

# Firefoot Antenna Report

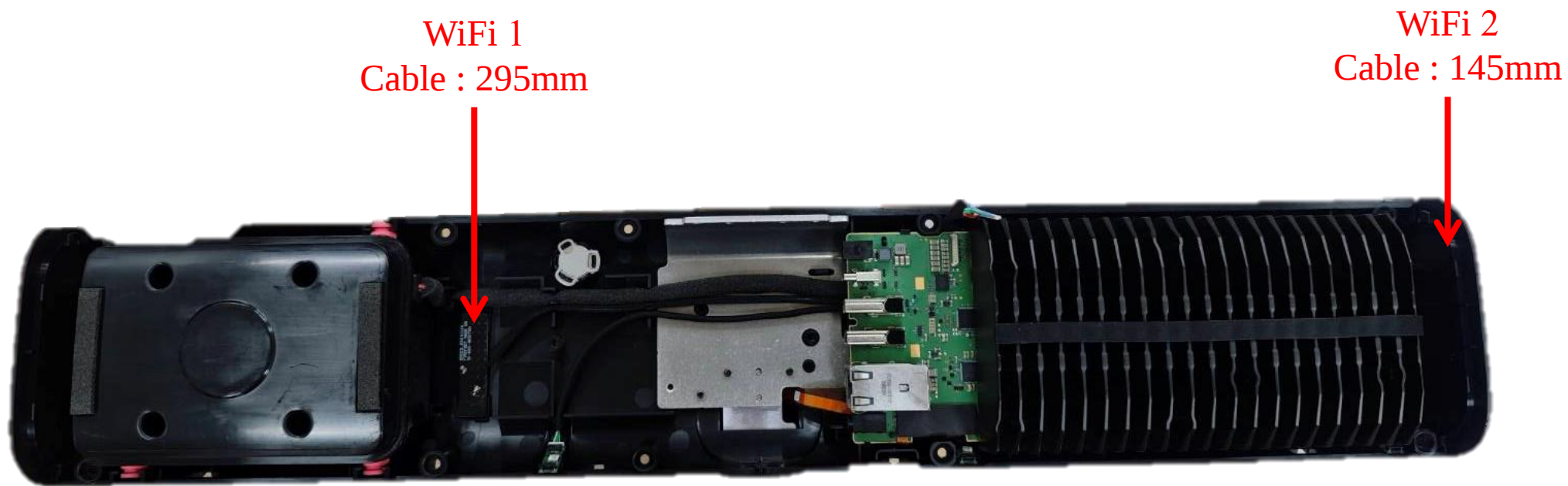


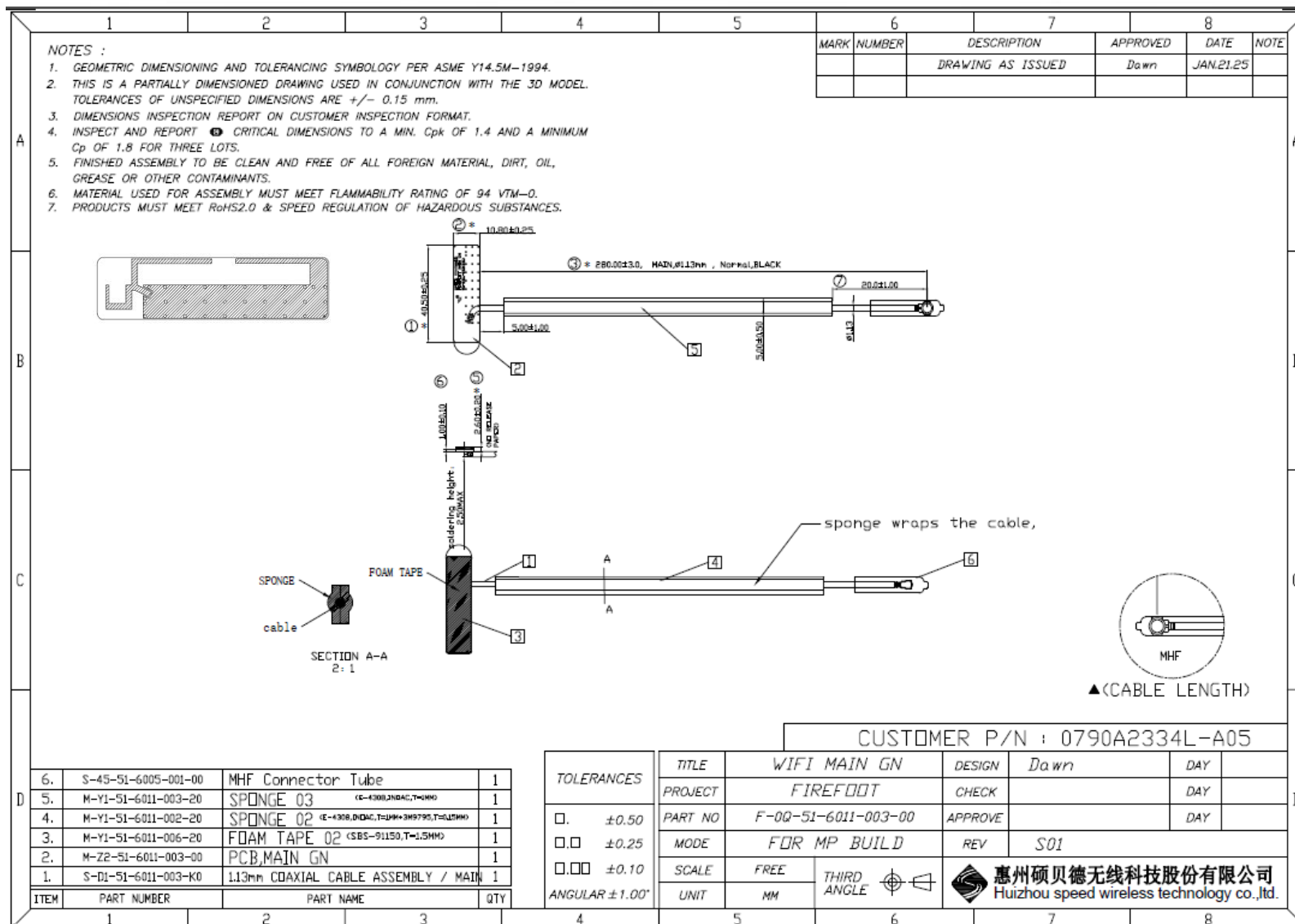
2024-12-24

# Test Information

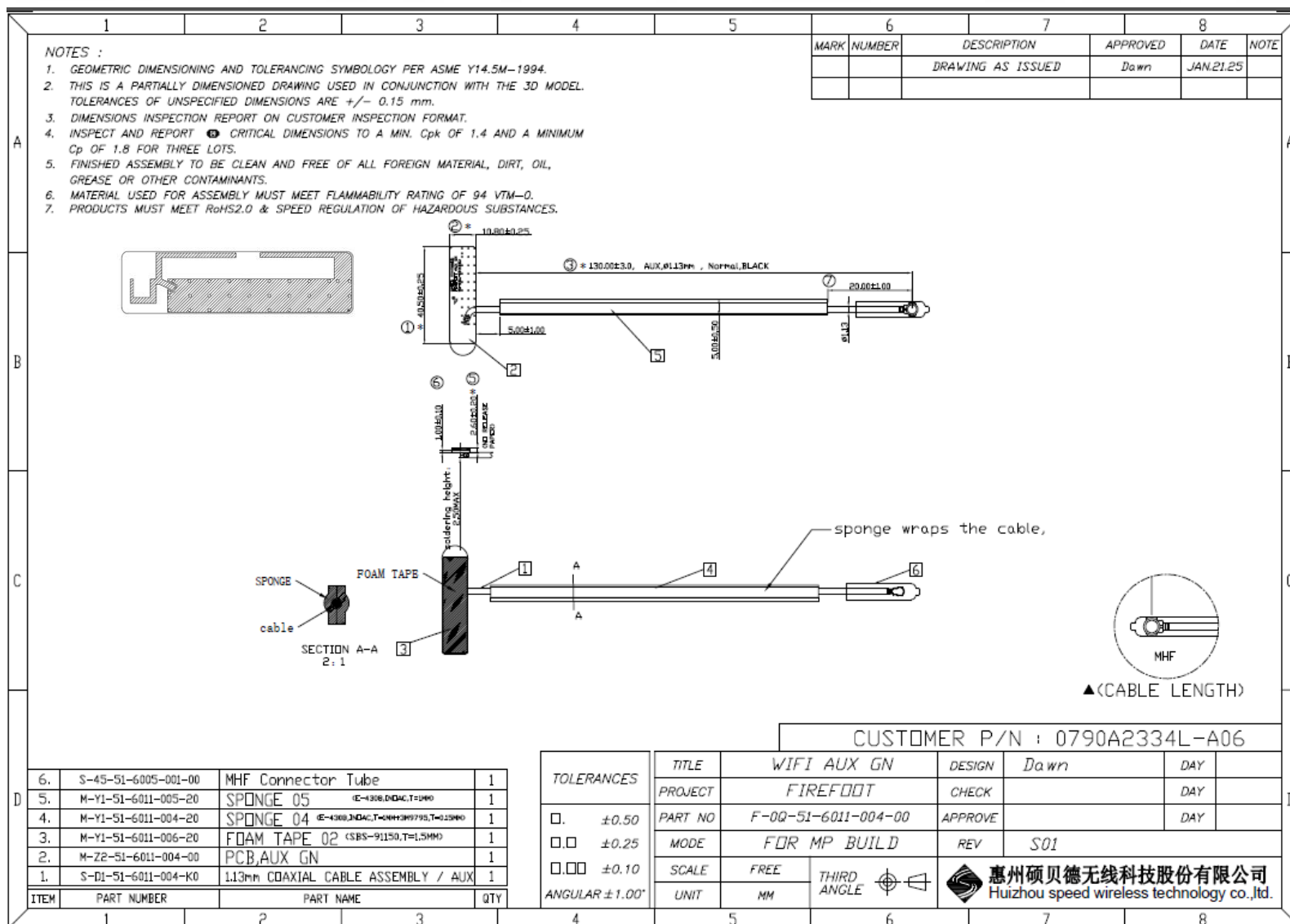
| TYPE OF EQUIPMENT             | MODEL NUMBER           |
|-------------------------------|------------------------|
| OTA ETS Anechoic Chamber      | ETS-Lindgren AMS-8500  |
| Measurement Software          | ETS-Lindgren EMQuest   |
| Multi-Axis Positioning System | ETS-Lindgren EM Center |
| Switch Control                | ETS-Lindgren EM Center |
| Network Analyzer              | Agilent E5071C         |

