

u-blox PCB trace antenna

Features

- Integrated into the module PCB
- 50 Ω impedance
- L x W: 10 x 3.2 mm
- RoHS Compliant
- Peak antenna gain

Band	Peak Gain, dBi
2,4 GHz	-1.34
5 GHz	2.41
6 GHz	3.42

Applications

- 2.4 GHz ISM band systems
- 5 GHz
- 6 GHz



Figure 1: MAYA-3 module with the u-blox PCB trace antenna

1 Introduction

The “u-blox PCB trace antenna” works on Bluetooth and Wi-Fi 2.4GHz, 5GHz and 6GHz.

This antenna is created with antenna technology licensed by Abracon and it is integrated into the module PCB.

2 Specifications

The below radiation patterns show the relative output power of a MAYA module equipped with the u-blox PCB trace antenna transmitting at 0 dBm output power.

Both horizontal and vertical antenna polarizations are shown, as well as the total of both.

2.1 Antenna gain

The gain of the antenna is summarized for the top, middle, and bottom of each frequency band (2G and 5G and 6G) in

Transmission	Measured TRP	Measured peak gain
Channel 1, 2.412 GHz	-5.2051 dB	-1.34 dBi
Channel 6, 2.442 GHz	-7.0894 dB	-1.58 dBi
Channel 13, 2.472 GHz	-5.6092 dB	-2.83 dBi
Channel 36, 5.180 GHz	-2.9237 dB	-0.71 dBi
Channel 100, 5.500 GHz	-4.2677 dB	0.21 dBi
Channel 165, 5.825 GHz	-8.9176 dB	2.41 dBi
Channel 25, 6075 GHz	-21.217 dB	3.42 dBi
Channel 233, 7115 GHz	-1.8178 dB	0.39 dBi

2.2 Radiation pattern

The below pictures describe how the MAYA-W3 module is aligned to the XYZ-coordinate system. The radiation patterns in the following table show the relative output power of a MAYA-W3 module equipped with the u-blox PCB trace antenna transmitting at 0 dBm output power. Both horizontal and vertical antenna polarizations are shown, as well as the total of both.

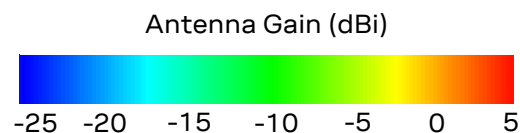
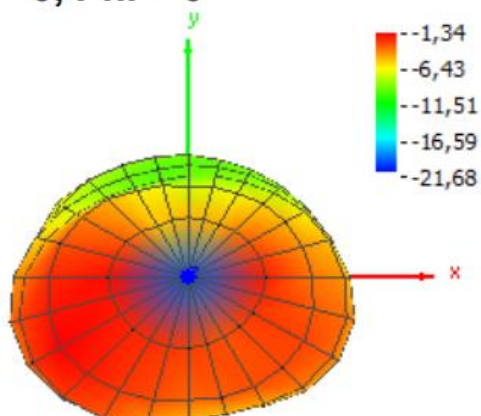
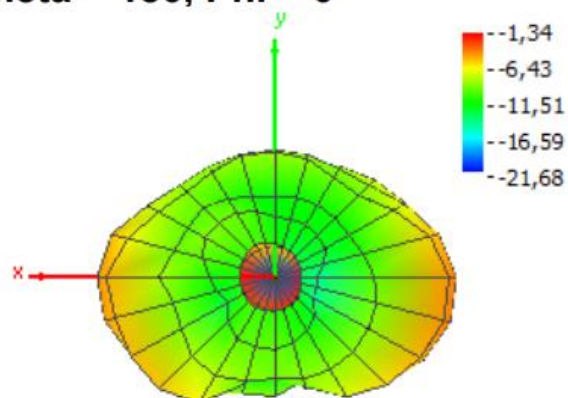


