



ikotek

QDC533 Antenna Debug Report_V1.3

Q3, 2025

RF: Weston Zhang

E-mail: Weston.Zhang@quectel.com

Revision History

Version	Date	Author	Note
1.0	2024-09-09	Weston.Zhang	QDC533 Antenna Debugging Performance
1.1	2024-12-13	Weston.Zhang	Testing antenna performance in aluminum and graphite flake states
1.2	2025-01-02	Weston.Zhang	Supplement NR antenna performance in aluminum and graphite flake states
1.3	2025-09-05	Weston.Zhang	3D Radiation Pattern and 2D Diagram with Added Antenna

1. Project Overview

2. Antenna Debug Performance



Project Overview

- Project Name: QDC533
- Device Dimensions: 140mm*69mm*14mm
- Mainboard Dimensions: 75mm*57mm & 60mm*27mm
- Antenna Number: 8
- Antenna Network Type & Frequency Band:
 - Main*1 & DIV*1: 617-960MHz & 1710-2690MHz & 3300-5000MHz
 - LTE_MIMO*2: 1710-2690MHz & 3300-5000MHz
 - LTE_HB*2: 2300-2690MHz
 - WIFI*2: 2400-2500MHz & 5150-5850MHz

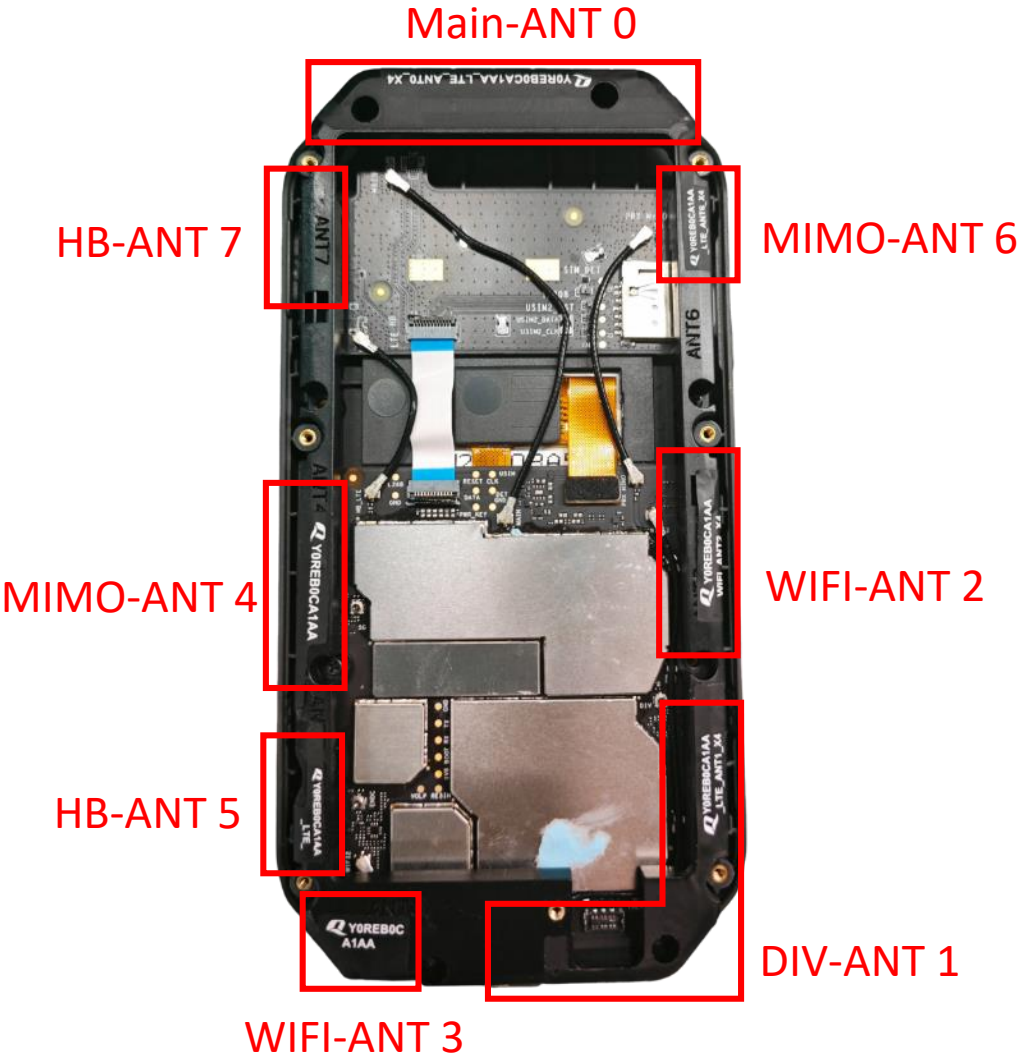


1. Project Overview

2. Antenna Debug Performance



Antenna Placement

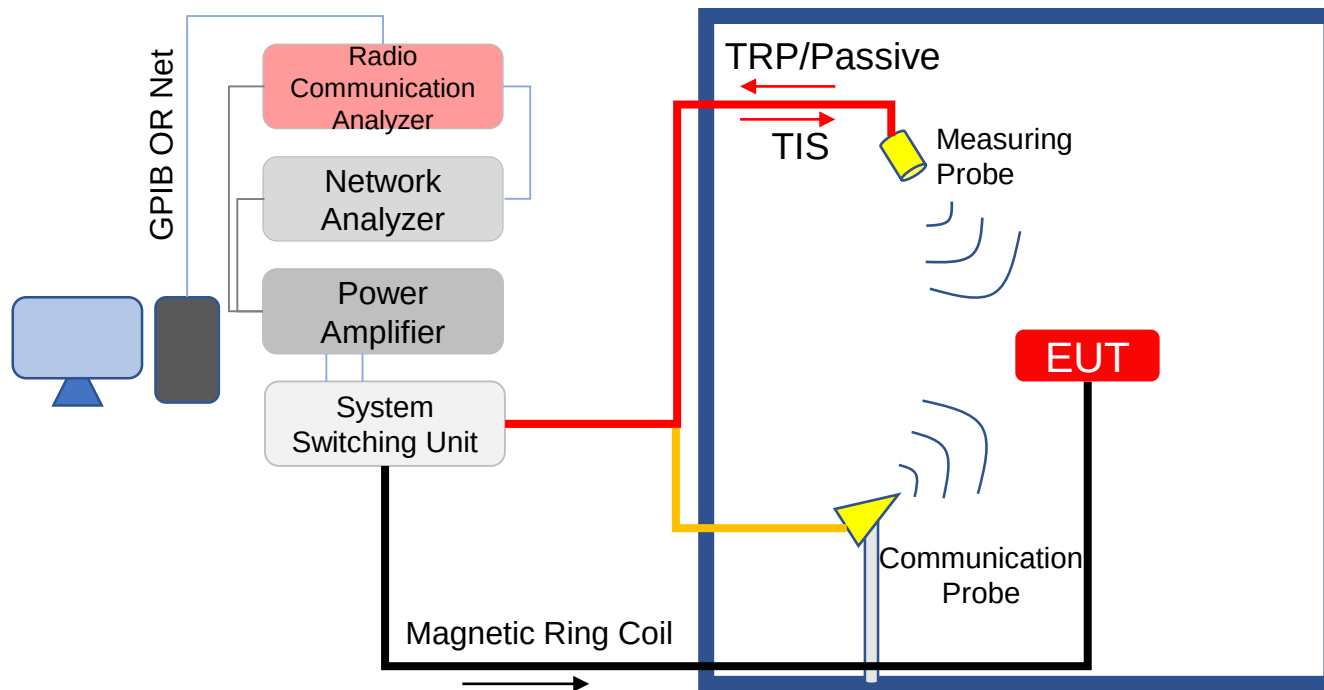


Antenna Test

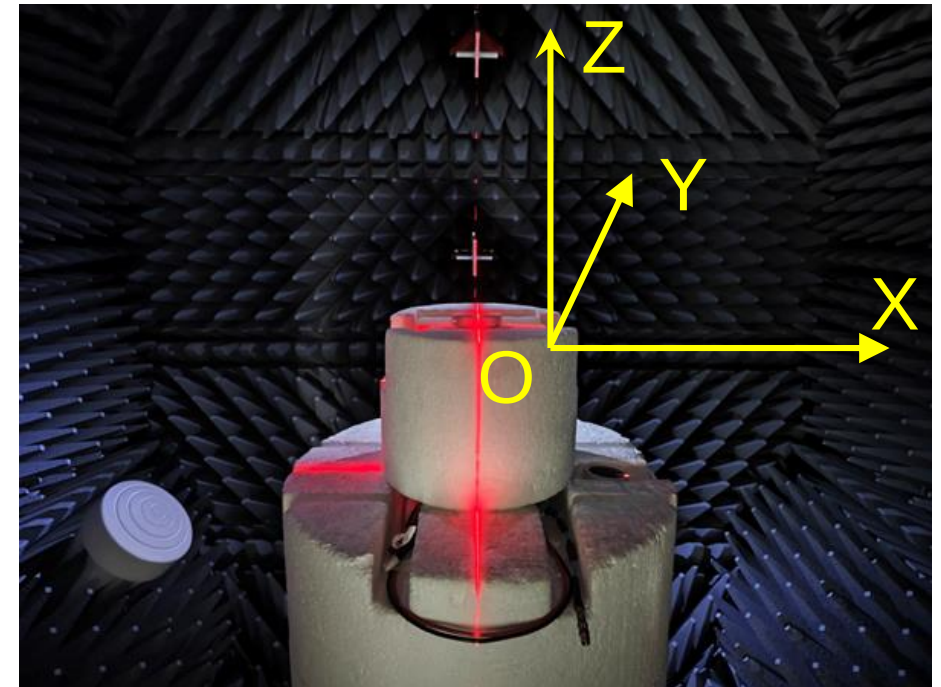
- Network Analyzer: Keysight E5071C (Device number: QTB6331E; Calibration date: 2023-12-27; Due date: 2025-06-26)
- Chamber: OTA RayZone 2800 GTS (Device number: QTA0709; Calibration date: 2024-07-14; Due date: 2025-07-13)
- Testing Software: Libra
- Product Name: LTE/NR & WiFi FPC Antenna
- Antenna model: QDC533
- Antenna Type: FPC Antenna
- Manufacturer: Tianjin RoamWiFi Technology Co.,Ltd
- Address: 209 (TG no. 446,TG,no. 446,animation building C,no. 126 animation road,tianjin eco-city)
- Test Engineer: *Weston Zhang*

