

Report No.: SZOA2606000146AT01  
Rev.: 02  
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# ANTENNA PASSIVE TEST REPORT

Application No. SZOA2606000146AT  
Applicant ACCO Brands USA LLC.  
Manufacturer ACCO Brands USA LLC.  
Product Name PowerA Fusion Pro Wireless Controller for PC  
Model No. PCGPFPWL  
Standards ANSI/IEEE Std 149-2021  
Date Initial Sample(s) Received Jun. 23, 2026  
Testing Start Date Jun. 23, 2026  
Testing Finish Date Jul. 21, 2026  
Report Issue Date Jul. 23, 2026

\* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Yuanyu Luo

Prepared by: Yuanyu Luo/ Test Engineer

Ervin Li

Approved by: Ervin Li/ Technical Manager



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### Revision Version

| Revision | Issue Date    | Description                |
|----------|---------------|----------------------------|
| 01       | Jul. 09, 2026 | Initial creation of report |
| 02       | Jul. 23, 2026 | Updated test results       |

**\*This report supersedes our previous report SZA2606000146AT01 Version 01, issued on Jul. 09, 2026, which is hereby deemed null and void.**



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## 1 General Information

### 1.1 Testing Laboratory

|          |                                                                                                                      |
|----------|----------------------------------------------------------------------------------------------------------------------|
| Test Lab | SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch                                                      |
| Address  | No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 |
| Contact  | Ervin Li                                                                                                             |
| Tel.     | +86 18823369694                                                                                                      |
| Fax      | +86-755-25328600                                                                                                     |
| E-mail   | Ervin.Li@sgs.com                                                                                                     |

### 1.2 Details of Applicant

|                     |                                                    |
|---------------------|----------------------------------------------------|
| Applicant's Name    | ACCO Brands USA LLC.                               |
| Applicant's Address | 4 Corporate Dr. Lake Zurich IL 60047 United States |
| Contact             | Elena Zhong                                        |
| Tel.                | 0755 2682 7016                                     |
| Fax                 | N/A                                                |
| E-mail              | elena.zhong@powera.com                             |

### 1.3 Details of Manufacturer

|                        |                                                    |
|------------------------|----------------------------------------------------|
| Manufacturer's Name    | ACCO Brands USA LLC.                               |
| Manufacturer's Address | 4 Corporate Dr. Lake Zurich IL 60047 United States |
| Contact                | Elena Zhong                                        |
| Tel.                   | 0755 2682 7016                                     |
| Fax                    | N/A                                                |
| E-mail                 | elena.zhong@powera.com                             |



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## 1.4 General Description of EUT

|                      |                                                                                  |
|----------------------|----------------------------------------------------------------------------------|
| Device Description:  | PowerA Fusion Pro Wireless Controller for PC                                     |
| Device Manufacturer: | ACCO Brands USA LLC.                                                             |
| Device Model:        | PCGPFPWL                                                                         |
| Hardware Version:    | N/A                                                                              |
| Software Version:    | N/A                                                                              |
| Antenna Dimensions:  | Controller handle: 18.00 x 6.78 x 0.50 mm<br>USB receiver: 9.95 x 2.80 x 0.50 mm |
| Antenna Type         | PCB Antenna                                                                      |

## 1.5 Test Procedure

Testing is performed according to the **ANSI/IEEE Std 149-2021**.

## 1.6 Test Specification

| Identity                      | Document Title                             |
|-------------------------------|--------------------------------------------|
| <b>ANSI/IEEE Std 149-2021</b> | IEEE Standard Test Procedures for Antennas |

## 1.7 Laboratory Environment

|                   |                          |         |
|-------------------|--------------------------|---------|
| Temperature       | Min. =19°C , Max. = 25°C |         |
| Relative humidity | Min. =40% , Max. =72%    |         |
| Shield effect     | 0.7-6GHz                 | > 100dB |
| Ground resistance | <0.5Ω                    |         |



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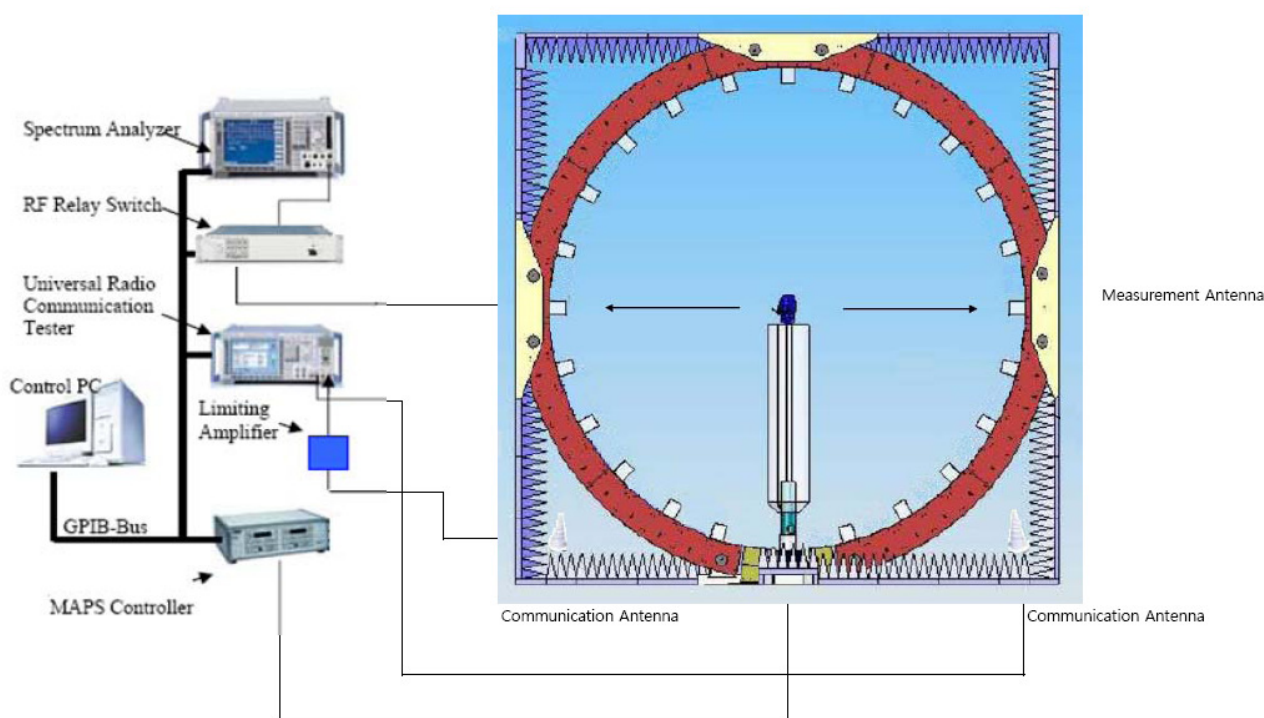
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## 2 OTA Measurements System Configuration