Table 1: MAYA-W3 PCB trace antenna radiation patterns at 2.412 GHz

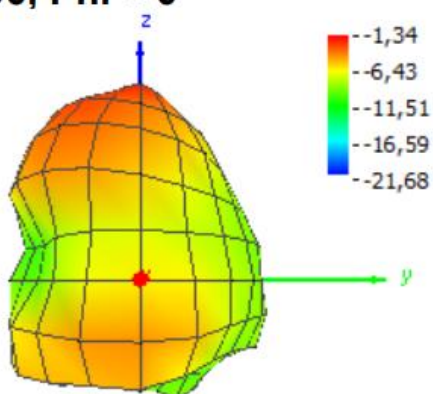
Theta = 0, Phi = 0



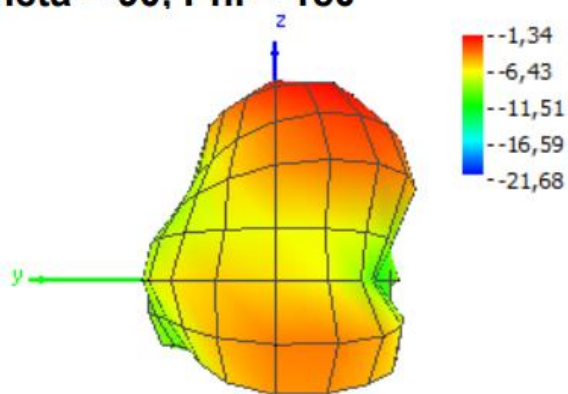
Theta = 180, Phi = 0



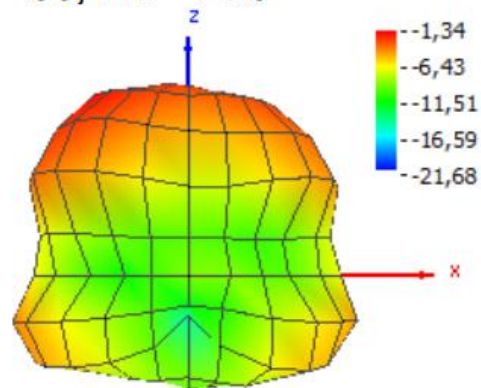
Theta = 90, Phi = 0



Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90

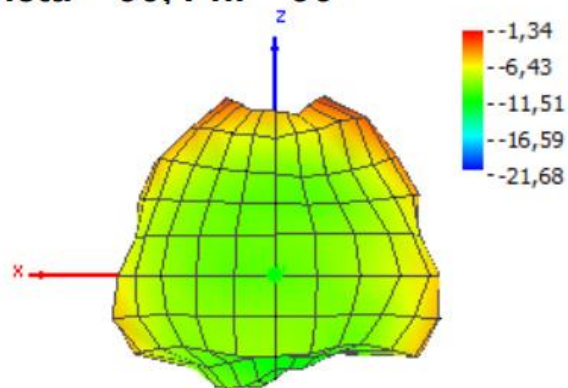
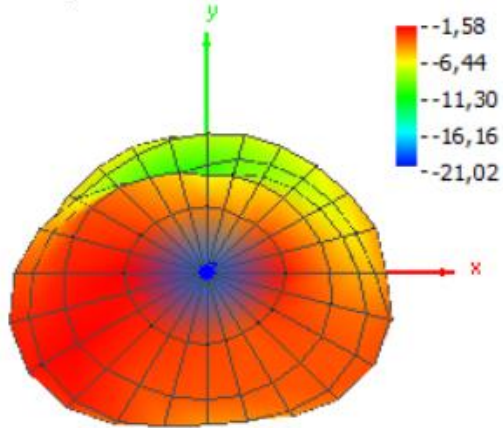
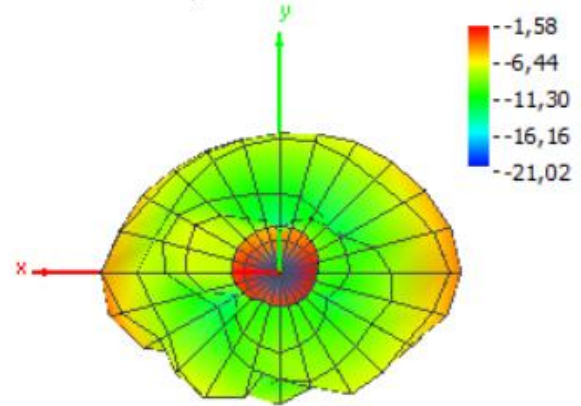


