

# Antenna Measurement Data

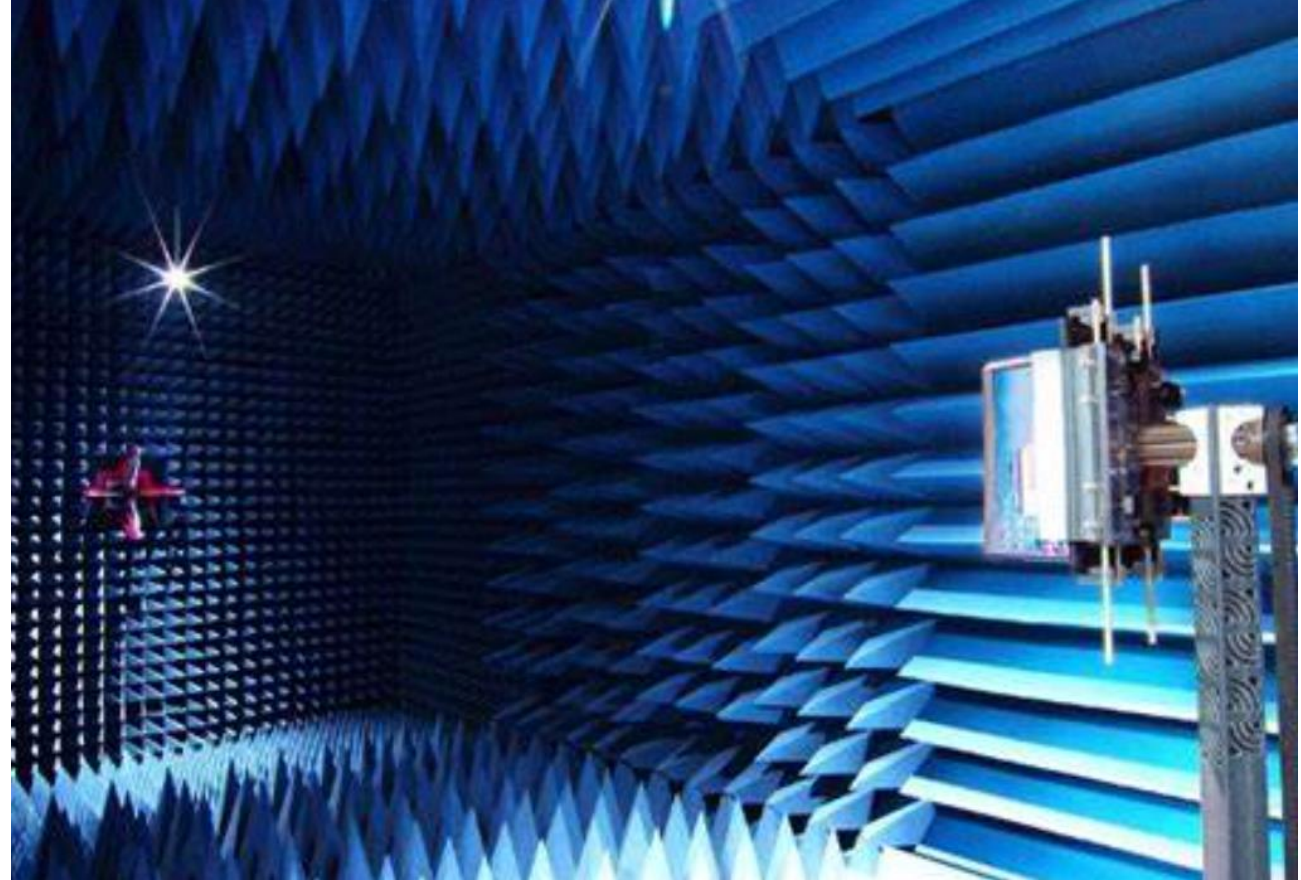
# Introduction

This report provides LTE & Wi-Fi antenna passive measurement results which include:

- General Information
- Antenna Measurement System Information
- Test Procedure
- DUT Information
- Test Result (Antenna Peak Gain)
- Test Result 2D/3D Radiation Pattern and Raw Data
- Set-up Photo

