



# 997 BT+WIFI\_Ant2#\_Specification Sheet

## 1. Revision History

| Version No. | Change Description | Data of issue | Changed By |
|-------------|--------------------|---------------|------------|
| A0          | Initial Version    | 2025-02-13    | Huang Fei  |
|             |                    |               |            |
|             |                    |               |            |

## 2. Product Application

This antenna is designed for the PATEO Porsche 997 project.

## 3. Environmental Parameters

Operating Temperature:  $-40^{\circ}\text{C}\sim 85^{\circ}\text{C}$

Storage Temperature:  $-40^{\circ}\text{C}\sim 85^{\circ}\text{C}$

## 4. Performance Specifications

| Electrical Parameters                        |             |
|----------------------------------------------|-------------|
| Antenna Performance (2.4G BT & WIFI Antenna) |             |
| Frequency Range (MHz)                        | 2400-2500   |
| Bandwidth (MHz)                              | 100         |
| Input Impedance ( $\Omega$ )                 | 50          |
| Return Loss (S11)                            | $\leq -10$  |
| Maximum Gain (dBi)                           | 2.9dBi      |
| Polarization                                 | Linear      |
| Radiation Efficiency                         | $\geq 50\%$ |
| Antenna Performance (5G WIFI Antenna)        |             |
| Frequency Range (MHz)                        | 5150-5850   |
| Bandwidth (MHz)                              | 700         |
| Input Impedance ( $\Omega$ )                 | 50          |
| Return Loss (S11)                            | $\leq -7$   |
| Maximum Gain (dBi)                           | 6.9dBi      |
| Polarization                                 | Linear      |
| Radiation Efficiency                         | $\geq 50\%$ |

|                   |                                   |                 |               |                |                |    |
|-------------------|-----------------------------------|-----------------|---------------|----------------|----------------|----|
| P/N               | PT0380-W201-00                    |                 | Customer P/N  | 40.07.00005    |                |    |
| Docume<br>nt Name | BT+WIFI_Ant2#_Specification Sheet |                 | Data          | 2025-02<br>-13 | Version<br>No. | A0 |
| Design<br>ed by   | Huang Fei                         | Reviewe<br>d by | Huang Weigang | Approved<br>by | Xiang Zhiwen   |    |