# Environment of Antenna Placement





# Antenna Pattern

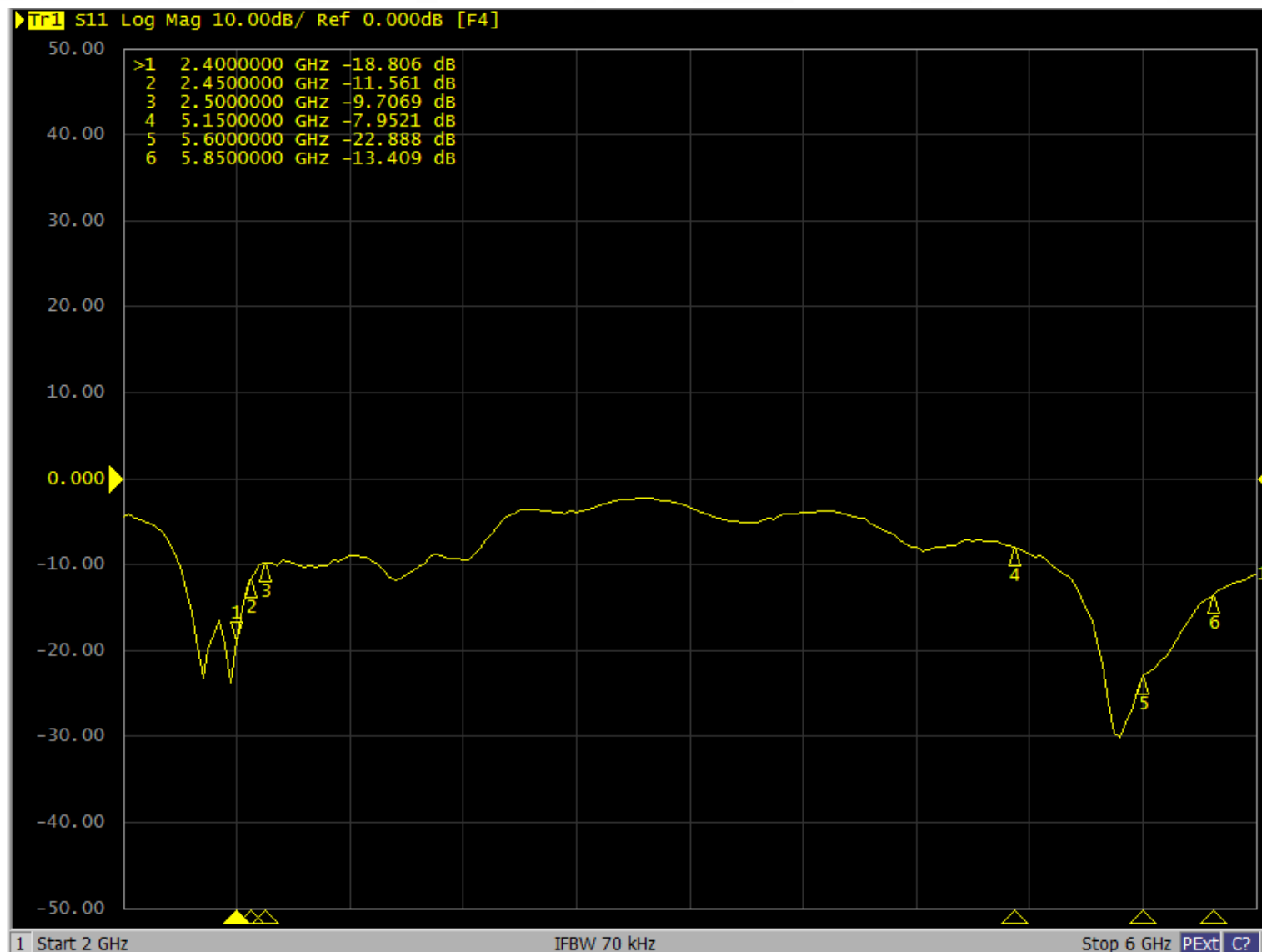




# Antenna Simulation Analysis

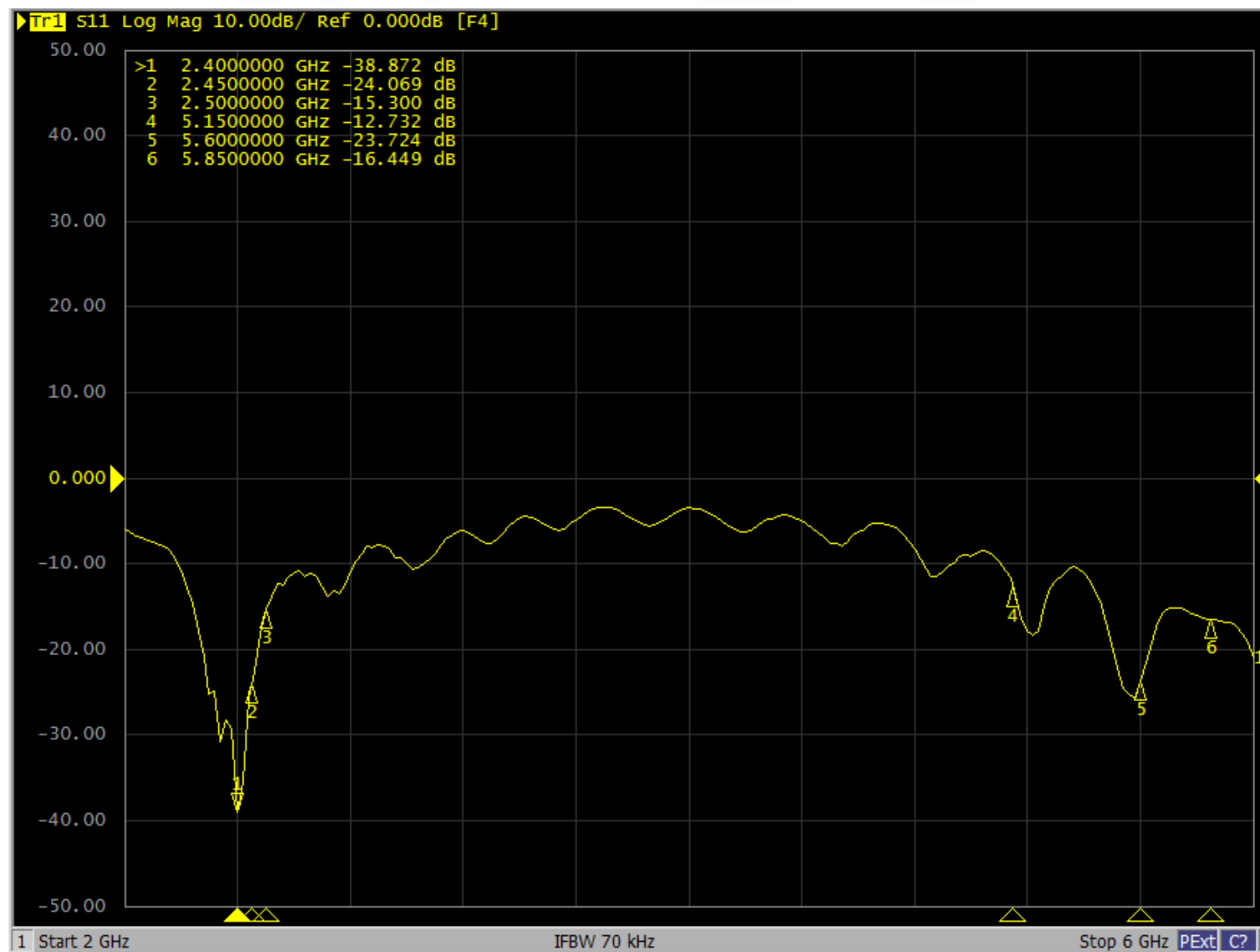
# Return loss

WiFi-1

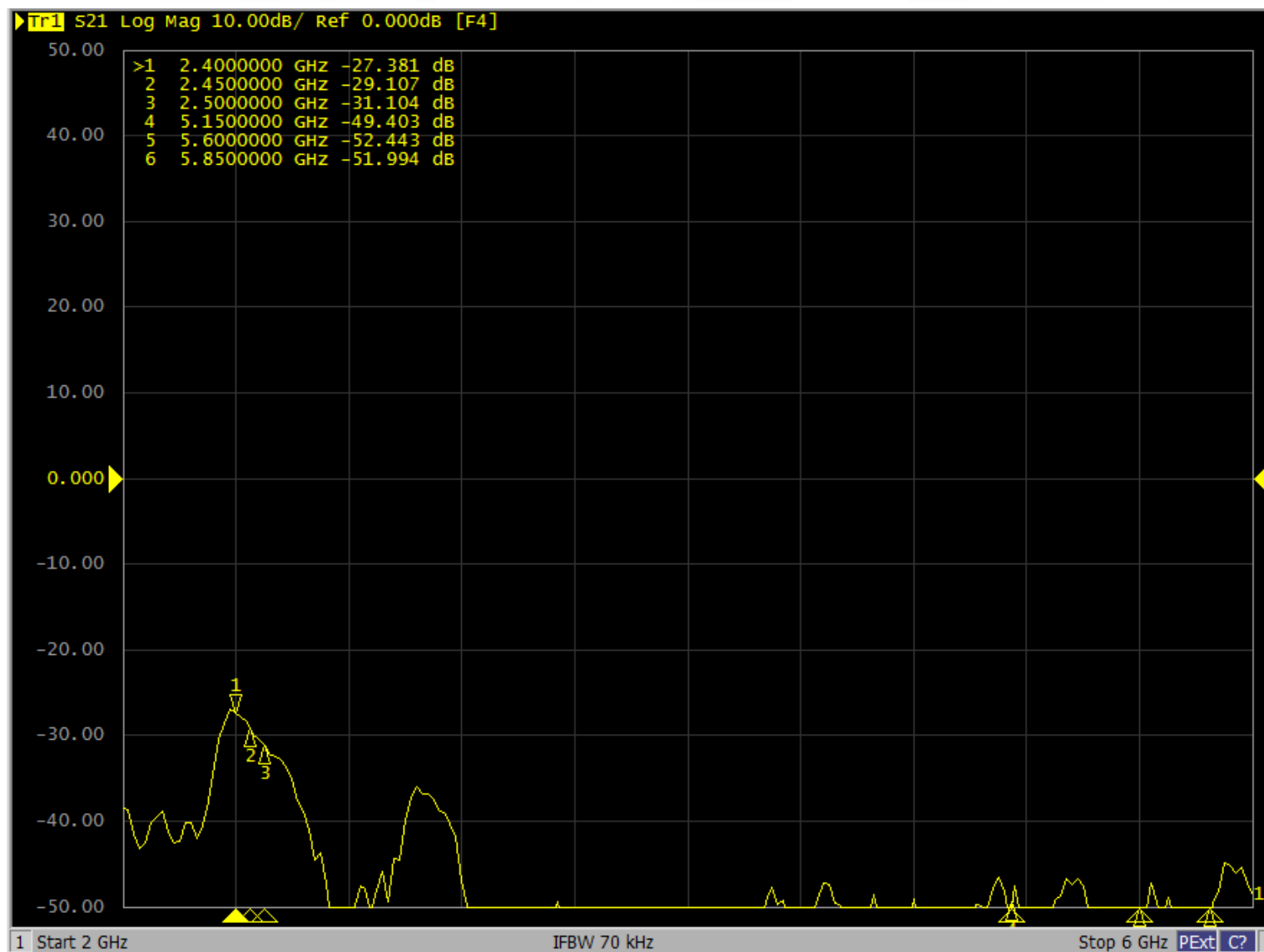


# Return loss

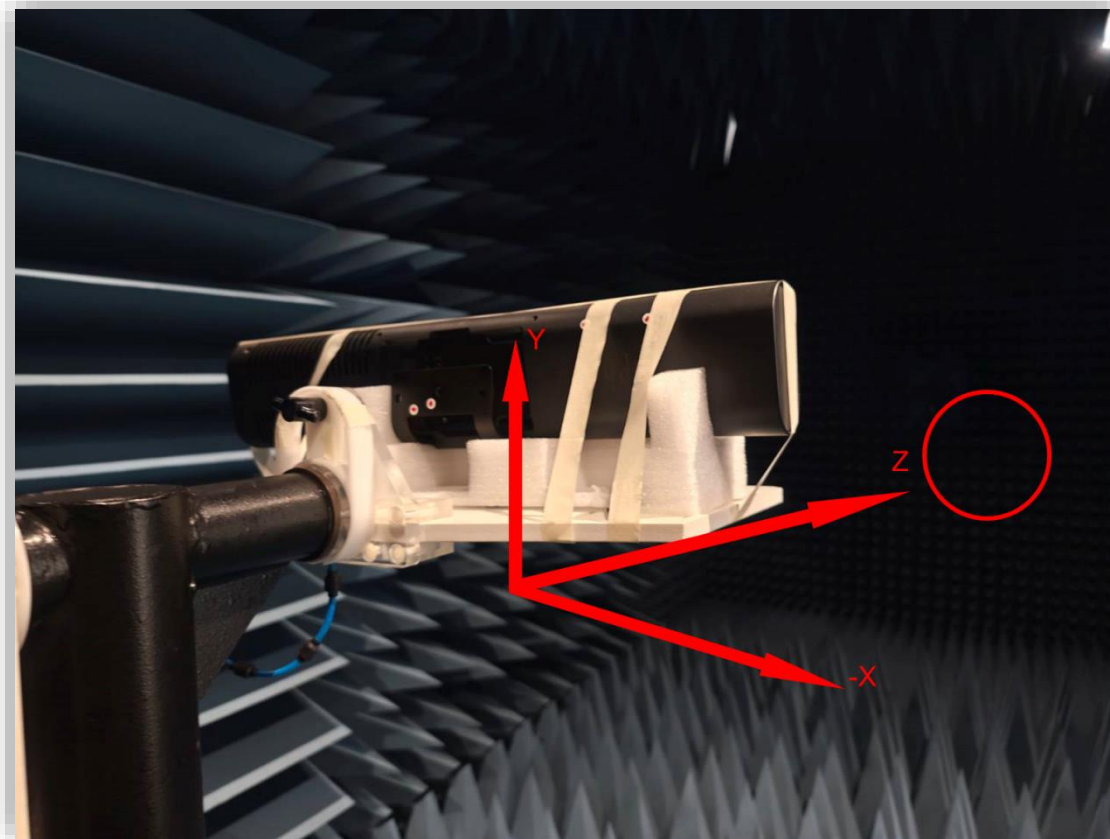
WiFi-2



# Isolation



# Chamber measurement photo



# 3D Gain Total

WiFi 1

| Frequency<br>(MHz) | Peak Gain<br>(dBi) | 3D Gain<br>(dB) | 3D Radiation<br>Efficiency (%) |
|--------------------|--------------------|-----------------|--------------------------------|