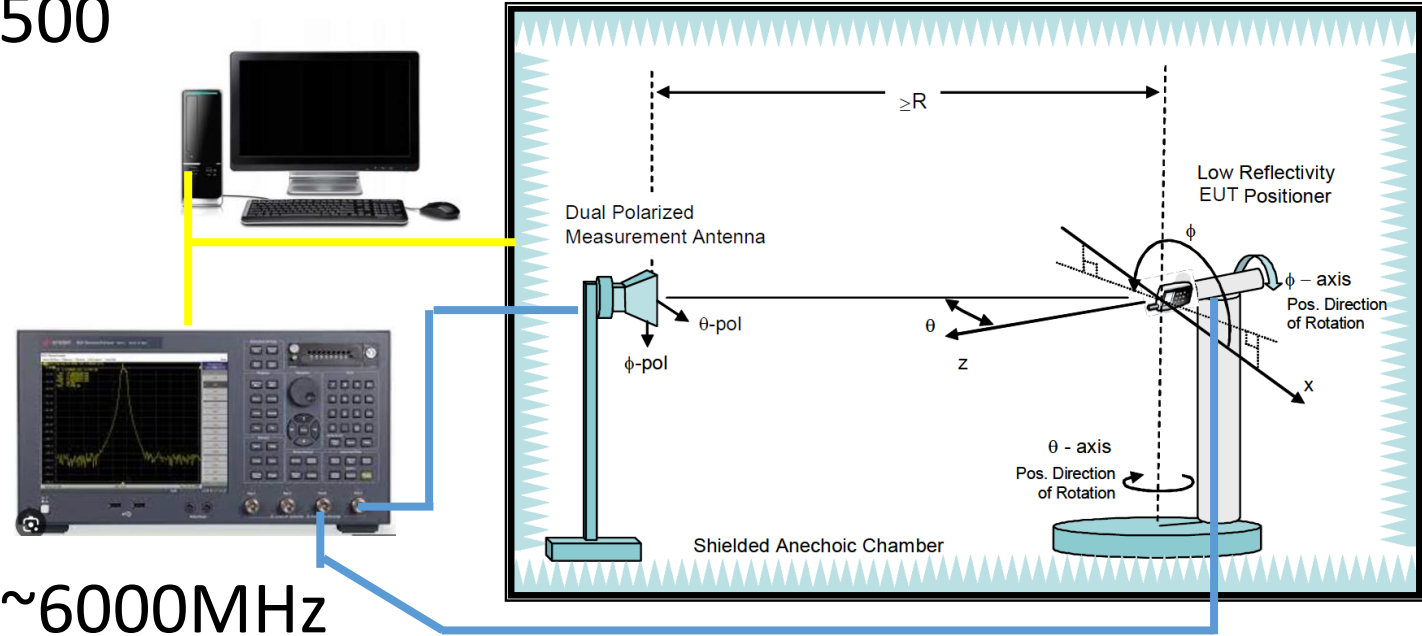
# General Information

- Antenna Vendor : PEGA
- Test Date: 20231116
- Test Engineer: Beven Hsieh
- Measurement System: ETS
- Chamber: AMS-8500



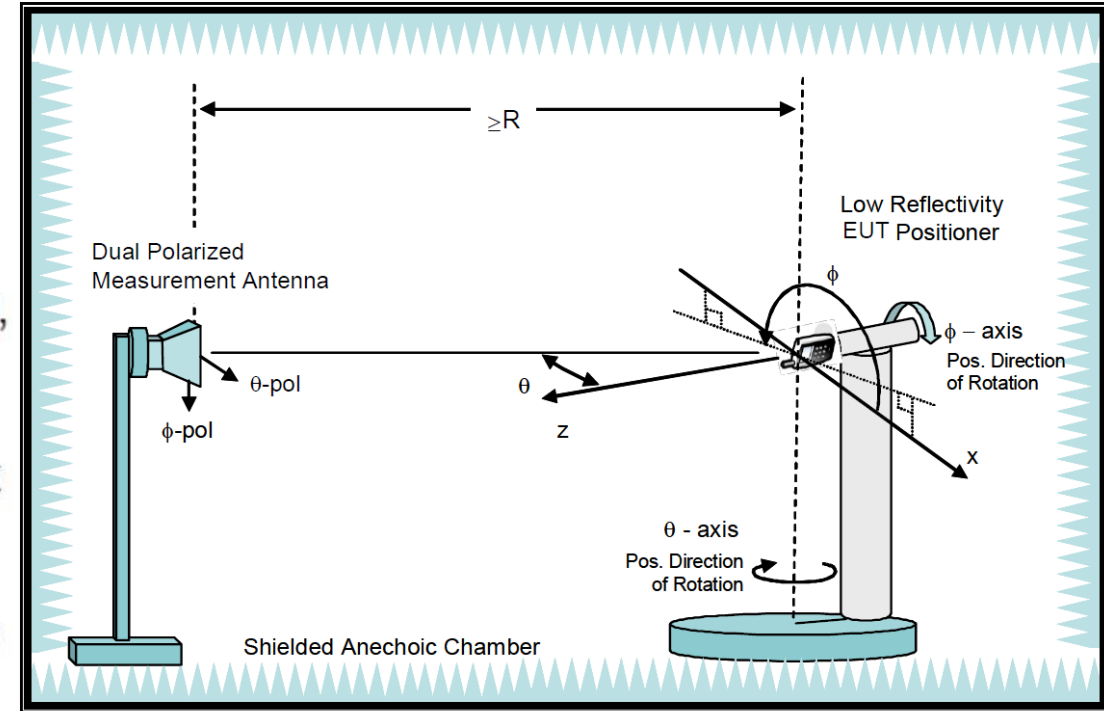
# Antenna Measurement System Information

- Measurement System: ETS AMS-8500
  - Pattern & Gain measurement
    1. ETS AMS-8500
    2. ETS program
    3. System overview
  - Test Item
    1. Antenna passive test 400MHz~6000MHz



# Test Procedure

1. Place the device to be tested on the fixture and align it with the center of the chamber.
2. Connect the antenna cable to the RF connector of the chamber.
3. Use the SW to configure parameters (antenna name, frequency points, measurement angles, antenna dimension), and then run the test SW (wave studio).
4. By phi from  $0^\circ$  to  $360^\circ$  and theta from  $0^\circ$  to  $180^\circ$  with a step Size of 15 degrees, get the 3D data, including efficiency, peak gain, 2D and 3D radiation patterns.
5. This is far field test for antenna verification.
6. This is passive measurement, which means the device is off and not in any operating mode.