Antenna Test

- Chamber Coordinate System GL-G-1

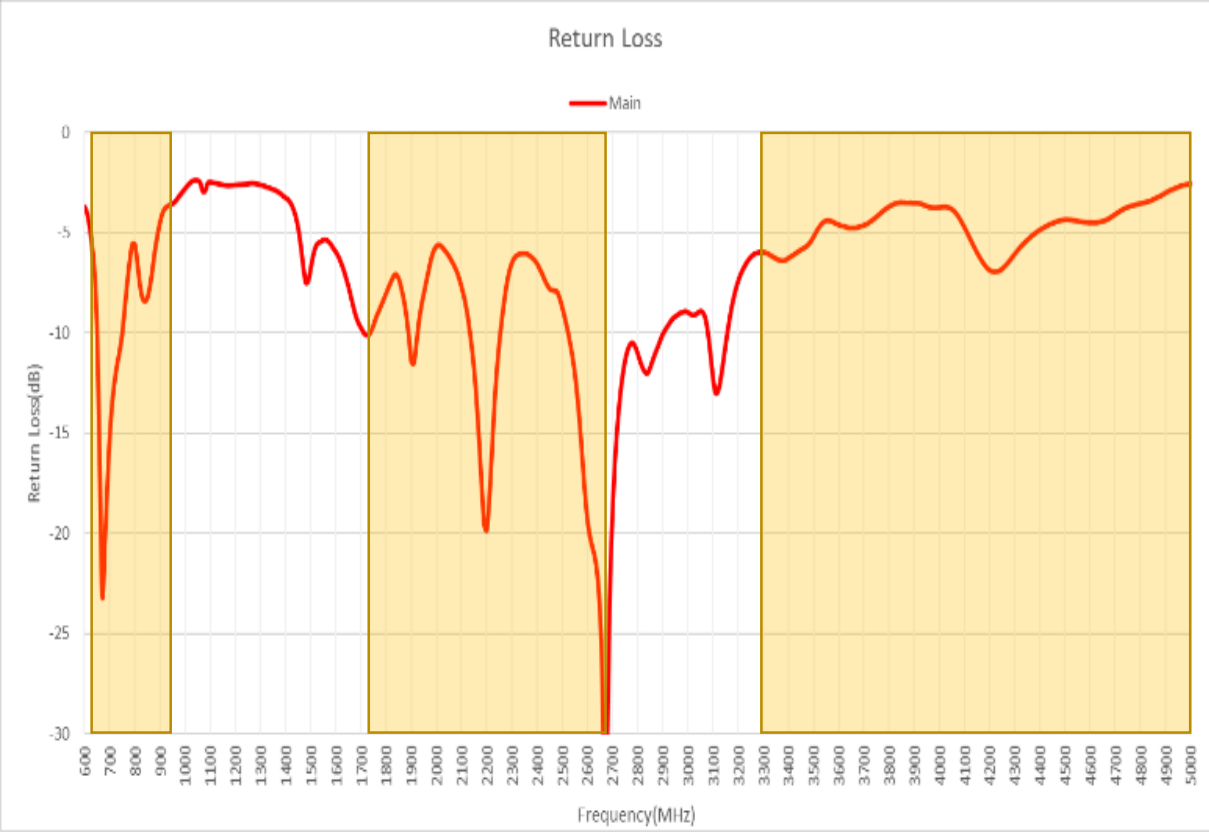


H Plane: XY
E1 Plane: XZ
E2 Plane: YZ

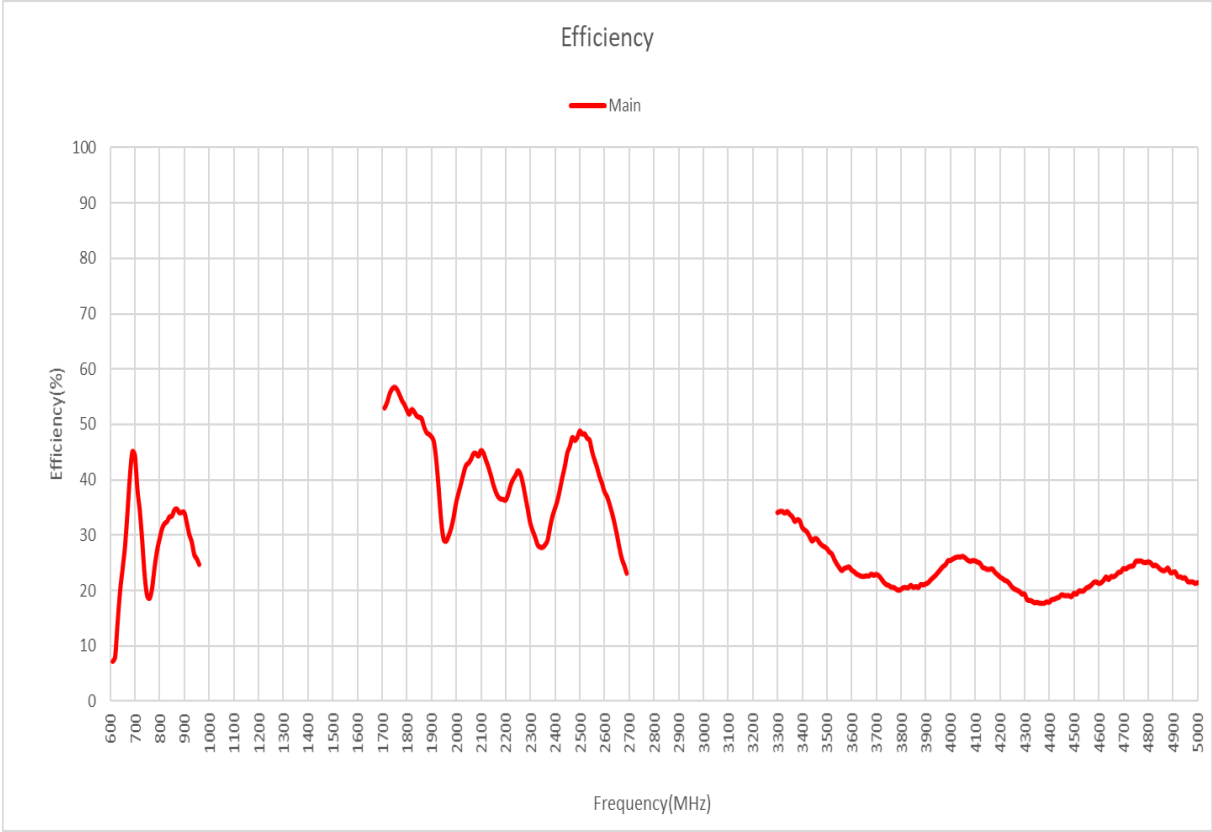


Antenna Passive Performance—ANT0

Return Loss

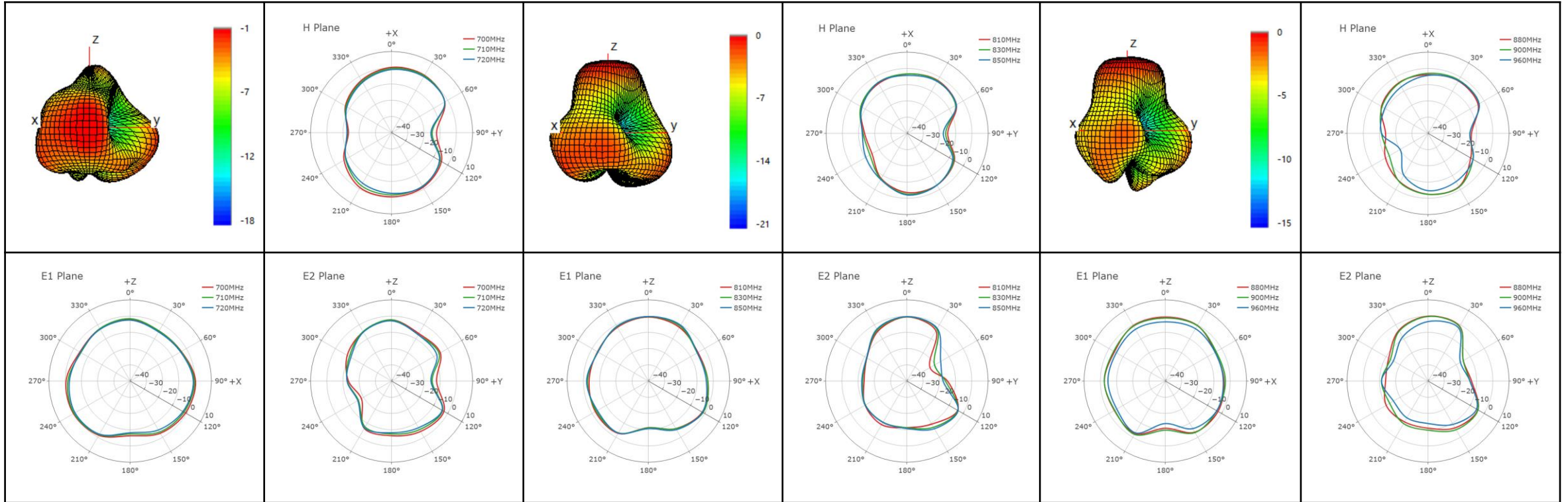


Efficiency



Antenna Passive Performance—ANT0

- Radiation Pattern



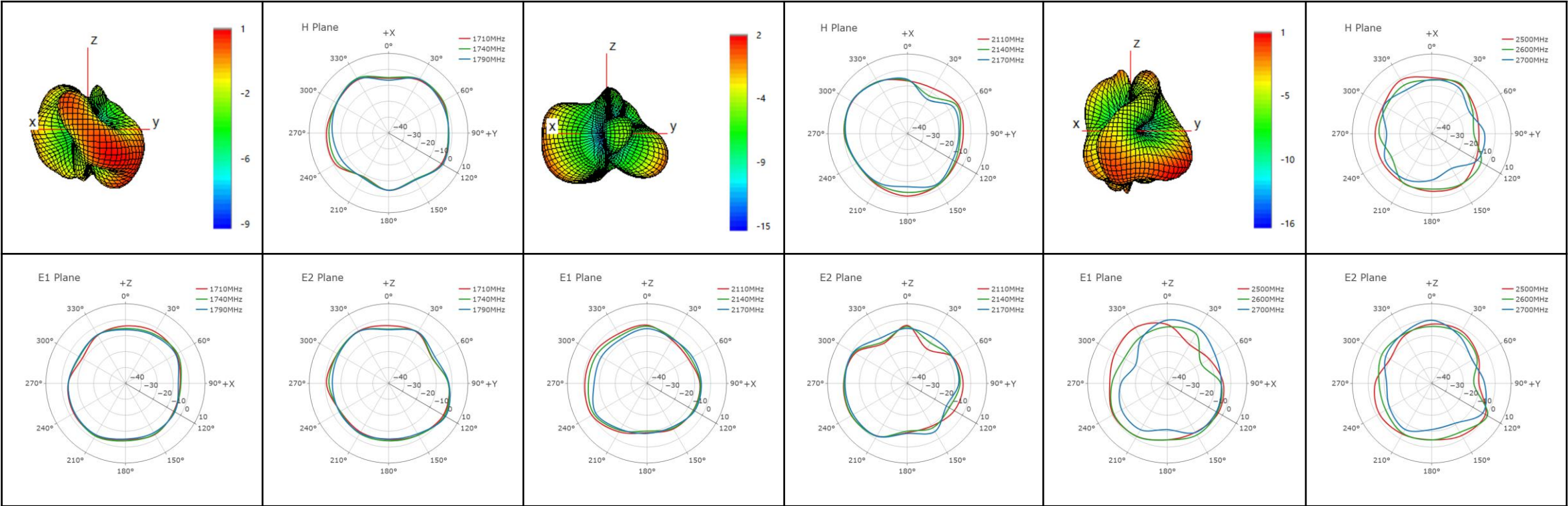
710MHz

830MHz

900MHz

Antenna Passive Performance—ANT0