| 2400               | 3.38               | -2.64           | 54                             |
| 2450               | 3.70               | -2.24           | 60                             |
| 2500               | 4.41               | -2.02           | 63                             |
| 5150               | 3.33               | -2.35           | 58                             |
| 5250               | 3.69               | -2.80           | 53                             |
| 5350               | 3.66               | -2.81           | 52                             |
| 5470               | 3.61               | -2.80           | 52                             |
| 5600               | 3.77               | -2.77           | 53                             |
| 5725               | 3.79               | -2.85           | 52                             |
| 5785               | 3.16               | -3.37           | 46                             |
| 5850               | 2.39               | -4.15           | 38                             |

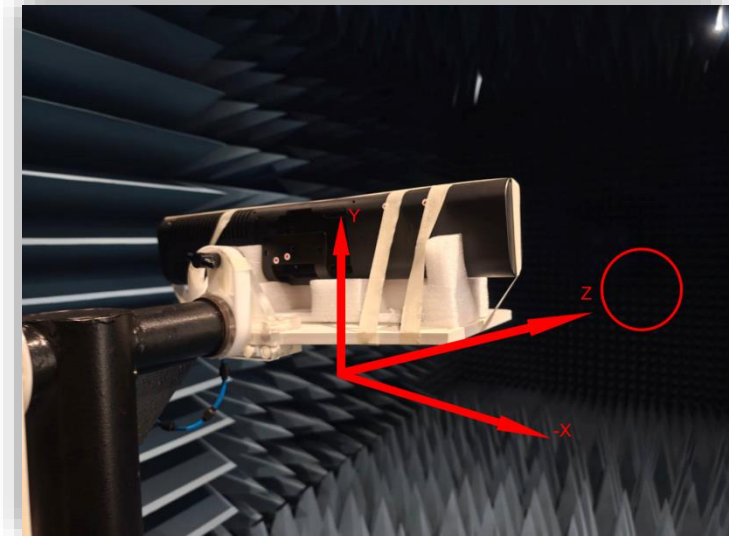
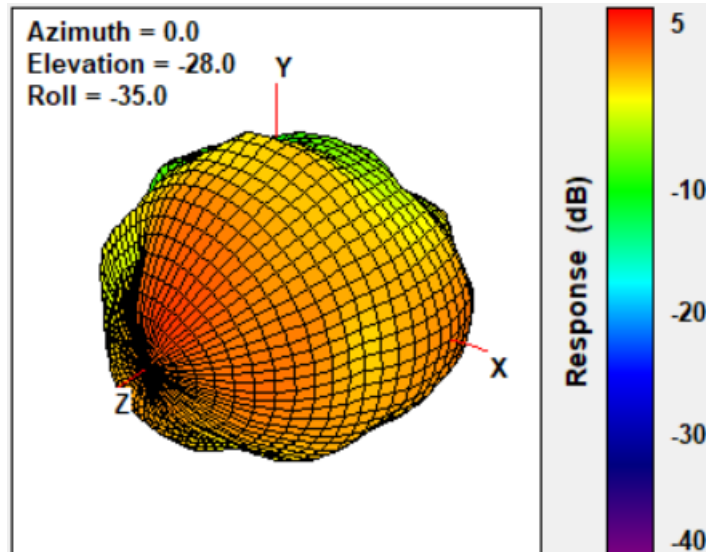
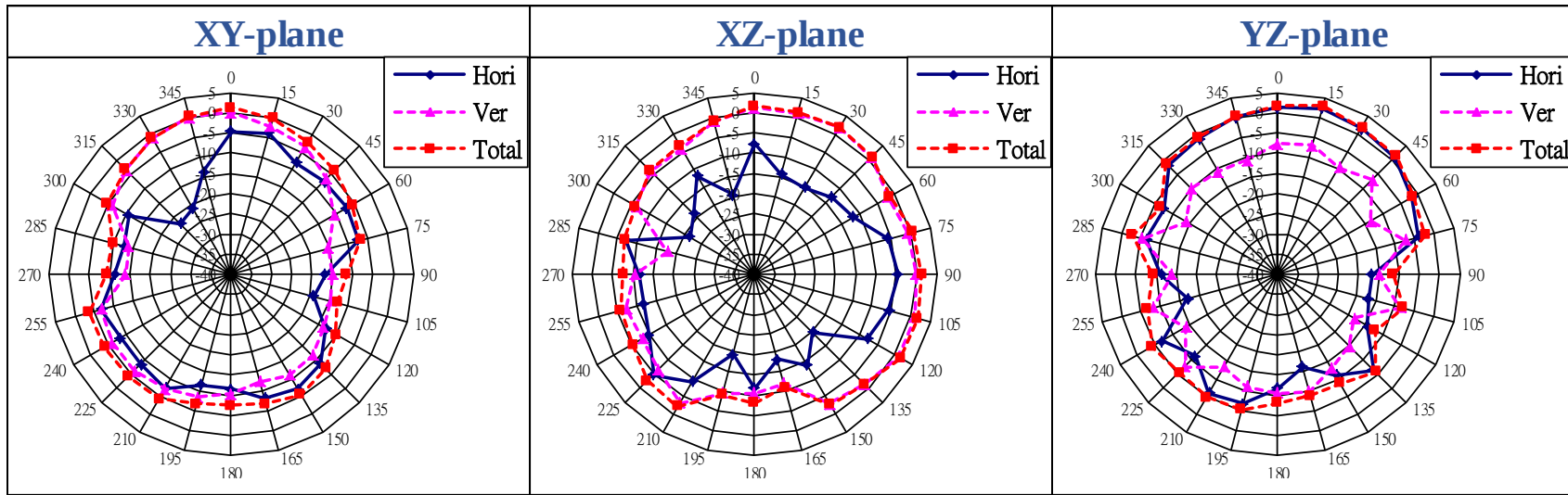
# 3D Gain Total

