



# MHF Rev.B Antenna datasheet

**12/07/2023 -update**

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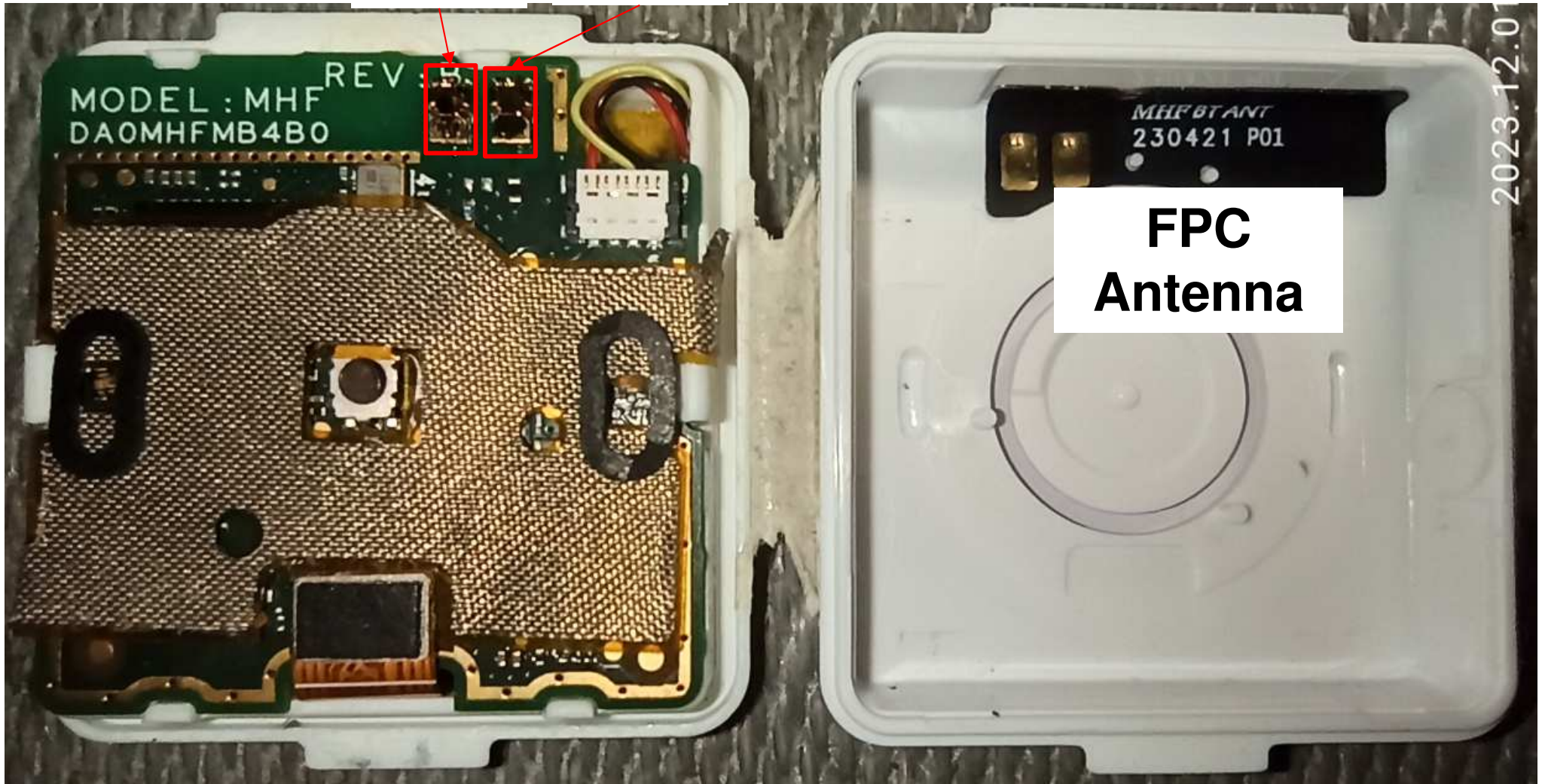
# Antenna manufacture information

|                                        |                                                                                                           |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------|
| 天線應用 / Antenna application             | Bluetooth antenna                                                                                         |
| 型式 / Antenna type                      | FPC antenna                                                                                               |
| 廠牌 / Brand                             | Quanta                                                                                                    |
| 型號 / Model                             | MHF_BT_Antenna<br>(P/N: DQ602676300)_                                                                     |
| 天線製造商 / Manufacturer                   | YAGEO 國巨 (P/N:TZ26763)                                                                                    |
| 國巨接單委託生產製造商<br>/ YAGEO Supplier vendor | 新加坡普思                                                                                                     |
| 工廠名稱/ Supplier Factory                 | Pulse (Suzhou) Wireless Product Co., Ltd.                                                                 |
| 工廠地址 / Supplier Factory<br>address     | No. 99 Huo Ju Road, Suzhou New District Jiangsu Province, suzhou<br>215009, P.R. China<br>江蘇省蘇州市虎丘區火炬路99號 |