## 2.1 Test Configuration

Great-Circle-Cut method is used to measure the antenna 3D GAIN of EUT in OTA qualified anechoic chamber. Equipment Under Test (EUT) geometry centre vertical projection at the centre of platform, the distance from EUT to measurement antenna is 1.95m



### F-1. OTA Measurement System Configuration



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Sample(s) are retained for 30 days only.  
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3 Test Equipment List

| Type of Equipment                         | Model Number               | Manufacture       | Calibration Date | Valid Period |
|-------------------------------------------|----------------------------|-------------------|------------------|--------------|
| Network Analyzer                          | E5071C<br>S/N MY46523591   | Keysight          | 2025/12/15       | 2026/12/14   |
| Quad-Ridge Horn Antenna<br>700 MHz-10 GHz | EMCO 3164-08<br>S/N 161915 | ETS-Lindgren L.P. | N/A              | N/A          |
| MAPS Controller                           | EMCENTER<br>S/N 160485     | ETS-Lindgren L.P. | N/A              | N/A          |
| SAM V4.5BS Head Phantom                   | Head Phantom<br>S/N 3609   | SPEAG             | NCR              | NCR          |

Definition of Acronyms:  
NCR: No Calibration Requirement.



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### 4 Measurement Uncertainty

| Item                                                  | 2400-2500 MHz (dB) |
|-------------------------------------------------------|--------------------|
| Gain                                                  | 0.88               |
| Efficiency                                            | 0.88               |
| Measurement Uncertainty (95% CONFIDENCE INTERVAL) K=2 |                    |



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## 5 Test Results

| Controller handle |                 |                |            |
|-------------------|-----------------|----------------|------------|
| Frequency (MHz)   | Efficiency (dB) | Efficiency (%) | Gain (dBi) |
| 2350              | -5.34           | 29.23          | 1.11       |
| 2355              | -5.56           | 27.79          | 0.95       |
| 2360              | -5.58           | 27.65          | 0.99       |
| 2365              | -5.40           | 28.83          | 1.19       |
| 2370              | -5.39           | 28.94          | 1.32       |
| 2375              | -5.24           | 29.93          | 1.53       |
| 2380              | -5.70           | 26.89          | 1.12       |
| 2385              | -5.69           | 26.99          | 1.26       |
| 2390              | -5.81           | 26.25          | 1.15       |
| 2395              | -5.71           | 26.85          | 1.29       |
| 2400              | -5.81           | 26.24          | 1.18       |
| 2402              | -5.81           | 26.22          | 1.15       |
| 2405              | -5.75           | 26.63          | 1.21       |
| 2410              | -5.75           | 26.61          | 1.23       |
| 2415              | -5.79           | 26.34          | 1.18       |
| 2420              | -5.99           | 25.17          | 1.08       |
| 2425              | -5.87           | 25.91          | 1.23       |
| 2430              | -6.13           | 24.40          | 1.07       |
| 2435              | -5.85           | 25.98          | 1.27       |
| 2440              | -6.05           | 24.81          | 1.07       |
| 2441              | -6.12           | 24.46          | 1.02       |
| 2445              | -6.02           | 25.03          | 1.07       |
| 2450              | -6.17           | 24.14          | 0.88       |

| USB receiver    |                 |                |            |
|-----------------|-----------------|----------------|------------|
| Frequency (MHz) | Efficiency (dB) | Efficiency (%) | Gain (dBi) |
| 2350            | -13.27          | 4.71           | -5.65      |
| 2355            | -13.34          | 4.63           | -5.75      |
| 2360            | -13.30          | 4.68           | -5.73      |
| 2365            | -13.06          | 4.94           | -5.53      |
| 2370            | -12.98          | 5.04           | -5.50      |
| 2375            | -12.69          | 5.39           | -5.14      |
| 2380            | -12.94          | 5.08           | -5.43      |
| 2385            | -12.69          | 5.38           | -5.10      |
| 2390            | -12.63          | 5.45           | -5.01      |
| 2395            | -12.37          | 5.80           | -4.78      |
| 2400            | -12.32          | 5.86           | -4.74      |
| 2402            | -12.32          | 5.86           | -4.82      |
| 2405            | -12.15          | 6.10           | -4.58      |
| 2410            | -12.02          | 6.28           | -4.46      |
| 2415            | -11.98          | 6.34           | -4.52      |
| 2420            | -11.98          | 6.34           | -4.41      |
| 2425            | -11.76          | 6.66           | -4.36      |
| 2430            | -11.60          | 6.92           | -4.27      |
| 2435            | -11.31          | 7.40           | -4.07      |
| 2440            | -11.53          | 7.03           | -4.21      |
| 2441            | -11.65          | 6.84           | -4.66      |
| 2445            | -11.37          | 7.29           | -3.78      |
| 2450            | -11.37          | 7.29           | -4.02      |



