



Quectel

Razer_Daisy Antenna Debugging Report

Reporter: Nico Pan
Tel: +86 18897660249
Email: nico.pan@quectel.com
Date: 2025.02.19

Build a Smarter World

Revision History



Revision	Date	Reporter	Reviewer	Note
V1.0	2024/12/25	Nico Pan	Ezail Tan	First antenna evaluation report.
V1.1	2025/01/03	Nico Pan	Ezail Tan	First antenna sample test.
V1.2	2025/01/06	Nico Pan	Ezail Tan	Antenna debugging report for another scheme.
V1.3	2025/01/09	Nico Pan	Ezail Tan	Antenna debugging after optimized structure.
V1.4	2025/02/19	Nico Pan	Ezail Tan	Debug the new antenna in the new equipment.



Project Overview

Product OC: Y4RRW0MA3AA
Antenna Performance Evaluation
Conclusion and Suggestion

Build a Smarter World



Project Overview



- Device Dimensions: 120*60*40mm
- Mainboard Dimensions: 105*45mm
- Antenna Quantity: 1
- Network Standard and Frequency Band:
 - ✓Wi-Fi 2.4G&BLE: 2400-2500 MHz
- Performance Requirements:
 - ✓Efficiency > 50%
 - ✓Peak Gain > 3 dBi



Project Overview

Antenna Performance Evaluation

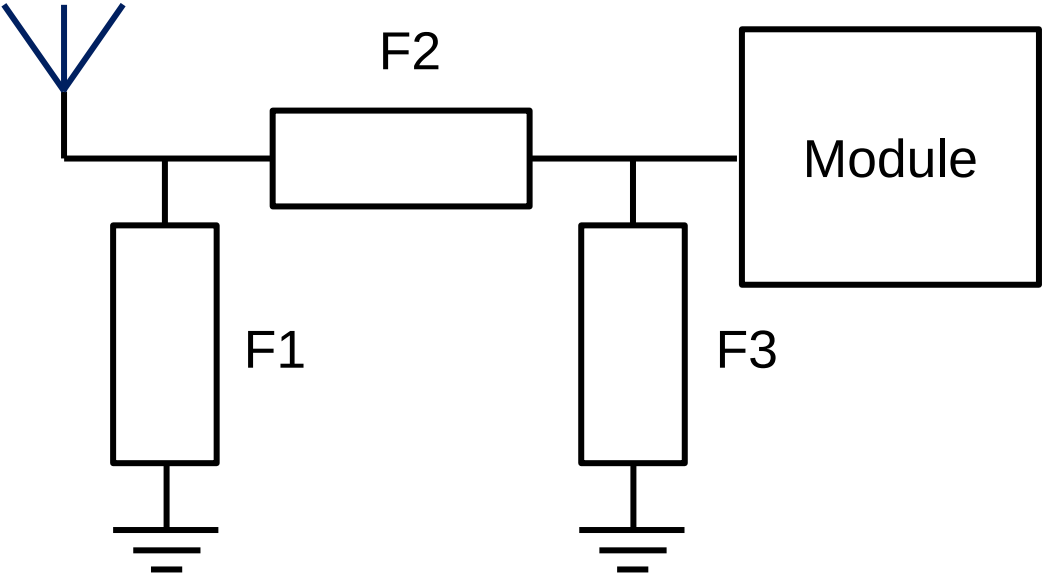
Conclusion and Suggestion

Build a Smarter World



- Matching Circuit Diagram

Antenna



- Match Value:

