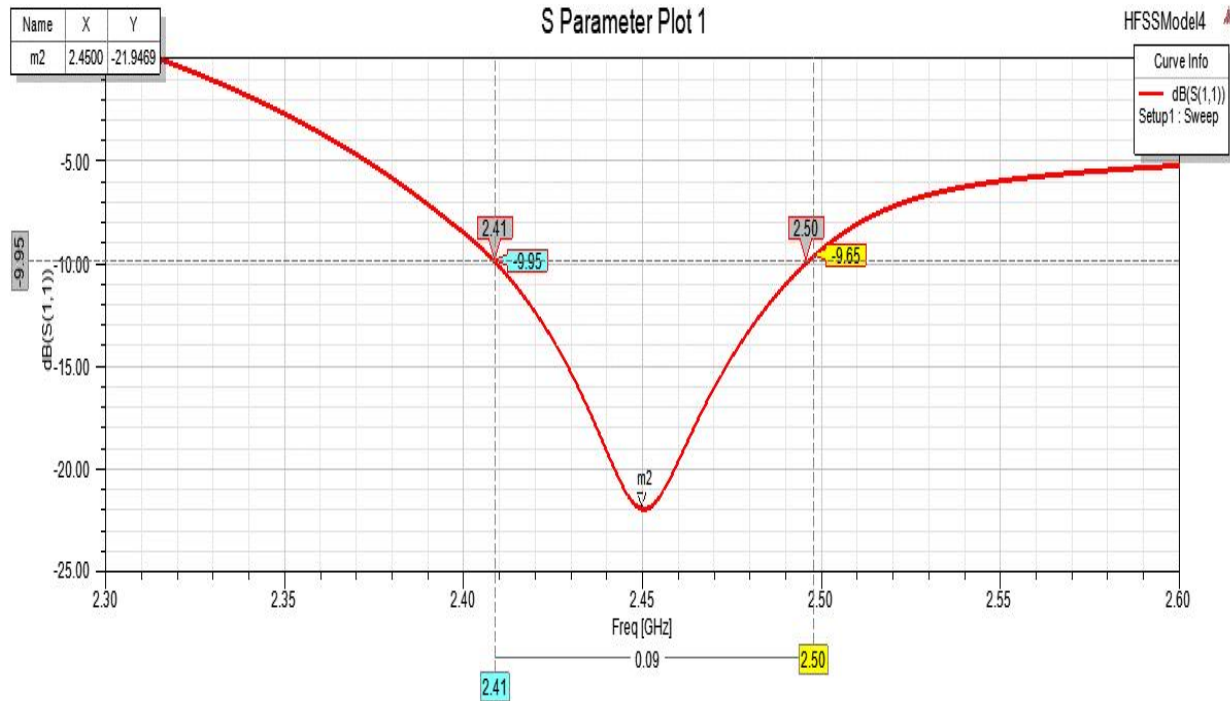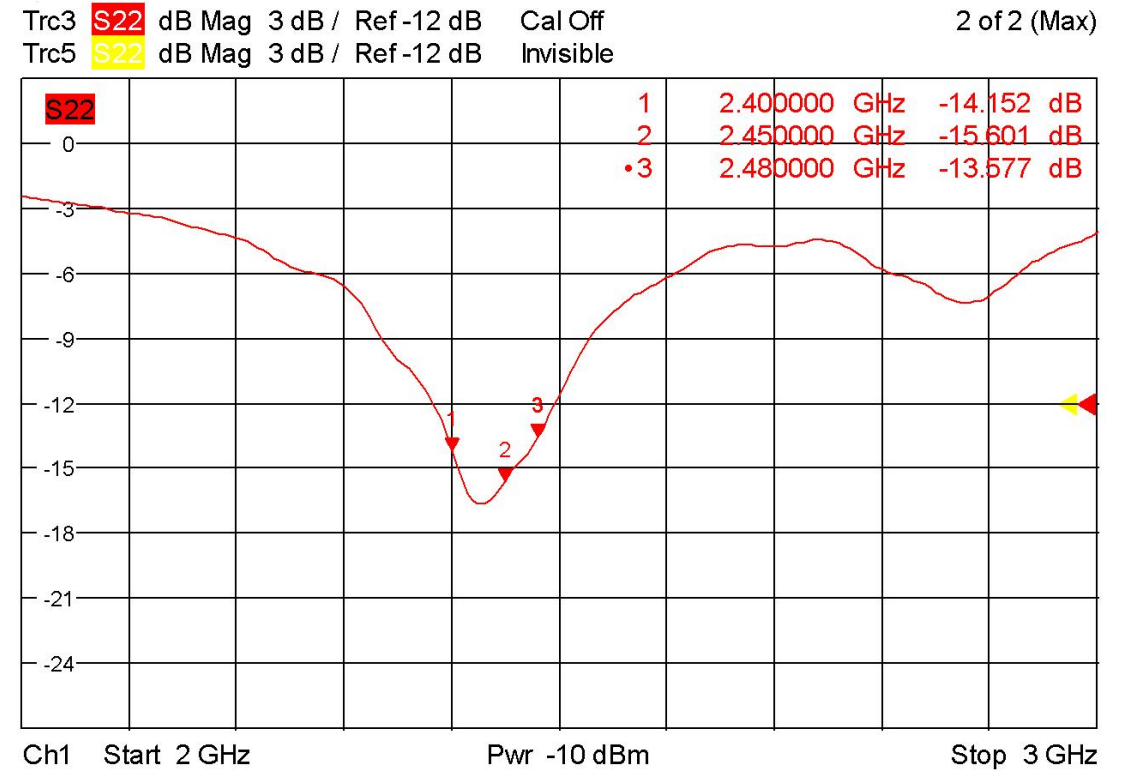# BLE ANTENNA SPECIFICATION

