

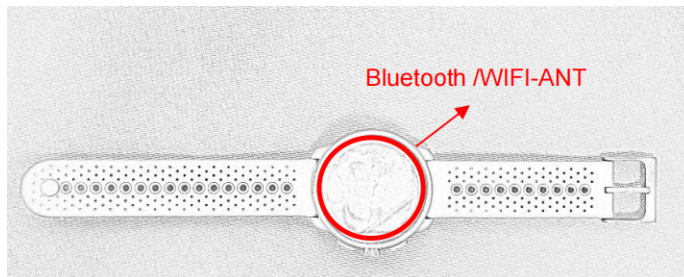
Radiation pattern and Antenna system description

Manufacturer: Suunto Oy
Product model: OW233

Eero Varjonen 16.2.2024

Antenna system structure OW233

- Antenna system consists of a radiator, connection elements and a ground plane.
- Bezel is utilized as the radiating element for all protocols (Dualband GNSS&BLE/WLAN)
- Radiator is connected to GNSS receiver, WLAN&BLE transceivers and PCB ground using galvanically connected clips between bezel and corresponding PCB connections.
- Bezel diameter 43.0mm, height 3.0mm



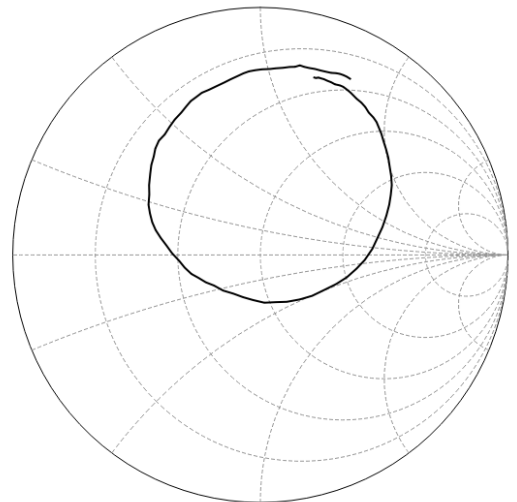
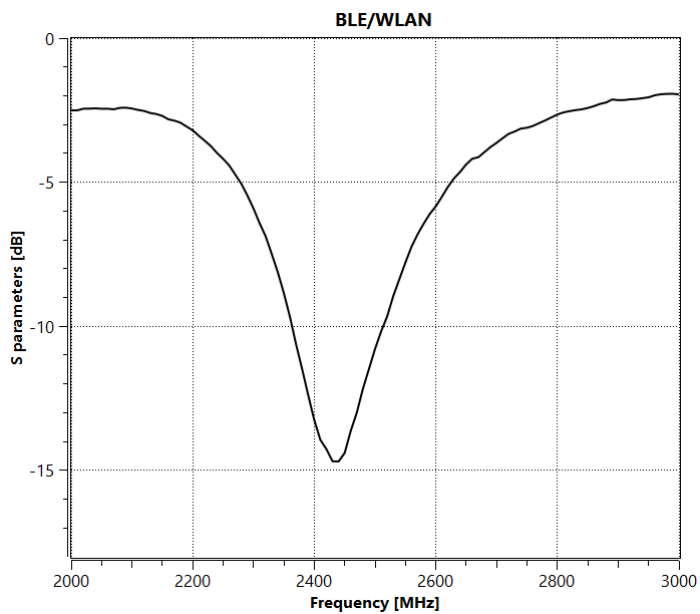
Radiation parameters

- BLE/WLAN 2.4 GHz antenna
 - Peak gain = -5.4 dBi
 - Efficiency = -9.6dB
 - Center frequency= 2442 MHz
 - Bandwidth = 85 MHz

- Dualband GNSS antenna L5-L1
 - L5 Center frequency = 1175 MHz
 - L1 Center frequency = 1575 MHz
 - L5 Bandwidth = 25 MHz
 - L1 Bandwidth = 55 MHz

