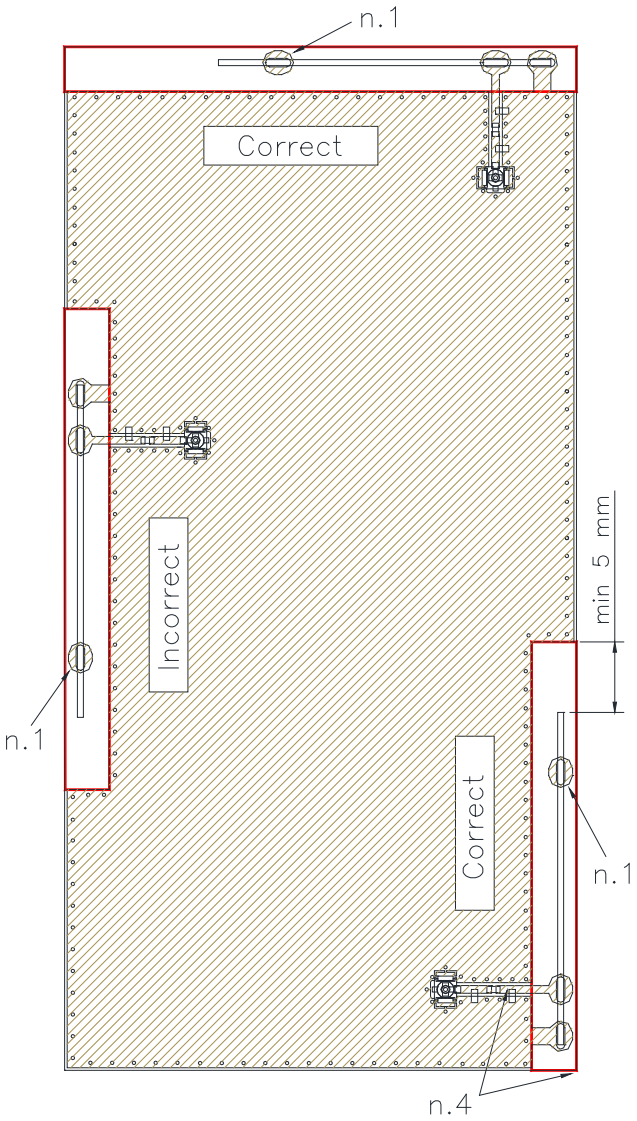
Antenna placement



Copper

Copper keep–out area through the all PCB layers

Notes:
1. Mechanical mounting pads (without GND connection)
2. Reference board size: 120x60mm
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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