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|      |       |       |       |
|------|-------|-------|-------|
| 2455 | -6.42 | 22.81 | 0.65  |
| 2460 | -6.51 | 22.35 | 0.52  |
| 2465 | -6.71 | 21.33 | 0.32  |
| 2470 | -6.53 | 22.25 | 0.40  |
| 2475 | -6.57 | 22.02 | 0.37  |
| 2480 | -6.50 | 22.37 | 0.36  |
| 2482 | -6.56 | 22.09 | 0.19  |
| 2485 | -6.75 | 21.14 | 0.03  |
| 2490 | -6.98 | 20.06 | -0.24 |
| 2495 | -7.09 | 19.54 | -0.48 |
| 2500 | -7.23 | 18.94 | -0.69 |
| 2505 | -7.08 | 19.58 | -0.69 |
| 2510 | -7.07 | 19.64 | -0.75 |
| 2515 | -7.16 | 19.24 | -0.93 |
| 2520 | -7.47 | 17.90 | -1.31 |
| 2525 | -7.78 | 16.68 | -1.60 |
| 2530 | -8.06 | 15.64 | -1.81 |
| 2535 | -8.13 | 15.38 | -1.76 |
| 2540 | -7.95 | 16.01 | -1.28 |
| 2545 | -7.82 | 16.54 | -1.05 |
| 2550 | -7.74 | 16.82 | -0.93 |
| 2555 | -8.00 | 15.84 | -1.31 |
| 2560 | -8.15 | 15.30 | -1.69 |
| 2565 | -8.32 | 14.73 | -1.88 |
| 2570 | -8.23 | 15.03 | -1.68 |
| 2575 | -8.10 | 15.50 | -1.46 |
| 2580 | -7.90 | 16.21 | -1.35 |

|      |        |      |       |
|------|--------|------|-------|
| 2455 | -11.37 | 7.30 | -3.92 |
| 2460 | -11.28 | 7.44 | -3.95 |
| 2465 | -11.39 | 7.26 | -4.01 |
| 2470 | -11.34 | 7.34 | -4.12 |
| 2475 | -11.45 | 7.16 | -4.17 |
| 2480 | -11.40 | 7.24 | -4.25 |
| 2482 | -11.42 | 7.21 | -4.38 |
| 2485 | -11.46 | 7.14 | -4.45 |
| 2490 | -11.46 | 7.14 | -4.48 |
| 2495 | -11.41 | 7.22 | -4.68 |
| 2500 | -11.58 | 6.95 | -4.86 |
| 2505 | -11.75 | 6.68 | -5.15 |
| 2510 | -12.03 | 6.27 | -5.38 |
| 2515 | -12.27 | 5.93 | -5.59 |
| 2520 | -12.52 | 5.60 | -5.67 |
| 2525 | -12.85 | 5.19 | -5.94 |
| 2530 | -13.26 | 4.72 | -6.31 |
| 2535 | -13.67 | 4.29 | -6.68 |
| 2540 | -14.06 | 3.93 | -7.07 |
| 2545 | -14.43 | 3.61 | -7.49 |
| 2550 | -14.72 | 3.38 | -7.91 |
| 2555 | -14.98 | 3.18 | -8.21 |
| 2560 | -14.99 | 3.17 | -8.12 |
| 2565 | -15.16 | 3.05 | -8.40 |
| 2570 | -15.33 | 2.93 | -8.55 |
| 2575 | -15.45 | 2.85 | -8.72 |
| 2580 | -15.26 | 2.98 | -8.61 |