- Radiation Pattern



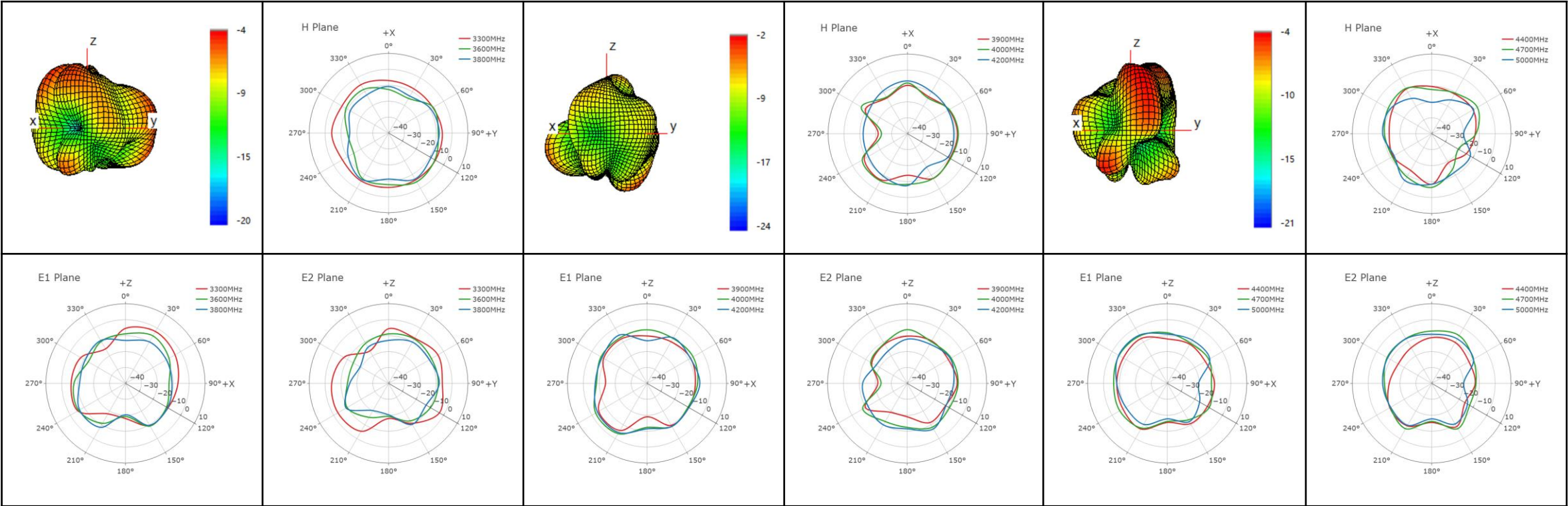
1740MHz

2140MHz

2600MHz

Antenna Passive Performance—ANT0

- Radiation Pattern



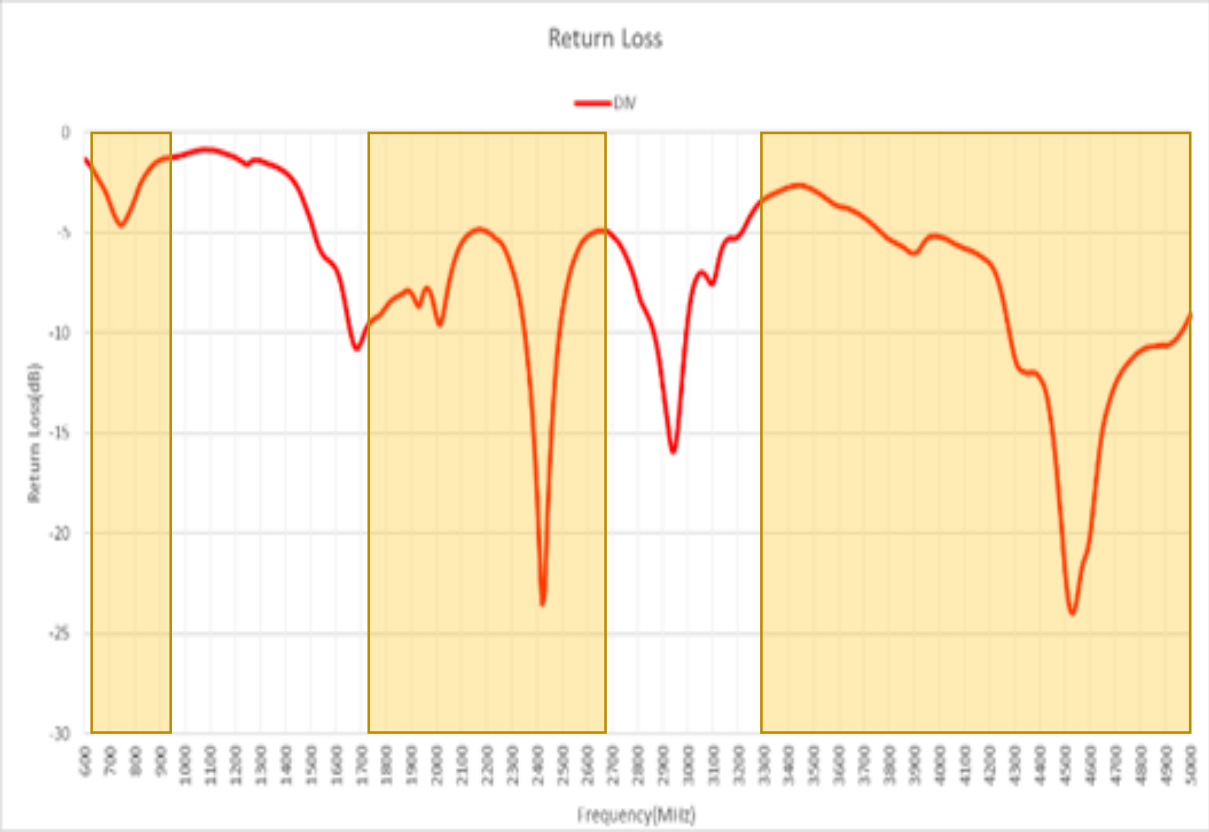
3600MHz

4000MHz

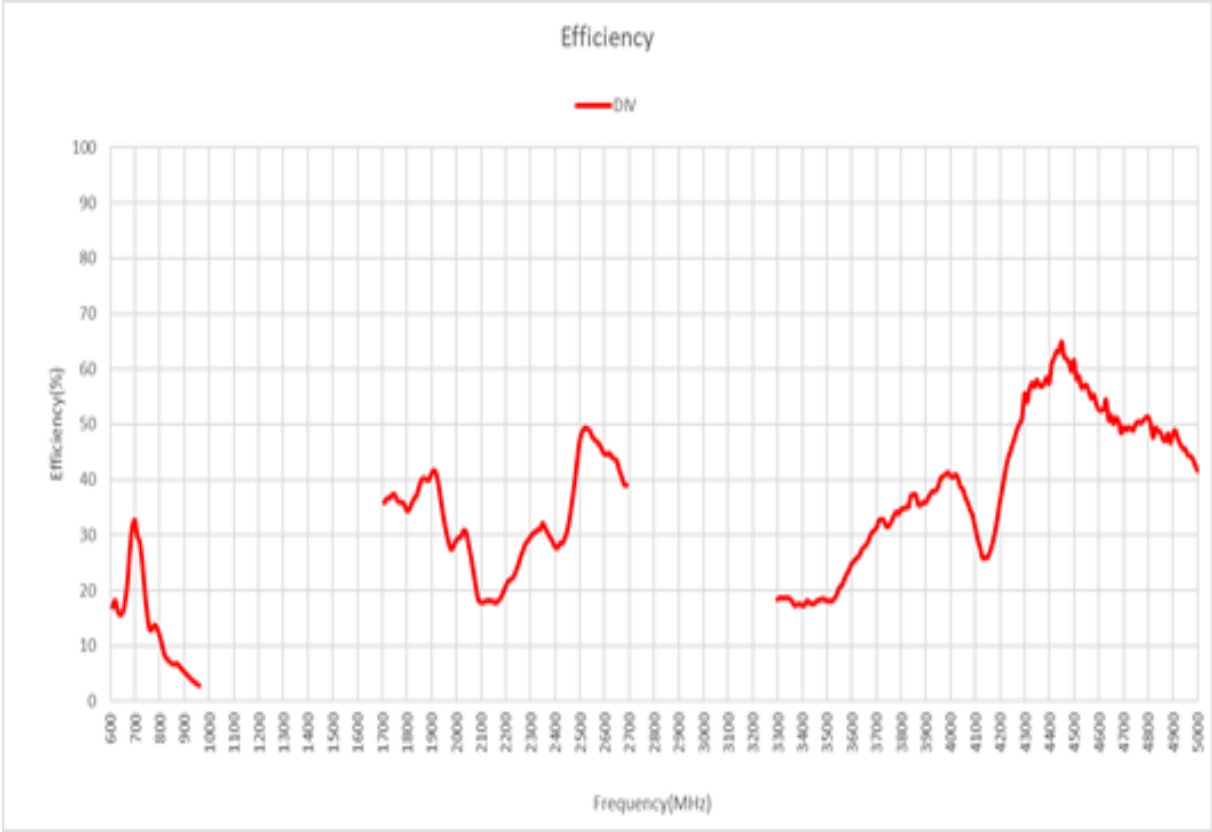
4700MHz

Antenna Passive Performance—ANT1

Return Loss

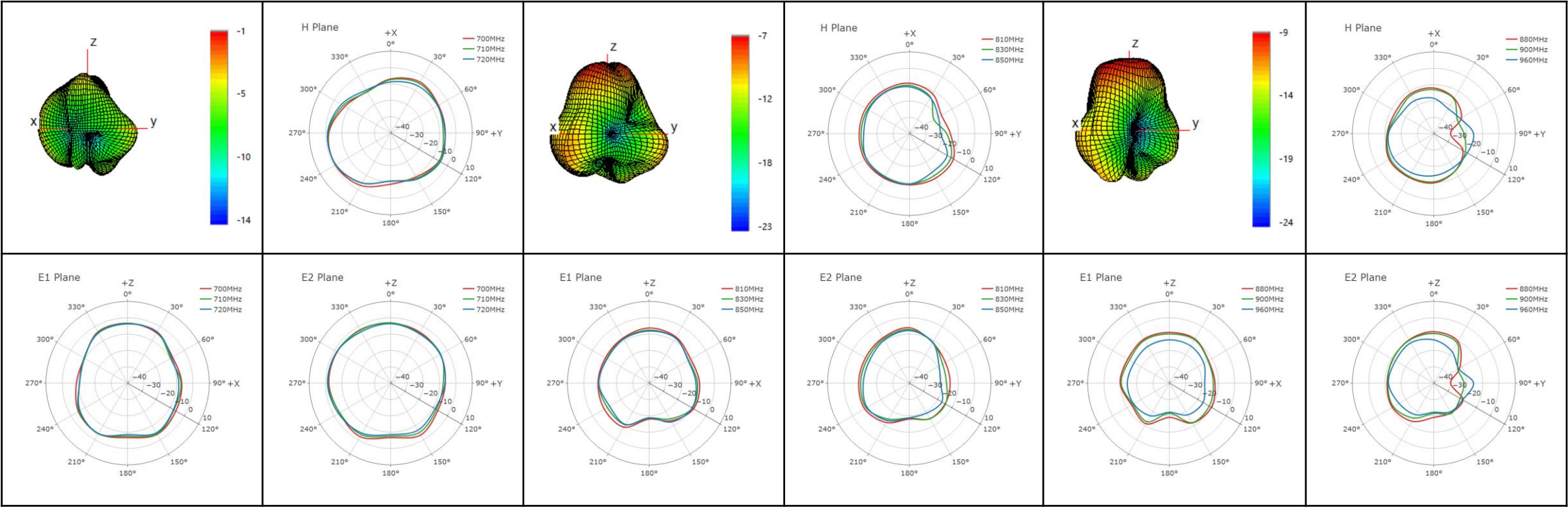


Efficiency



Antenna Passive Performance—ANT1

- Radiation Pattern