Table 2: MAYA-W3 PCB trace antenna radiation patterns at 2.442 GHz

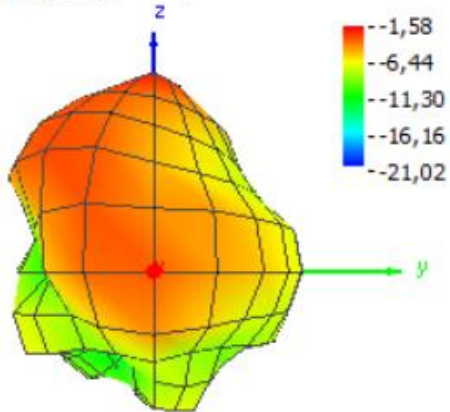
Theta = 0, Phi = 0



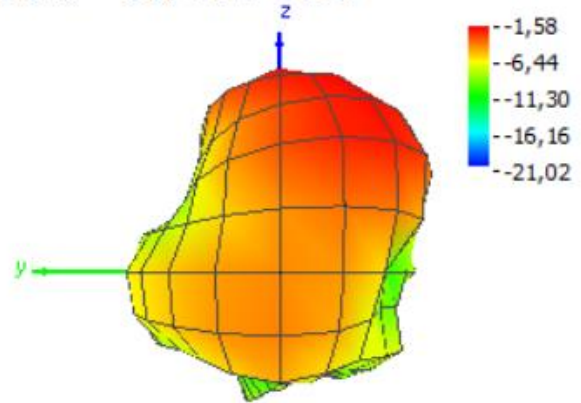
Theta = 180, Phi = 0



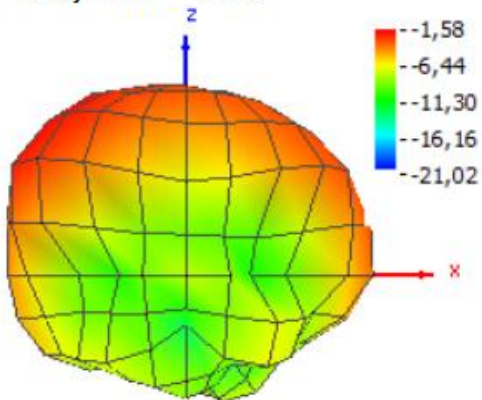
Theta = 90, Phi = 0



Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90

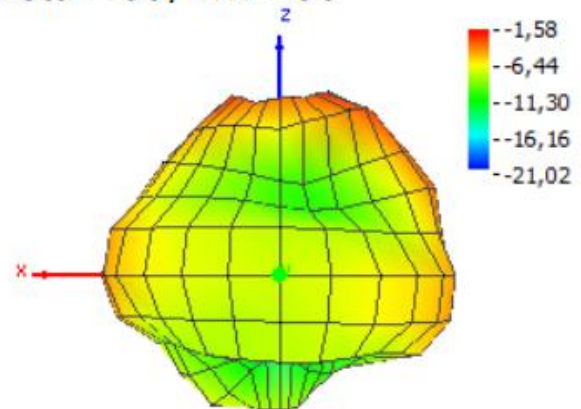
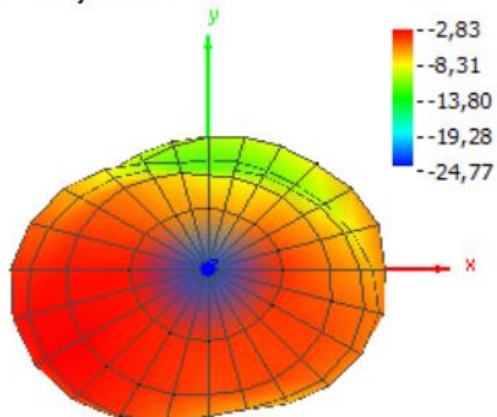
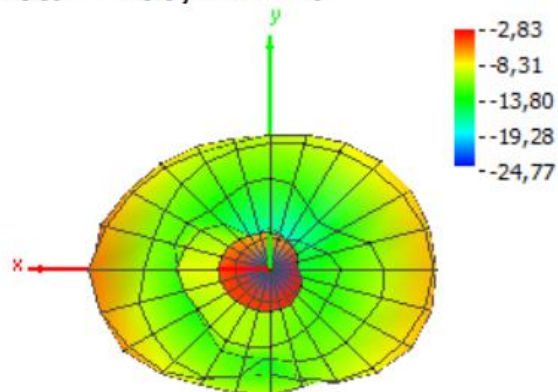