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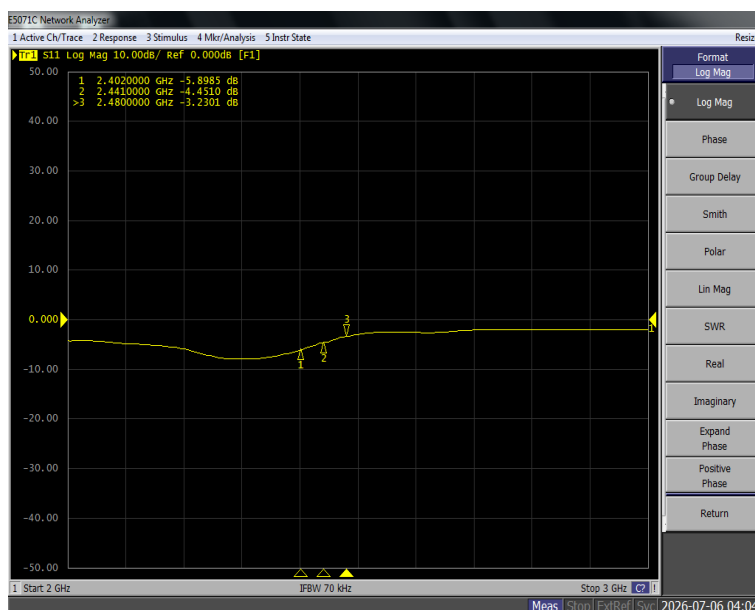
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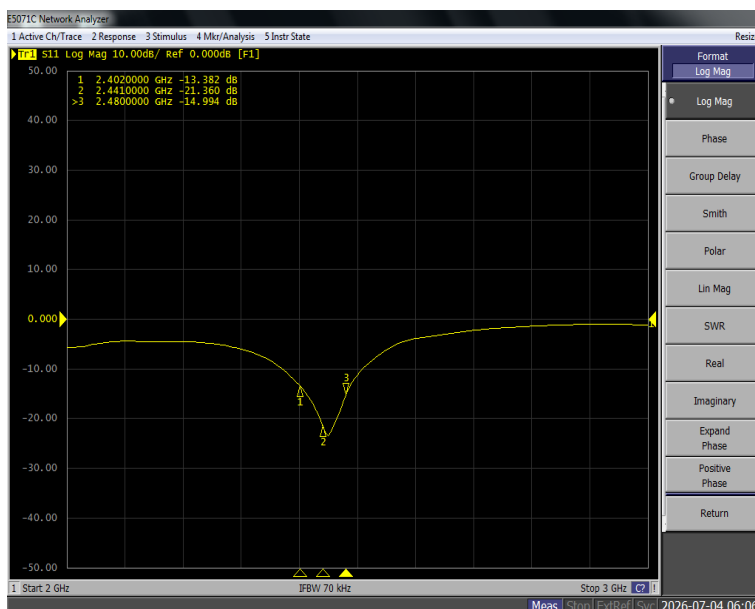
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## 6 Pattern Plots

### 6.1 Return Loss



Free Space(Controller handle)



Free Space (USB receiver)

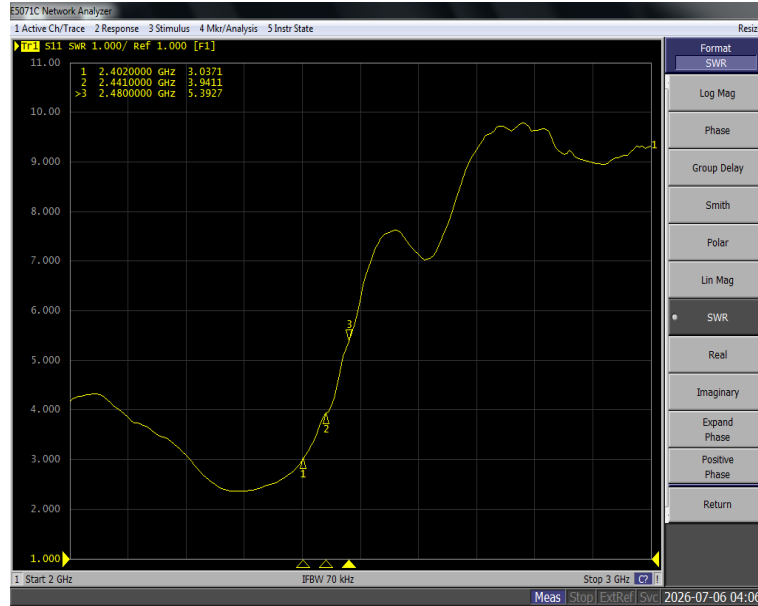


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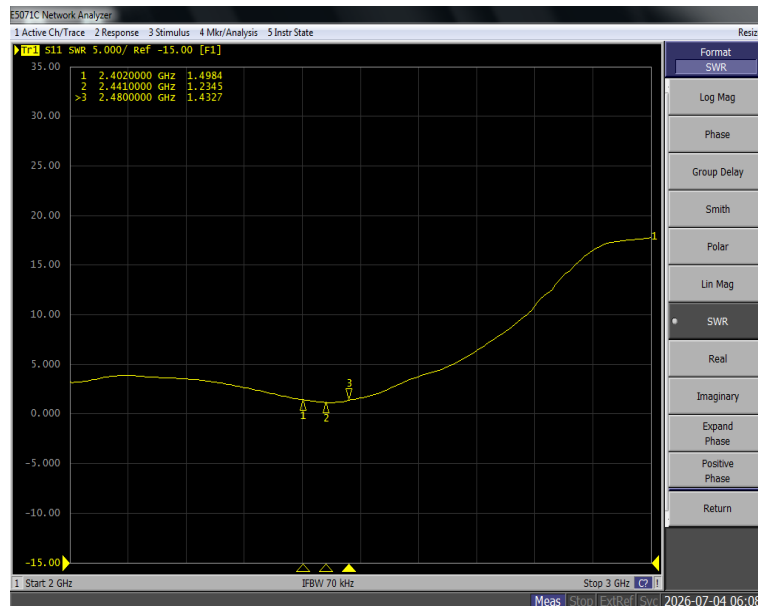
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### 6.2 VSWR



Free Space(Controller handle)



Free Space (USB receiver)