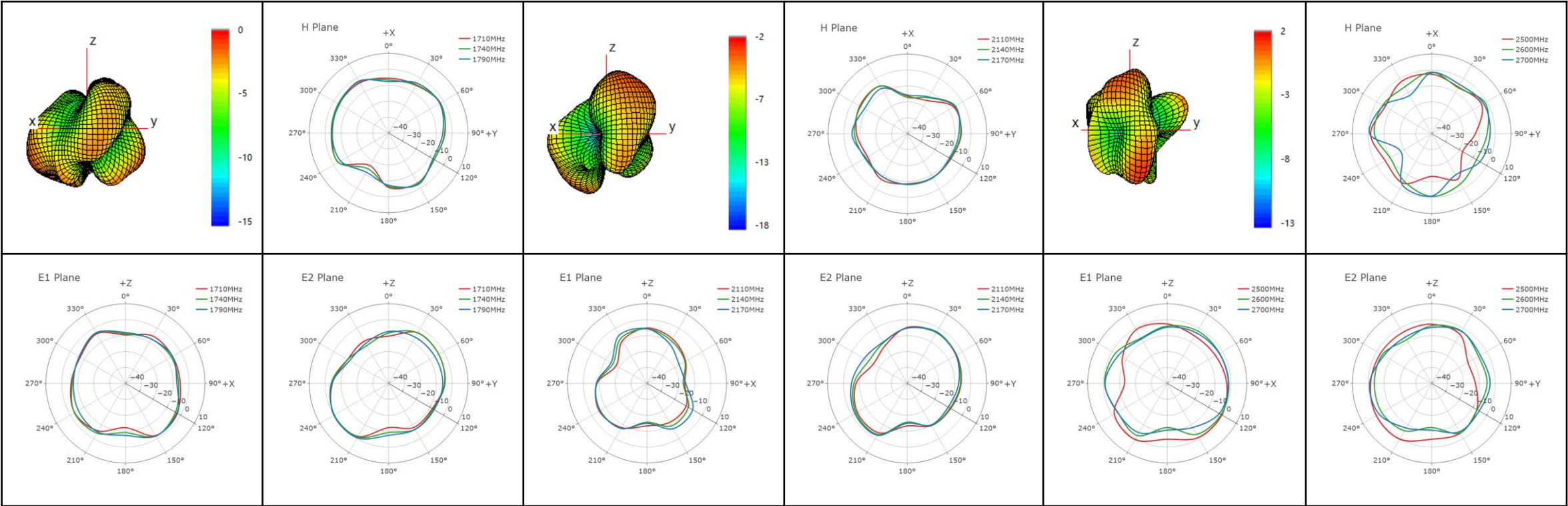
710MHz

830MHz

900MHz

Antenna Passive Performance—ANT1

- Radiation Pattern



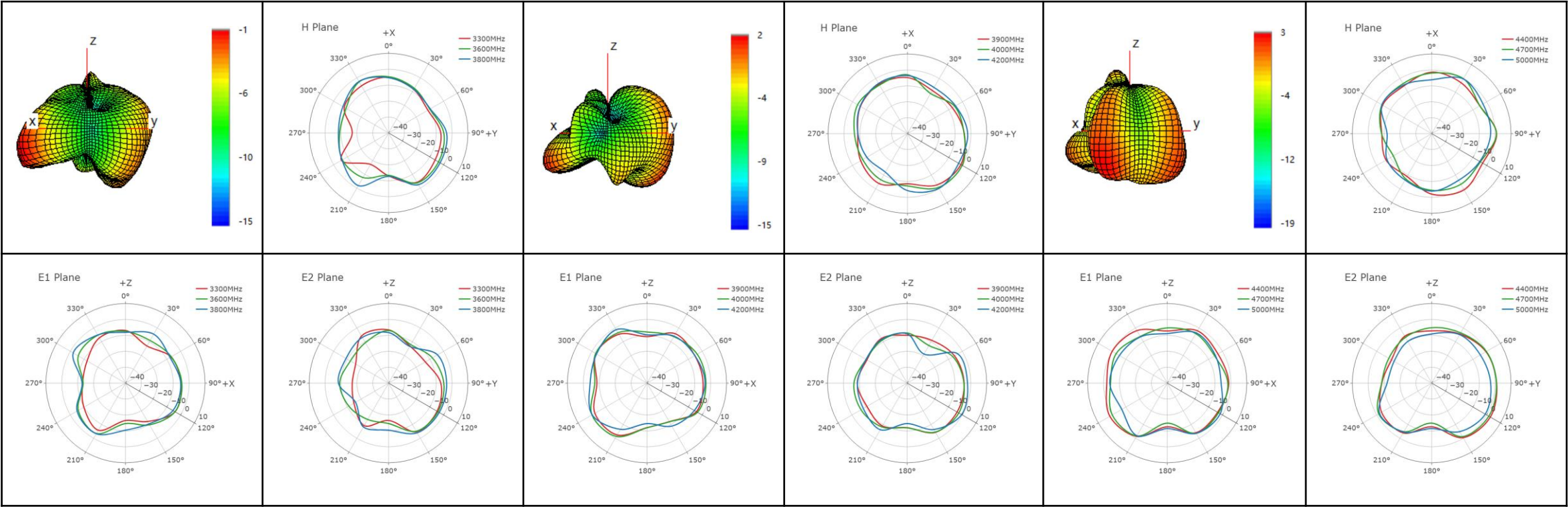
1740MHz

2140MHz

2600MHz

Antenna Passive Performance—ANT1

- Radiation Pattern



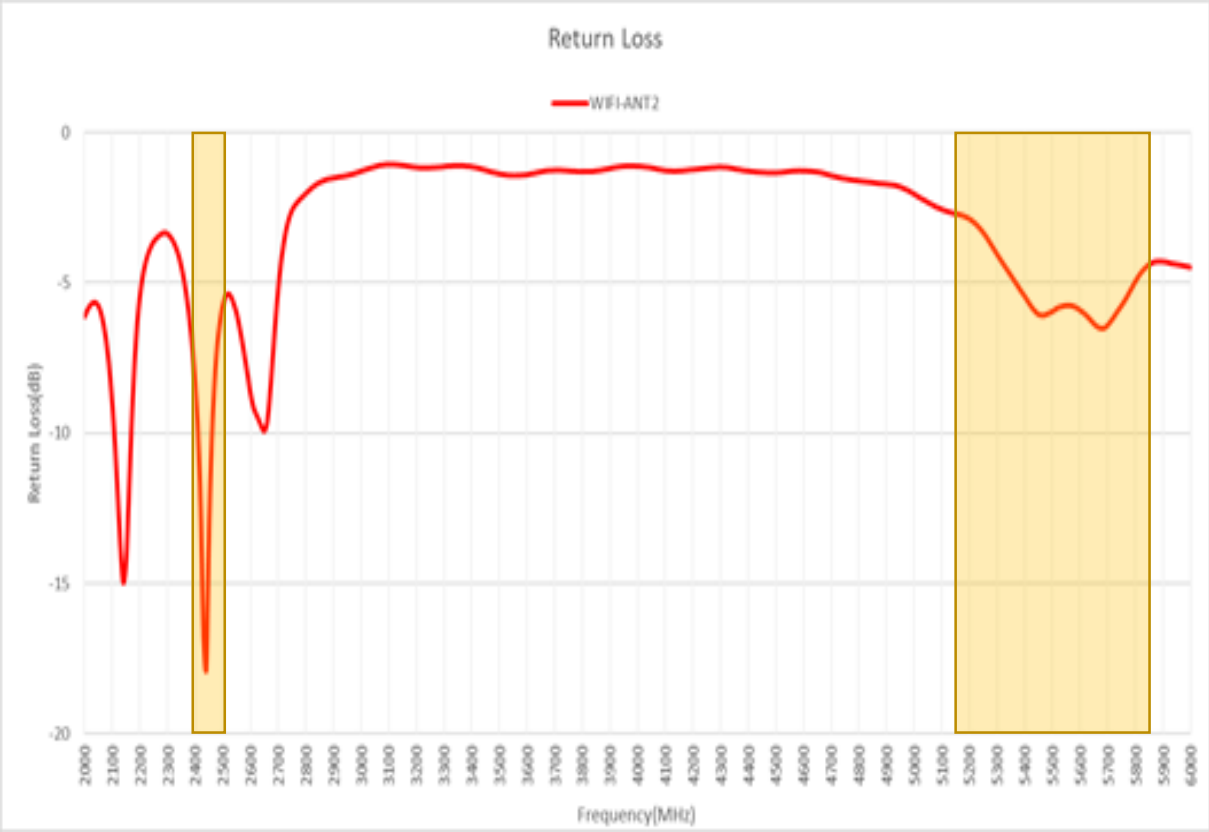
3600MHz

4000MHz

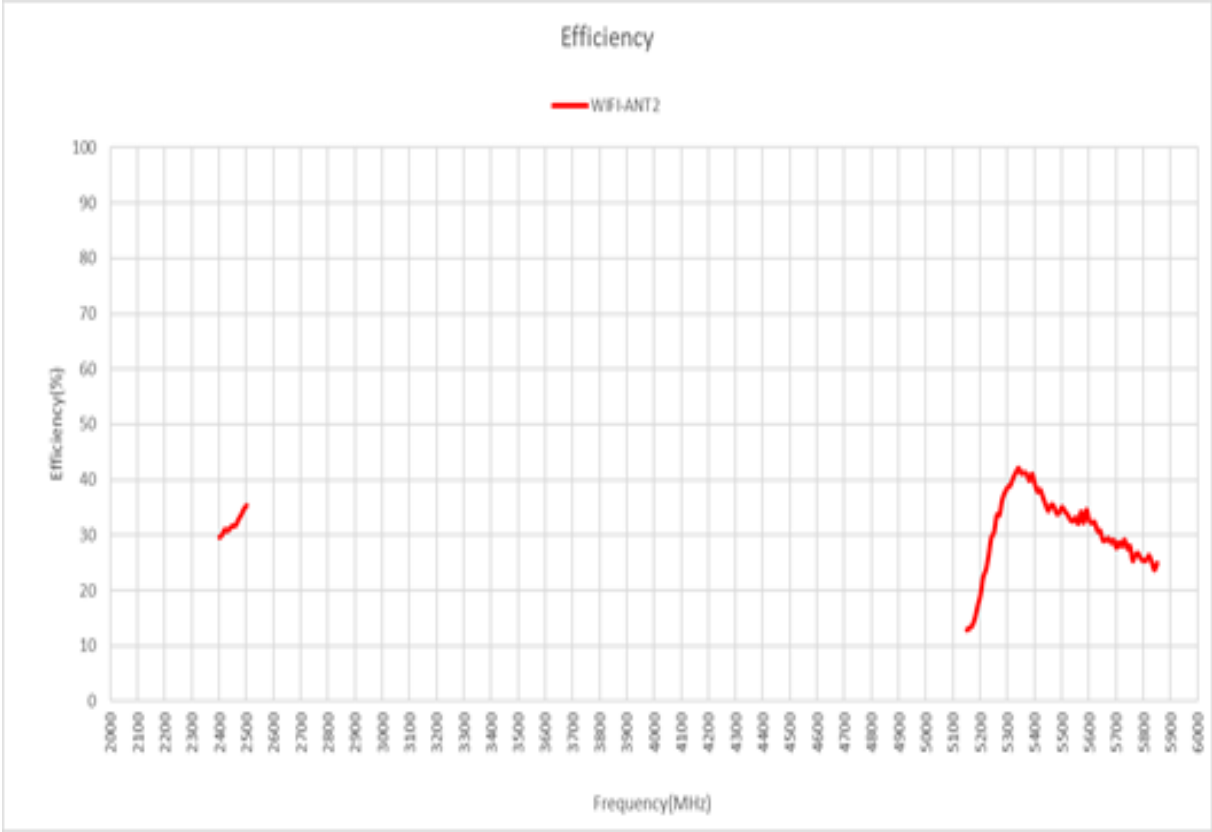
4700MHz

Antenna Passive Performance—ANT2

Return Loss

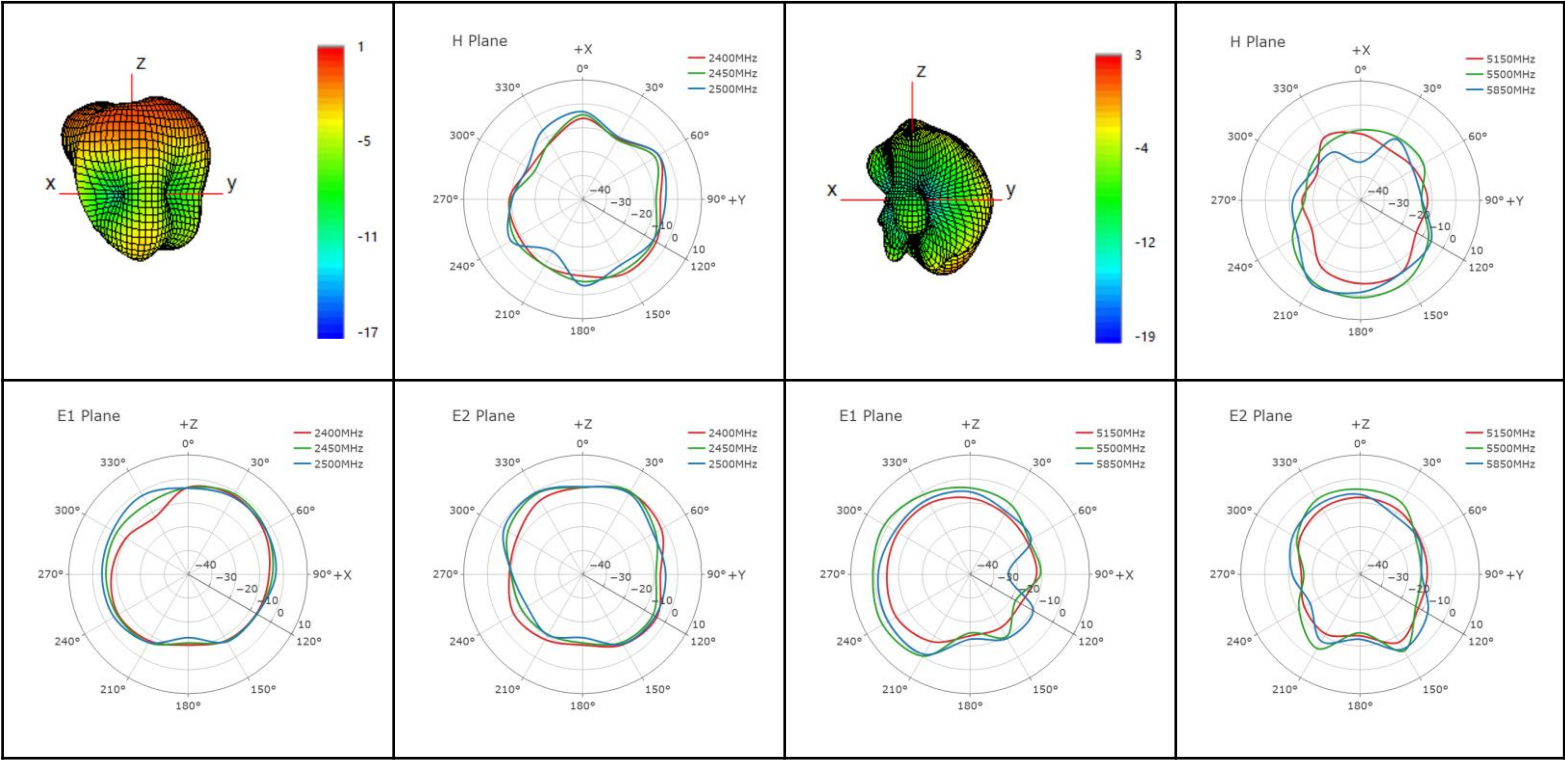