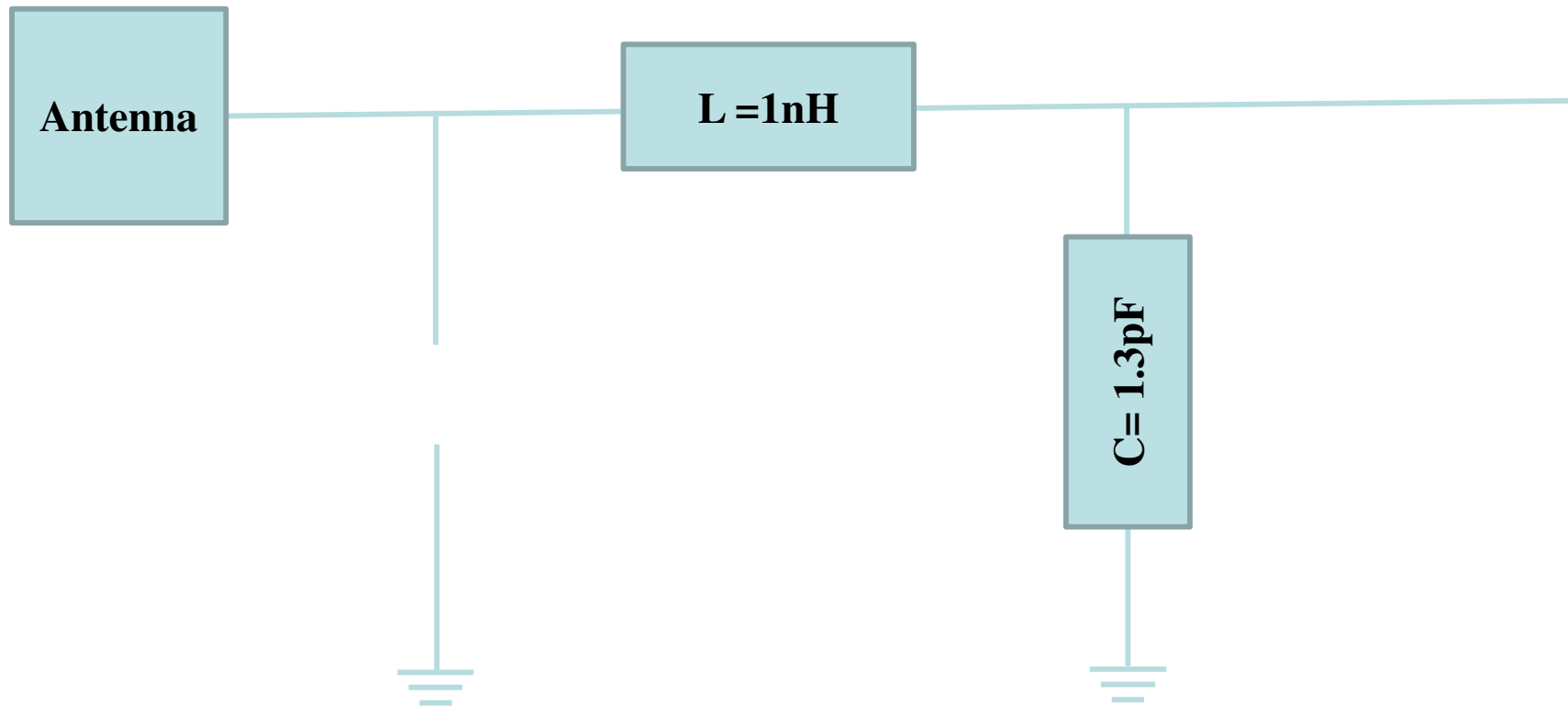
# EUT Antenna Placement introduction

**Feed      GND**





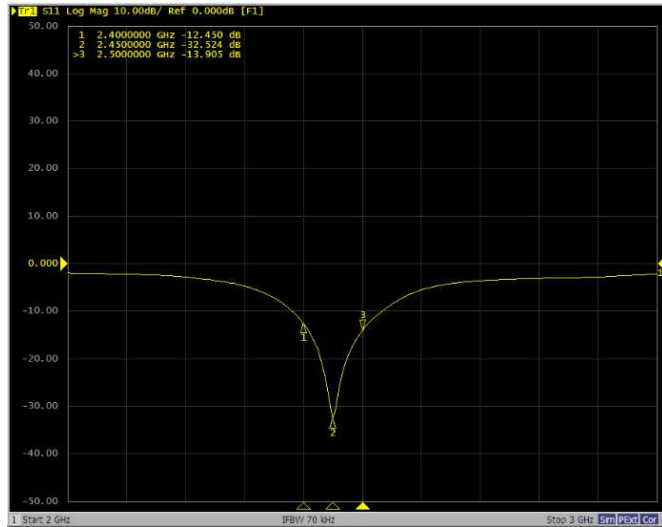
# $\pi$ type structure for antenna match circuitry



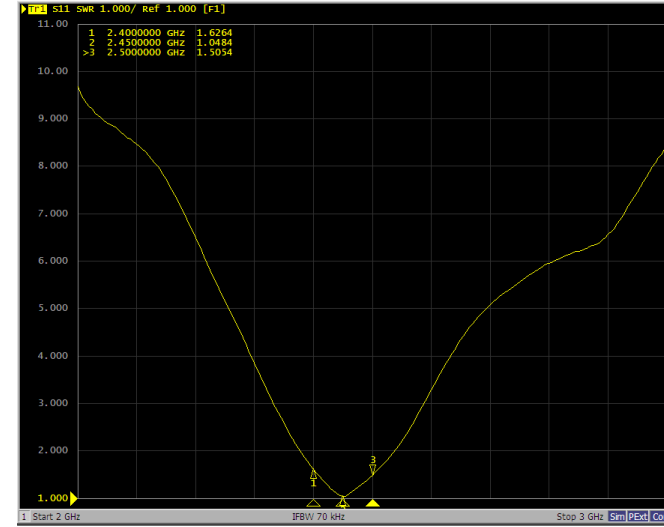


# Antenna Impedance Measurement and Matching

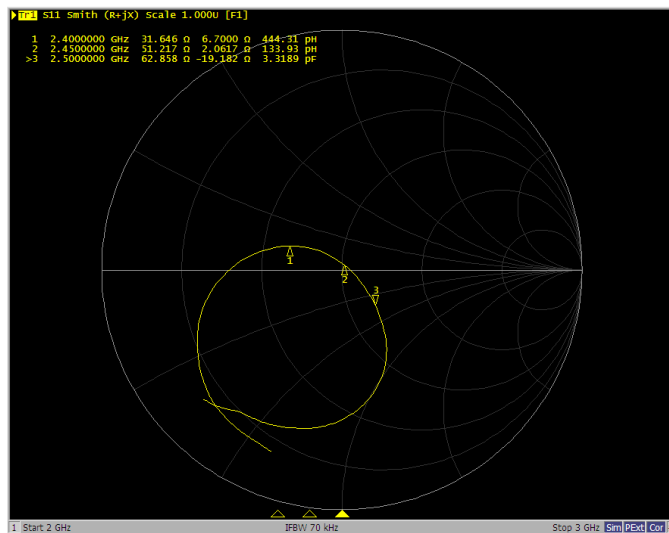
## -On hand (Matching & tune antenna)