## 5. Antenna Images

Front view

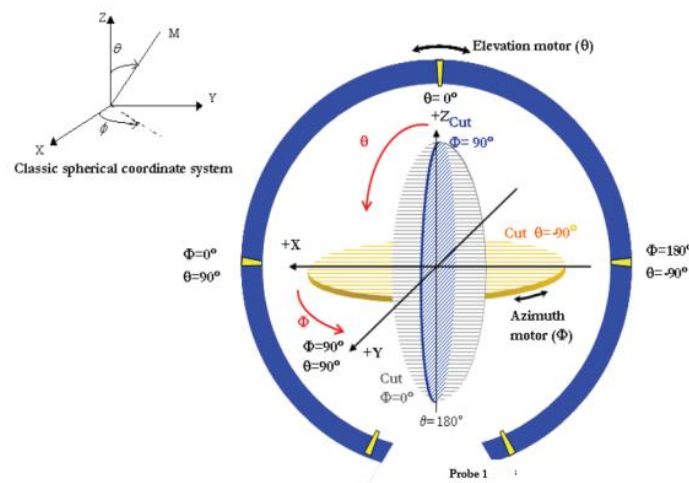


Rear view



## 6. Antenna Test Environment

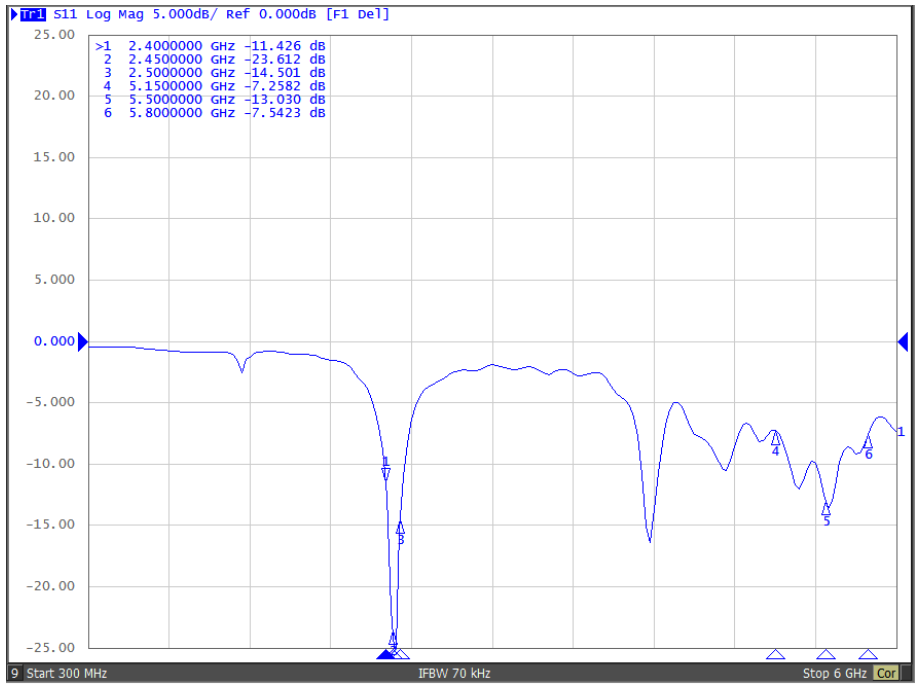
- Antenna input characteristics were tested using an Agilent E5071C Vector Network Analyzer.
- Antenna radiation characteristics were tested in a near-field anechoic chamber.
- Test coordinate system is shown in the diagram:



|               |                                    |             |               |              |              |             |    |
|---------------|------------------------------------|-------------|---------------|--------------|--------------|-------------|----|
| P/N           | PT0380-W201-00                     |             |               | Customer P/N | 40.07.00005  |             |    |
| Document Name | BT+WIFI_Ant2#_ Specification Sheet |             |               | Data         | 2025-02-13   | Version No. | A0 |
| Designed by   | Huang Fei                          | Reviewed by | Huang Weigang | Approved by  | Xiang Zhiwen |             |    |