Table 3: MAYA-W3 PCB trace antenna radiation patterns at 2.472 GHz

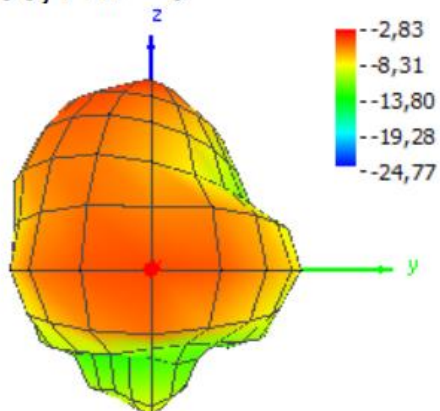
Theta = 0, Phi = 0



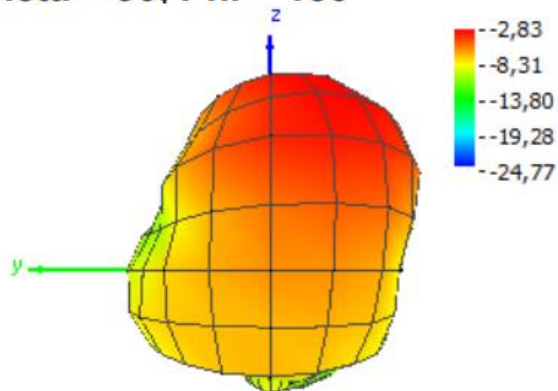
Theta = 180, Phi = 0



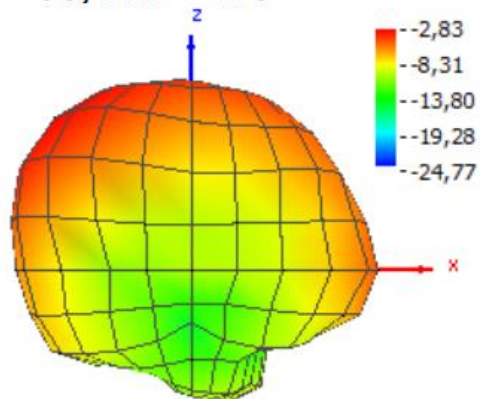
Theta = 90, Phi = 0



Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90

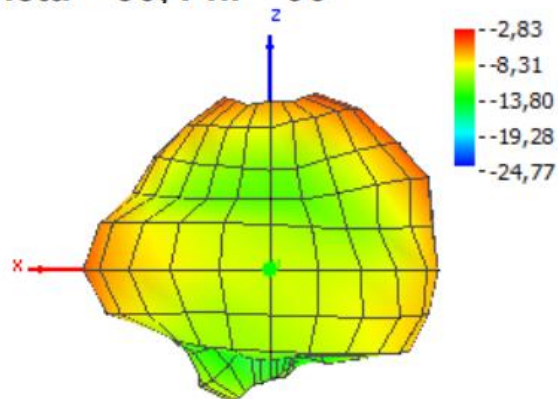
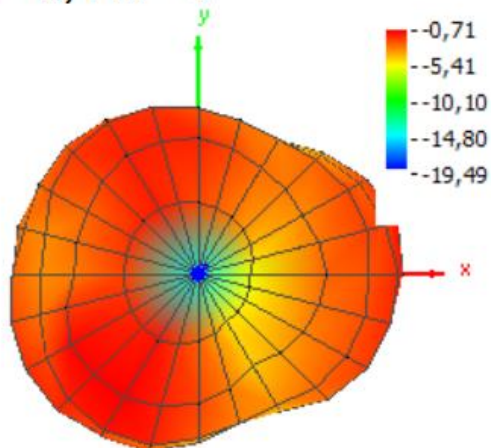
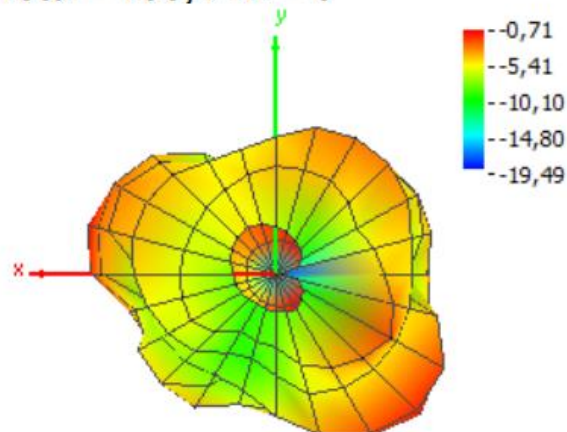