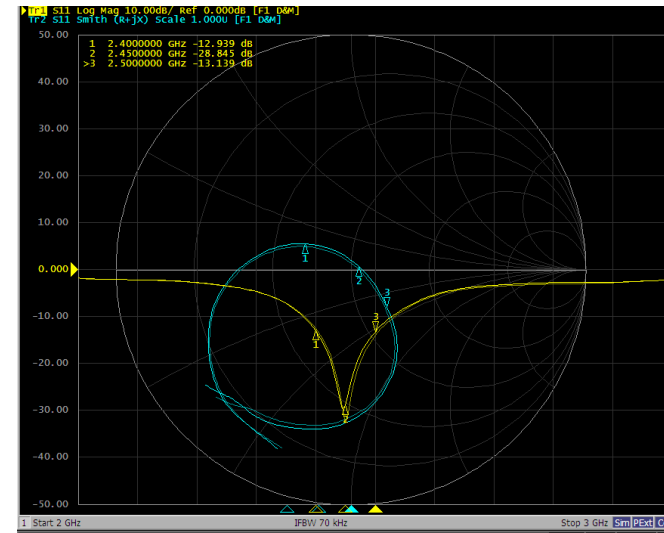
**-S11 (Return loss)**



**-VSWR**



**-Smith Chart**



**-S11 & Smith Chat**

◆ Test Location

-Quanta Computer Inc. internal ets-lindgren 3D antenna chamber

Address: No.211, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C.)

◆ Tester: Mark Lee

◆ Software test tool: EMQuest

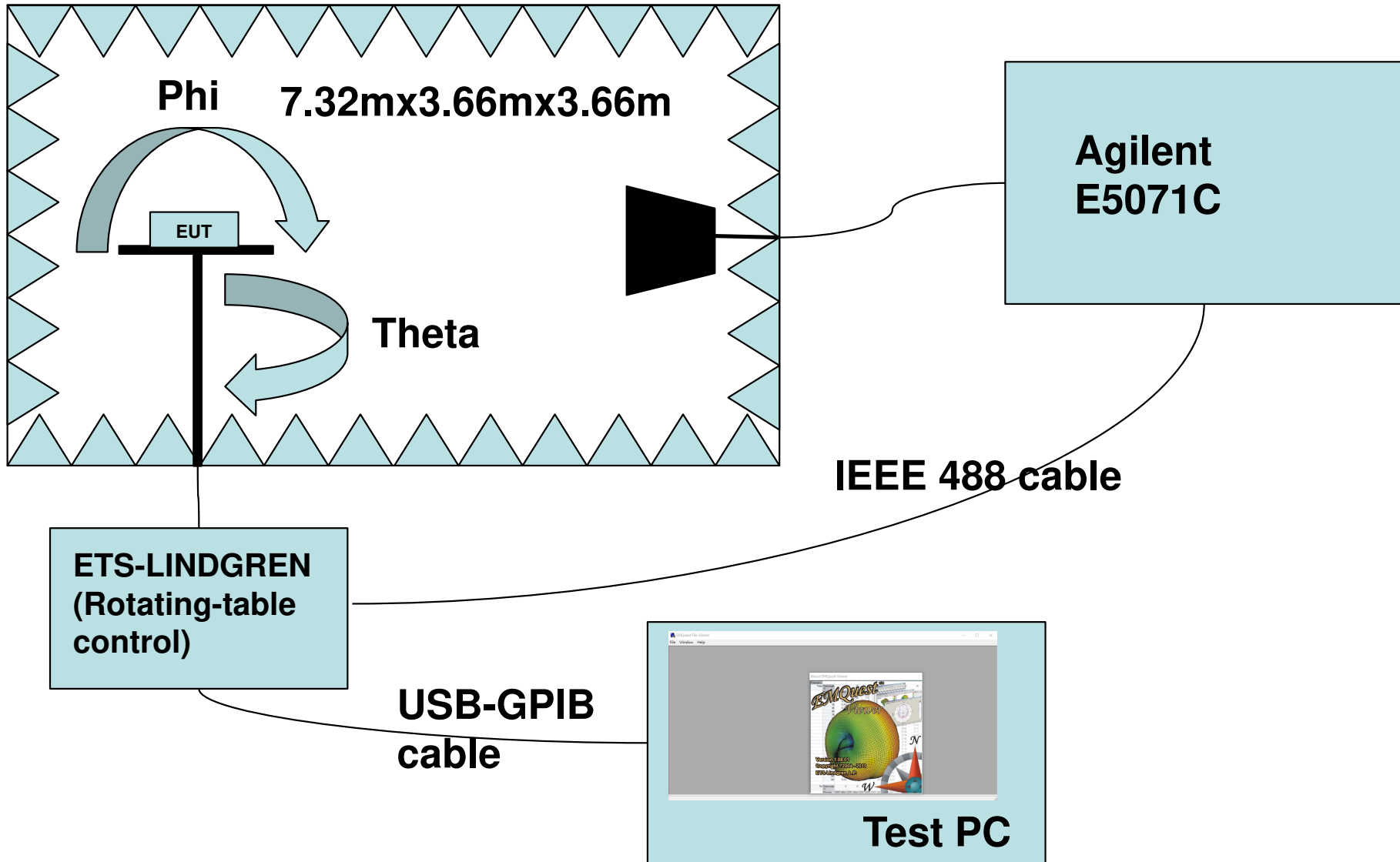
◆ Test data:10/20/2022

◆ Measurement method: According to IEEE 149 (2021)