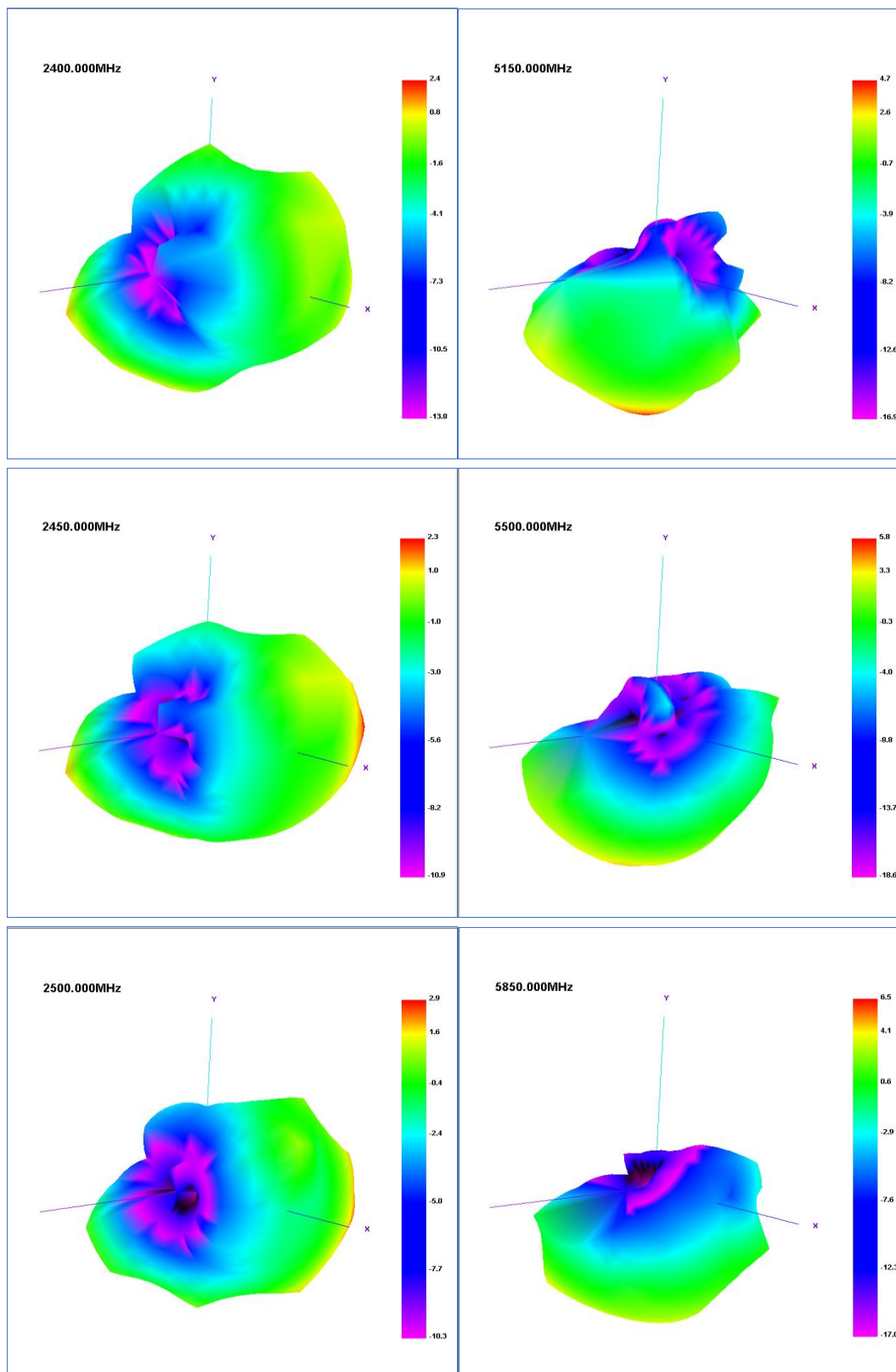
7. Antenna Performance Data



| White Cable_Ant 2 |          |           |            |            |          |           |            |
|-------------------|----------|-----------|------------|------------|----------|-----------|------------|
| Freq (MHz)        | Effi (%) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
| 2400              | 56.4     | -2.5      | 2.4        | 5150       | 55.2     | -2.6      | 4.7        |
| 2410              | 56.6     | -2.5      | 2.3        | 5200       | 52.5     | -2.8      | 4.7        |
| 2420              | 56.3     | -2.5      | 2.1        | 5250       | 59.1     | -2.3      | 5.2        |
| 2430              | 60.0     | -2.2      | 2.0        | 5300       | 60.4     | -2.2      | 5.3        |
| 2440              | 58.0     | -2.4      | 1.9        | 5350       | 67.3     | -1.7      | 5.8        |
| 2450              | 61.3     | -2.1      | 2.3        | 5400       | 68.3     | -1.7      | 5.6        |
| 2460              | 60.7     | -2.2      | 2.4        | 5450       | 66.4     | -1.8      | 5.8        |
| 2470              | 57.1     | -2.4      | 2.3        | 5500       | 60.1     | -2.2      | 5.8        |
| 2480              | 59.2     | -2.3      | 2.6        | 5550       | 69.1     | -1.6      | 6.1        |
| 2490              | 61.9     | -2.1      | 2.9        | 5600       | 59.9     | -2.2      | 5.6        |
| 2500              | 59.3     | -2.3      | 2.9        | 5650       | 69.9     | -1.6      | 6.6        |
| AVG               | 58.8     | -2.3      | 2.4        | 5700       | 59.7     | -2.2      | 6.1        |
|                   |          |           |            | 5750       | 69.1     | -1.6      | 6.9        |
|                   |          |           |            | 5800       | 59.8     | -2.2      | 6.2        |
|                   |          |           |            | 5850       | 68.1     | -1.7      | 6.5        |
|                   |          |           |            | AVG        | 63.0     | -2.0      | 5.8        |

|                |                                    |              |               |              |              |             |    |
|----------------|------------------------------------|--------------|---------------|--------------|--------------|-------------|----|
| P/N            | PT0380-W201-00                     |              |               | Customer P/N | 40.07.00005  |             |    |
| Docume nt Name | BT+WIFI_Ant2#_ Specification Sheet |              |               | Data         | 2025-02 -13  | Version No. | A0 |
| Designe d by   | Huang Fei                          | Reviewe d by | Huang Weigang | Approved by  | Xiang Zhiwen |             |    |