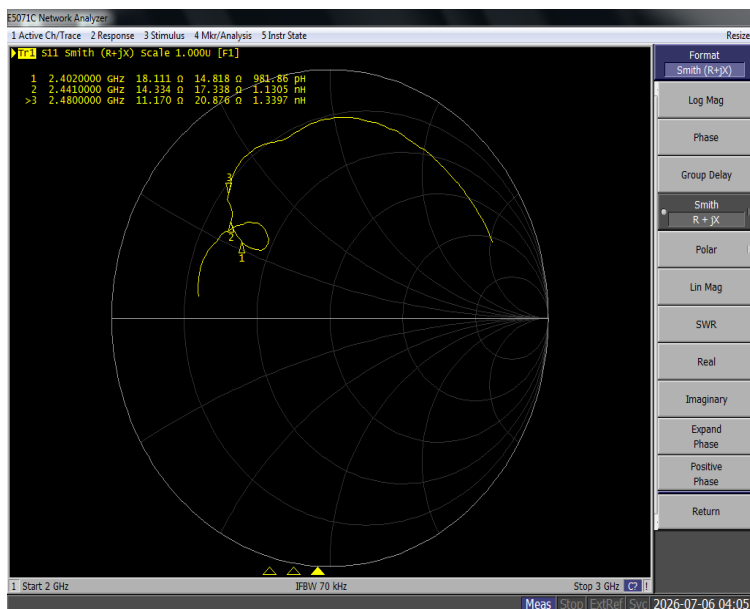
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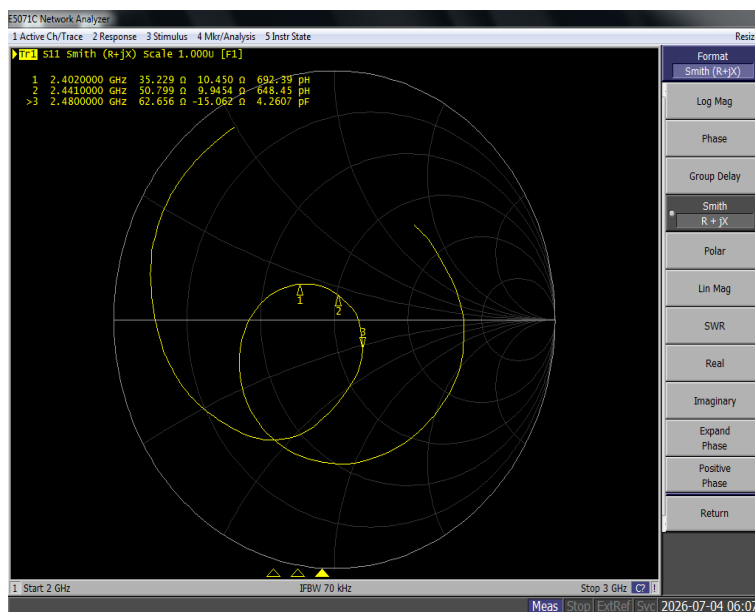
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### 6.3 Stimulus



Free Space(Controller handle)



Free Space (USB receiver)



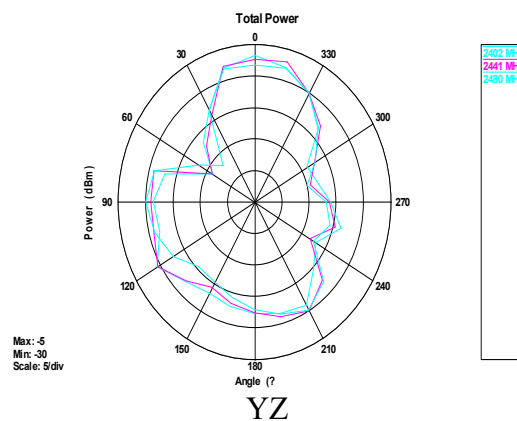
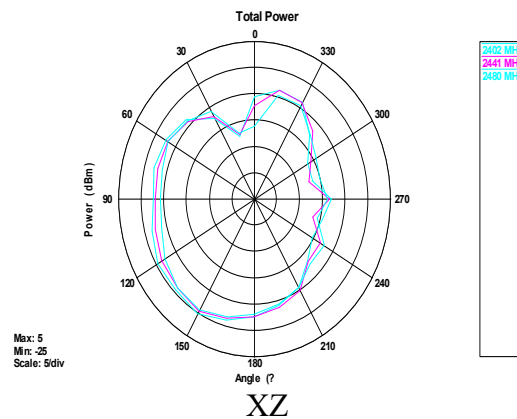
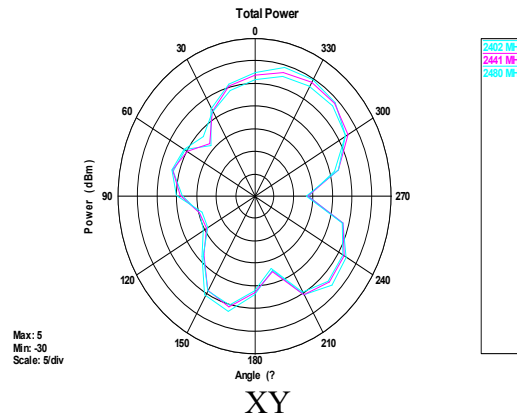
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### 7 2-D Antenna Pattern(Theta=90°)



Free Space(Controller handle)