◆ Test setup: as below page10 and page11

# Test block diagram

## ETS-LINDGREN antenna chamber



# Test Equipment list

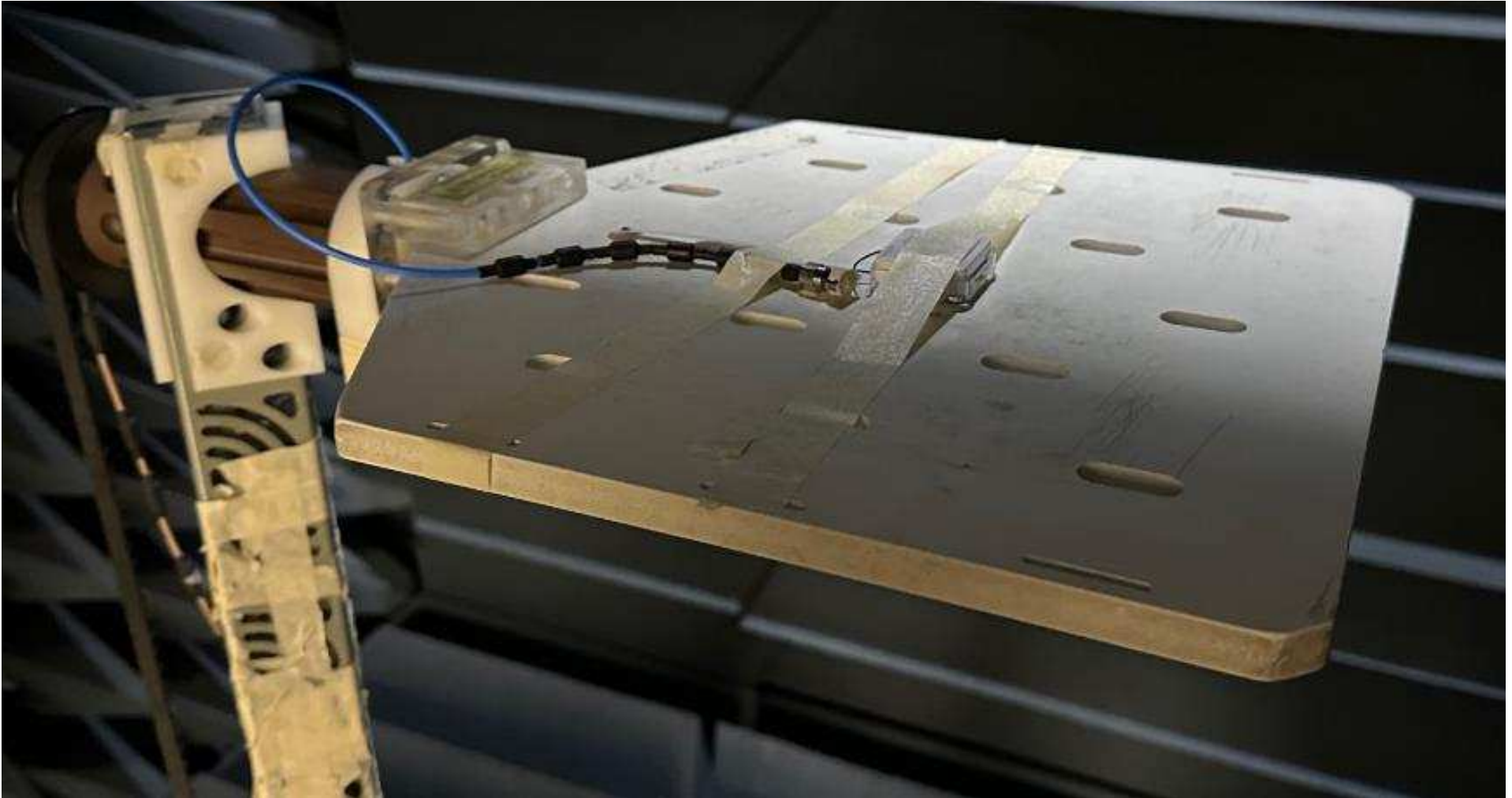
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| Equipment type              | Model                                    | Remark        |
|-----------------------------|------------------------------------------|---------------|
| ENA Series Network analyzer | Agilent<br>E5071C                        | 100KHz~8.5GHZ |
| Rotating table control      | ETS-LINDGREN<br>EMC Center <sup>TM</sup> |               |
| Chamber                     | ETS-LINDGREN<br>AMS8500                  | 700MHz~6GHz   |
| Horn Antenna                | ETS-LINDGREN<br>6164-04                  | 700MHz~6GHz   |
| USB-GPIB cable              | NI                                       |               |
| IEEE 488 cable              | NI                                       |               |