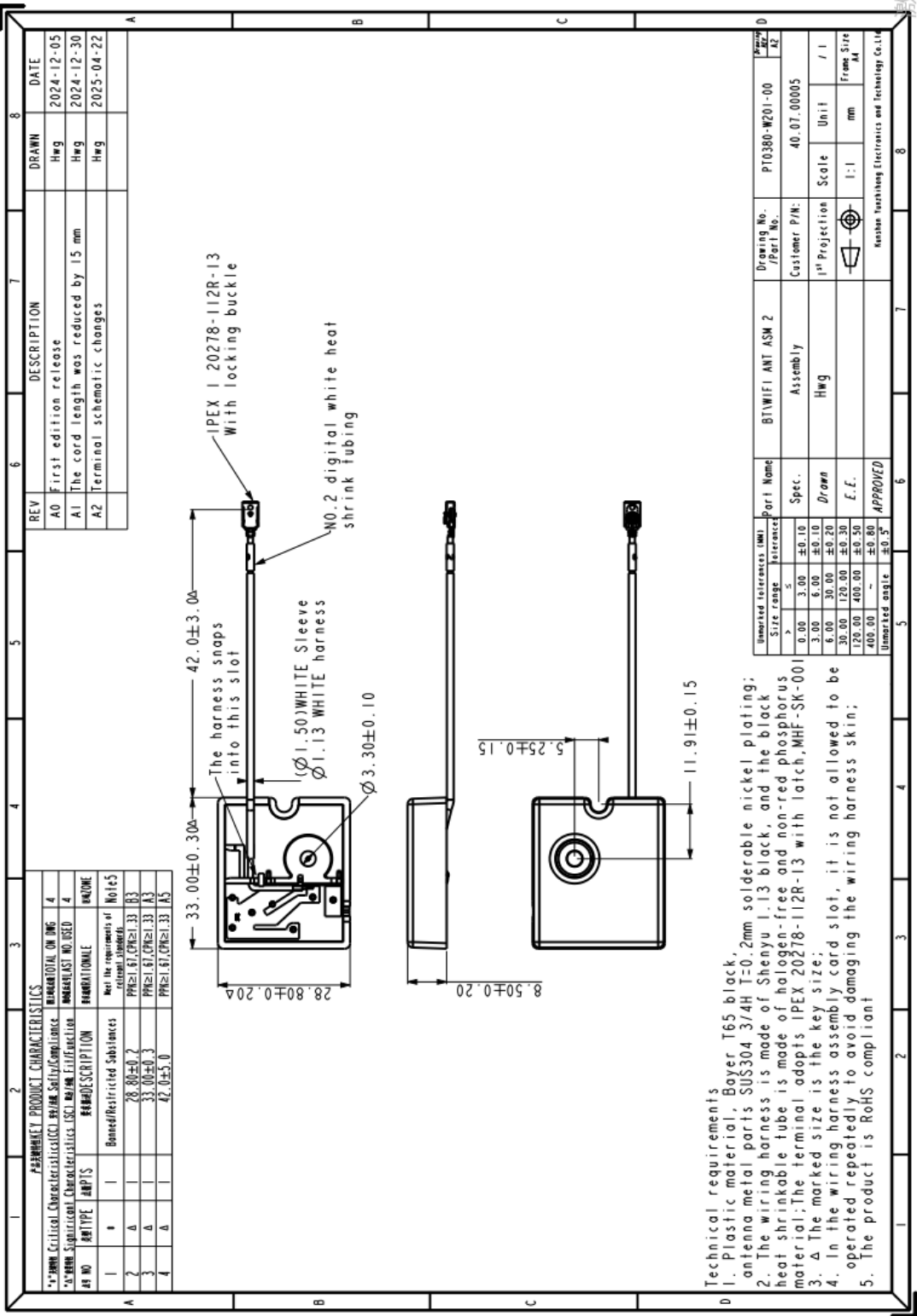
## 8. Antenna Radiation Pattern



|                   |                                    |                 |               |                |                |                |    |
|-------------------|------------------------------------|-----------------|---------------|----------------|----------------|----------------|----|
| P/N               | PT0380-W201-00                     |                 |               | Customer P/N   | 40.07.00005    |                |    |
| Docume<br>nt Name | BT+WIFI_Ant2#_ Specification Sheet |                 |               | Data           | 2025-02<br>-13 | Version<br>No. | A0 |
| Design<br>ed by   | Huang Fei                          | Reviewe<br>d by | Huang Weigang | Approved<br>by | Xiang Zhiwen   |                |    |



9. Antenna Drawing Specifications



|                   |                                    |  |                 |               |  |                |  |                |    |
|-------------------|------------------------------------|--|-----------------|---------------|--|----------------|--|----------------|----|
| P/N               | PT0380-W201-00                     |  |                 | Customer P/N  |  | 40.07.00005    |  |                |    |
| Docume<br>nt Name | BT+WIFI_Ant2#_ Specification Sheet |  |                 | Data          |  | 2025-02<br>-13 |  | Version<br>No. | A0 |
| Designe<br>d by   | Huang Fei                          |  | Reviewe<br>d by | Huang Weigang |  | Approved<br>by |  | Xiang Zhiwen   |    |



# 997 BT+WIFI\_Ant1#\_Specification Sheet

## 1. Revision History

| Version No. | Change Description | Data of issue | Changed By |
|-------------|--------------------|---------------|------------|
| A0          | Initial Version    | 2025-02-13    | Huang Fei  |
|             |                    |               |            |
|             |                    |               |            |

## 2. Product Application

This antenna is designed for the PATEO Porsche 997 project.