XUN GONG– 15. 07.2022

- Antenna Manufacturer：Marquardt GmbH
- Manufacturer Address：Schloss-str.16,78604 Rietheim- Weilheim,Germany
- BLE Ant Model：MQBANTK
- Antenna Type：PCB Antenna
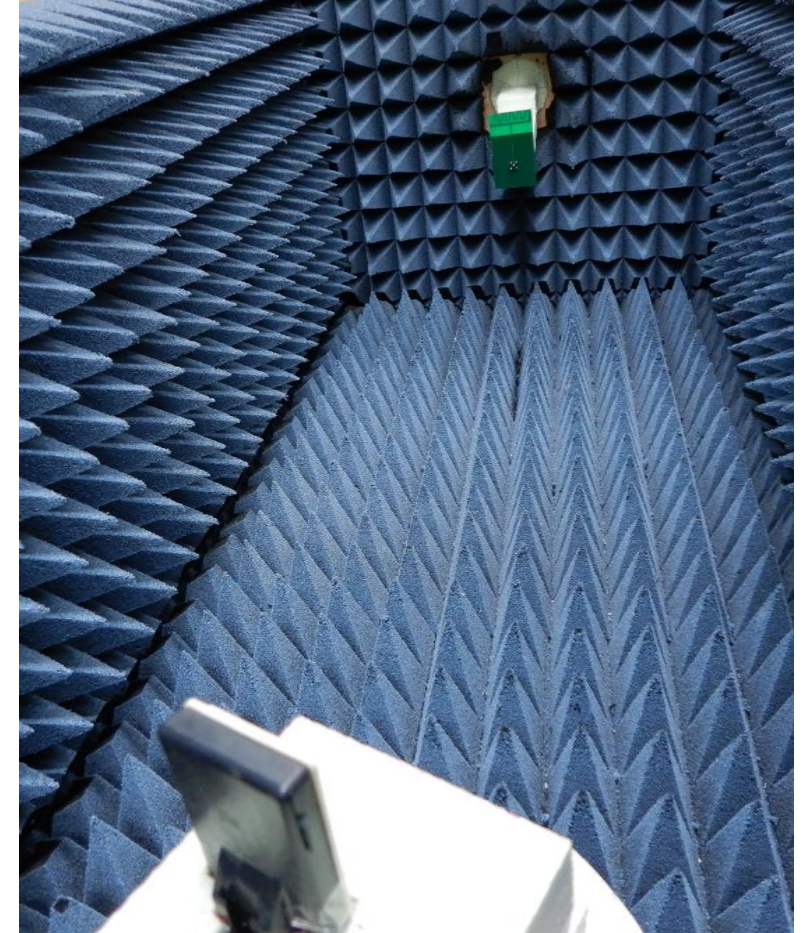- Antenna size：13.2mm*5.4mm