Table 4: MAYA-W3 PCB trace antenna radiation patterns at 5.180 GHz

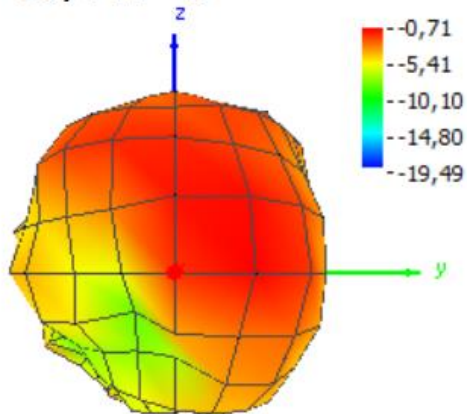
Theta = 0, Phi = 0



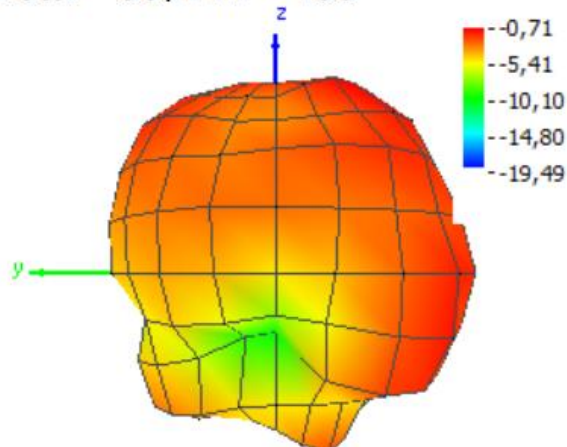
Theta = 180, Phi = 0



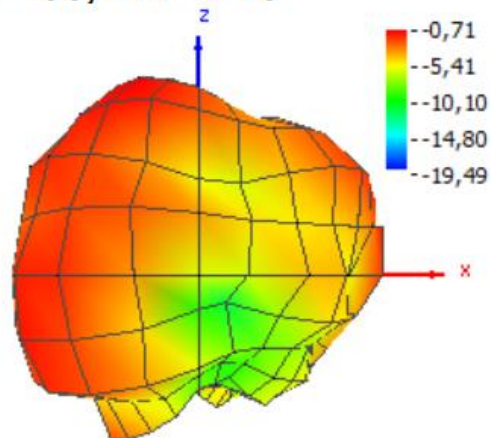
Theta = 90, Phi = 0



Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90

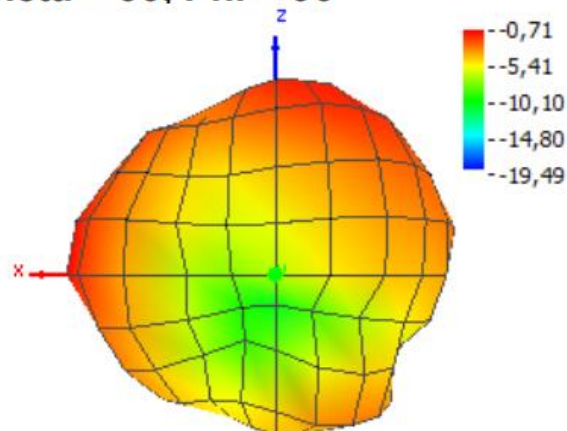