## 3. Environmental Parameters

Operating Temperature:  $-40^{\circ}\text{C}\sim 85^{\circ}\text{C}$

Storage Temperature:  $-40^{\circ}\text{C}\sim 85^{\circ}\text{C}$

## 4. Performance Specifications

| Electrical Parameters                        |             |
|----------------------------------------------|-------------|
| Antenna Performance (2.4G BT & WIFI Antenna) |             |
| Frequency Range (MHz)                        | 2400-2500   |
| Bandwidth (MHz)                              | 100         |
| Input Impedance ( $\Omega$ )                 | 50          |
| Return Loss (S11)                            | $\leq -8$   |
| Maximum Gain (dBi)                           | 5.9dBi      |
| Polarization                                 | Linear      |
| Radiation Efficiency                         | $\geq 45\%$ |
| Antenna Performance (5G WIFI Antenna)        |             |
| Frequency Range (MHz)                        | 5150-5850   |
| Bandwidth (MHz)                              | 700         |
| Input Impedance ( $\Omega$ )                 | 50          |
| Return Loss (S11)                            | $\leq -10$  |
| Maximum Gain (dBi)                           | 7.8dBi      |
| Polarization                                 | Linear      |
| Radiation Efficiency                         | $\geq 50\%$ |

|               |                                   |             |               |             |              |    |
|---------------|-----------------------------------|-------------|---------------|-------------|--------------|----|
| P/N           | PT0380-W101-00                    |             | Customer P/N  | 40.07.00004 |              |    |
| Document Name | BT+WIFI_Ant1#_Specification Sheet |             | Data          | 2025-02-13  | Version No.  | A0 |
| Designed by   | Huang Fei                         | Reviewed by | Huang Weigang | Approved by | Xiang Zhiwen |    |