SIMULATION VS. MEASURMENTS

Simulation

Measurement

Comperable results => equal behavior
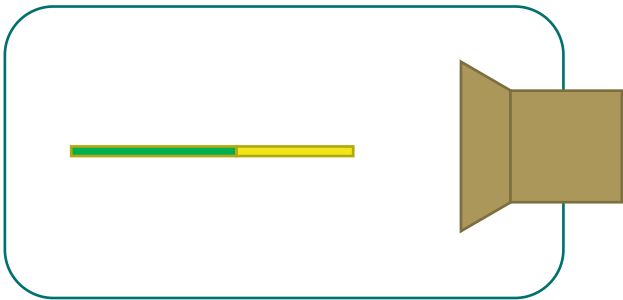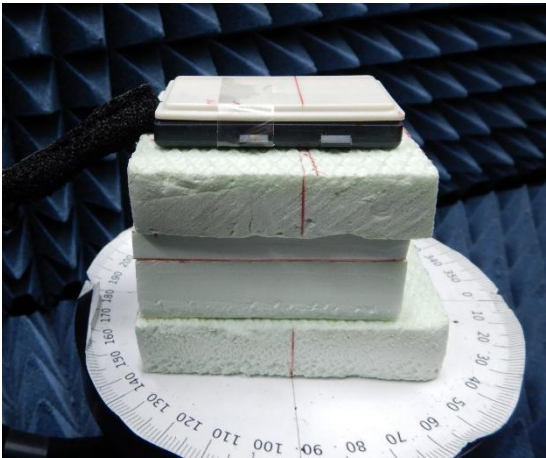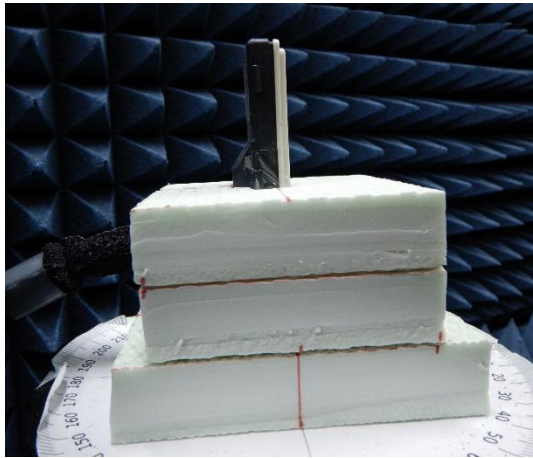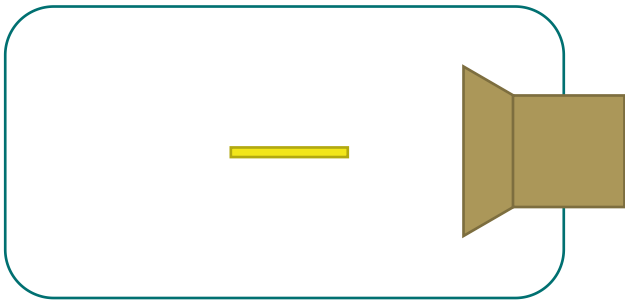
MEASUREMENT SETUP

- Measurements are done inside a anachonic chamber.

- As reference a PCB antenna is used

- The measured parameter is S_{21} (mag) => 2 Port VNA

- The VNA is calibrated on the two feeding points of the antennas (reference and DUT)