# EUT Setup Photograph

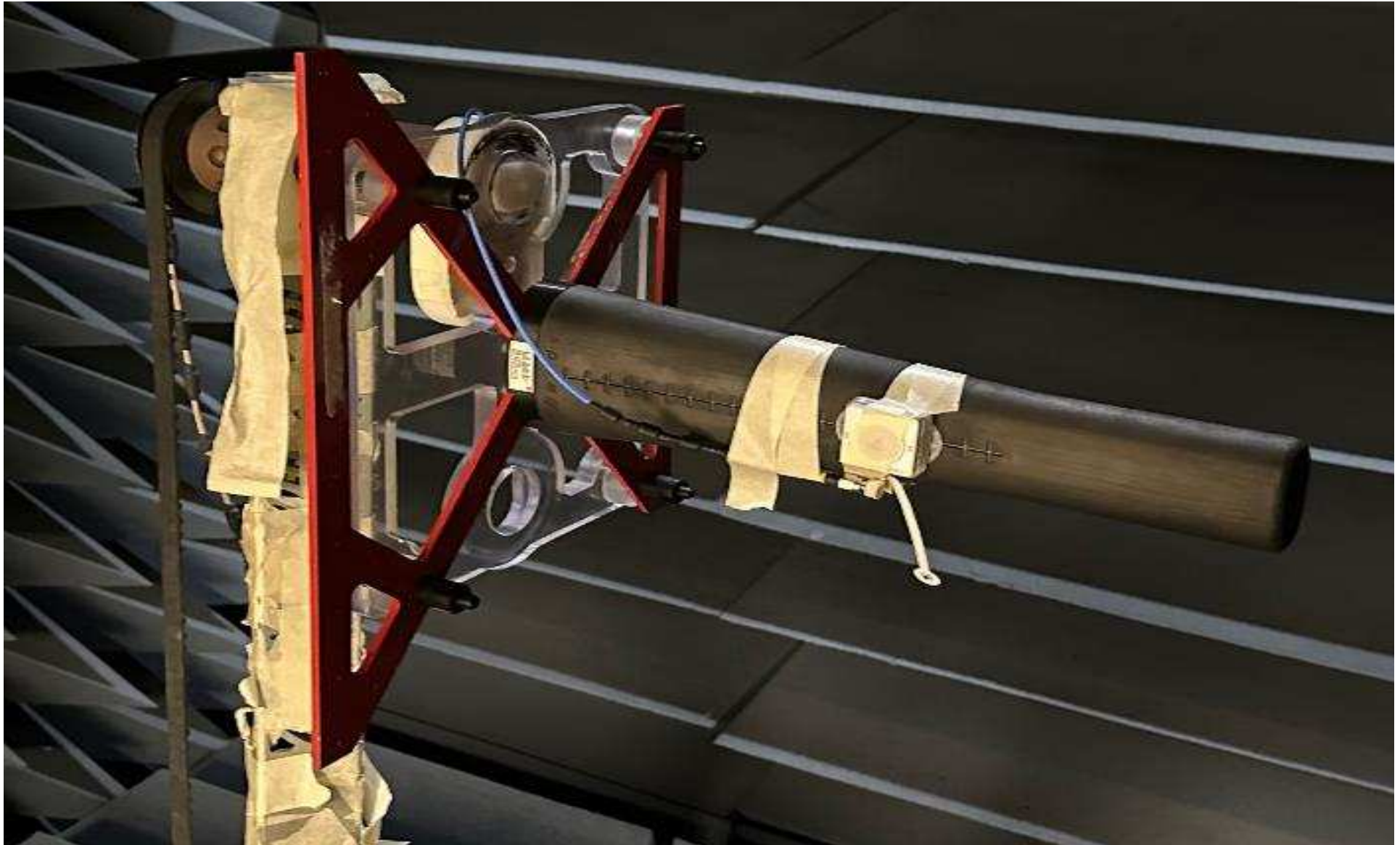
## -Free space





# EUT Setup Photograph

## -On Hand



# 2.4GHz Antenna Performance/Efficiency

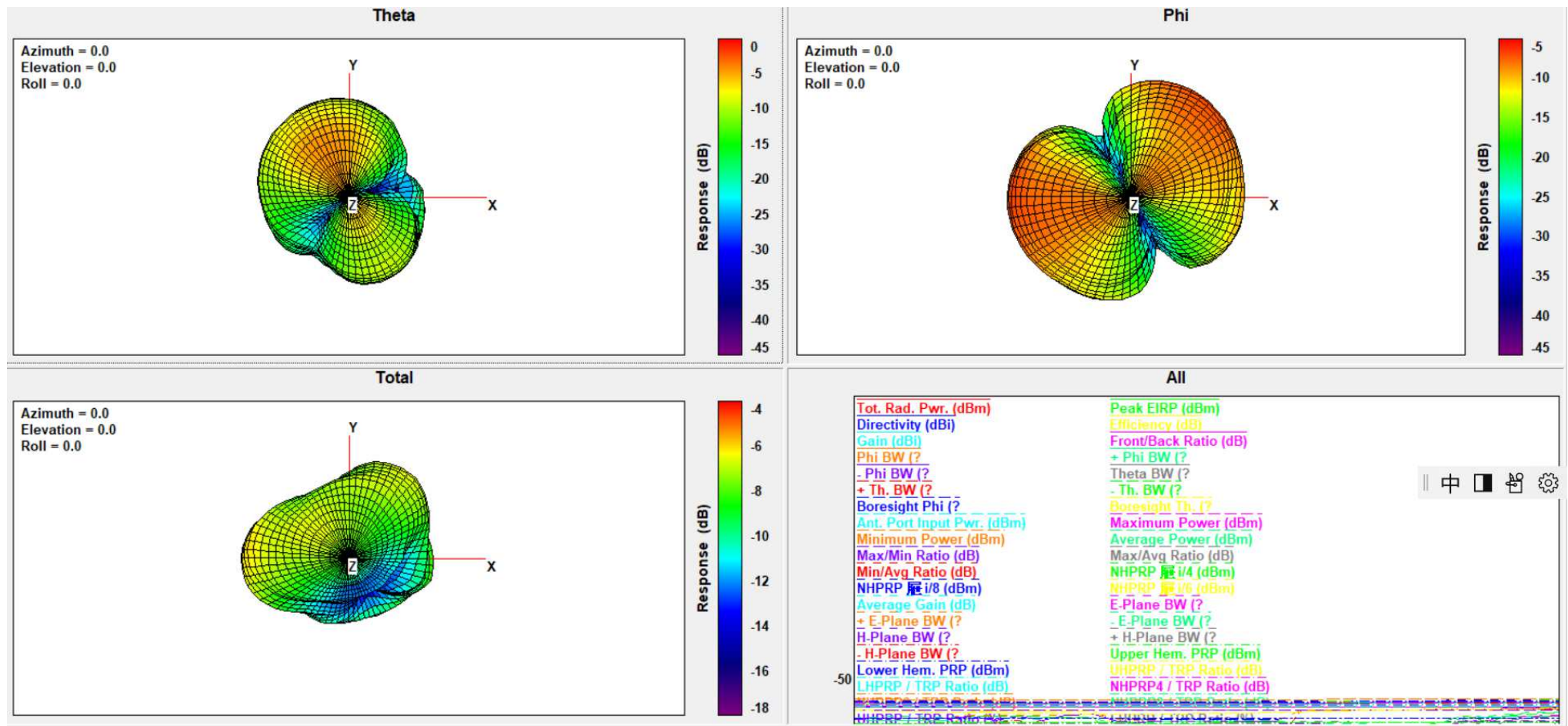
|            | MHF  |                   |                |                   |                |
|------------|------|-------------------|----------------|-------------------|----------------|
|            |      | Free space        |                | On-hand           |                |
|            |      | Average gain(dBi) | Peak Gain(dBi) | Average gain(dBi) | Peak Gain(dBi) |
| Efficiency | 2402 | -6.58148          | -2.83173       | -8.77138          | -4.40778       |
|            | 2412 | -6.54832          | -2.88231       | -8.47450          | -4.26513       |
|            | 2420 | -6.52862          | -2.85236       | -8.27368          | -3.99368       |
|            | 2430 | -6.50088          | -2.86710       | -8.28350          | -3.90295       |
|            | 2441 | -6.51233          | -2.84768       | -8.24034          | -3.70828       |
|            | 2450 | -6.42820          | -2.67964       | -8.16220          | -3.65736       |
|            | 2460 | -6.40129          | -2.61658       | -8.15185          | -3.60085       |
|            | 2472 | -6.62828          | -2.65832       | -8.42323          | -3.60735       |
|            | 2480 | -6.90220          | -2.83057       | -8.68389          | -3.88364       |
|            | 2490 | -6.64774          | -2.46078       | -8.84741          | -3.90176       |
|            | 2500 | -7.00803          | -2.69971       | -9.29640          | -4.11920       |