WiFi 2

| Frequency<br>(MHz) | Peak Gain<br>(dBi) | 3D Gain<br>(dB) | 3D Radiation<br>Efficiency (%) |
|--------------------|--------------------|-----------------|--------------------------------|
| 2400               | 3.50               | -3.25           | 47                             |
| 2450               | 3.53               | -3.07           | 49                             |
| 2500               | 3.94               | -2.77           | 53                             |
| 5150               | 3.12               | -3.72           | 42                             |
| 5250               | 3.75               | -2.90           | 51                             |
| 5350               | 2.66               | -3.37           | 46                             |
| 5470               | 2.92               | -3.83           | 41                             |
| 5600               | 3.26               | -3.42           | 45                             |
| 5725               | 3.24               | -3.54           | 44                             |
| 5785               | 2.41               | -4.14           | 39                             |
| 5850               | 2.29               | -4.45           | 36                             |

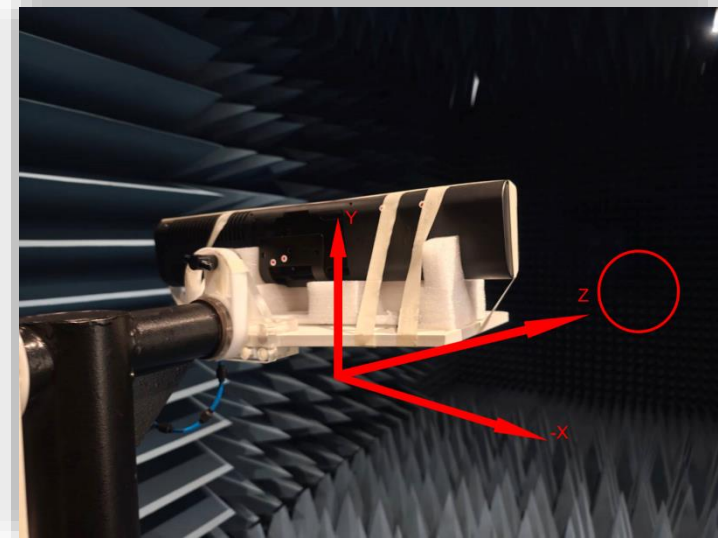
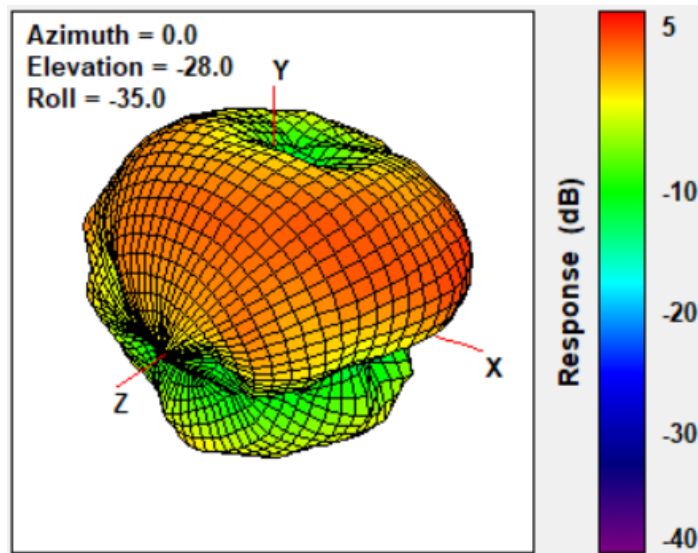
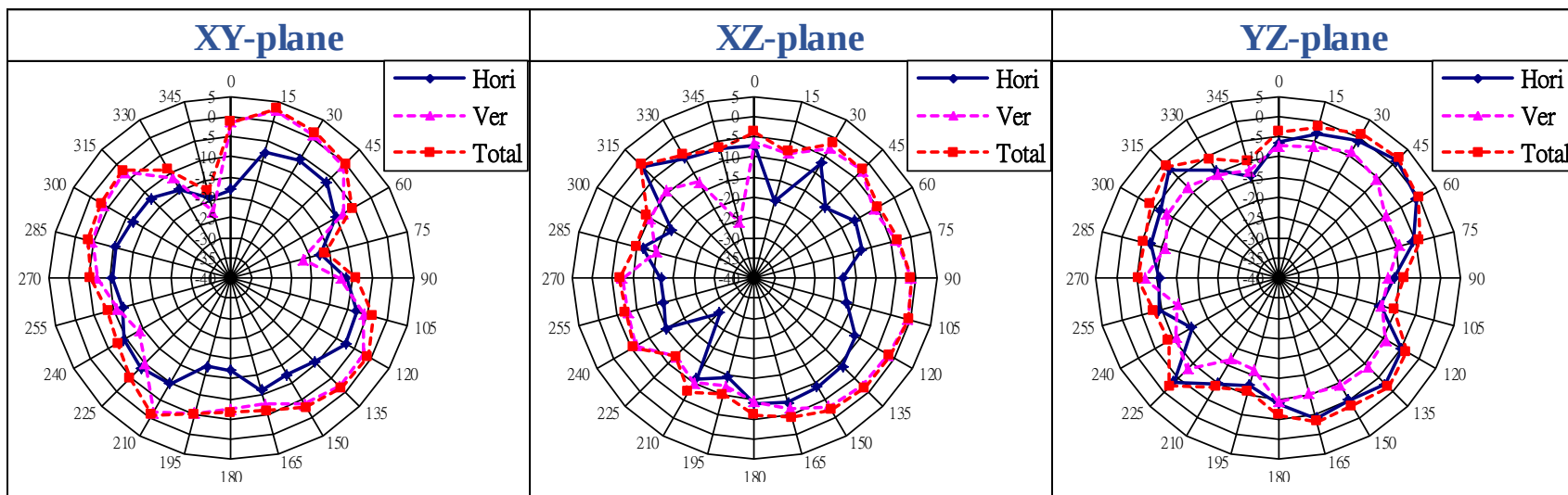
# 3D Radiation pattern