 - L5 Peak gain = -8.8 dBi
 - L1 Peak gain = -7 dBi

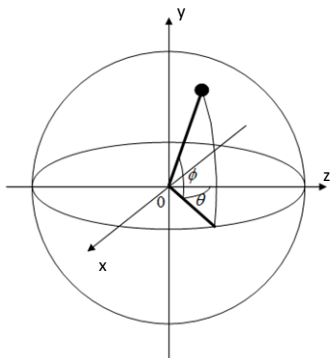
Impedance



Measurement



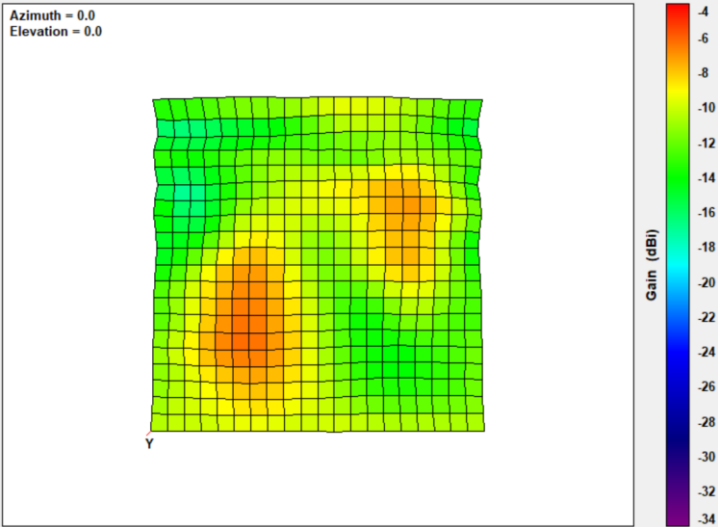
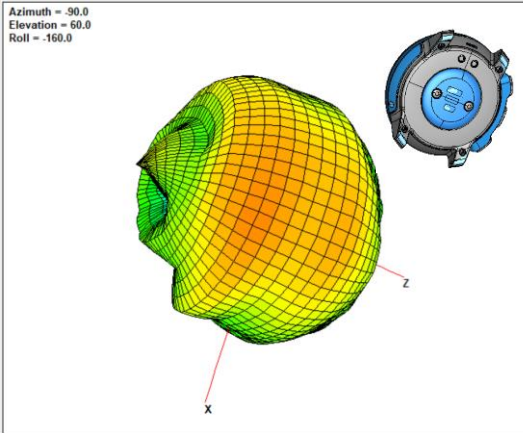
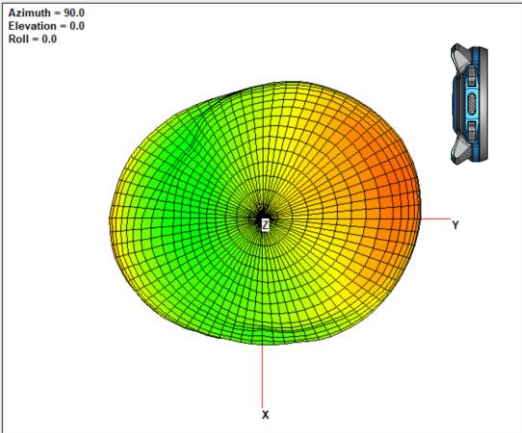
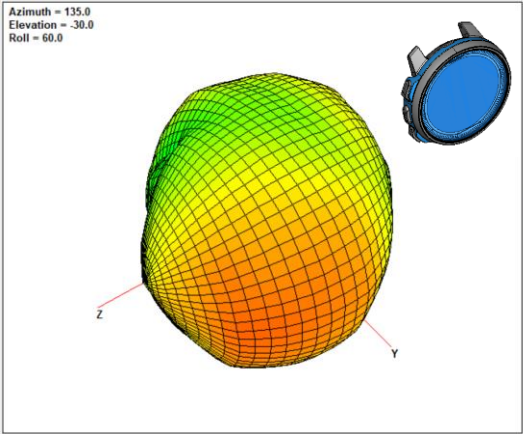
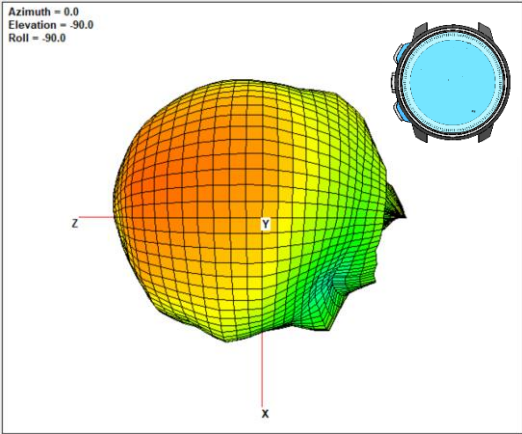
Measurement setup



Spherical polar coordinate system used. Measuring antenna is located along z-axis