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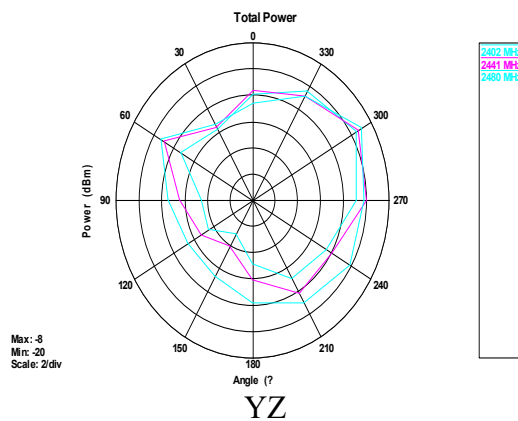
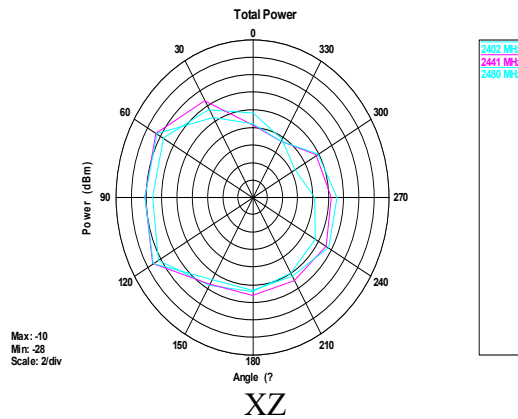
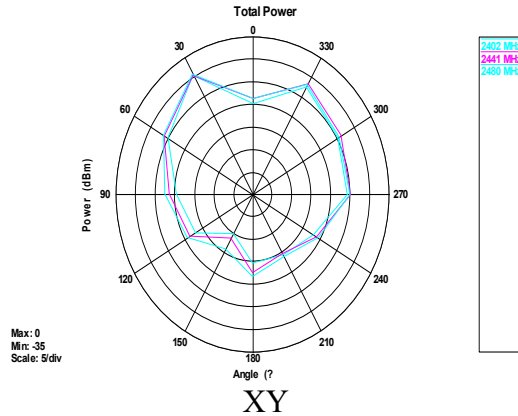
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Free Space (USB receiver)



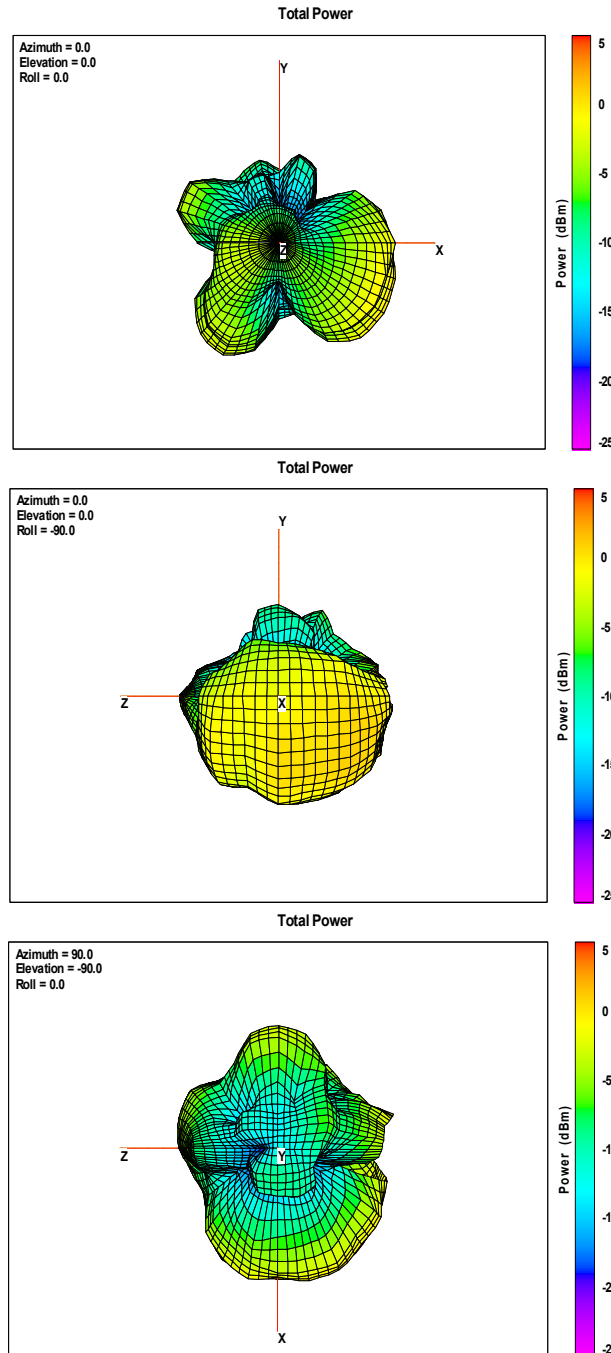
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### 8 3-D Antenna Pattern