- The antenna pattern of the xy-, xz-, yz-planes is calculated
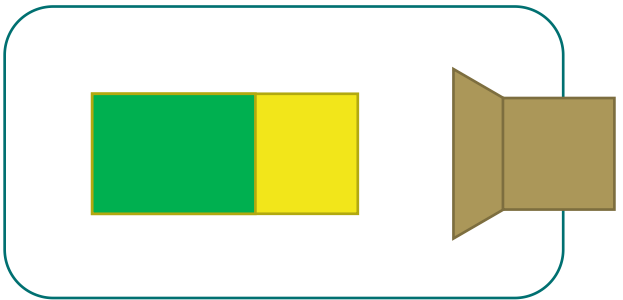
- Stepsize => 3°
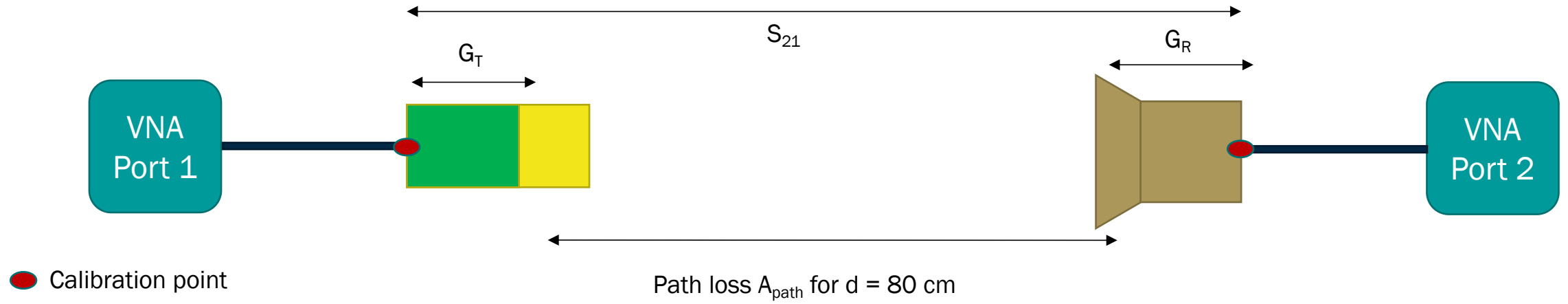
SAMPLE ORIENTATIONS