Efficiency



Antenna Passive Performance—ANT2

- Radiation Pattern

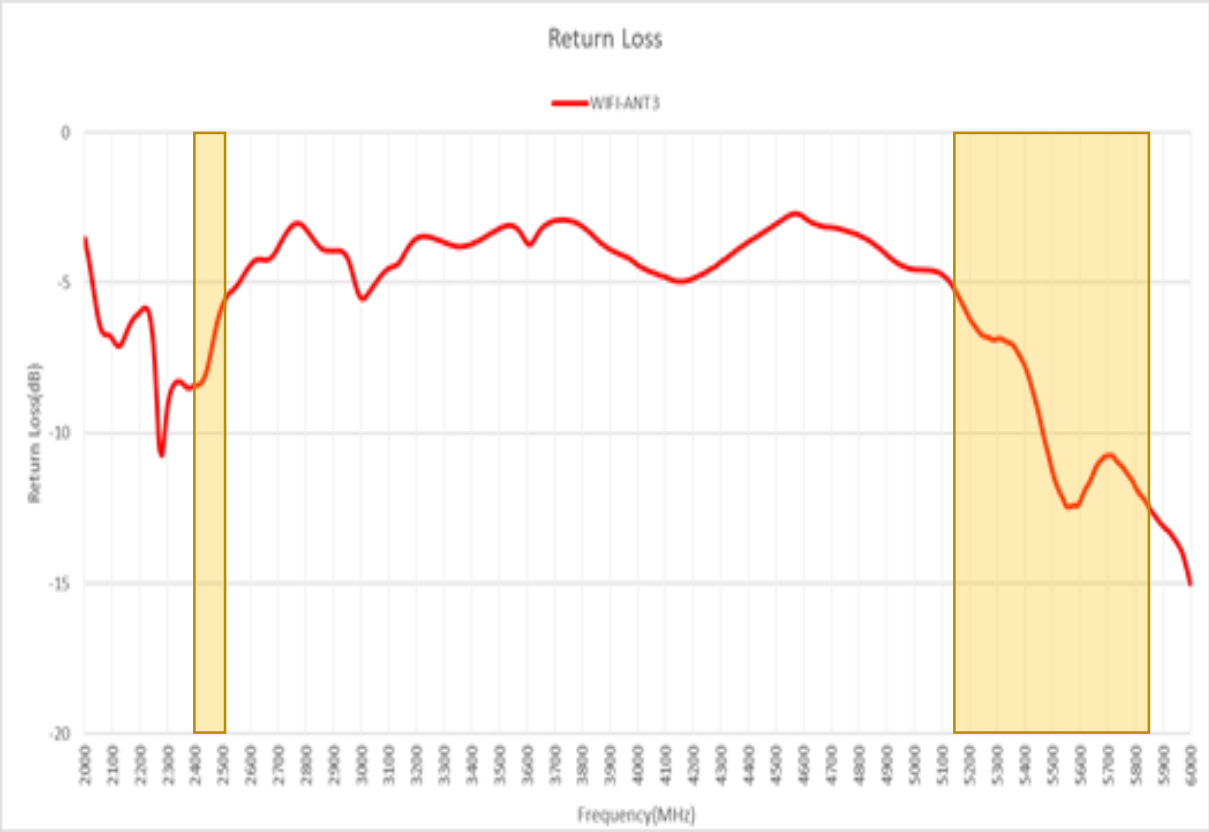


2450MHz

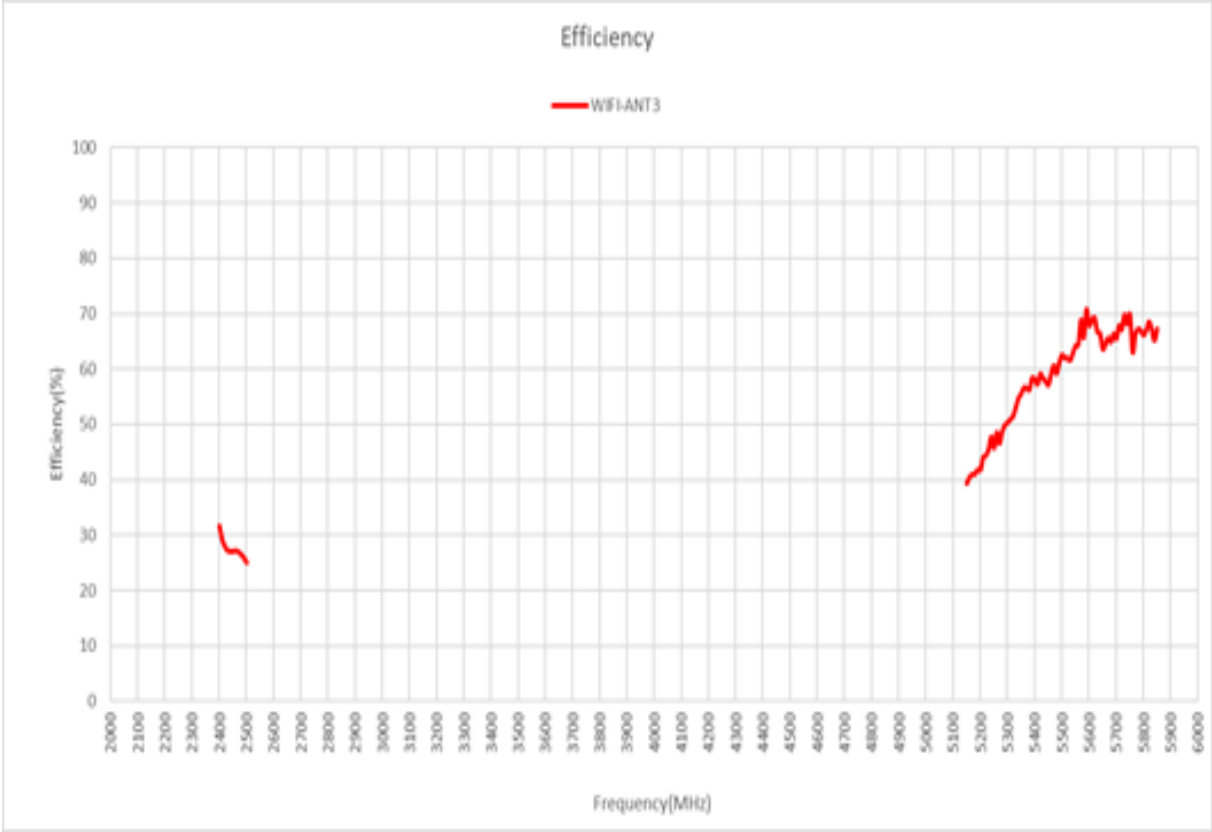
5500MHz

Antenna Passive Performance—ANT3

Return Loss

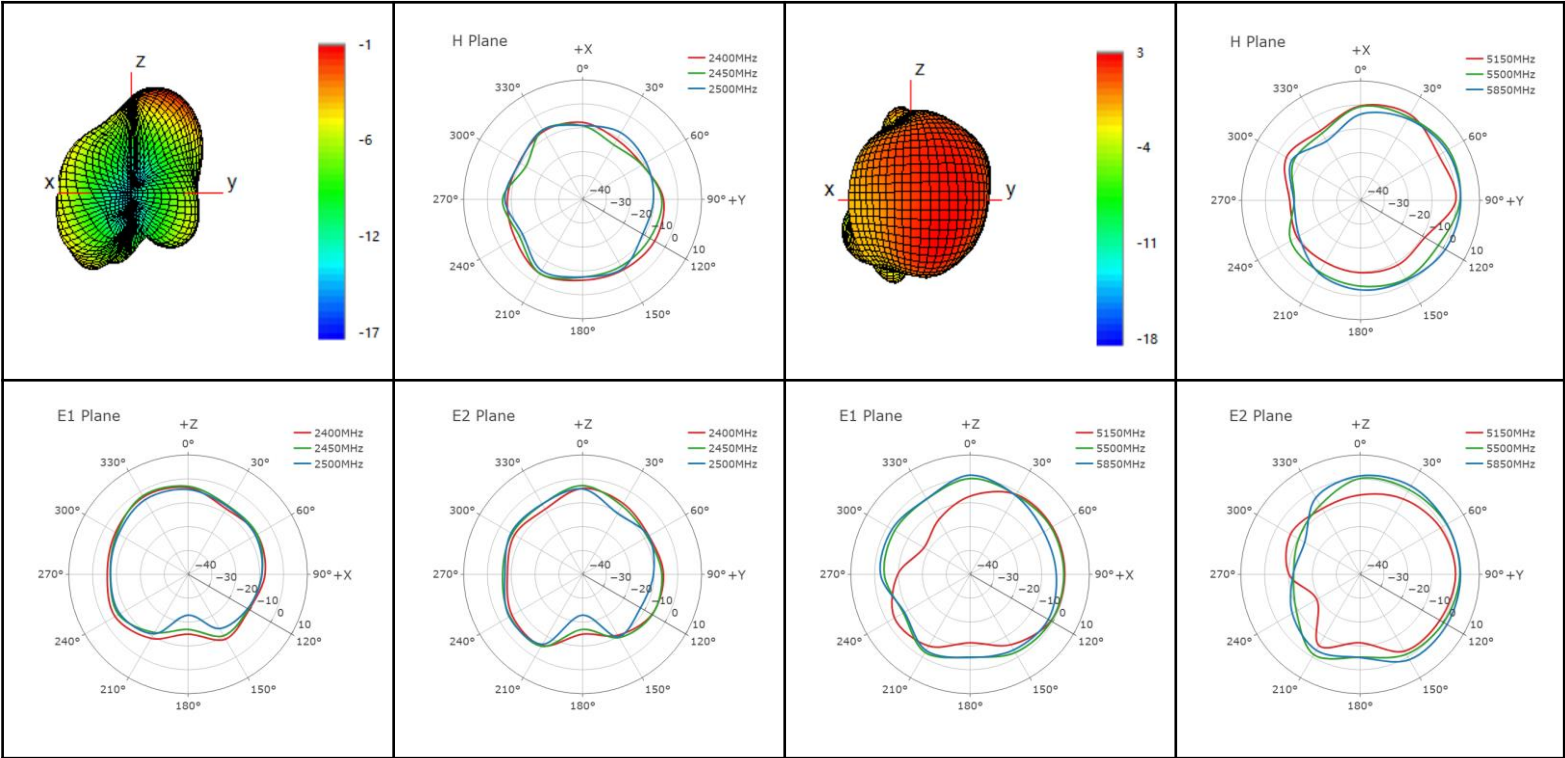


Efficiency



Antenna Passive Performance—ANT3

- Radiation Pattern

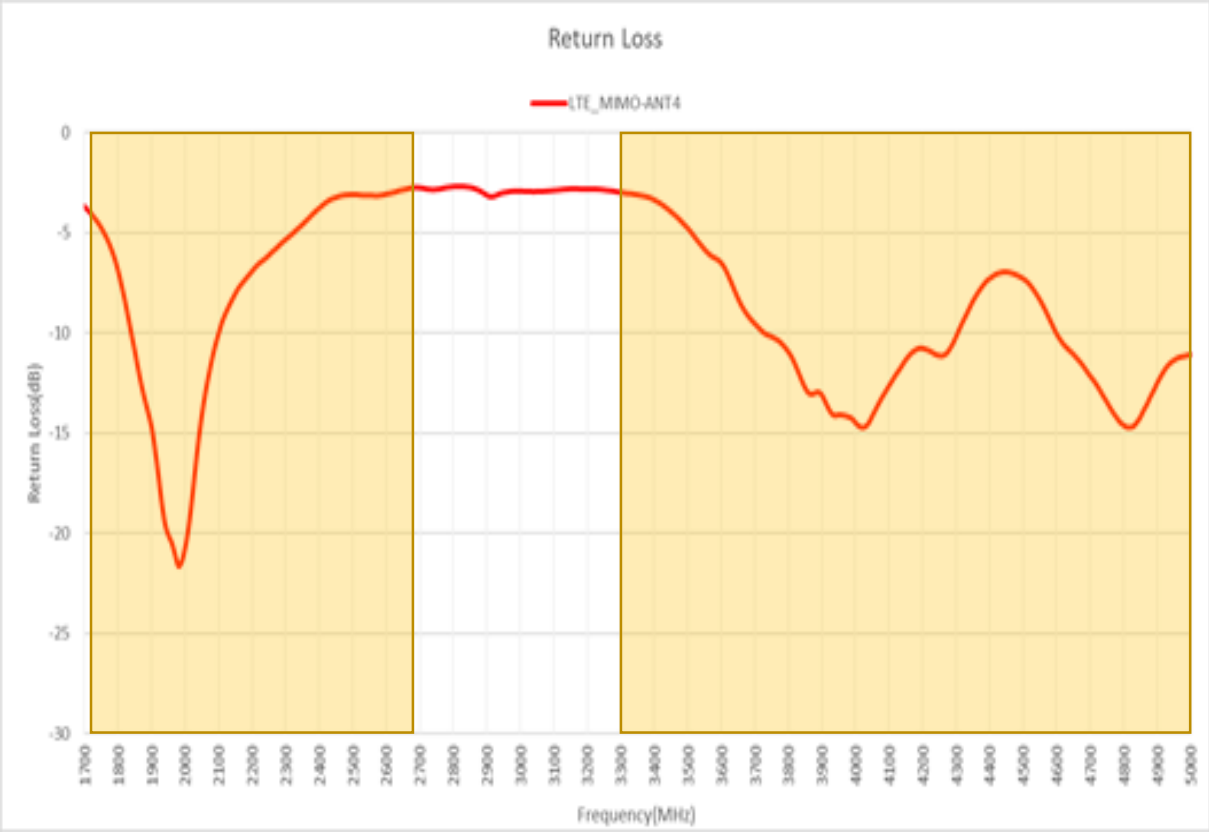


2450MHz

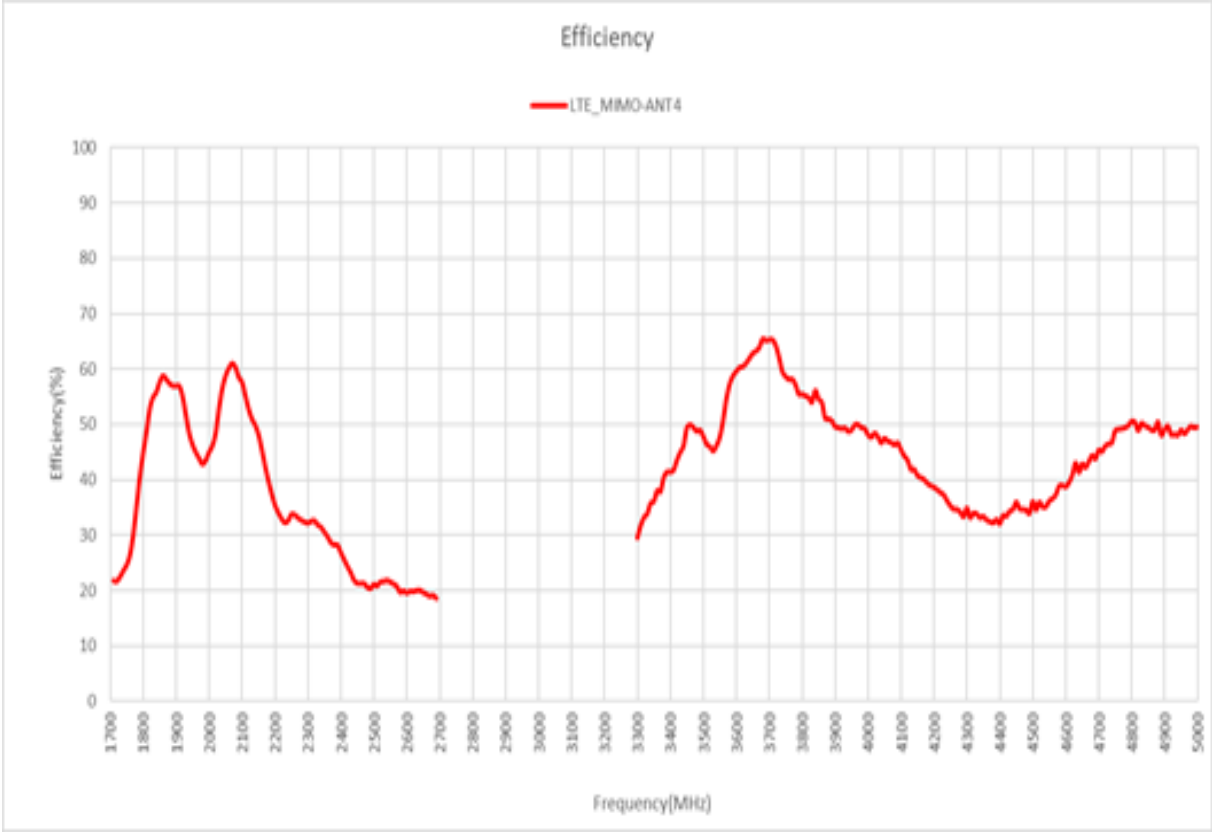