No.	L/C
F1	NA
F2	1.5pF
F3	1.8pF

Antenna Comparison Experiment



Wireless Mouse

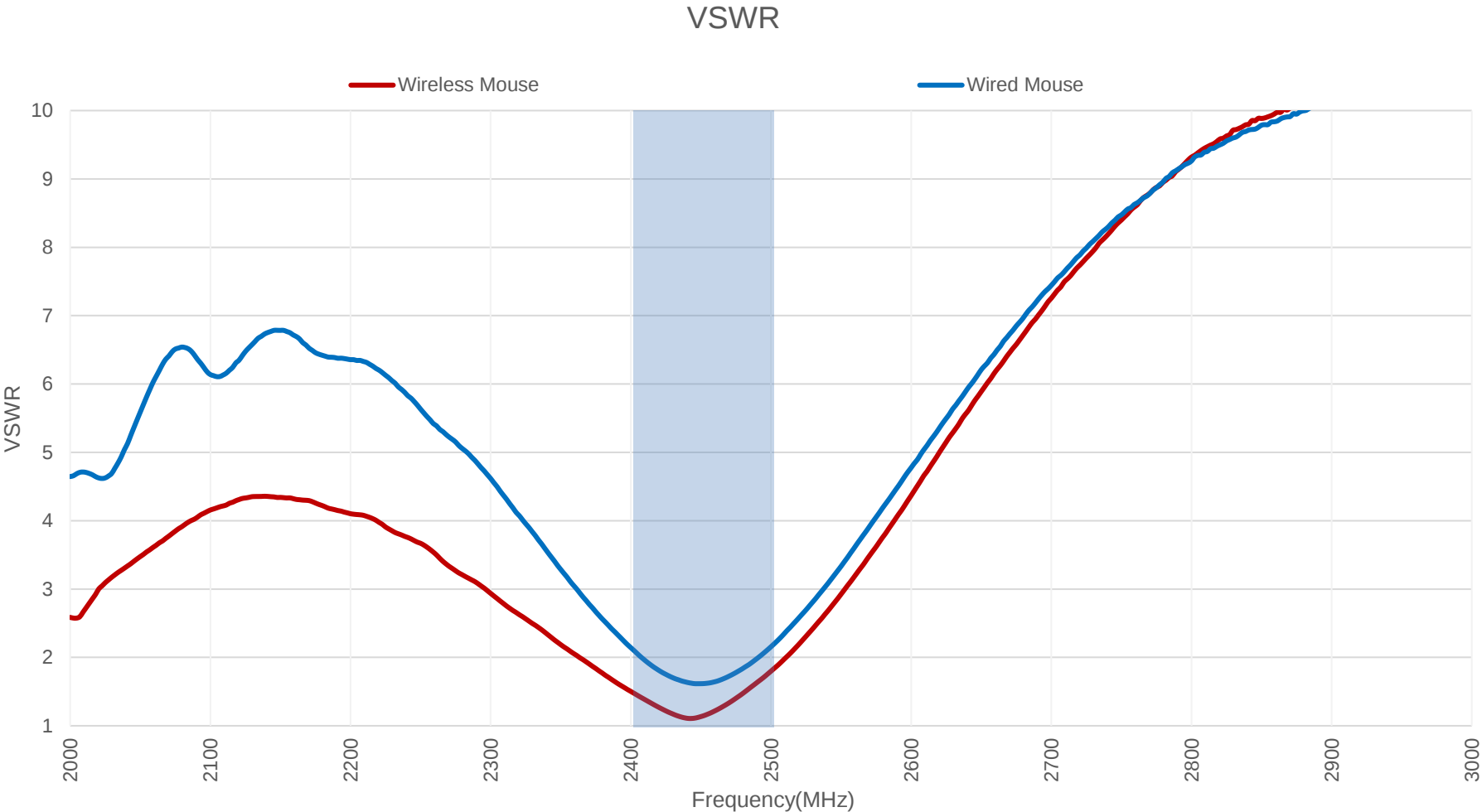