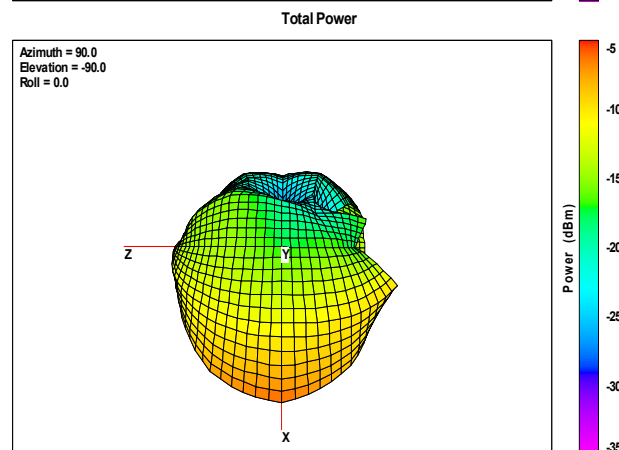
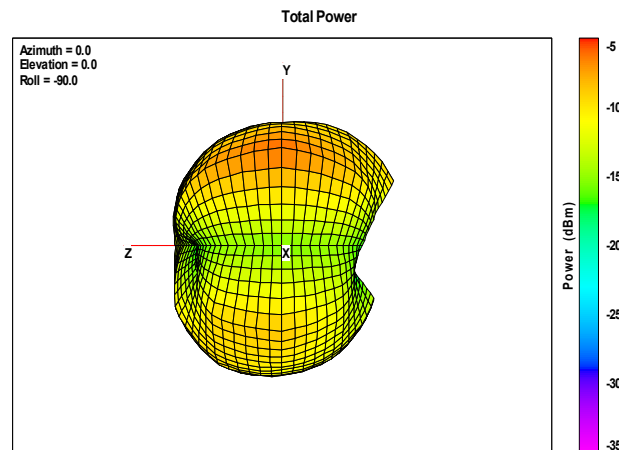
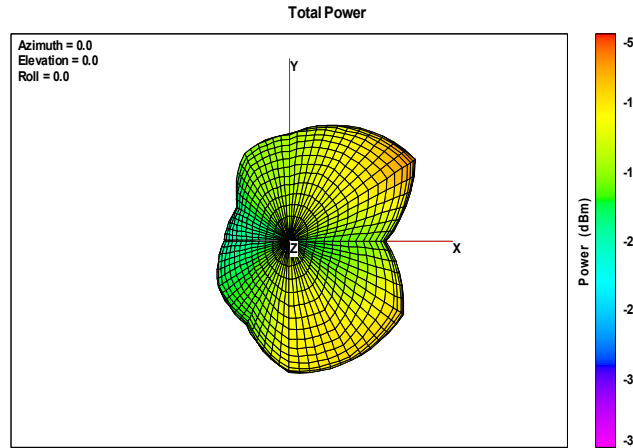
Free Space(Controller handle)



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### Free Space (USB receiver)



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## 9 The EUT and Test Configuration



Photo of EUT (Controller handle)

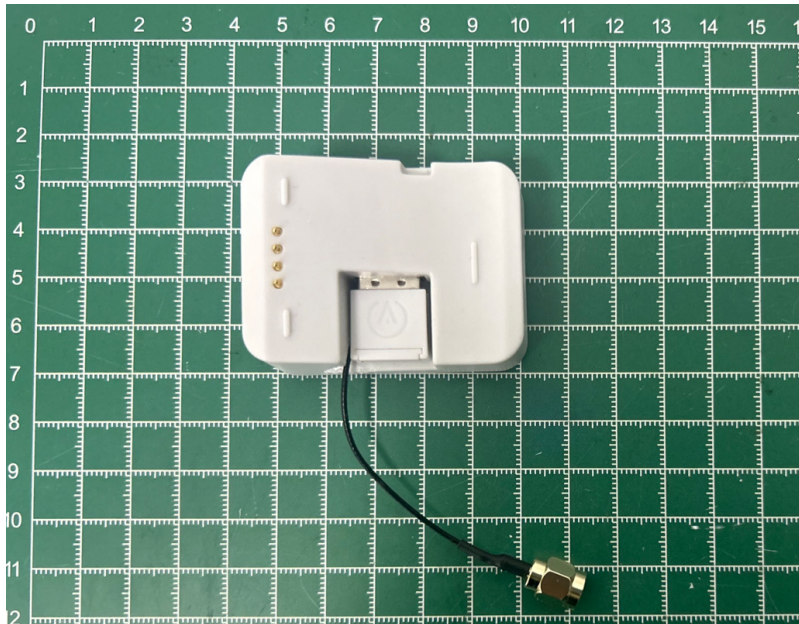


Photo of EUT (USB receiver)



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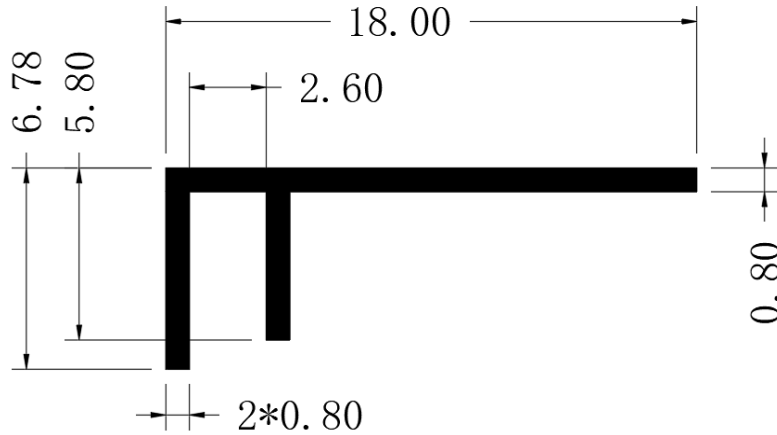
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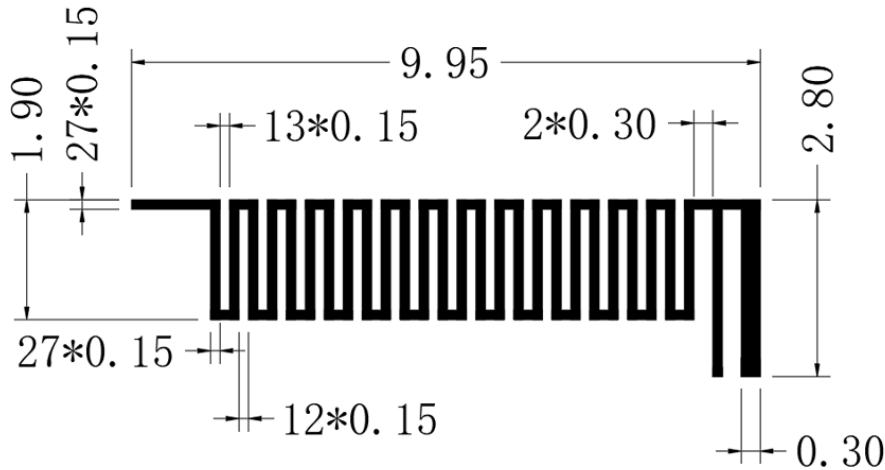
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Antenna Dimensions (Controller handle)