Table 5: MAYA-W3 PCB trace antenna radiation patterns at 5.500 GHz

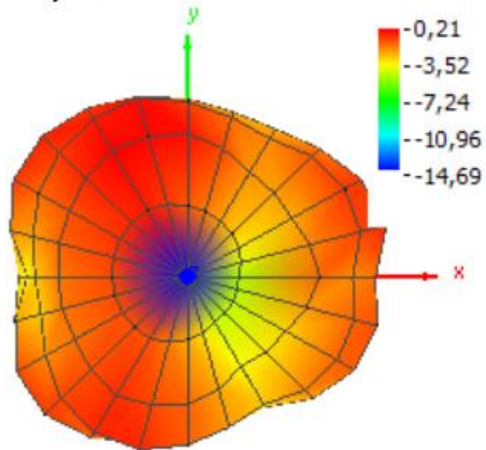
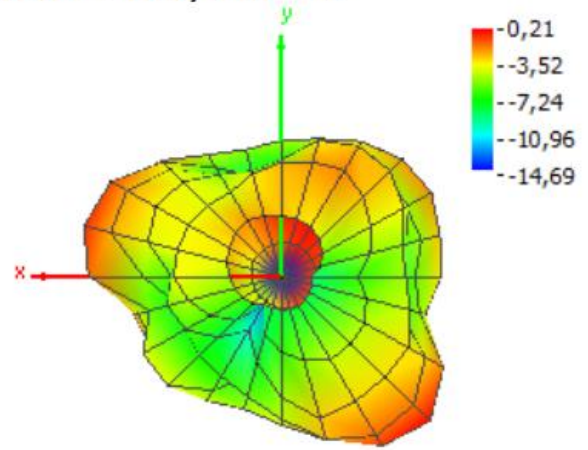
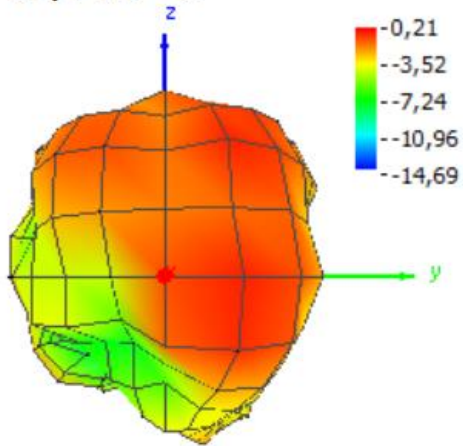
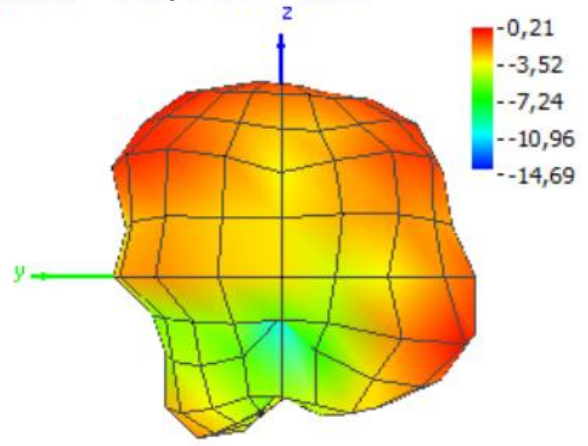
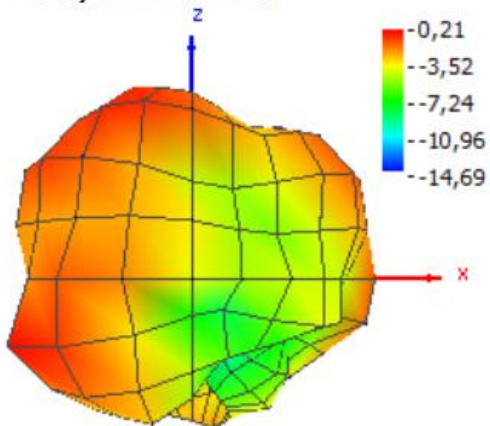
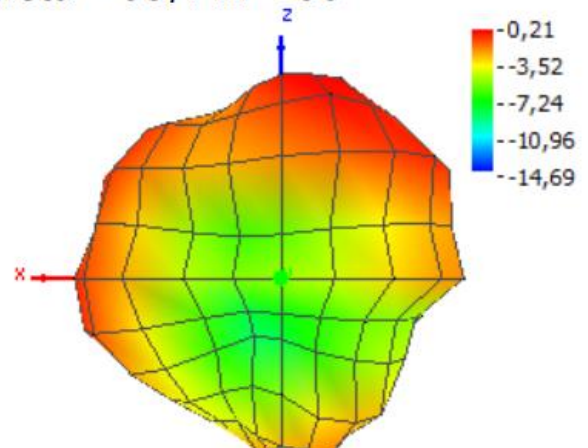
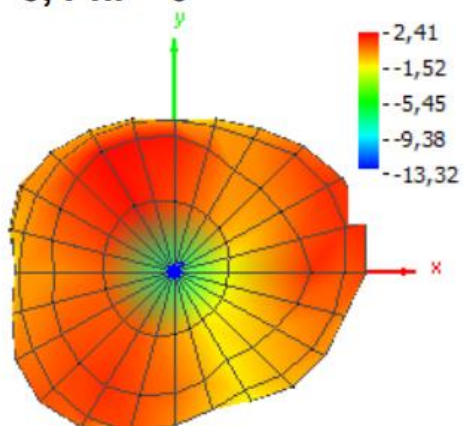
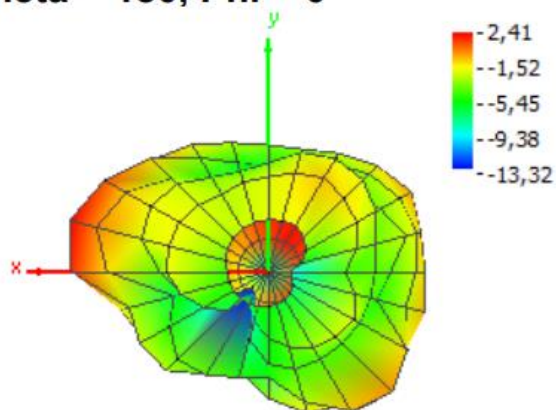
Theta = 0, Phi = 0