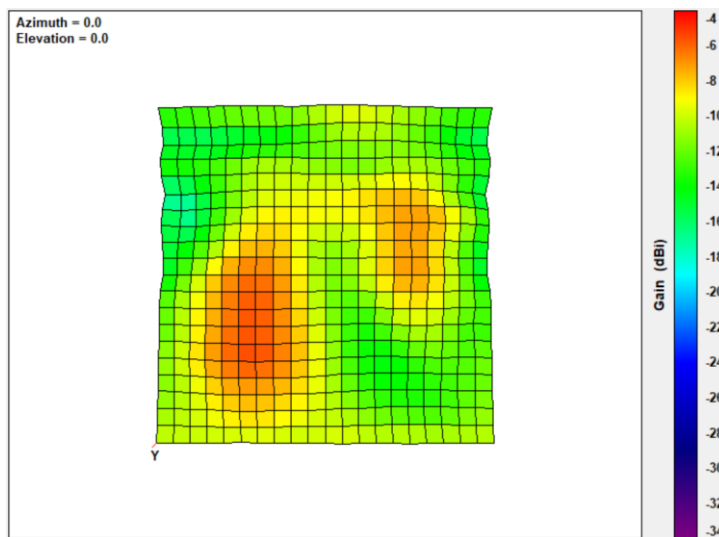
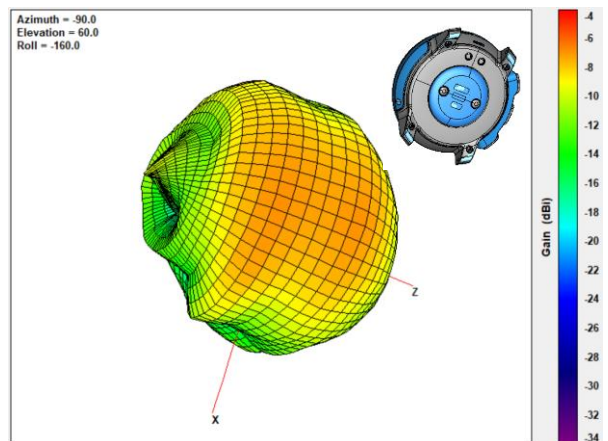
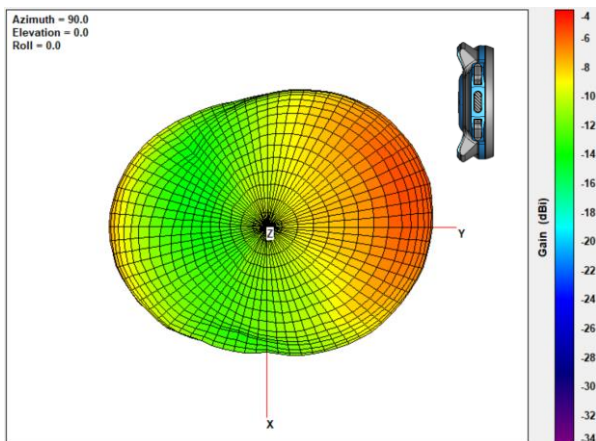
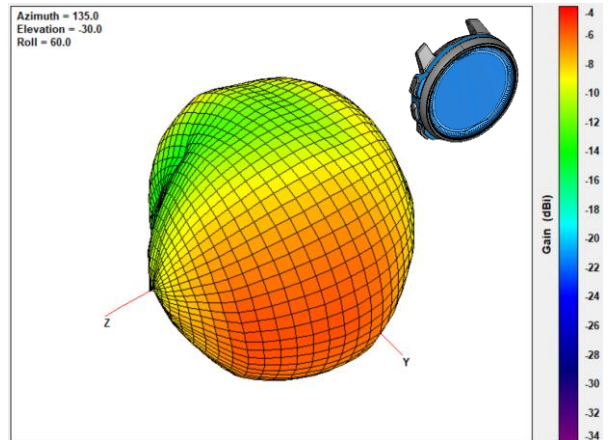
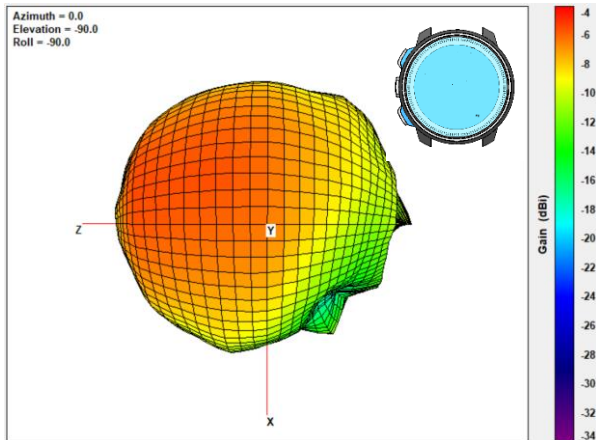
Coordinate system