# DUT Information

- DUT Operation Mode

| Support Band | ?TX/?RX | Operation Mode |
|--------------|---------|----------------|
| 2.4G         | 1TX/1RX | ???            |
| BT           | 1TX/1RX | ???            |
| 5G UNII-1    | 1TX/1RX | ???            |
| 5G UNII-2a   | 1TX/1RX | ???            |
| 5G UNII-2c   | 1TX/1RX | ???            |
| 5G UNII-3    | 1TX/1RX | ???            |

# DUT Information

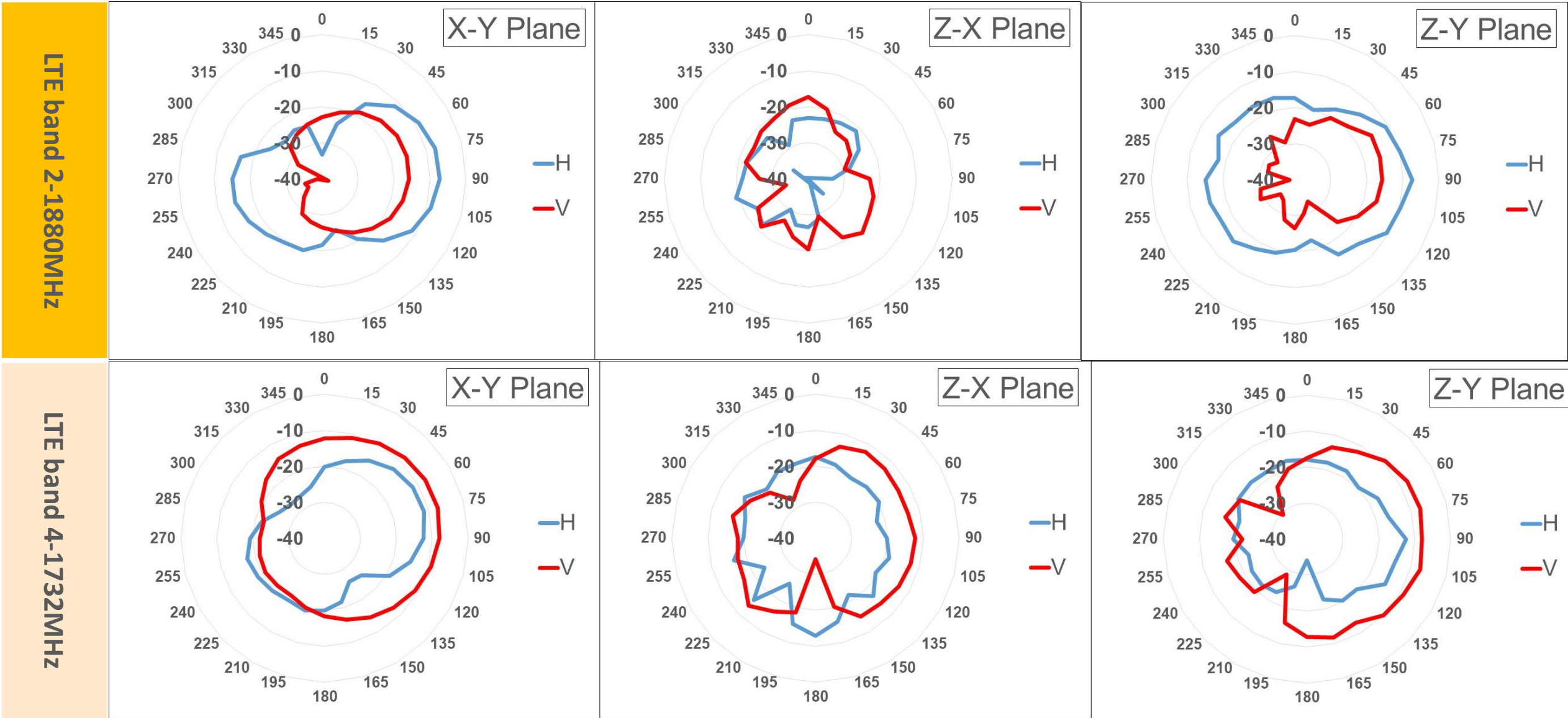
- Antenna System information

| Antenna NO. | RF Chain NO. | Brand | Model  | Support Function                                  | Antenna Type | Connector Type |
|-------------|--------------|-------|--------|---------------------------------------------------|--------------|----------------|
| Bezel ANT   | 0            | Fill  | XXX-01 | LTE all band, GPS & Wi-Fi 2/5-GHz band/BT antenna | PIFA         | Spring         |