Antenna Dimensions (USB receiver)



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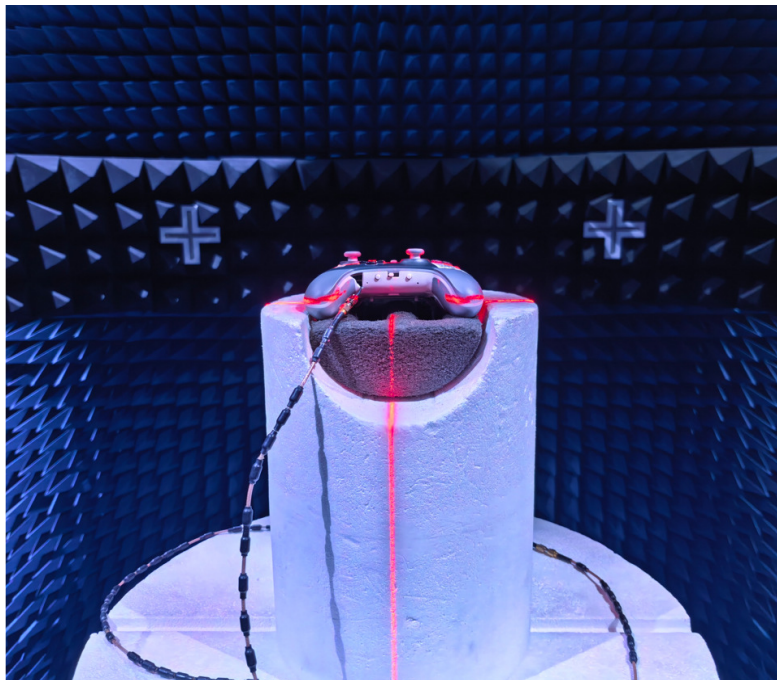
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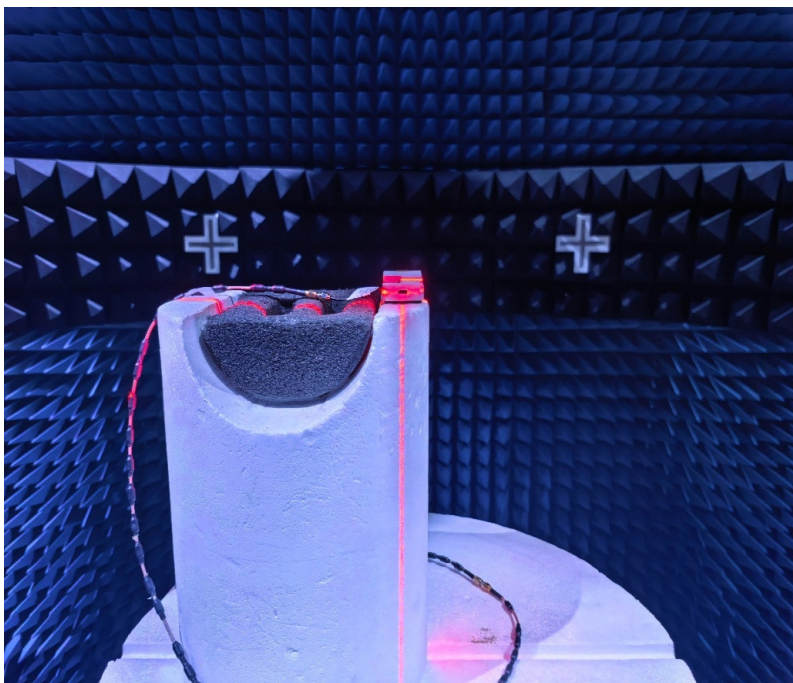
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Free Space View (Controller handle)



Free Space View (USB receiver)

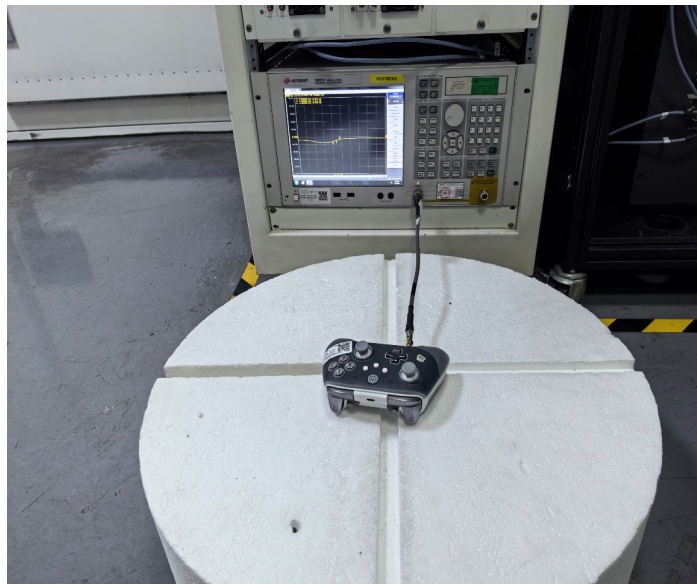


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Free Space Impedance Setup (Controller handle)



Free Space Impedance Setup (USB receiver)

---END---



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