Radiation pattern, 2400MHz



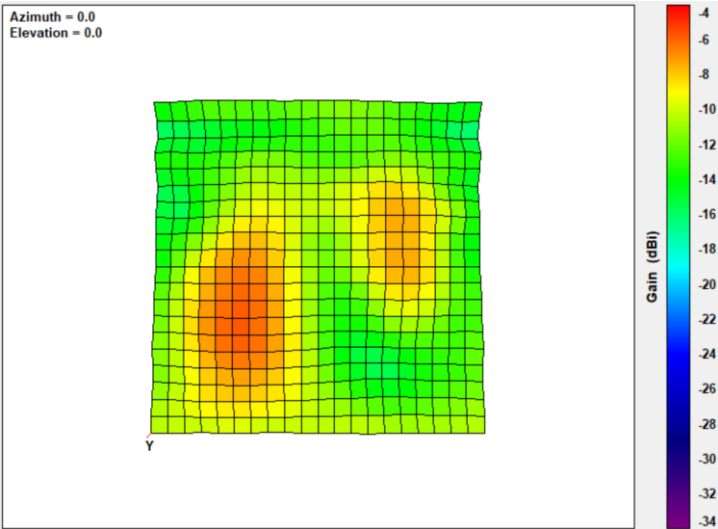
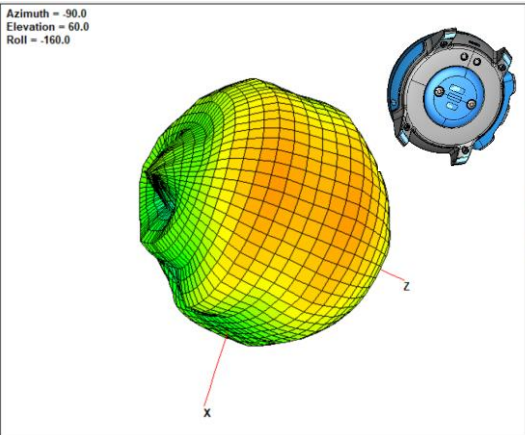
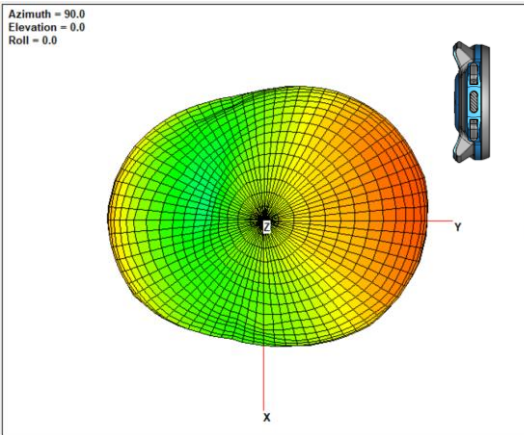
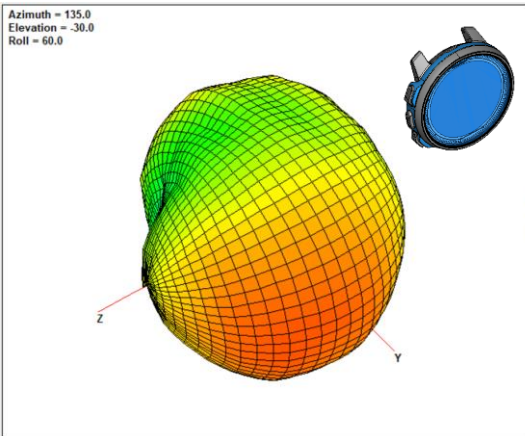
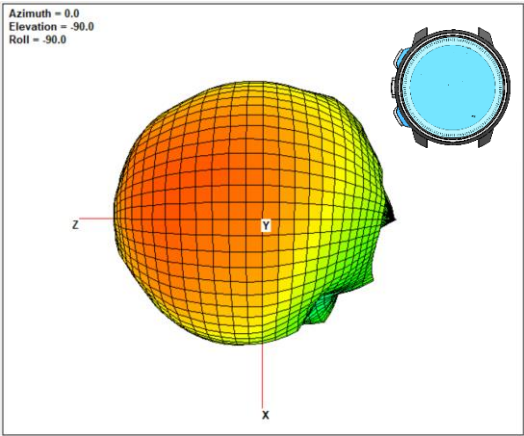
Peak gain -5.9dBi

Radiation pattern, 2440MHz



Peak gain -5.4dBi

Radiation pattern, 2480MHz



Peak gain -5.6dBi