xz - plane

yz - plane

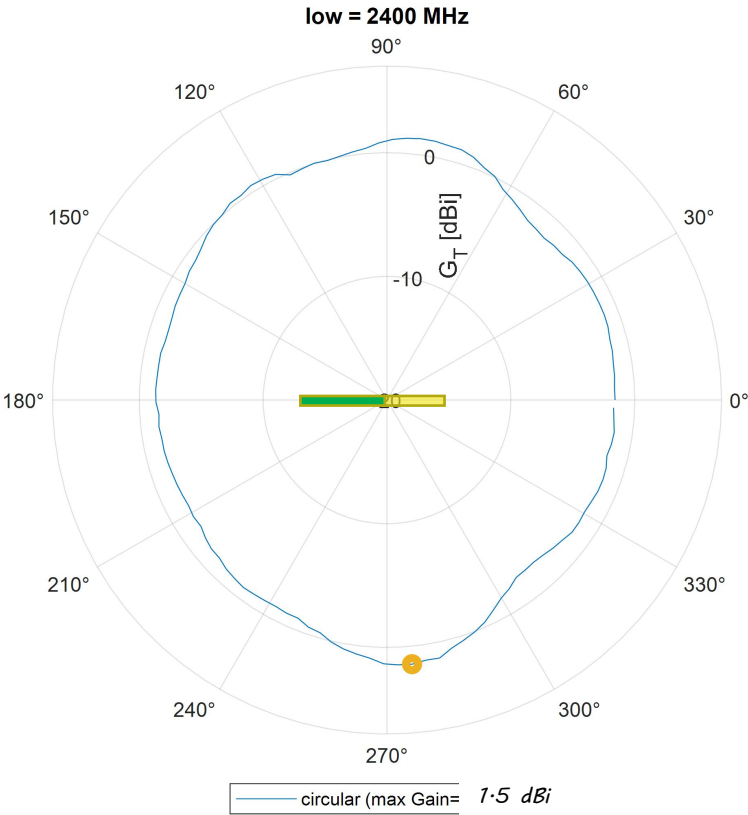xy - plane

CALCULATION OF THE ANTENNA GAIN
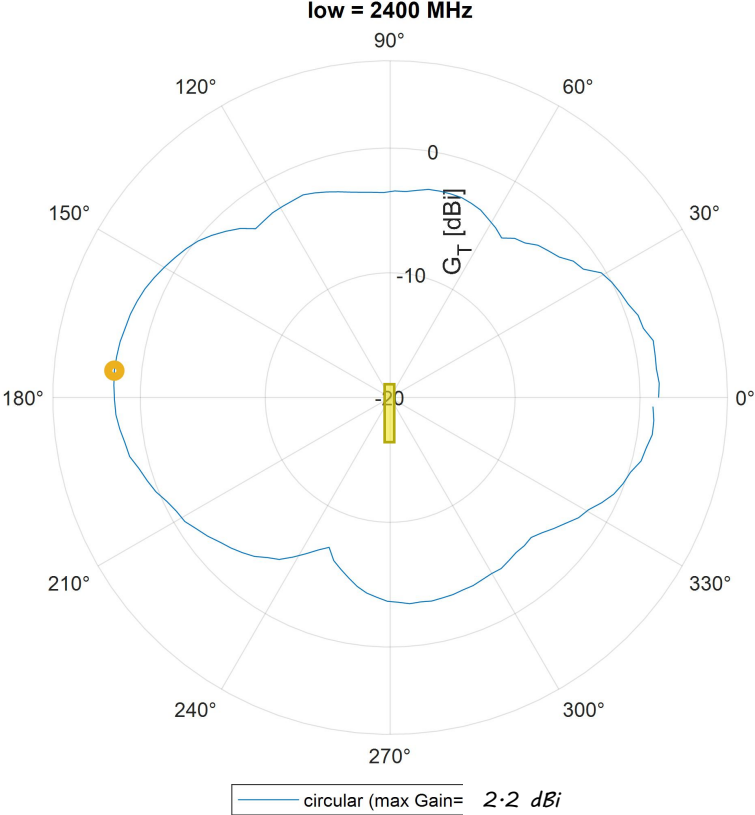

$$G_T = S_{21} - G_R - A_{path}$$

- A_{path} = friis path loss
- S_{21} = measured with VNA
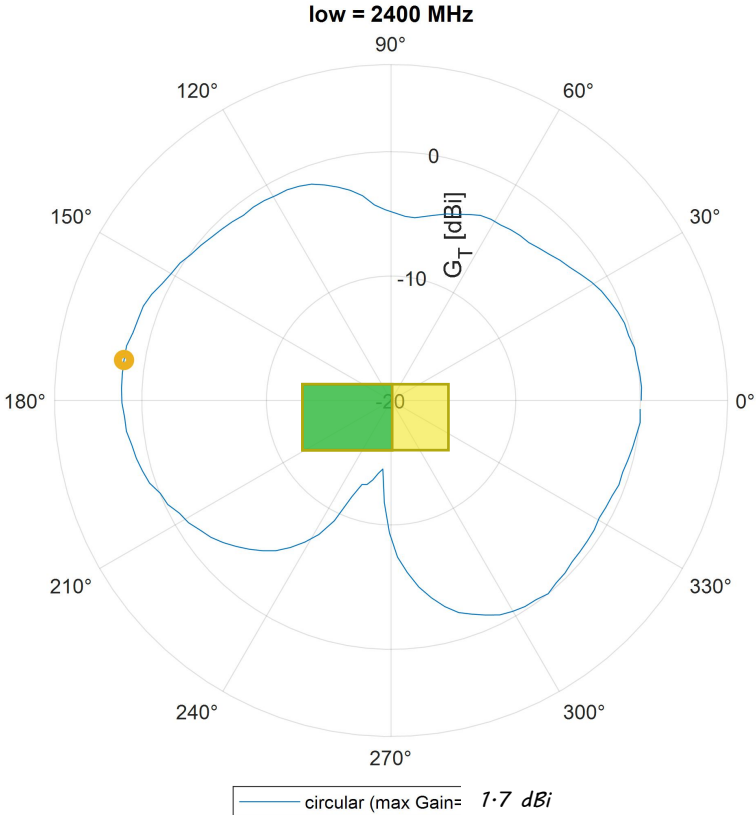- G_R = gain of reference antenna