# Test Result (Antenna Peak Gain)

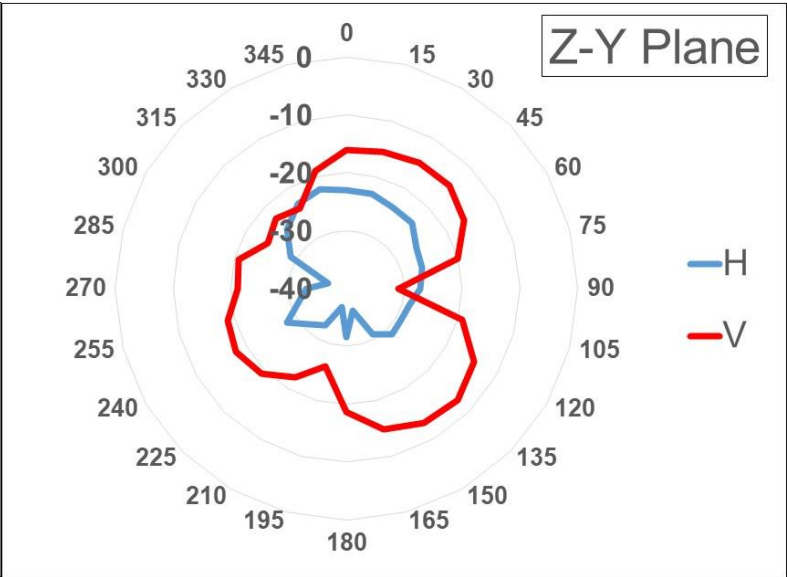
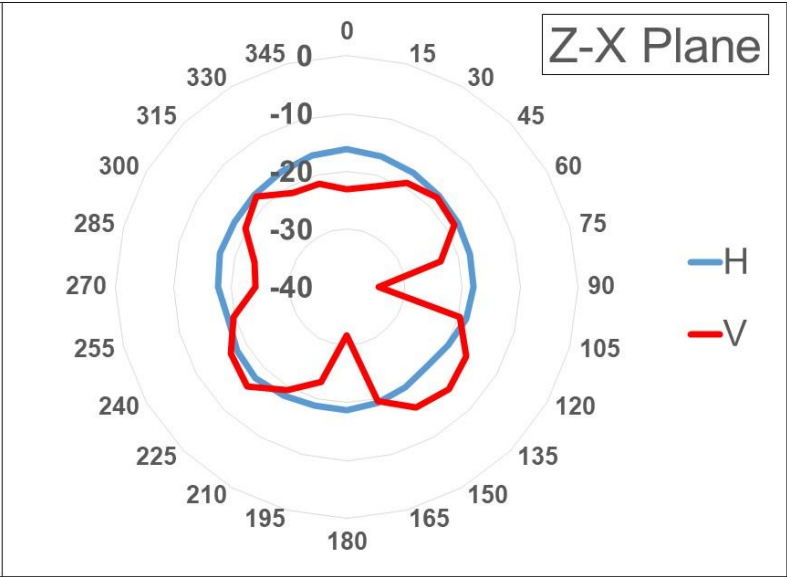
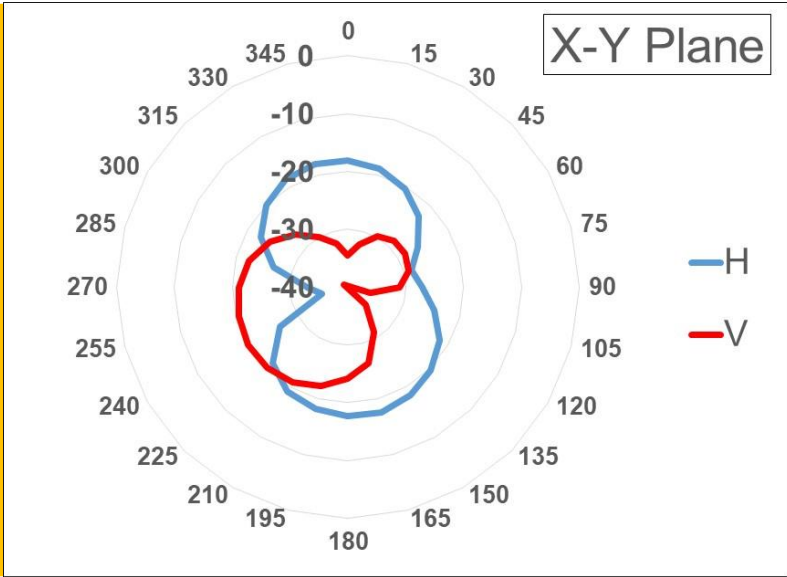
|             |   | Frequency(MHz) | PeaK Gain |                       |         | Frequency(MHz) | PeaK Gain |
|-------------|---|----------------|-----------|-----------------------|---------|----------------|-----------|
| LTE Band 2  | L | 1850           | -6.3      | LTE Band 66           | L       | 1710           | -6.7      |
|             | M | 1880           | -6.7      |                       | M       | 1745           | -5.6      |
|             | H | 1910           | -7.2      |                       | H       | 1780           | -6.4      |
| LTE Band 4  | L | 1710           | -6.7      | Wi-Fi<br>(include BT) | 2.4G    | 2450           | -5.7      |
|             | M | 1732           | -5.7      |                       | UNII-1  | 5200           | -6.0      |
|             | H | 1755           | -5.6      |                       | UNII-2a | 5300           | -6.3      |
| LTE Band 12 | L | 699            | -12.7     |                       | UNII-2c | 5600           | -6.5      |
|             | M | 707            | -12.3     |                       | UNII-3  | 5785           | -7.2      |
|             | H | 716            | -11.8     |                       |         |                |           |
| LTE Band 13 | L | 777            | -12.1     |                       |         |                |           |
|             | M | 782            | -12.2     |                       |         |                |           |
|             | H | 787            | -12.6     |                       |         |                |           |
| LTE Band 17 | L | 704            | -12.3     |                       |         |                |           |
|             | M | 710            | -12.0     |                       |         |                |           |
|             | H | 716            | -11.8     |                       |         |                |           |