Wired Mouse

Passive Test

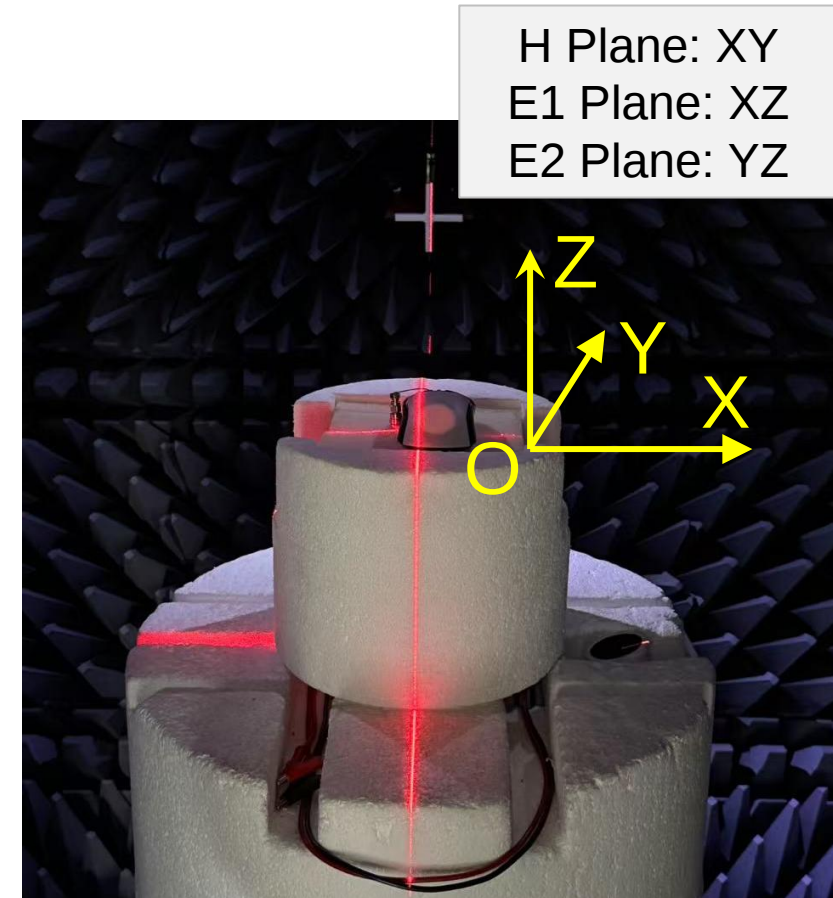
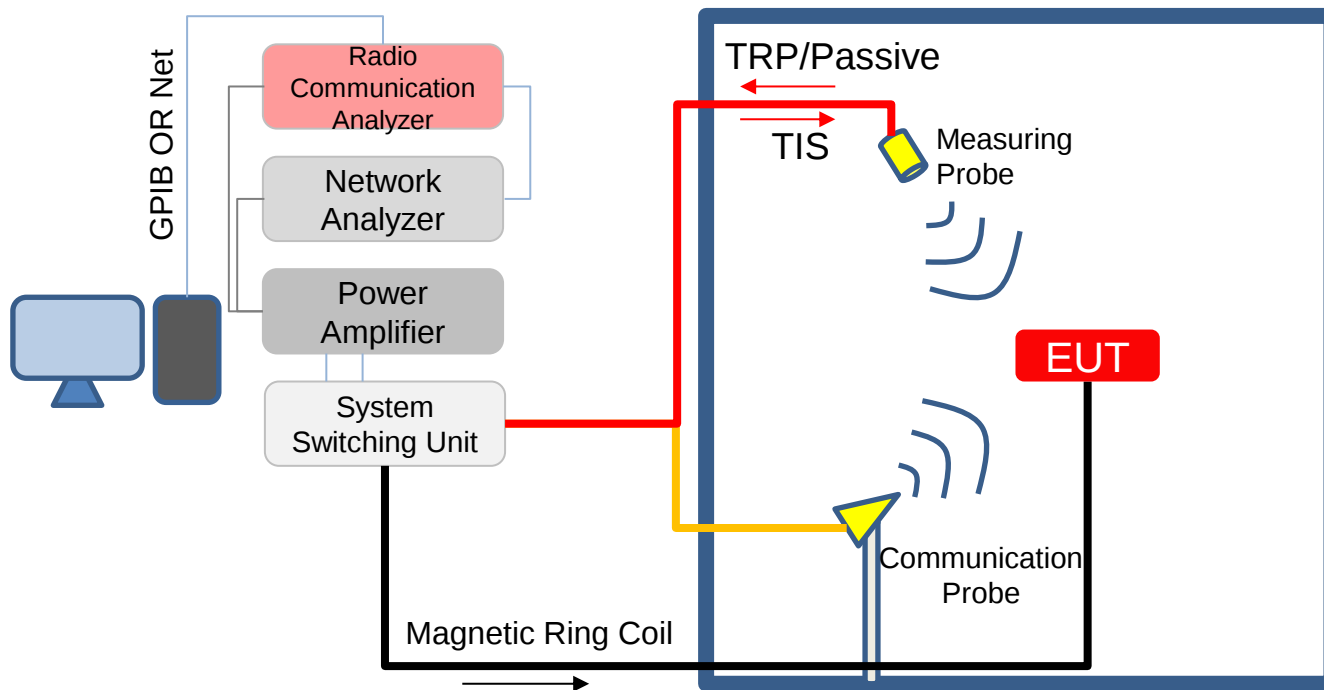


