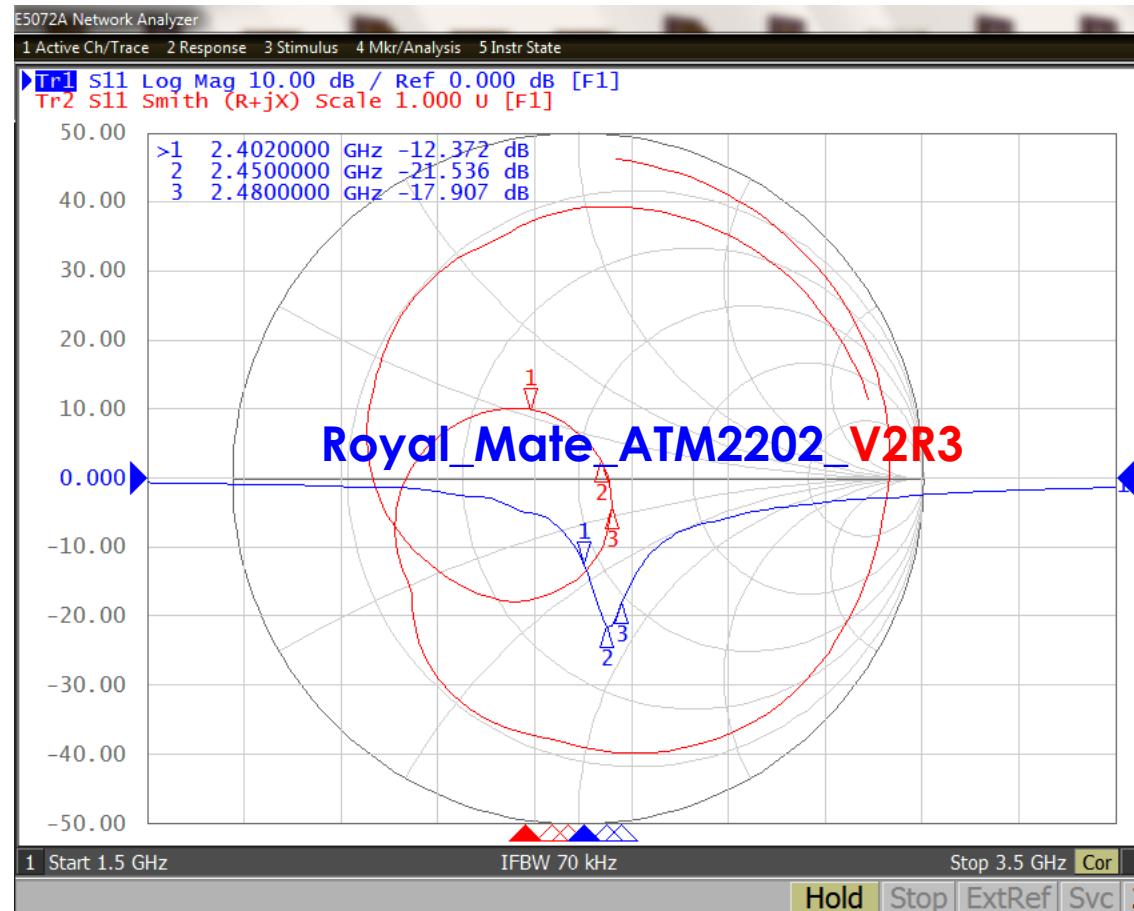


# Measured Return Loss and Antenna Efficiency

Antenna Performance of the Royal\_Mate\_ATM2202\_V2R3 (DVT).