# Test Result 2D/3D Radiation Pattern

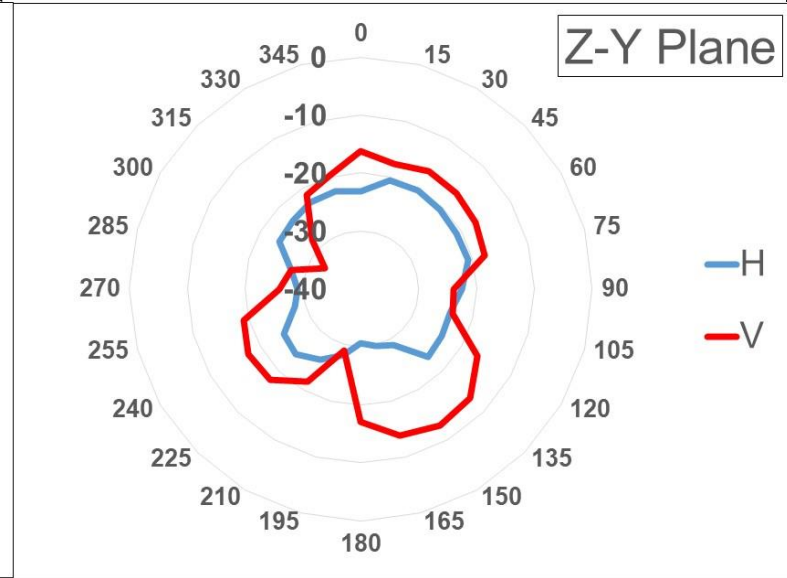
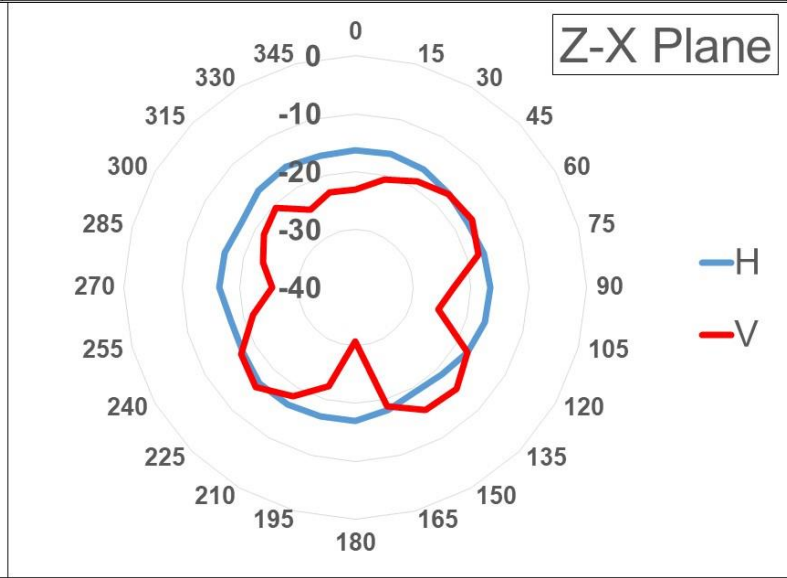
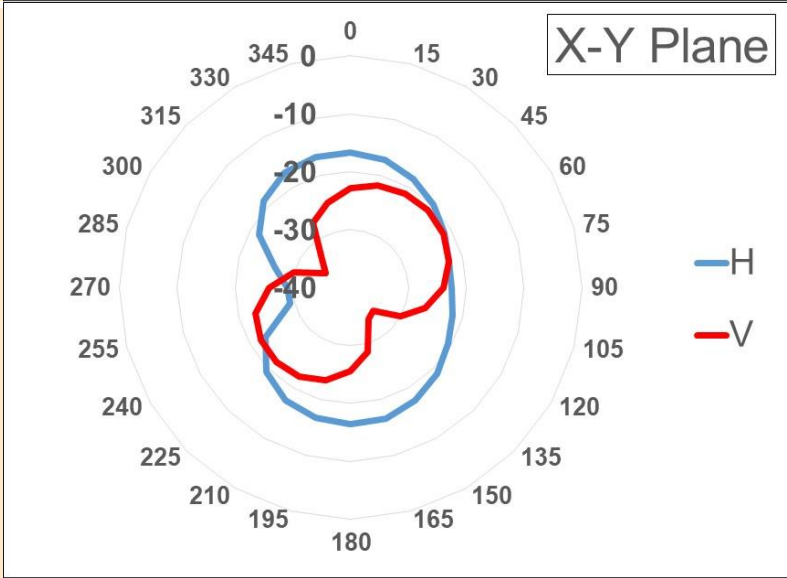