- VSWR



Antenna Test

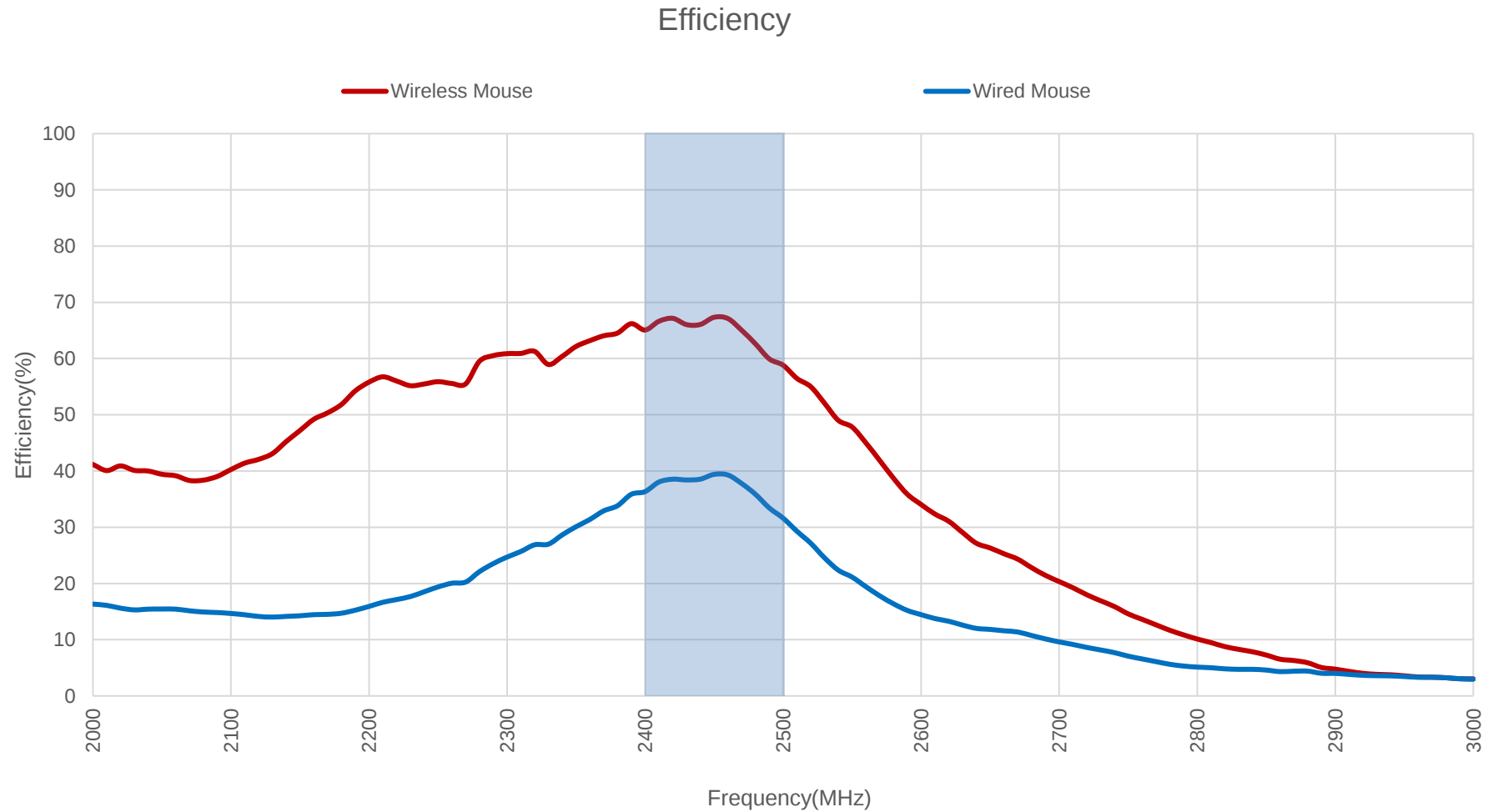
- Chamber Coordinate System GL-G-1



Passive Test



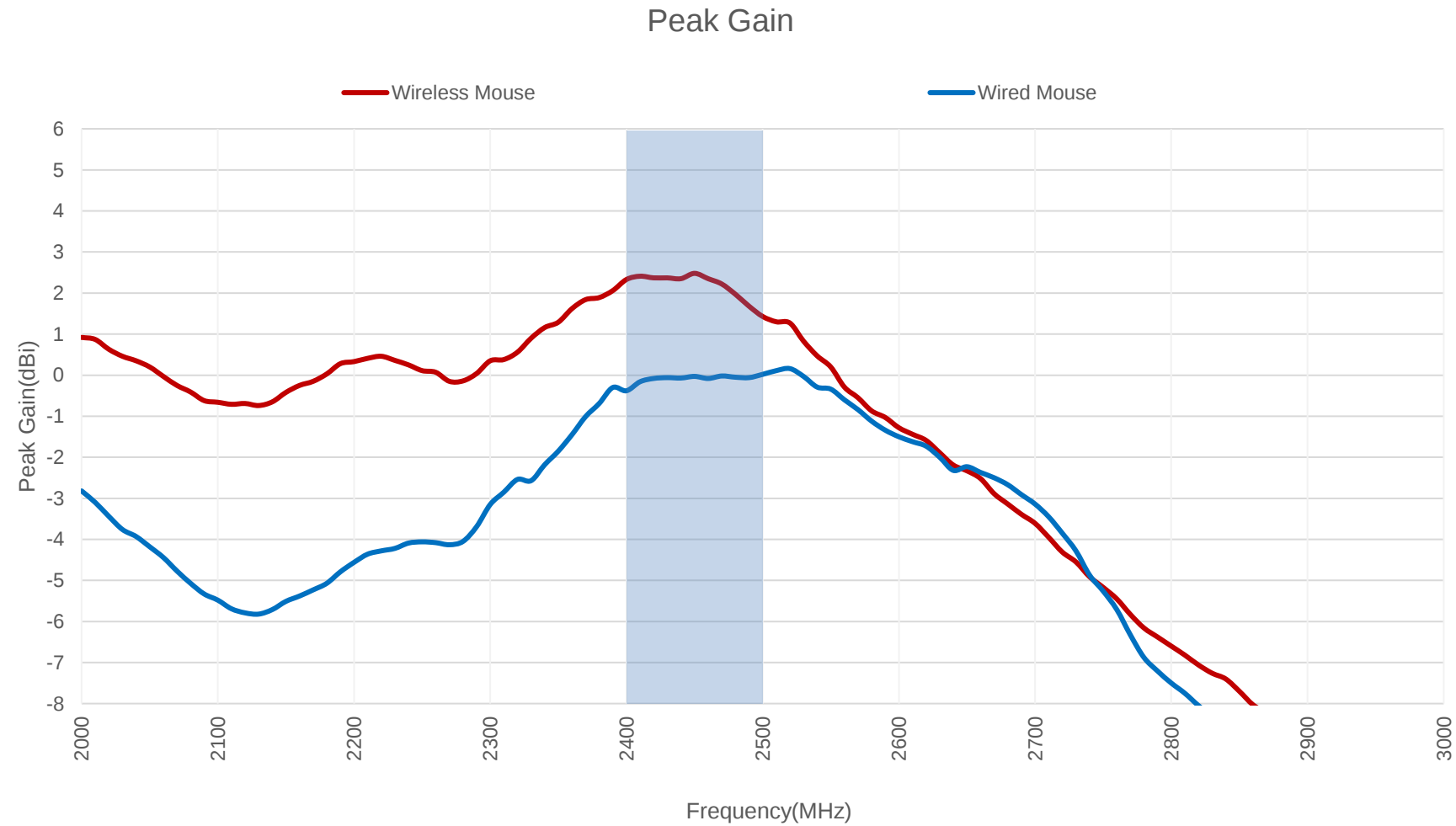
- Efficiency



Passive Test

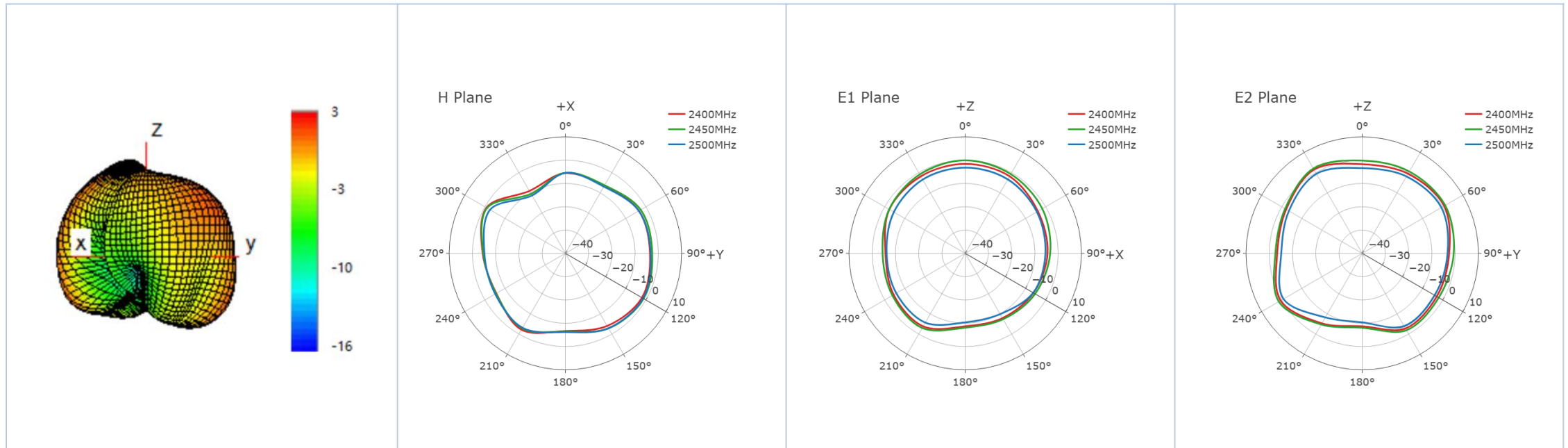


- Peak Gain



Passive Test

- Radiation Pattern



2450 MHz



Project Overview

Antenna Performance Evaluation

Conclusion and Suggestion

Build a Smarter World



- **Antenna Performance**

- After matching optimization, the wireless mouse in the 2400-2500MHz frequency band, the average Efficiency is 65%, the Peak Gain is 2.4dBi, the antenna performance is good.
- Under the same matching value, the wired mouse in the 2400-2500MHz frequency band, the average Efficiency is 37%, the Peak Gain is 0dBi.



**We are a global IoT solutions provider,
backed by outstanding support and
services, to deliver a smarter world.**

- Unbeatable choice from the broadest module portfolio in the world
- High quality range of off-the-shelf and customized antennas
- Superb support with the largest R&D team in the industry
- Continuous innovation – in 5G, LPWA, Automotive, Smart module technology
- A passionate, dedicated team of "Quectelers" ensures our customers always come first

Thank You

Build a Smarter World

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

Tel: +86 21 5108 6236 Sales Support: sales@quectel.com

Technical Support: support@quectel.com General: info@quectel.com