5500MHz

Antenna Passive Performance—ANT4

Return Loss

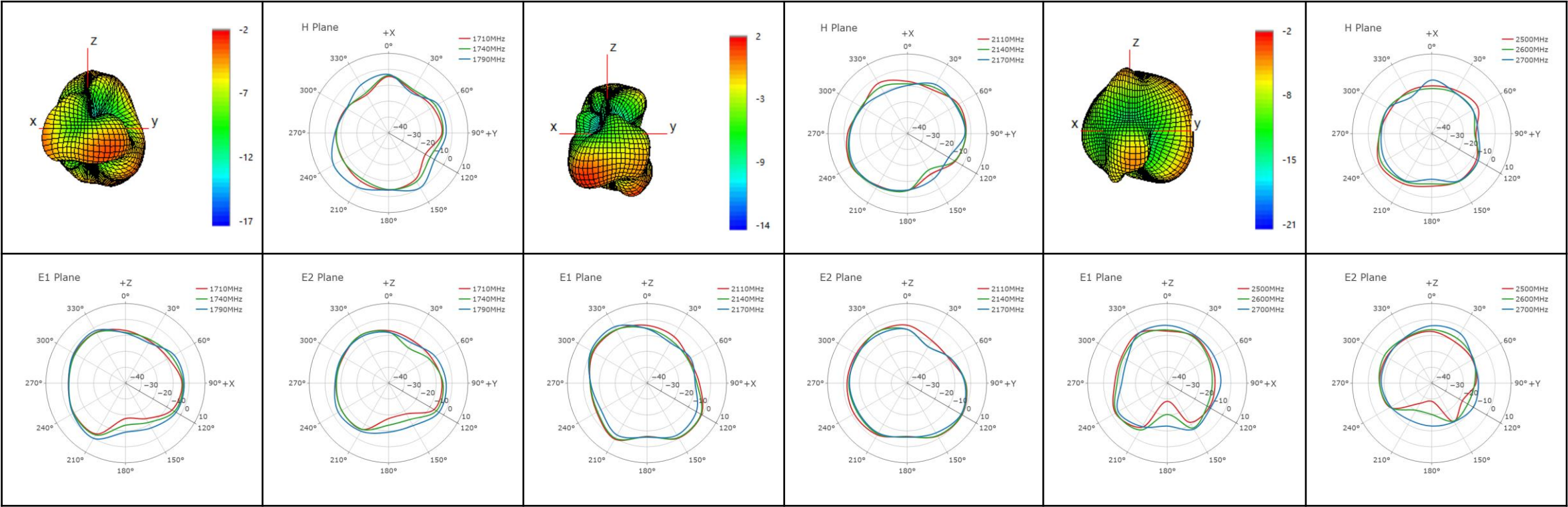


Efficiency



Antenna Passive Performance—ANT4

- Radiation Pattern



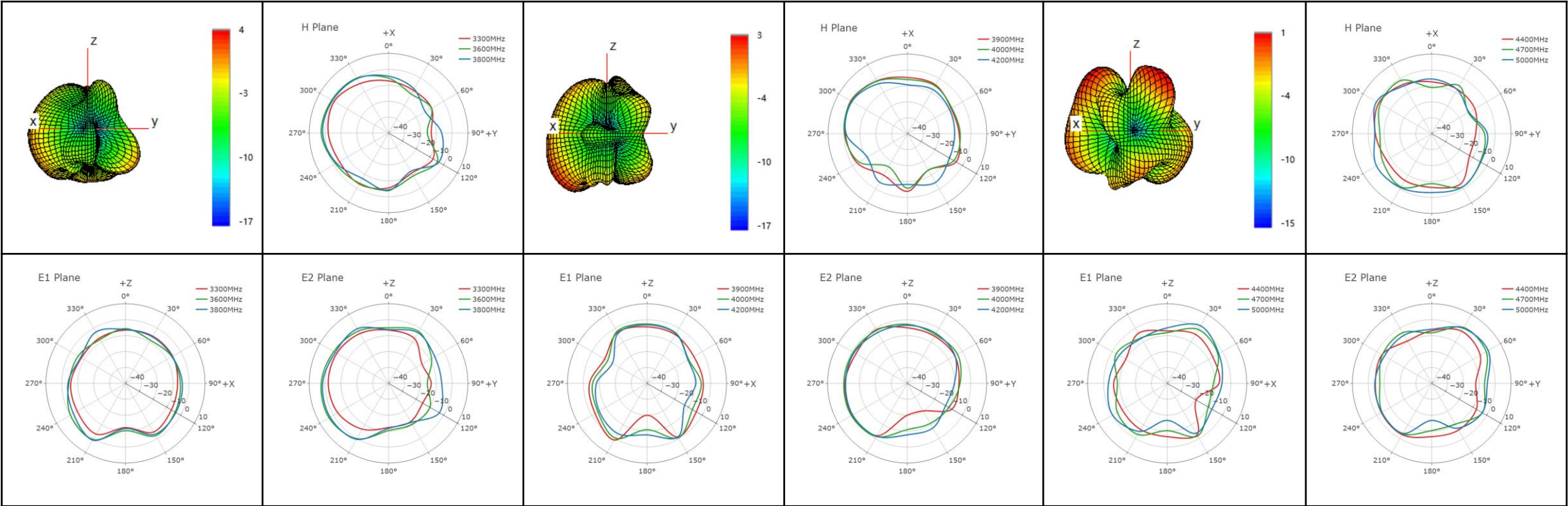
1740MHz

2140MHz

2600MHz

Antenna Passive Performance—ANT4

- Radiation Pattern



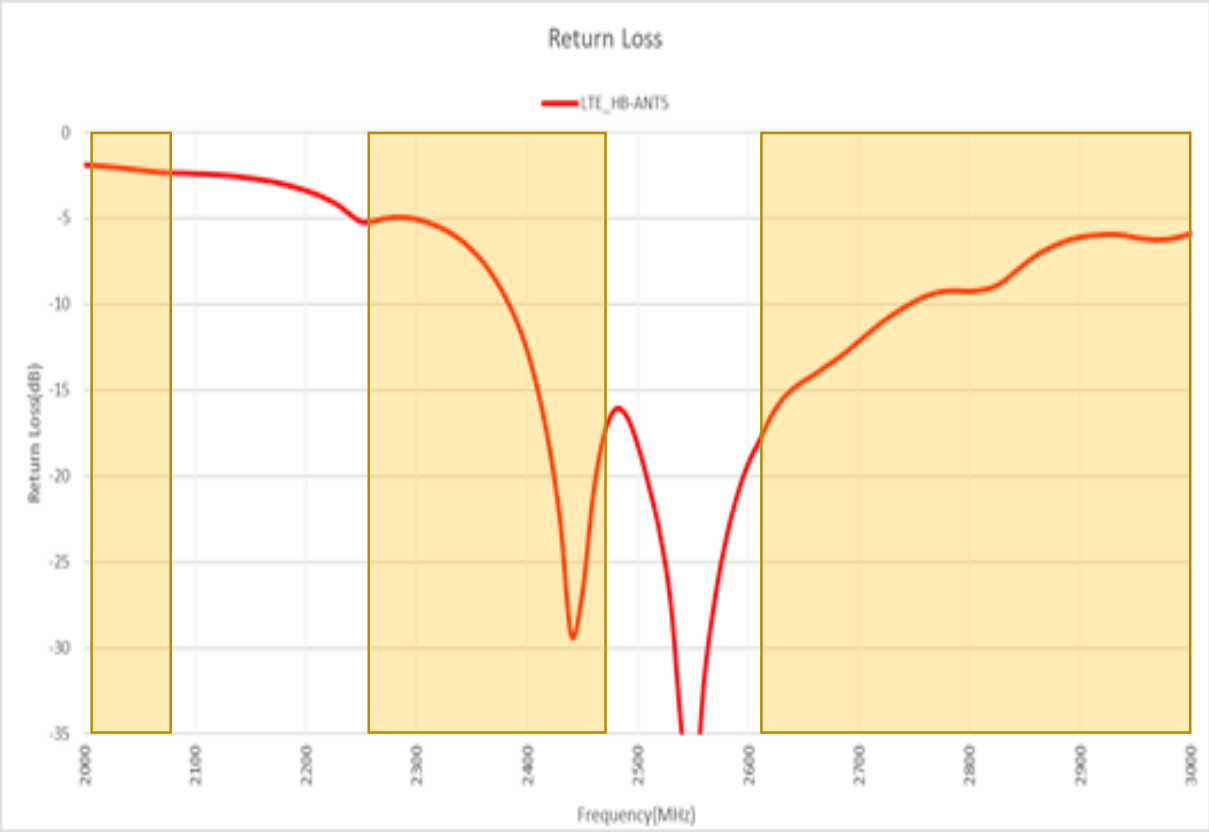
3600MHz

4000MHz

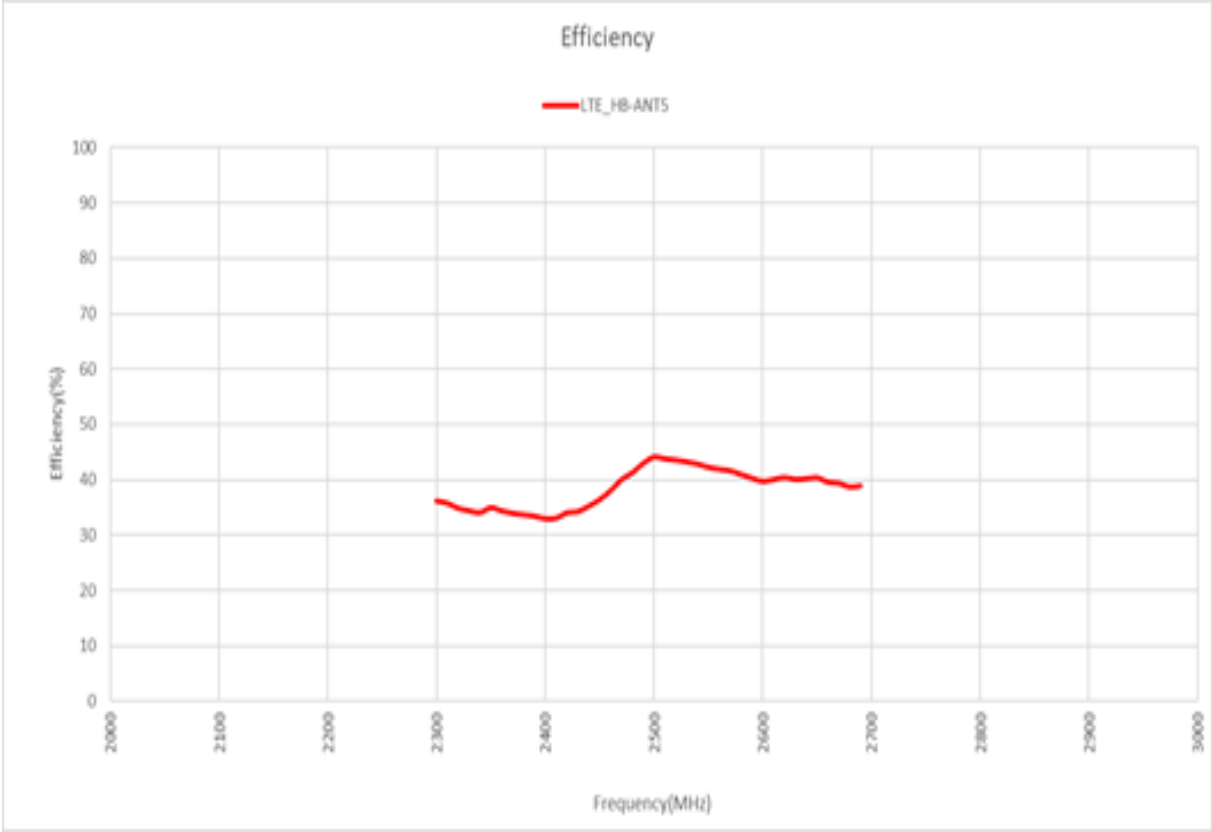
4700MHz