## Return Loss



## Antenna Efficiency & Peak Gain

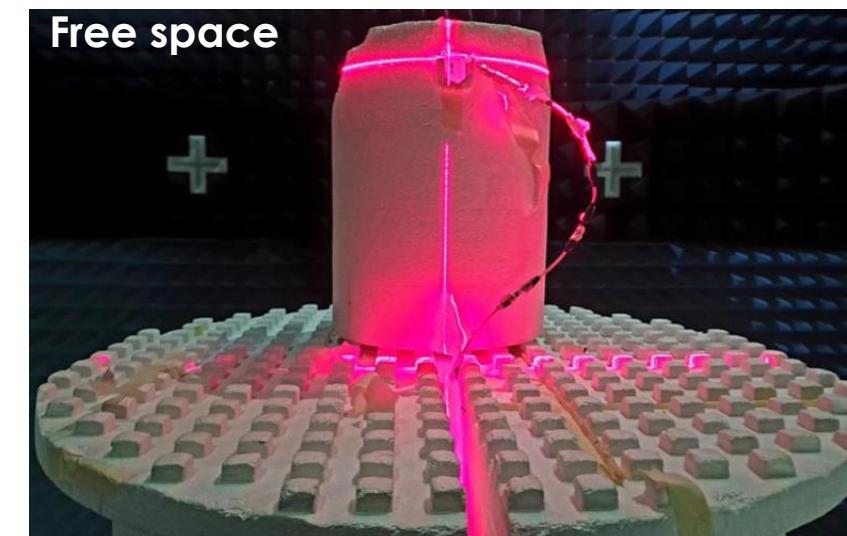
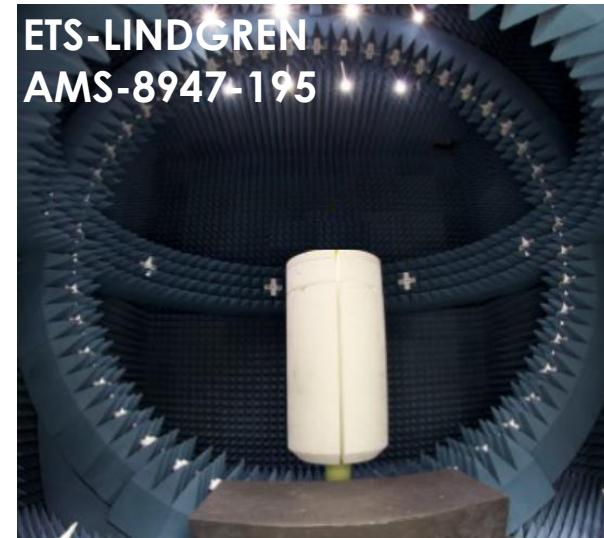
Frequency (MHz)	Efficiency (%)	Gain (dBi)
2400	63.11	0.71
2410	64.88	0.90
2420	65.08	0.96
2430	65.45	0.94
2440	66.32	1.18
2450	66.62	1.15
2460	66.69	1.10
2470	63.93	1.03
2480	60.42	0.84

Bluetooth® technology uses the 2.4 GHz ISM spectrum band (2400 to 2483.5 MHz)

# Performance Testing Items on OTA Testing system

Passive and Active Performance Test on Devices

- **OTA Testing system :**
  - ✓ ETS-LINDGREN AMS-8947-195.
- **Test condition :**
  - ✓ Measurement in free space.
- **Passive Antenna Performance Measurement:**
  - ✓ 3D radiation pattern
  - ✓ Efficiency
  - ✓ Peak gain
- **Active Antenna Performance Measurement :**
  - ✓ Bluetooth Low Energy (BLE) - Total radiated power (TRP)
- **Bluetooth Trackers Devices for test listed below :**
  - ✓ Tile's Royal\_Mate\_ATM2202\_V2R3
- **Info Bluetooth of Trackers Devices :**
  - ✓ Antenna type: integral
  - ✓ Antenna size: 18.5mmX7mmX10.5mm



# Measured 3-D Radiation Patterns at 2450MHz

“Royal\_Mate\_ATM2202\_V2R3” Antenna in free space.

**Royal  
(Mate)**

**BLE  
@2450MHz**

**X-Y Plane**