**-with ME's housing**

# 3D Antenna Pattern

## -Free space (2.402GHz)

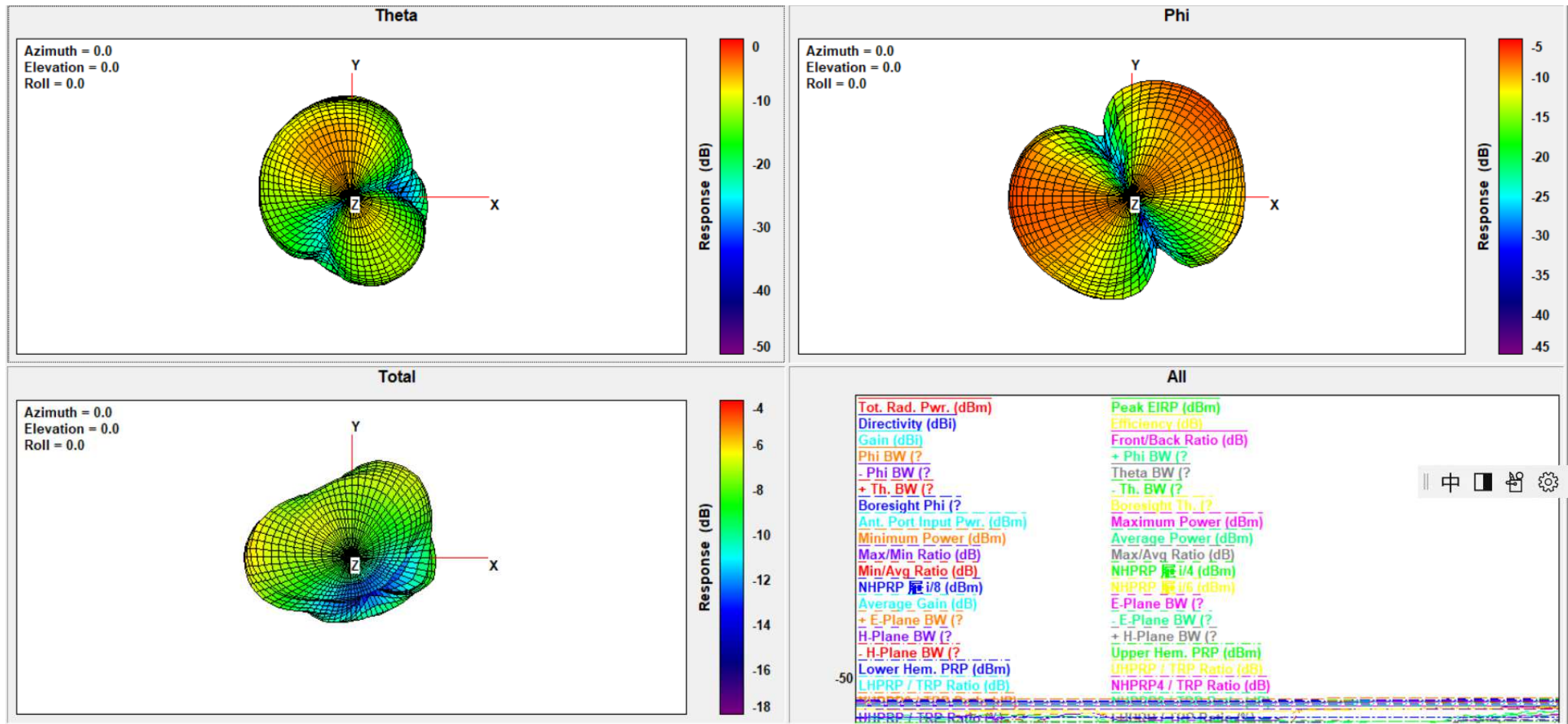
- ◆ 2.402GHz antenna pattern
- ◆ -Free space



# 3D Antenna Pattern

## -Free space (2.441GHz)

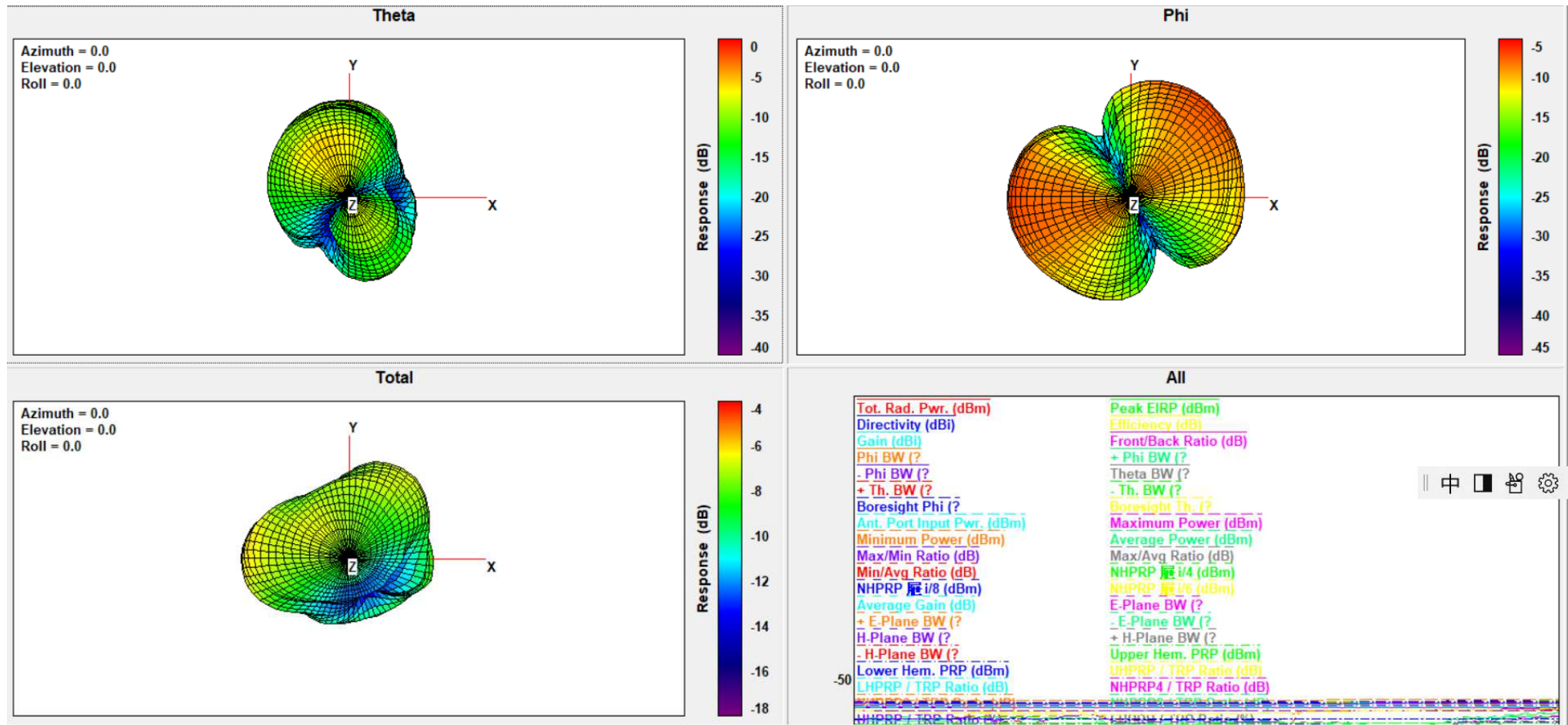
- ◆ 2.441GHz antenna pattern
- ◆ -Free space