WiFi 1  
2450MHz



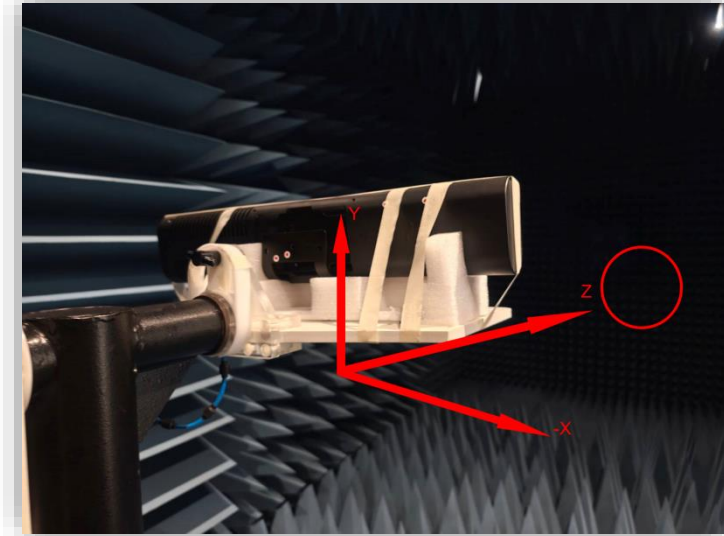
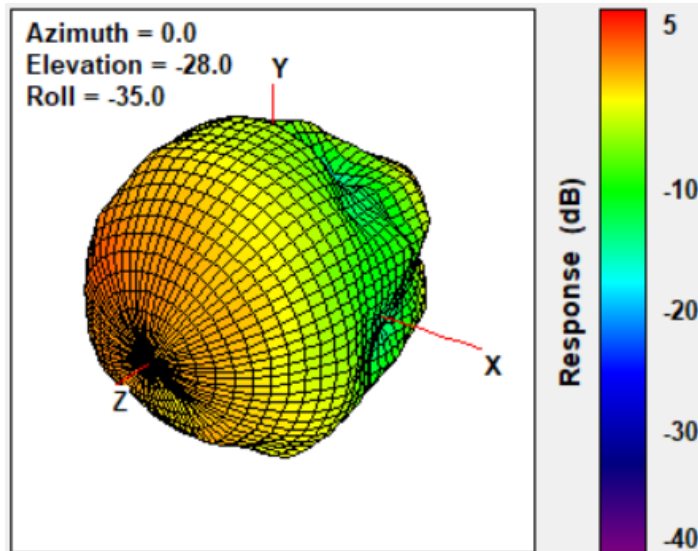
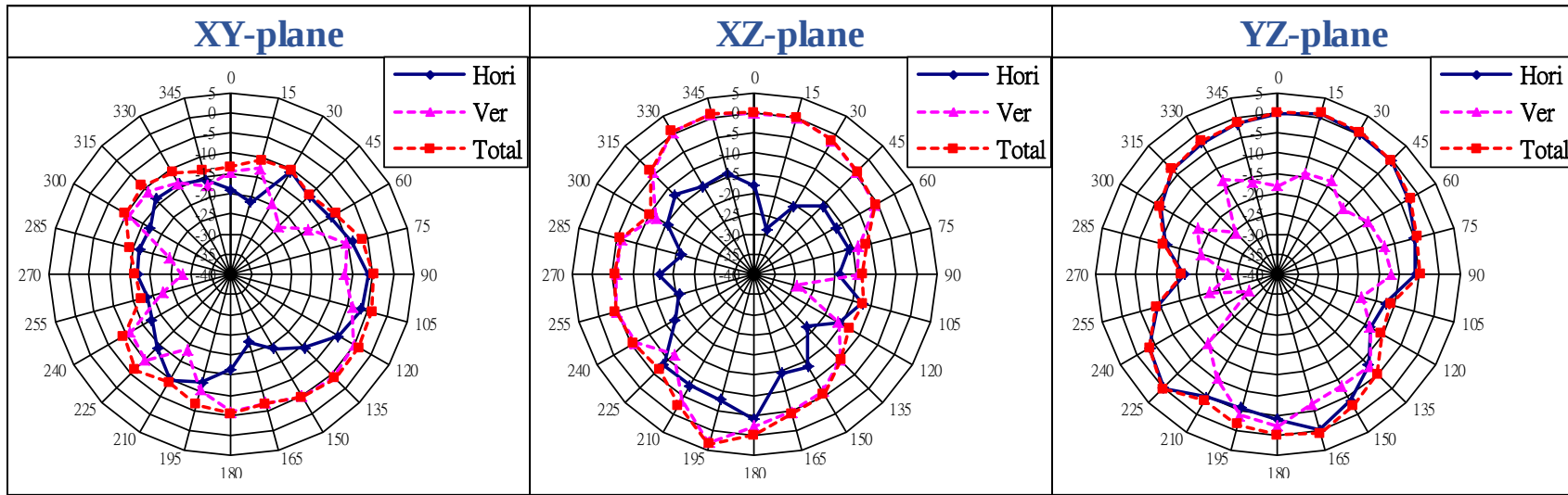
# 3D Radiation pattern