Antenna Passive Performance—ANT5

Return Loss

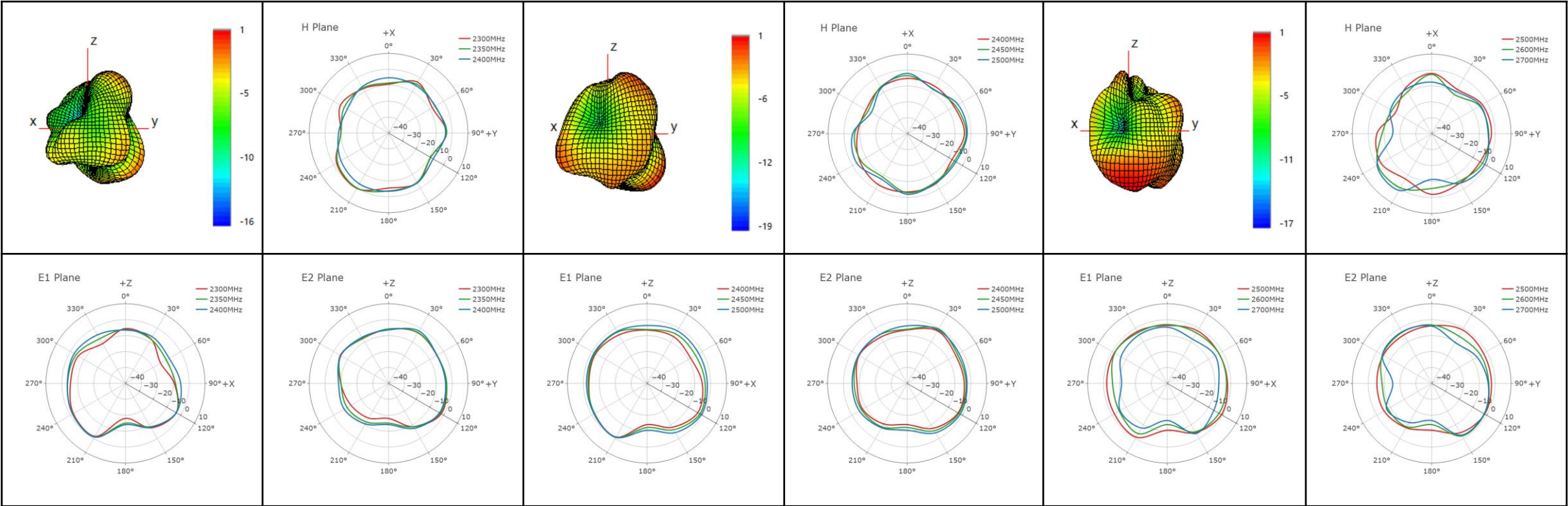


Efficiency



Antenna Passive Performance—ANT5

- Radiation Pattern



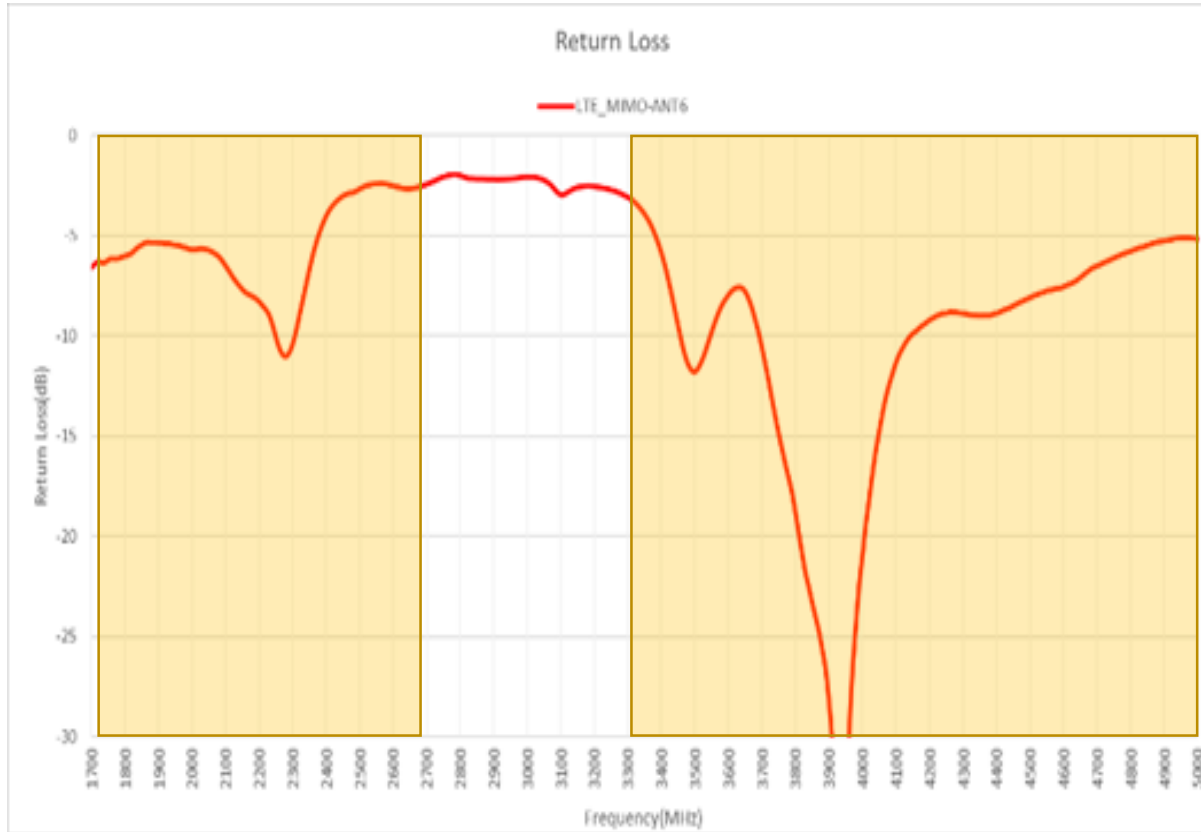
2350MHz

2450MHz

2600MHz

Antenna Passive Performance—ANT6

Return Loss

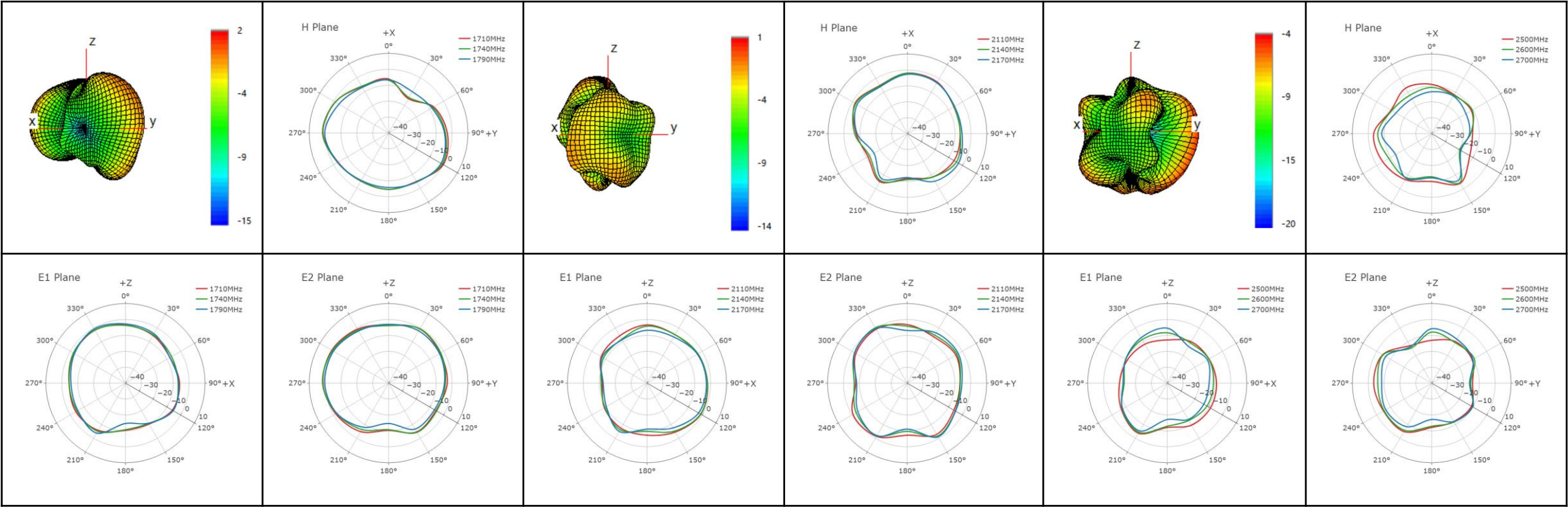


Efficiency



Antenna Passive Performance—ANT6

- Radiation Pattern



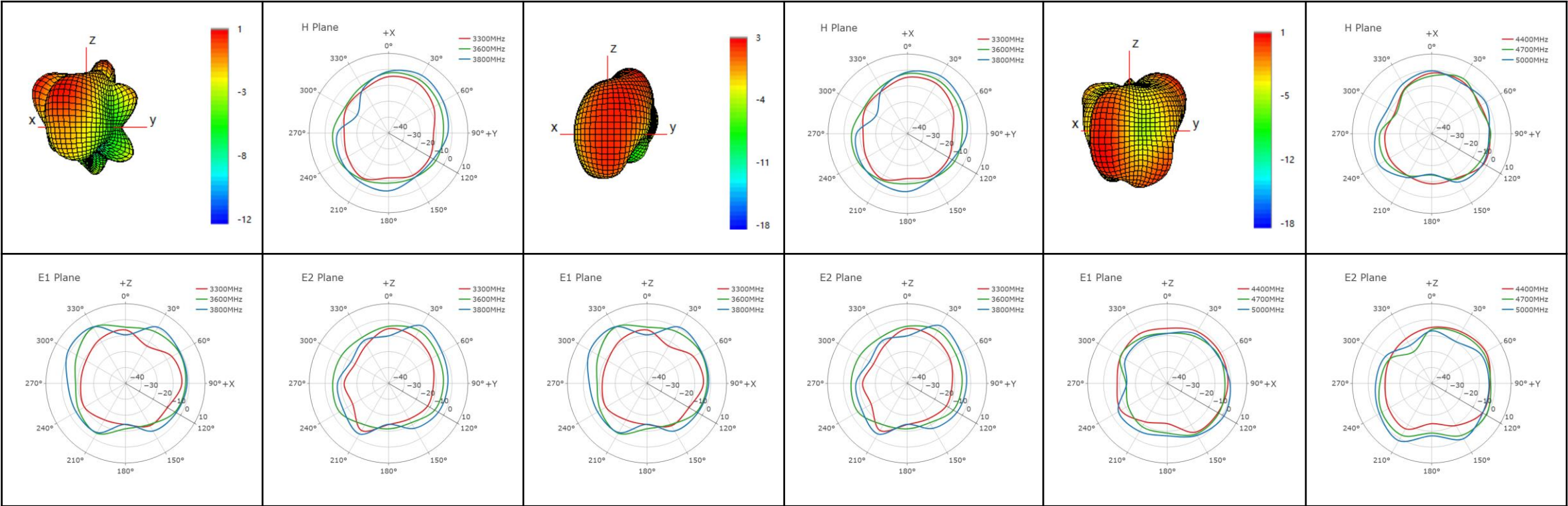
1740MHz