# 3D Antenna Pattern

## -Free space (2.480GHz)

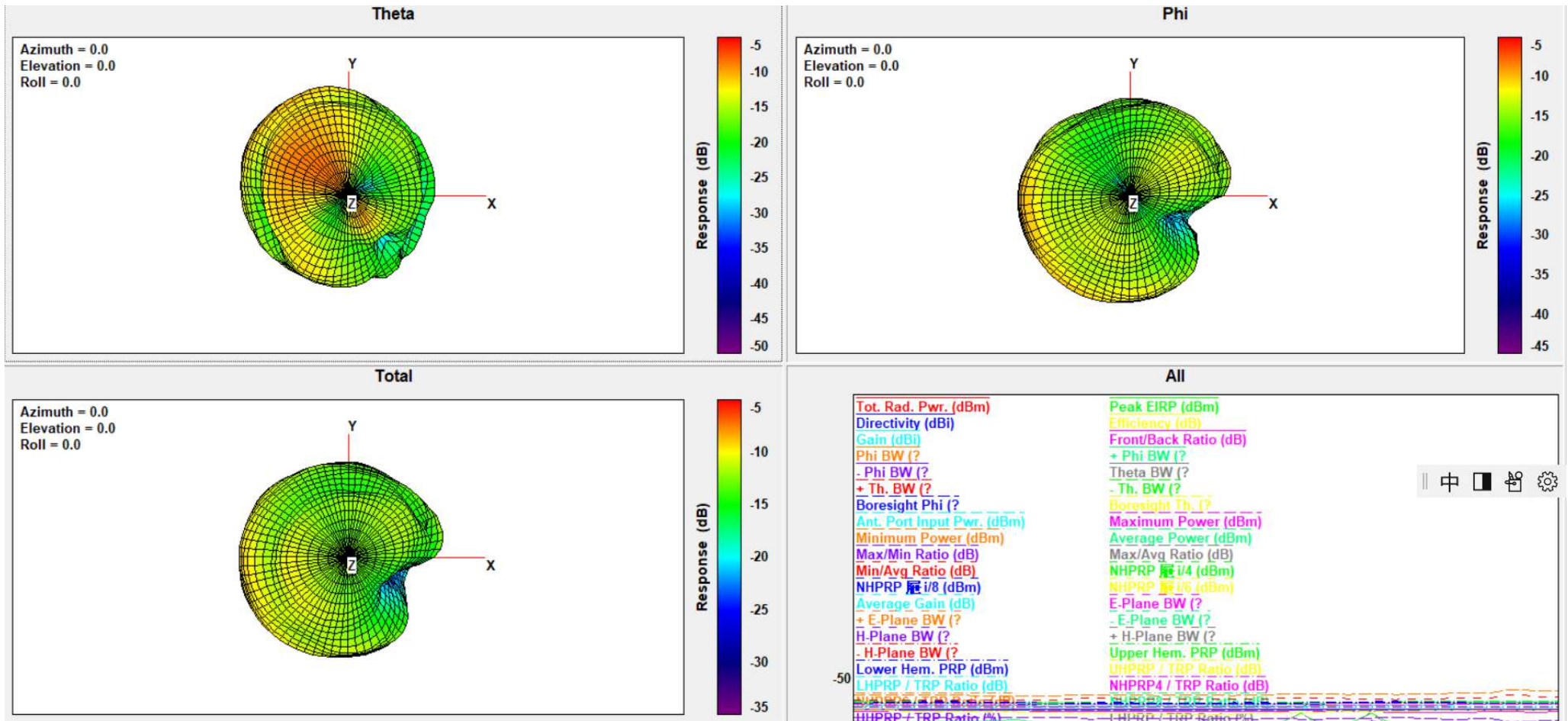
- ◆ 2.480GHz antenna pattern
- ◆ -Free space