WiFi 1  
5600MHz



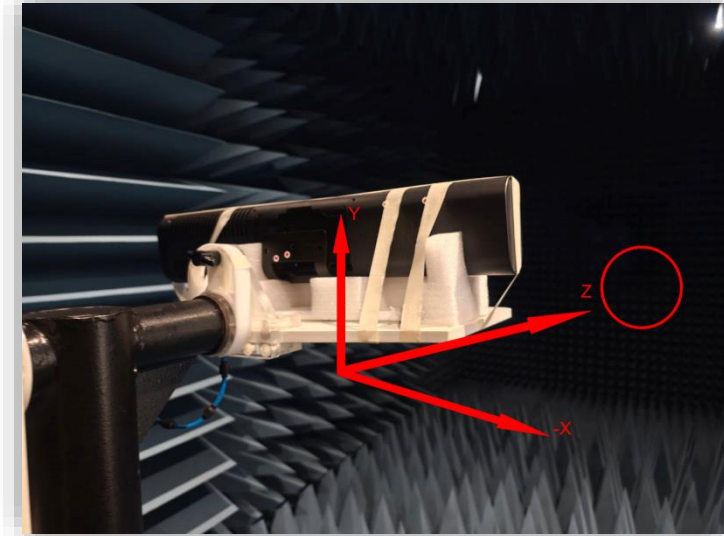
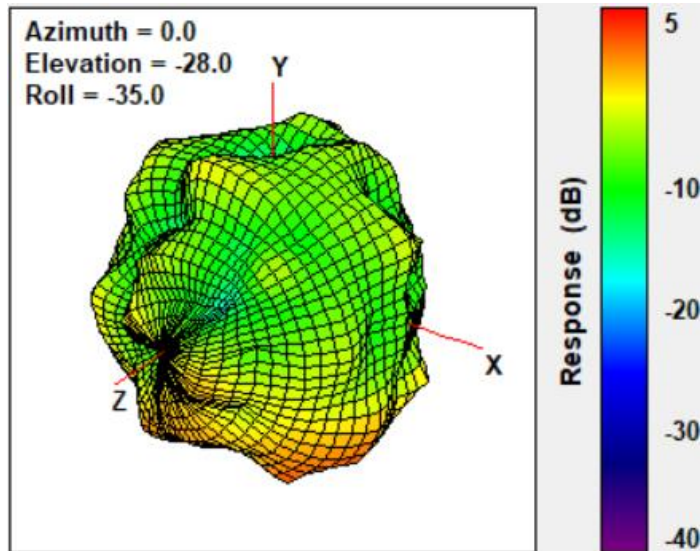
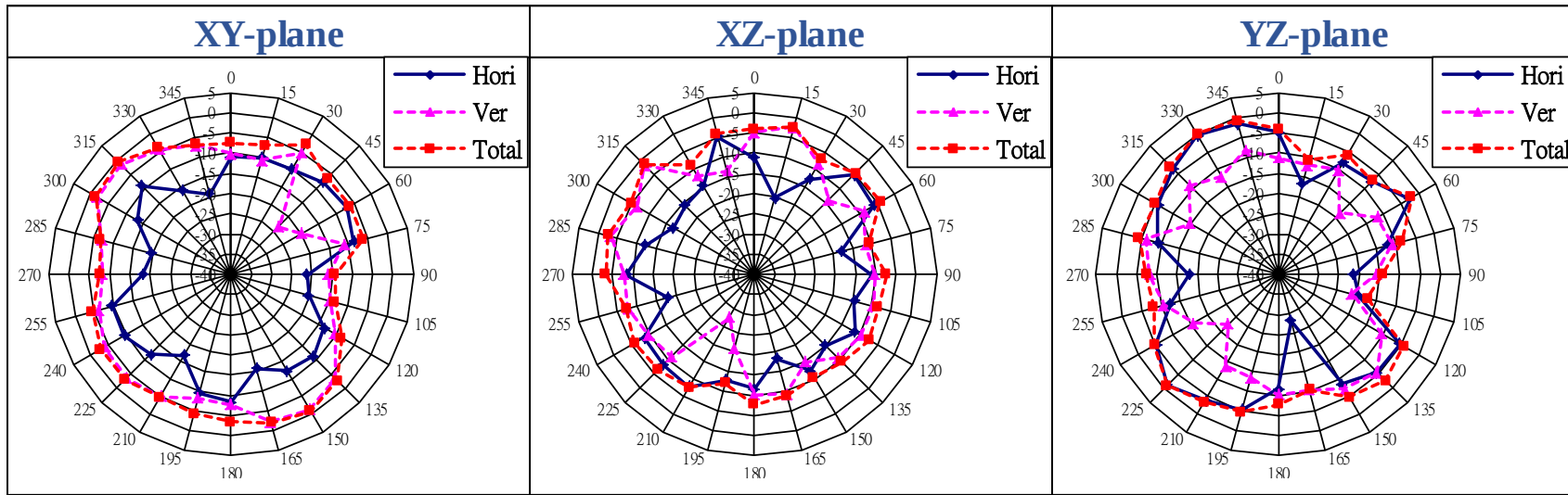
# 3D Radiation pattern

WiFi 2  
2450MHz



# 3D Radiation pattern

WiFi 2  
5600MHz





THE END