Theta = 180, Phi = 0

Theta = 90, Phi = 0

Theta = 90, Phi = 180

Theta = 90, Phi = 270

Theta = 90, Phi = 90


Table 6: MAYA-W3 PCB trace antenna radiation patterns at 5.825 GHz

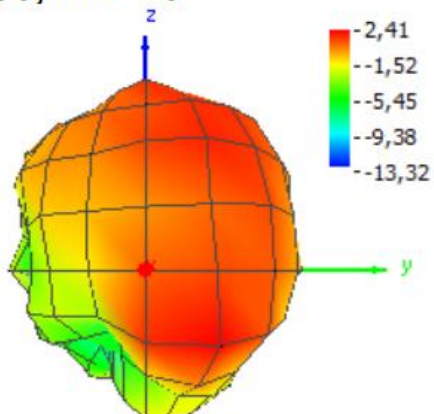
Theta = 0, Phi = 0



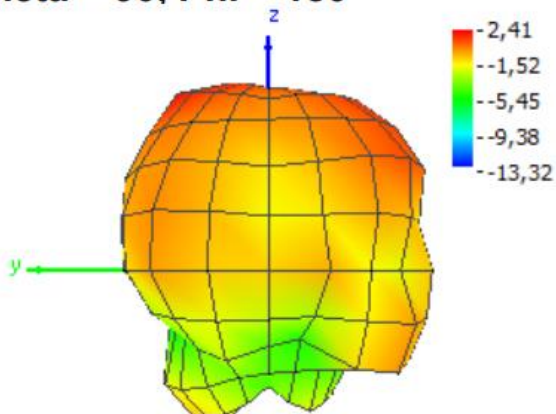
Theta = 180, Phi = 0



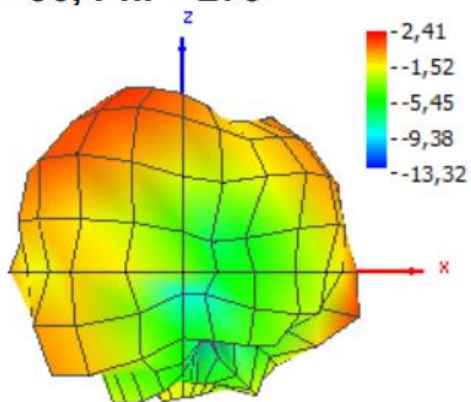
Theta = 90, Phi = 0



Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90

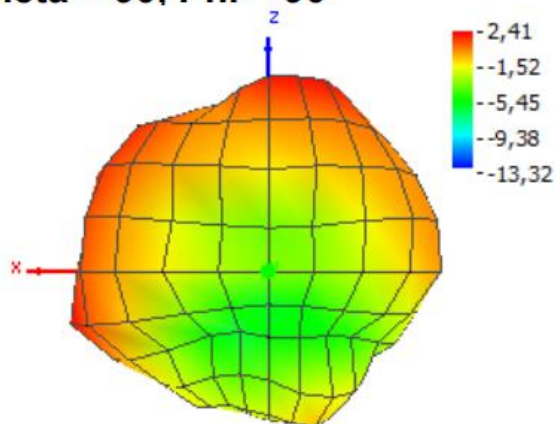
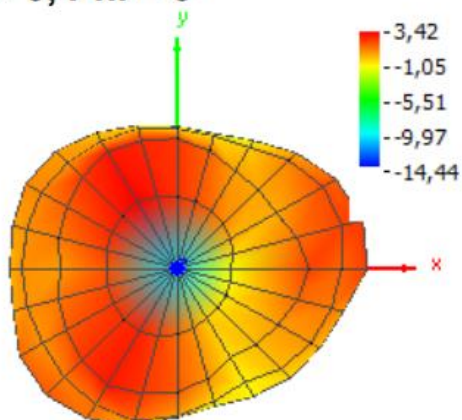
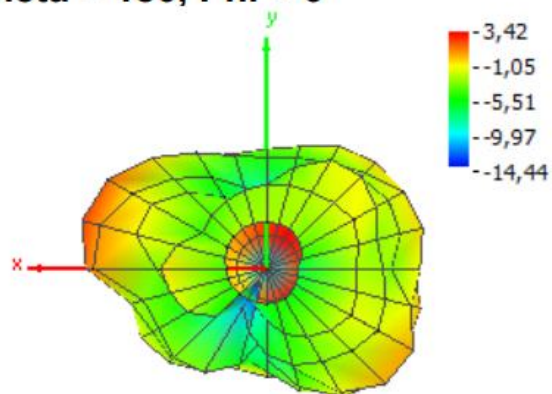