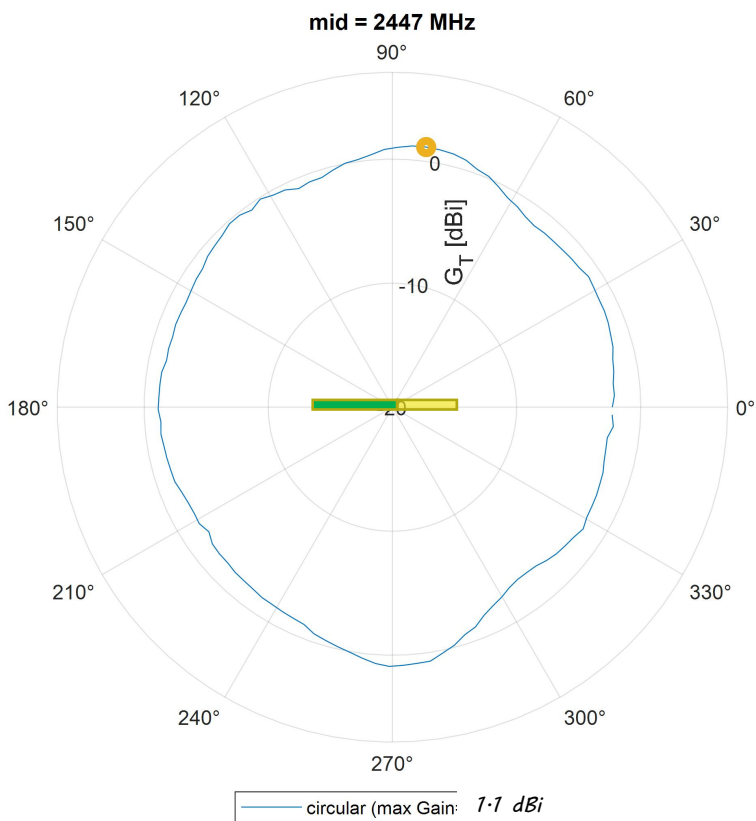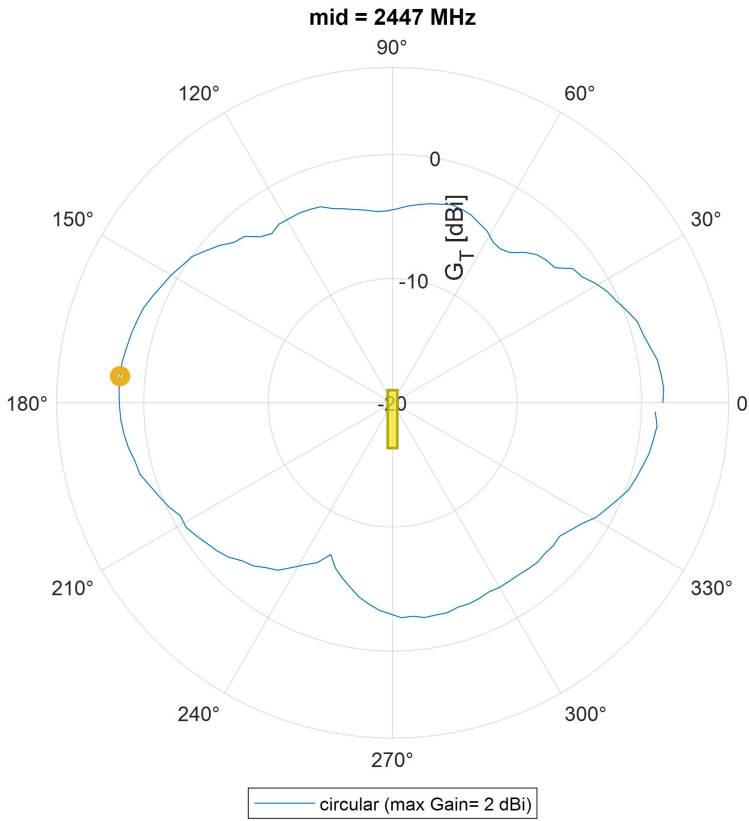# LOW – CIRCULAR (TOTAL GAIN)