# Test Result 2D/3D Radiation Pattern

LTE band 12-707MHz

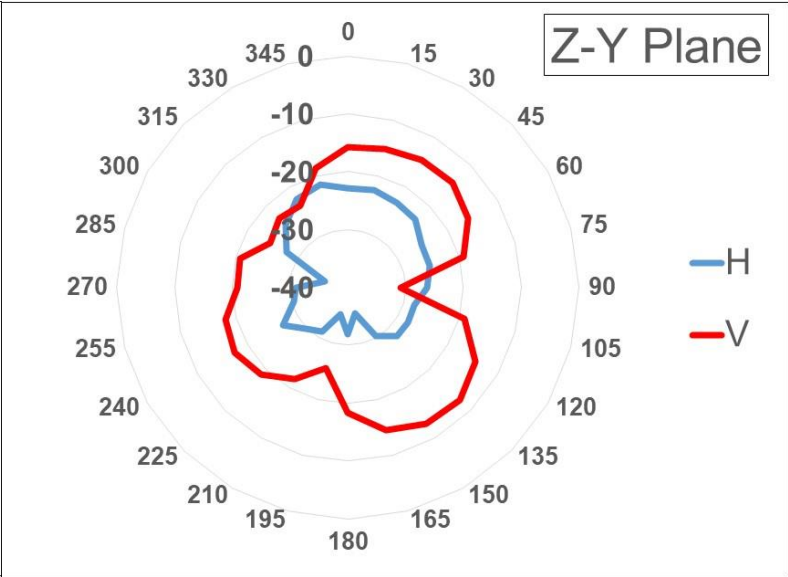
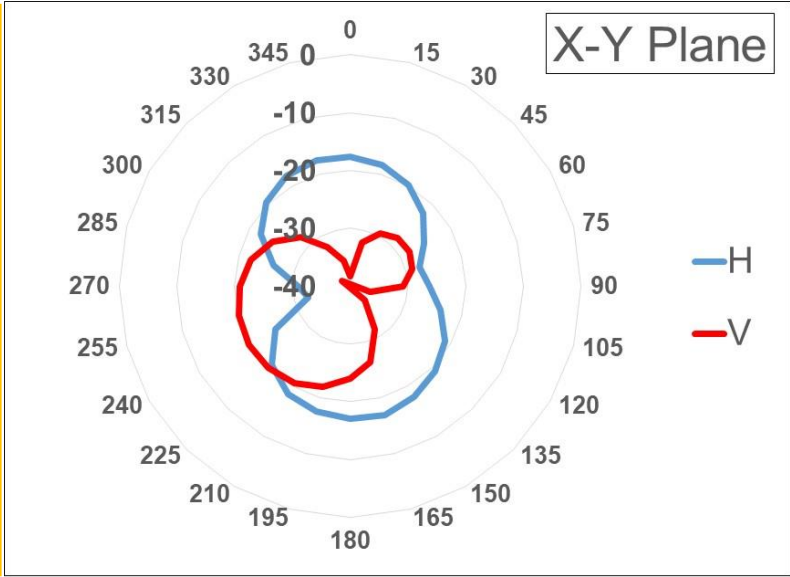