## 5. Antenna Images

Front view

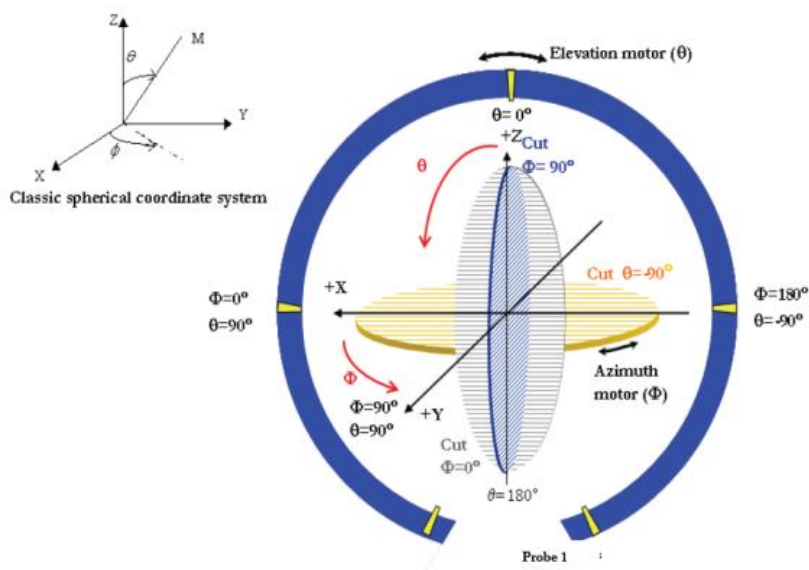


Rear view



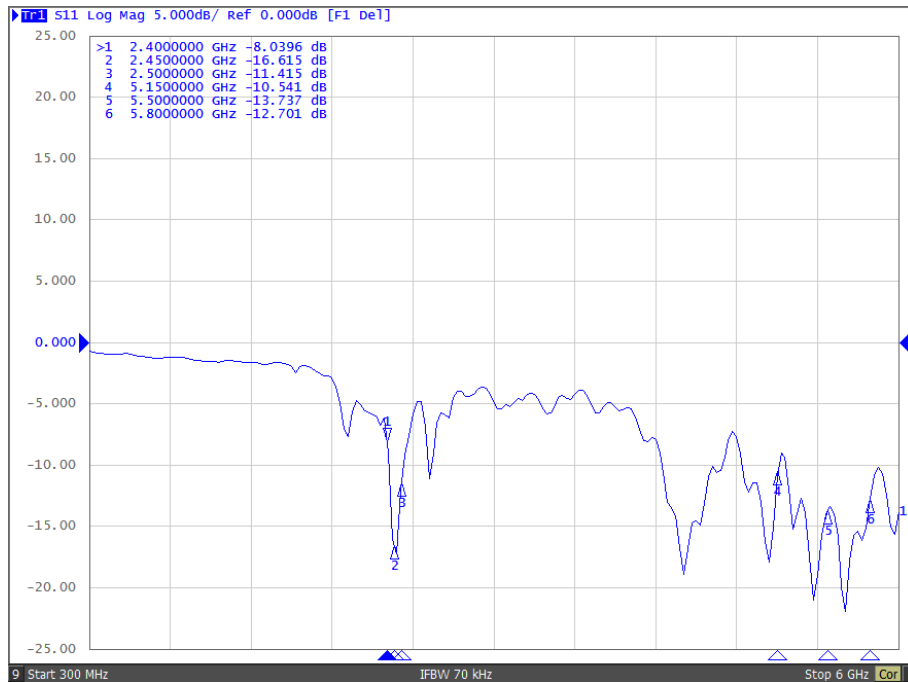
## 6. Antenna Test Environment

- Antenna input characteristics were tested using an Agilent E5071C Vector Network Analyzer.
- Antenna radiation characteristics were tested in a near-field anechoic chamber.
- Test coordinate system is shown in the diagram:



|               |                                    |             |               |             |              |    |
|---------------|------------------------------------|-------------|---------------|-------------|--------------|----|
| P/N           | PT0380-W101-00                     |             | Customer P/N  | 40.07.00004 |              |    |
| Document Name | BT+WIFI_Ant1#_ Specification Sheet |             | Data          | 2025-02-13  | Version No.  | A0 |
| Designed by   | Huang Fei                          | Reviewed by | Huang Weigang | Approved by | Xiang Zhiwen |    |