xz - plane
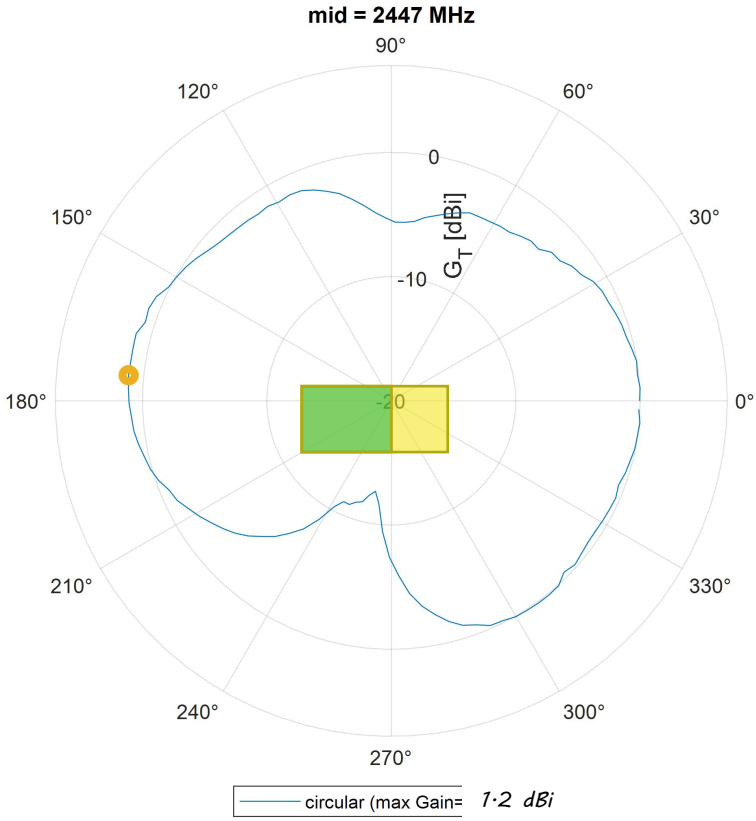
yz - plane

xy - plane
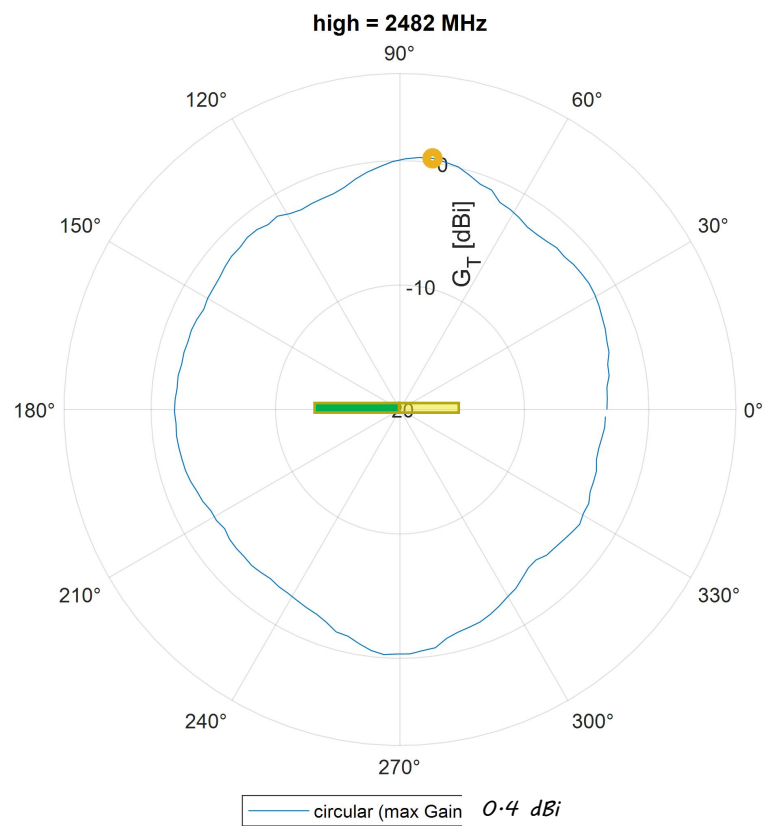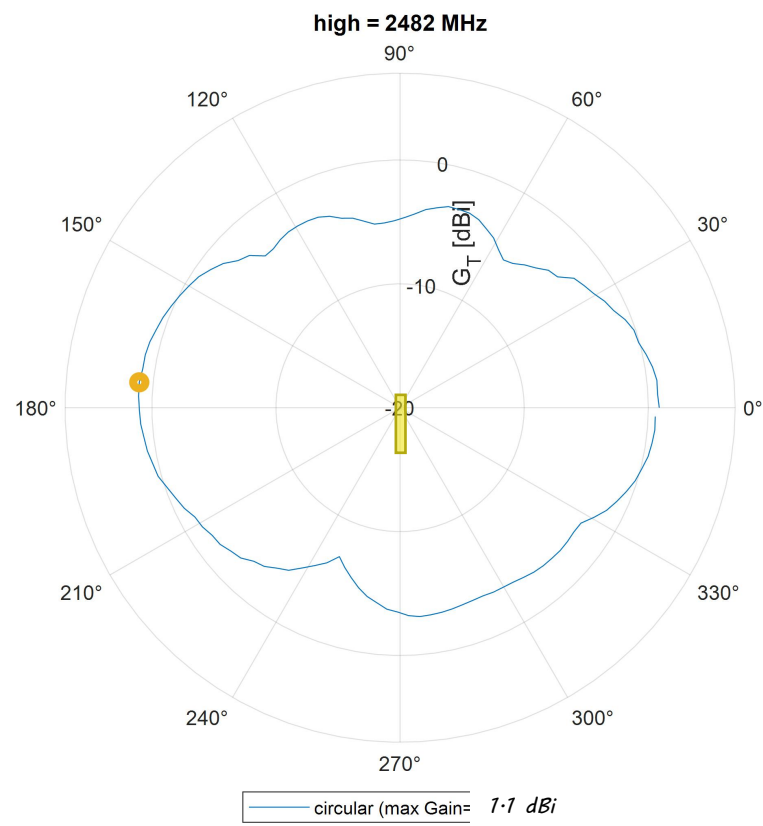
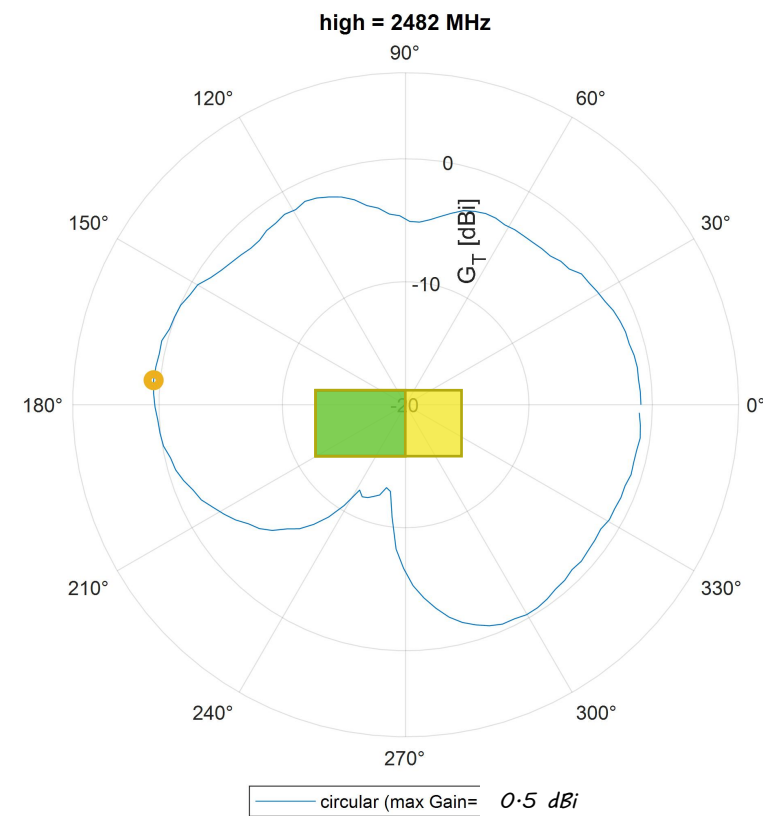# MID – CIRCULAR (TOTAL GAIN)

xz - plane

yz - plane

xy - plane

HIGH – CIRCULAR (TOTAL GAIN)

high = 2482 MHz

circular (max Gain *0.4 dBi*

xz - plane

high = 2482 MHz

circular (max Gain= *1.1 dBi*

yz - plane

high = 2482 MHz

circular (max Gain= *0.5 dBi*

xy - plane

Max Gain = 2.2dBi

BLE:14.499 mm*4.9mm

UWB:2.545mm*7.585mm

BLE:14.499mm*4.9mm

UWB:2.545mm*7.585mm