# 3D Antenna Pattern

## -On hand(2.402GHz)

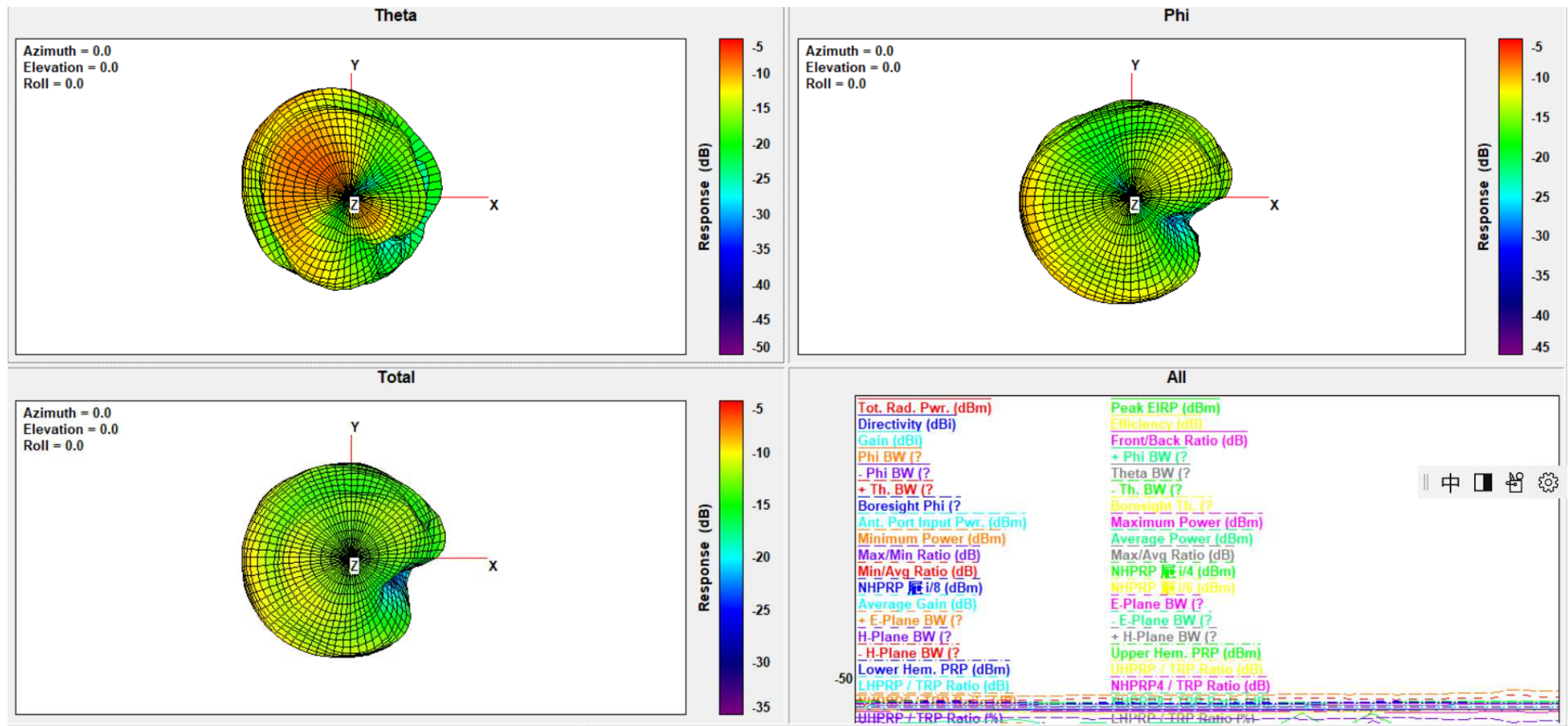
- ◆ 2.402GHz antenna pattern
- ◆ -On hand



# 3D Antenna Pattern

## -On hand(2.441GHz)

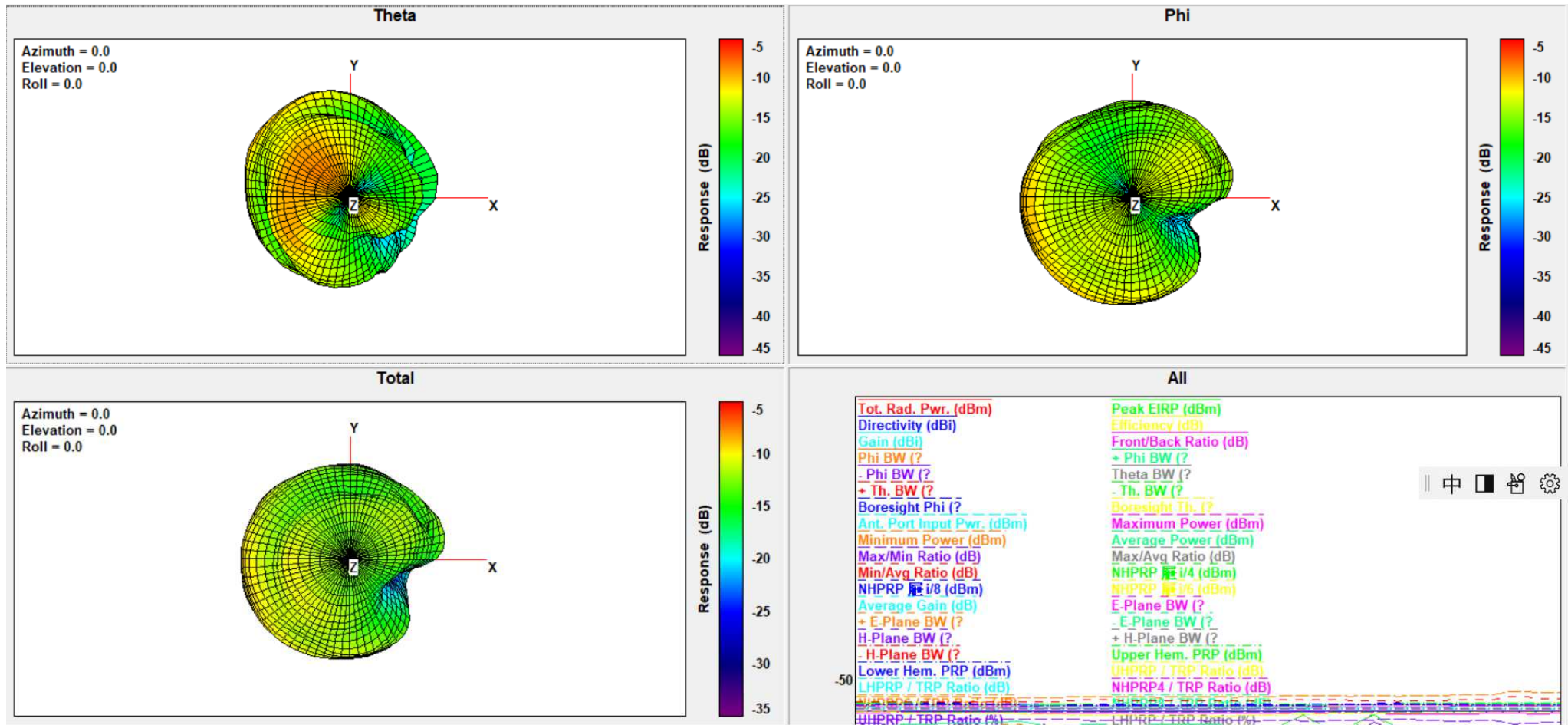
- ◆ 2.441GHz antenna pattern
- ◆ -On hand



# 3D Antenna Pattern

## -On hand(2.480GHz)

- ◆ 2.480GHz antenna pattern
- ◆ -On hand





*Quanta Confidential*