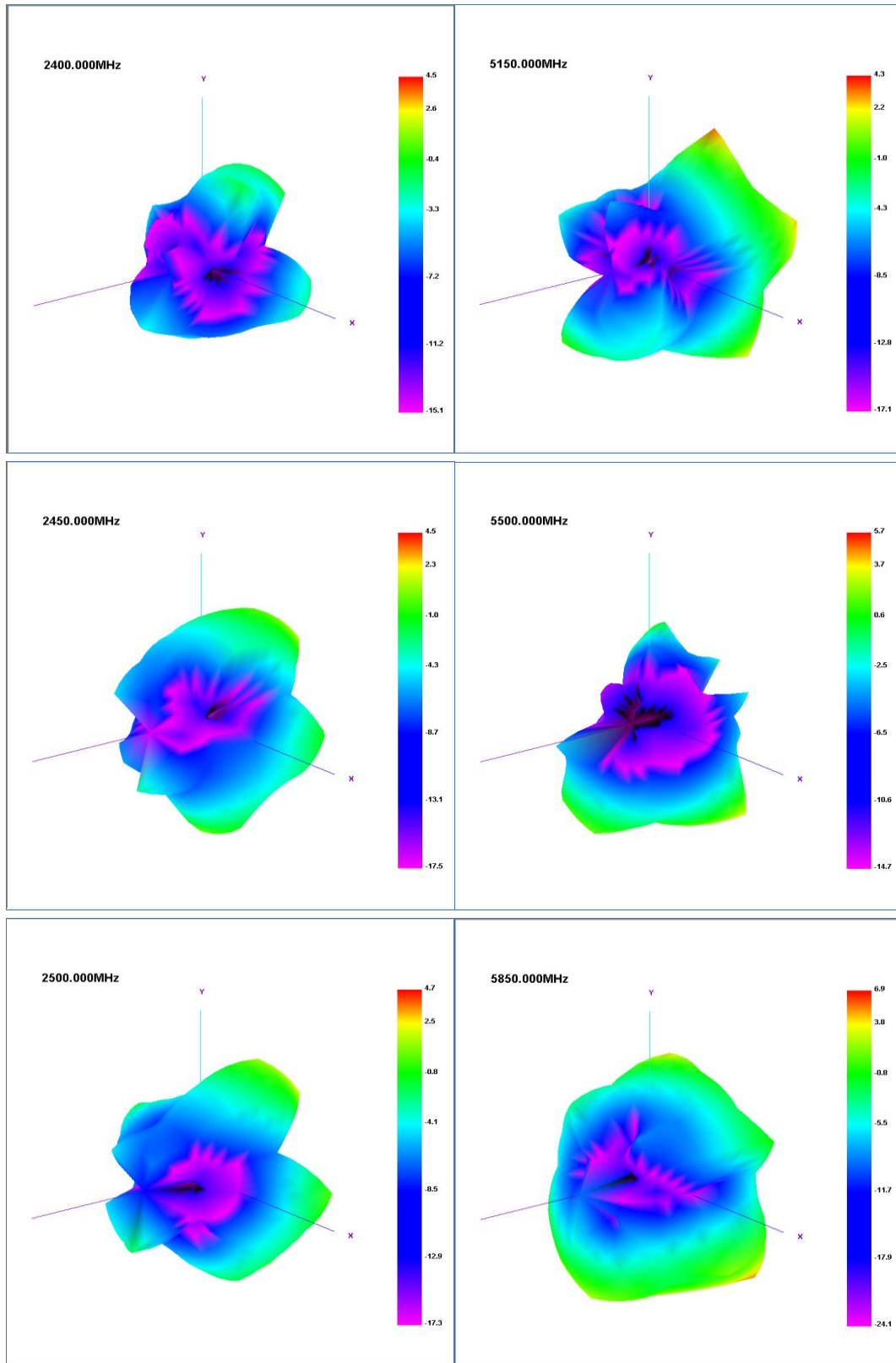
## 7. Antenna Performance Data



| Black Cable_Ant 1 |          |           |            |            |          |           |            |
|-------------------|----------|-----------|------------|------------|----------|-----------|------------|
| Freq (MHz)        | Effi (%) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
| 2400              | 45.4     | -3.4      | 5.5        | 5150       | 53.0     | -2.8      | 4.3        |
| 2410              | 45.1     | -3.5      | 5.9        | 5200       | 41.7     | -3.8      | 2.8        |
| 2420              | 46.6     | -3.3      | 4.9        | 5250       | 43.6     | -3.6      | 2.8        |
| 2430              | 48.3     | -3.2      | 4.5        | 5300       | 45.3     | -3.4      | 3.0        |
| 2440              | 47.3     | -3.3      | 3.7        | 5350       | 51.0     | -2.9      | 4.2        |
| 2450              | 46.6     | -3.3      | 4.2        | 5400       | 53.6     | -2.7      | 4.8        |
| 2460              | 47.1     | -3.3      | 4.2        | 5450       | 56.5     | -2.5      | 5.5        |
| 2470              | 48.8     | -3.1      | 4.3        | 5500       | 53.6     | -2.7      | 5.7        |
| 2480              | 55.1     | -2.6      | 4.7        | 5550       | 64.9     | -1.9      | 7.1        |
| 2490              | 45.6     | -3.4      | 3.7        | 5600       | 60.7     | -2.2      | 7.0        |
| 2500              | 48.5     | -3.1      | 4.0        | 5650       | 67.2     | -1.7      | 7.8        |
| AVG               | 47.7     | -3.2      | 4.5        | 5700       | 67.9     | -1.7      | 6.3        |
|                   |          |           |            | 5750       | 68.5     | -1.6      | 6.5        |
|                   |          |           |            | 5800       | 67.2     | -1.7      | 5.9        |
|                   |          |           |            | 5850       | 67.2     | -1.7      | 6.9        |
|                   |          |           |            | AVG        | 57.5     | -2.5      | 5.4        |