2140MHz

2600MHz

Antenna Passive Performance—ANT6

- Radiation Pattern



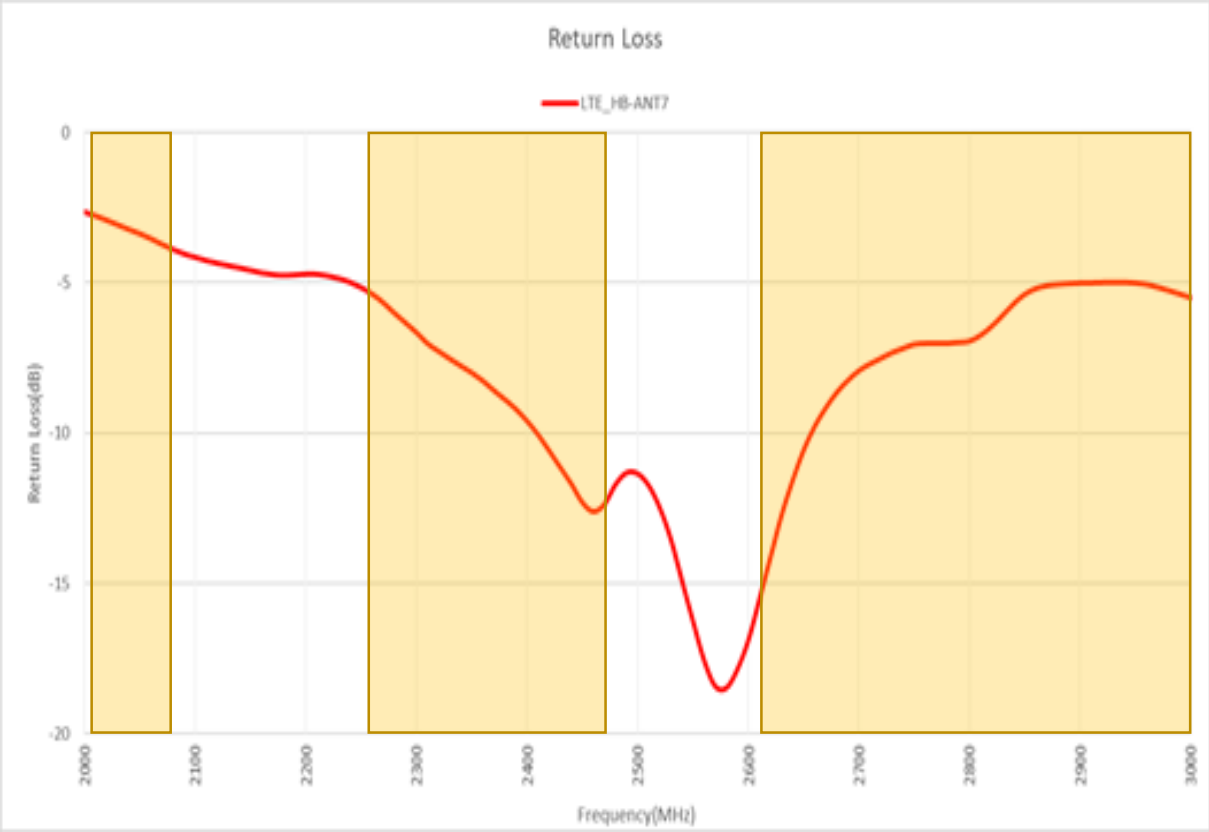
3600MHz

4000MHz

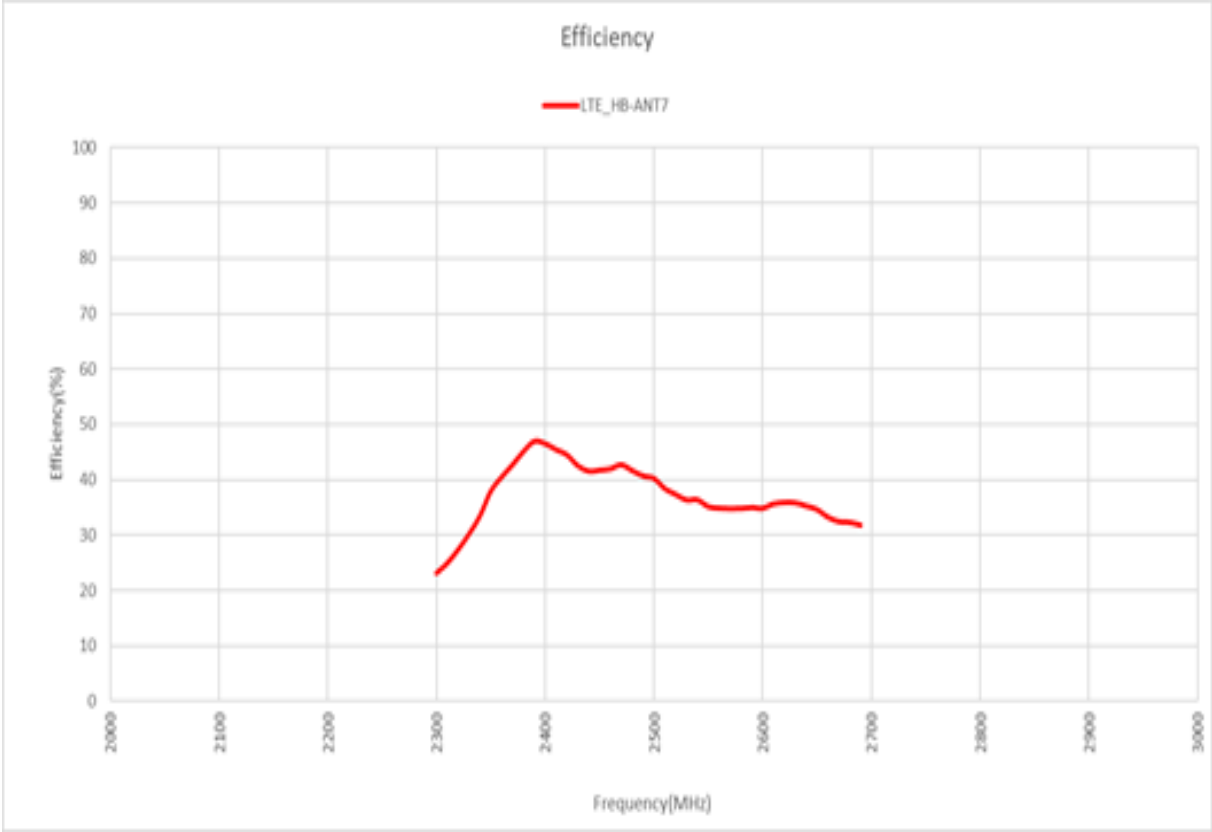
4700MHz

Antenna Passive Performance—ANT7

Return Loss

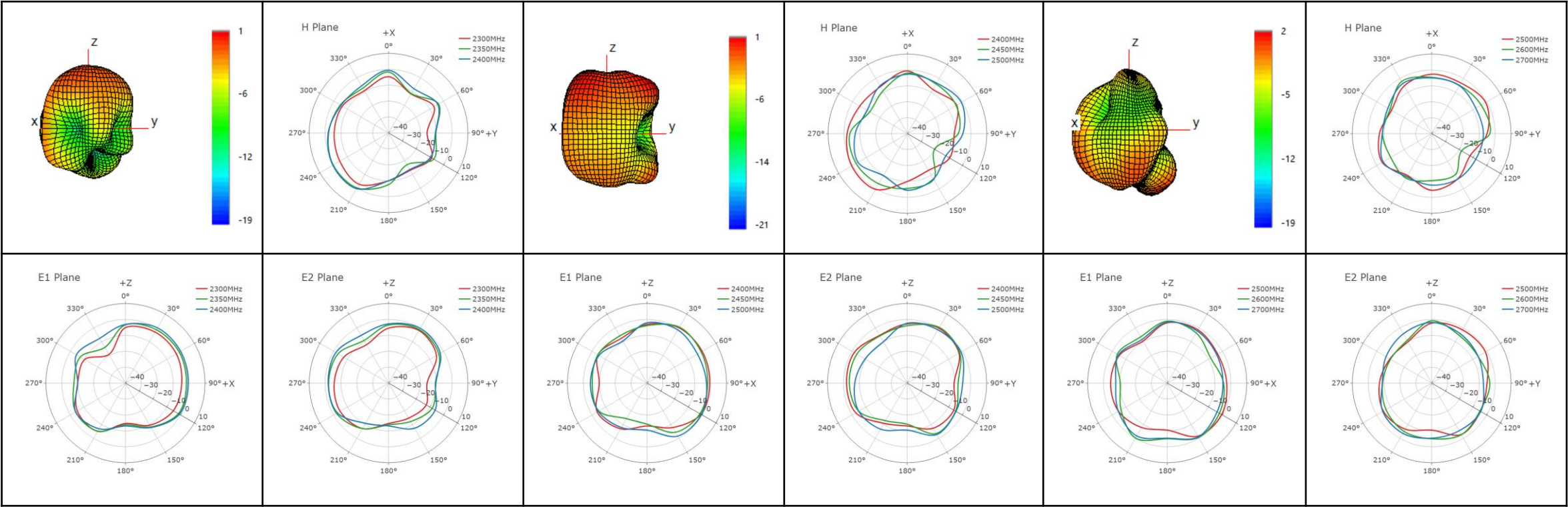


Efficiency



Antenna Passive Performance—ANT7

- Radiation Pattern



2350MHz

2450MHz

2600MHz



ikotek

Your Trusted IoT ODM Partner



Thank You