LTE band 13-782MHz

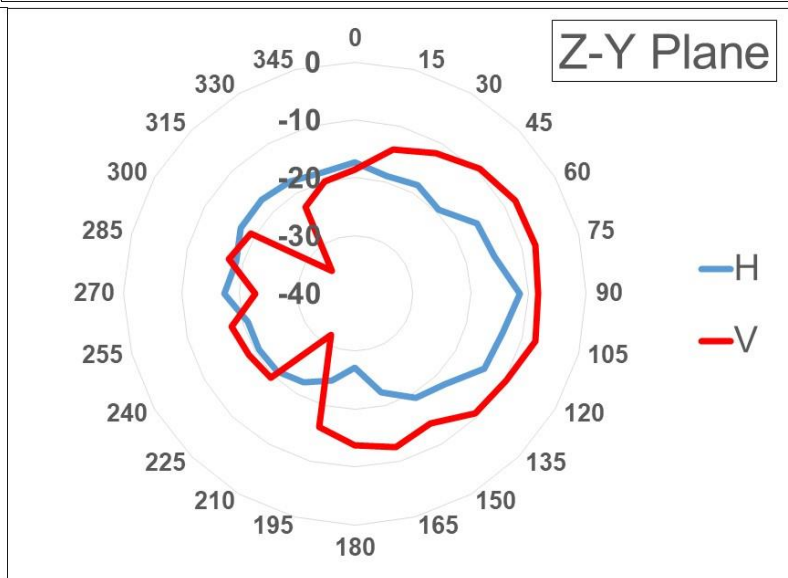
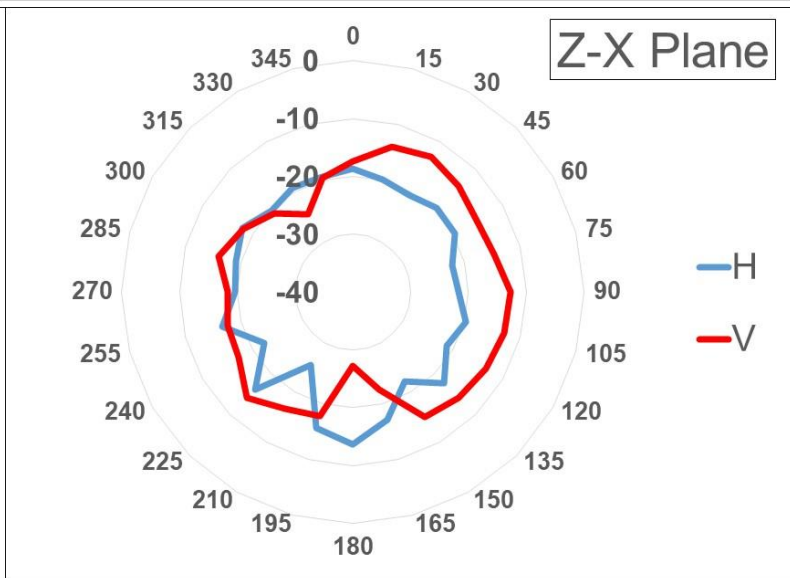
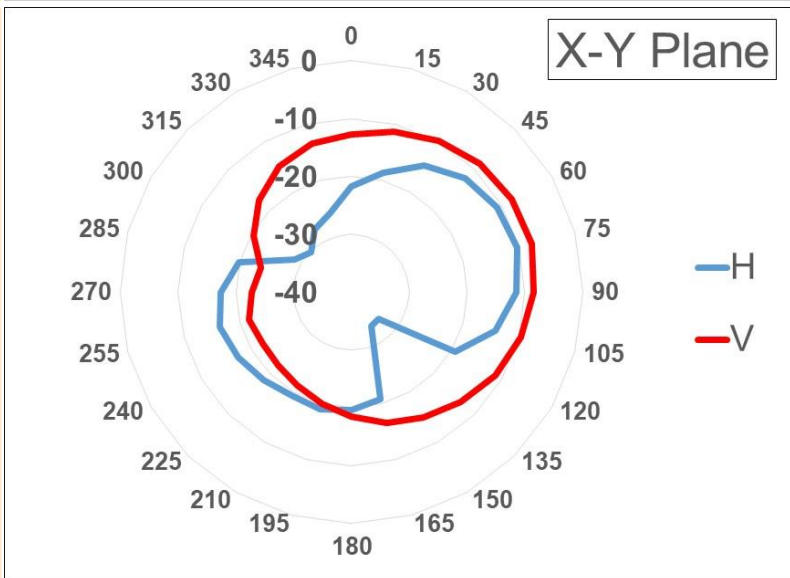