Table 7: MAYA-W3 PCB trace antenna radiation patterns at 6.075 GHz

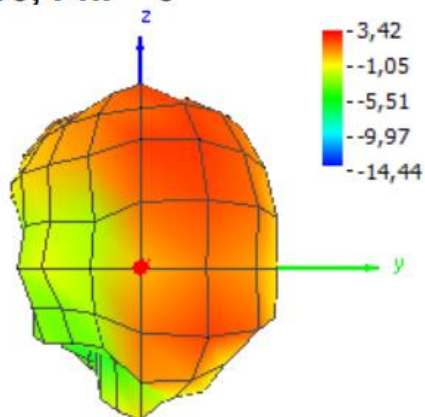
Theta = 0, Phi = 0



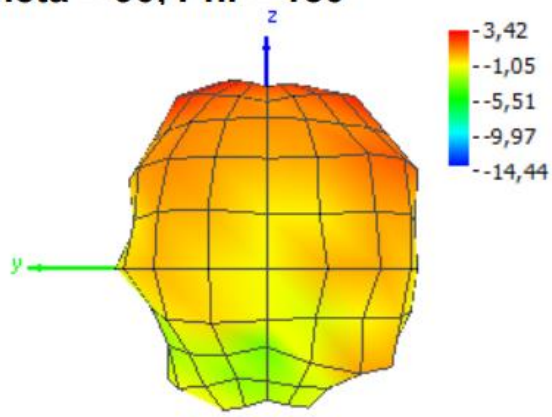
Theta = 180, Phi = 0



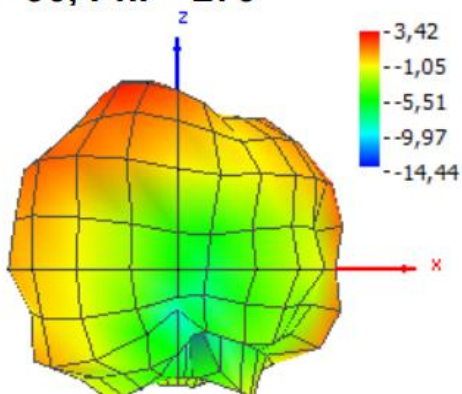
Theta = 90, Phi = 0



Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90

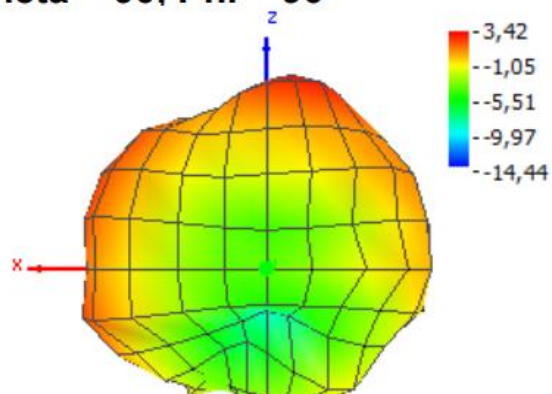
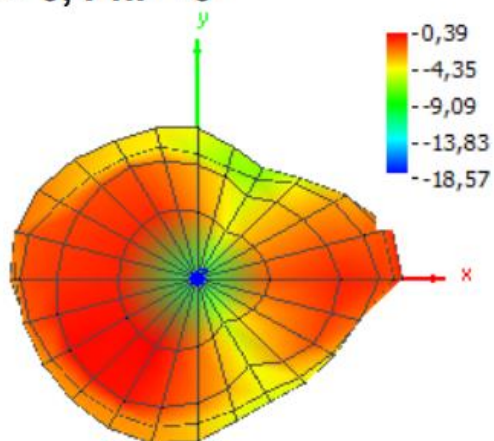
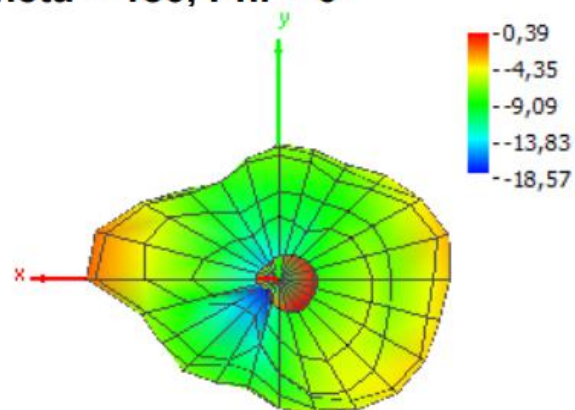
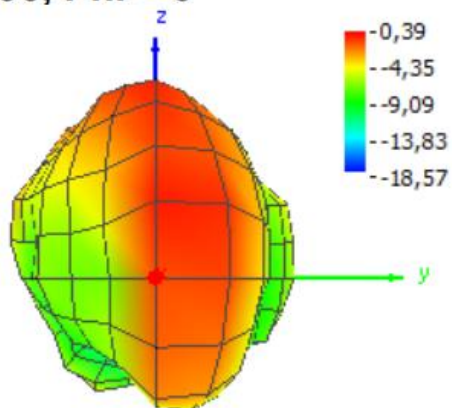
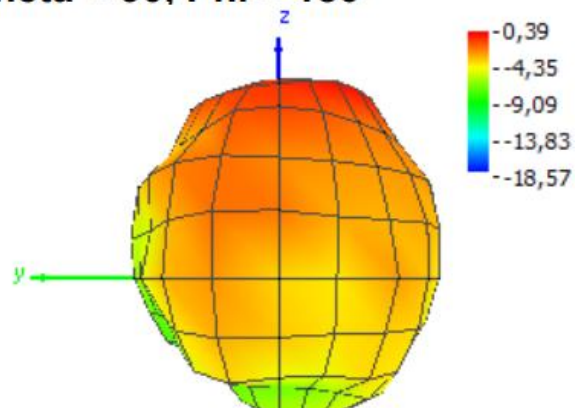
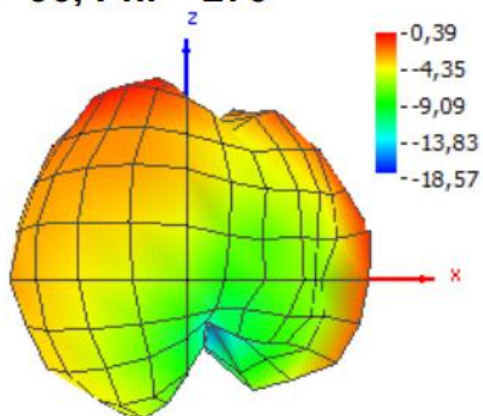
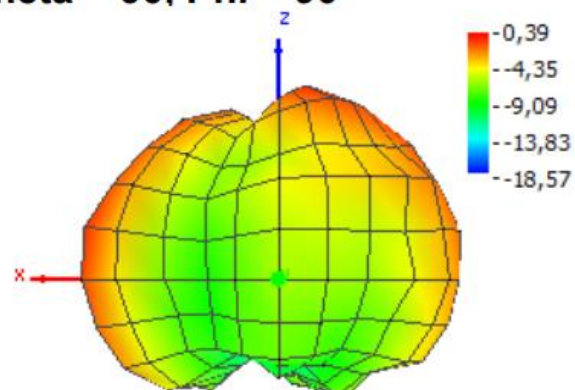


Table 8: MAYA-W3 PCB trace antenna radiation patterns at 7.115 GHz

Theta = 0, Phi = 0

Theta = 180, Phi = 0

Theta = 90, Phi = 0

Theta = 90, Phi = 180

Theta = 90, Phi = 270

Theta = 90, Phi = 90


3 Dates

Date of test	25/10/2024
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4 Manufacturer

u-blox AG
Zürcherstrasse 68
8800 Thalwil
Switzerland