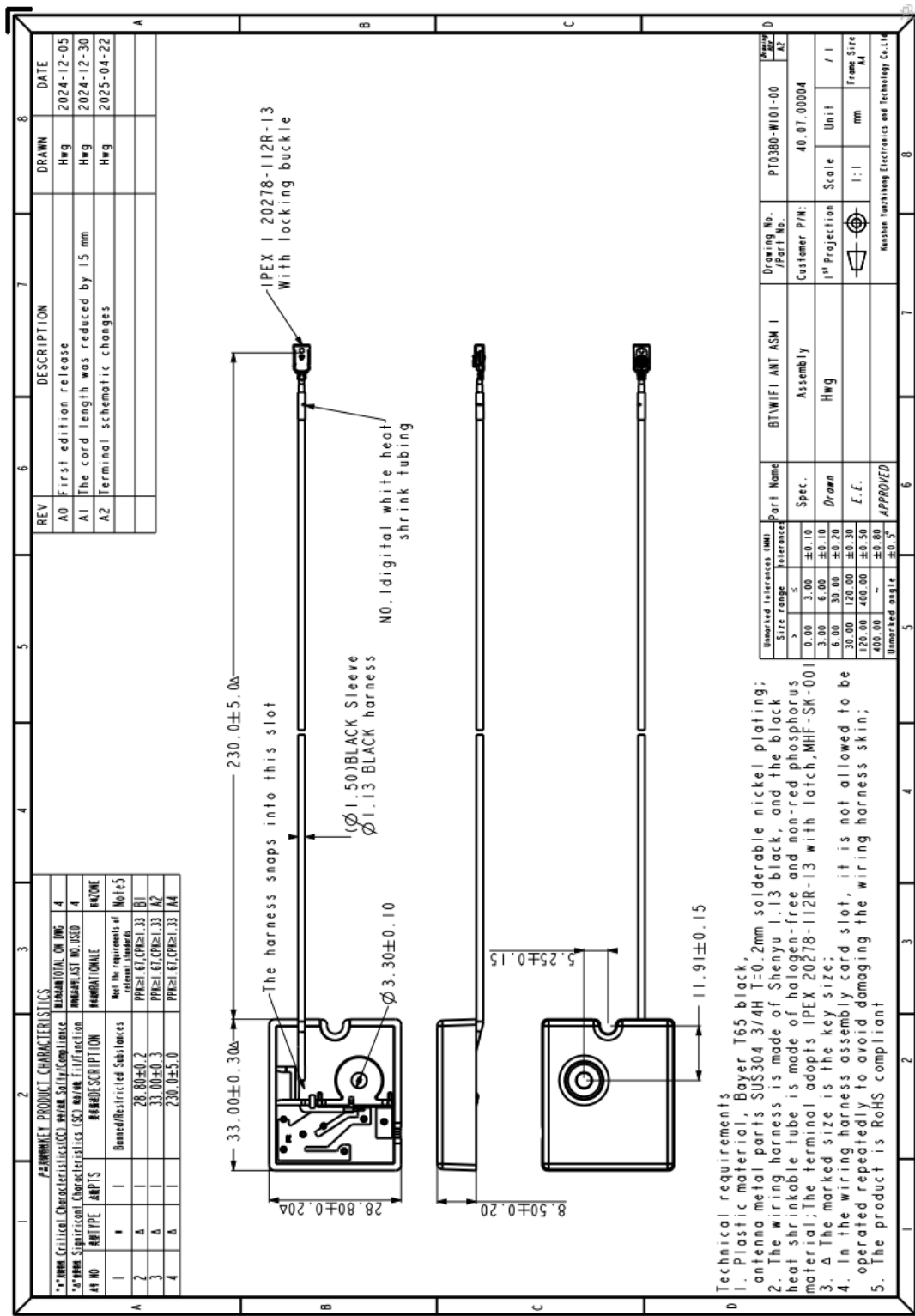
|               |                                    |             |               |             |              |    |
|---------------|------------------------------------|-------------|---------------|-------------|--------------|----|
| P/N           | PT0380-W101-00                     |             | Customer P/N  | 40.07.00004 |              |    |
| Document Name | BT+WIFI_Ant1#_ Specification Sheet |             | Data          | 2025-02-13  | Version No.  | A0 |
| Designed by   | Huang Fei                          | Reviewed by | Huang Weigang | Approved by | Xiang Zhiwen |    |

## 8. Antenna Radiation Pattern



|               |                                    |             |               |             |              |    |
|---------------|------------------------------------|-------------|---------------|-------------|--------------|----|
| P/N           | PT0380-W101-00                     |             | Customer P/N  | 40.07.00004 |              |    |
| Document Name | BT+WIFI_Ant1#_ Specification Sheet |             | Data          | 2025-02-13  | Version No.  | A0 |
| Designed by   | Huang Fei                          | Reviewed by | Huang Weigang | Approved by | Xiang Zhiwen |    |

## 9. Antenna Drawing Specifications



|               |                                    |             |               |             |              |    |
|---------------|------------------------------------|-------------|---------------|-------------|--------------|----|
| P/N           | PT0380-W101-00                     |             | Customer P/N  | 40.07.00004 |              |    |
| Document Name | BT+WIFI_Ant1#_ Specification Sheet |             | Data          | 2025-02-13  | Version No.  | A0 |
| Designed by   | Huang Fei                          | Reviewed by | Huang Weigang | Approved by | Xiang Zhiwen |    |