# Test Result 2D/3D Radiation Pattern

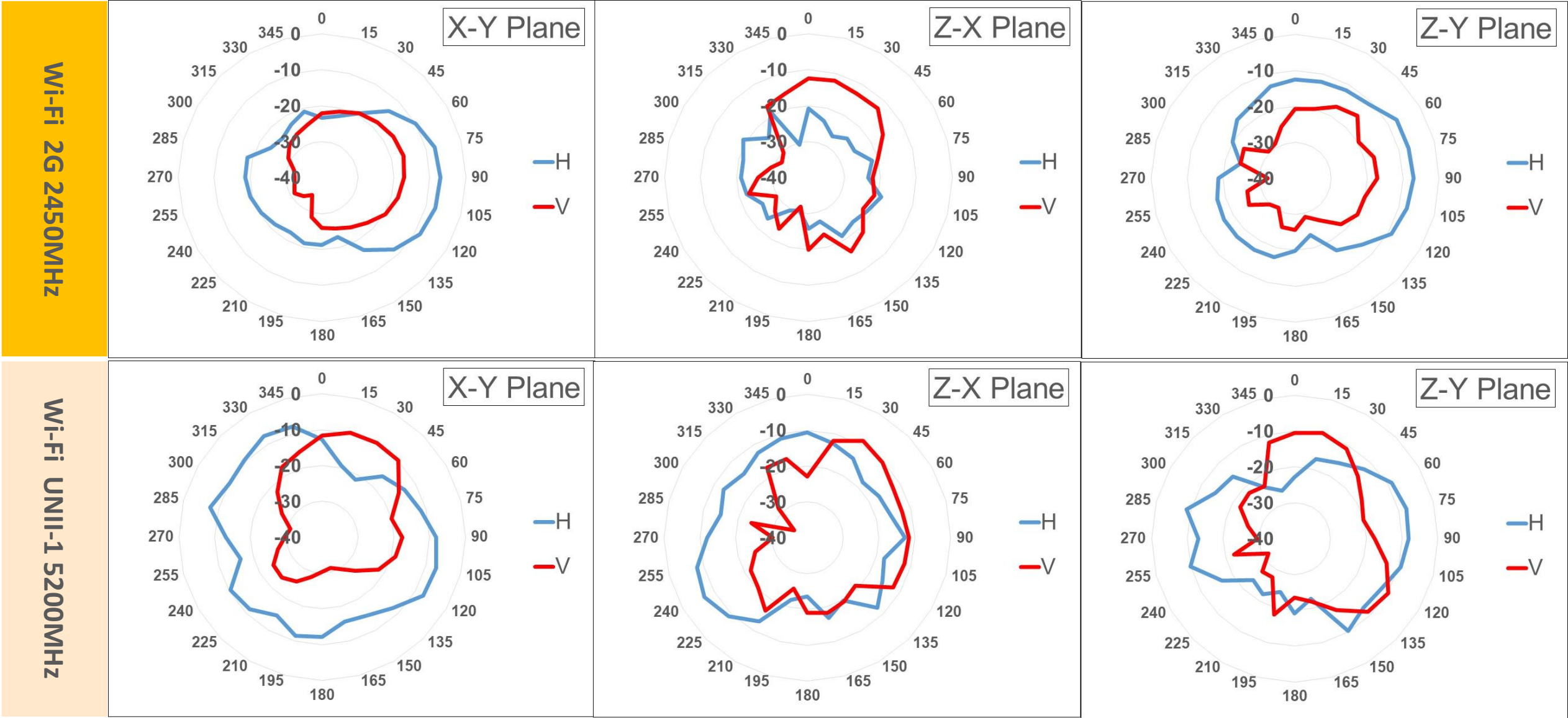
LTE band 17-710MHz



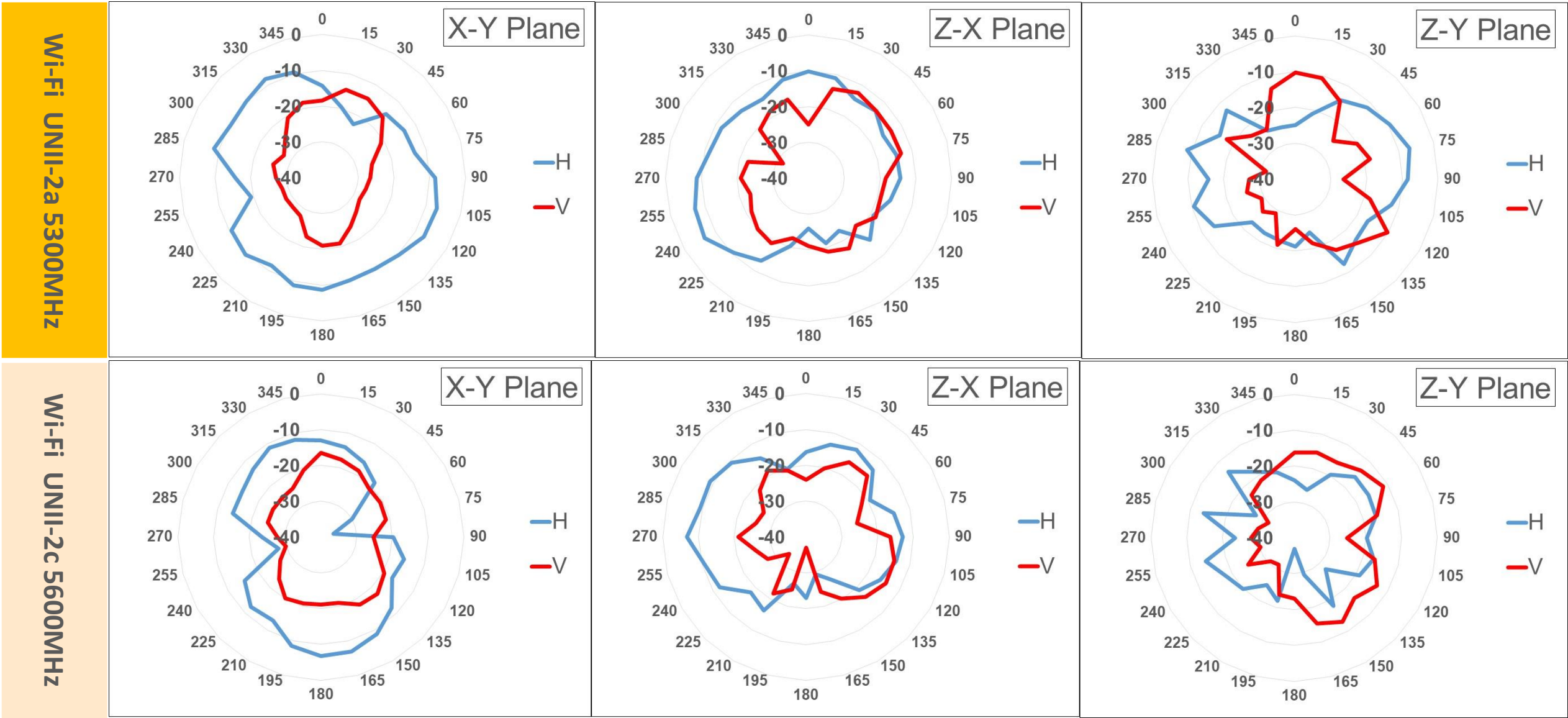
LTE band 66-1745MHz



# Test Result 2D/3D Radiation Pattern



# Test Result 2D/3D Radiation Pattern



# Test Result 2D/3D Radiation Pattern

