

客戶名稱 : 朝阳
CUSTOMER

Documnet No.: _____

Approval Sheet Rev.: A0 _____

Spec. Rev. : P3 _____

承認書

APPROVAL SHEET

產品品名/Product
Model No. :

WA-F-LA-02-136

客戶料號/Customer No. :

1029-0000190

發行日期/ Issue Date :

2023-03-31

承認日期/ Approved Date :

2023-03-31

Approved by customer: (signing or stamping here)



禾邦電子(蘇州)有限公司
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Co.,Ltd

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□ 苗栗縣竹南鎮大厝裏9鄰59-12號

No. 59-12, 9 Lin, Ta Tsuo Li, Chu Nan
Chen, Miao Li Hsien, Taiwan, R.O.C.

WA-F-LA-02-136 Specification

Model: WA-F-LA-02-136

1. Explanation of part number :

WA - F - LA - 02 - 136
(1) (2) (3) (4) (5)

(1) Product Type : Wireless Antenna

(2) Material: FPC+CABLE

(3) Frequency : 2.4GHz-2.5GHz

(4) Coaxial Cable Type : 02

(5) Suffix :136

2. Storage Condition:

Temperature -40 to +70 °C
Humidity 65±20 % RH

3. Operating Condition:

Temperature -40 to +70 °C
Humidity 65±20 % RH

4. Electrical Specification :

Those specifications were specially defined for 朝阳-ATC PARTY-BT5 model, and all characteristics were measured under the model's handset testing.

4-1. Frequency Band:

Frequency Band	MHz
ISM	2400-2500

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±
ANGLES=± HOLEDIA=±



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SCALE : UNIT : mm

DRAWN BY : 靳静 CHECKED BY : 赵付辉

DESIGNED BY : Ziv APPROVED BY : 赵付辉

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4-2. Impedance

50 ohm nominal

4-3. Matching circuit

None

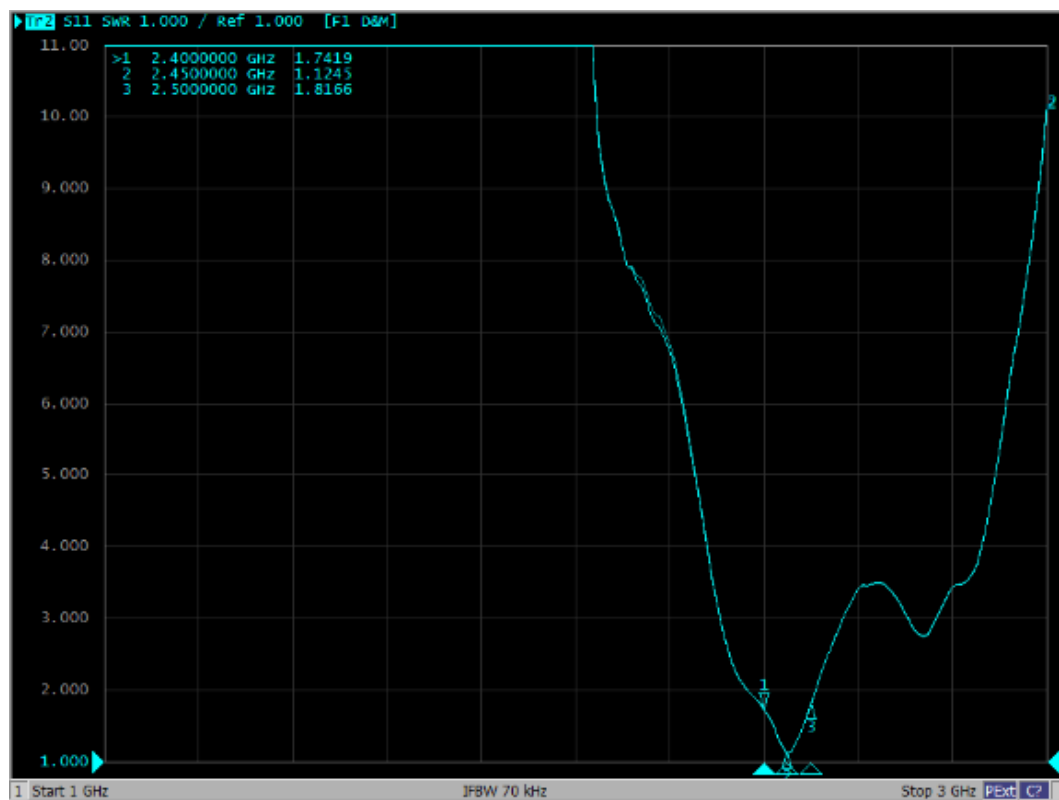
4-4. VSWR

4-4.1 Measuring Method

- 1.A 50 Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR
- 2.Keeping this jig away from metal at least 20cm

4-4.2 Measurement frequency points and VSWR value

Frequency (Unit MHz)	2400	2450	2500
VSWR	1.74	1.12	1.81



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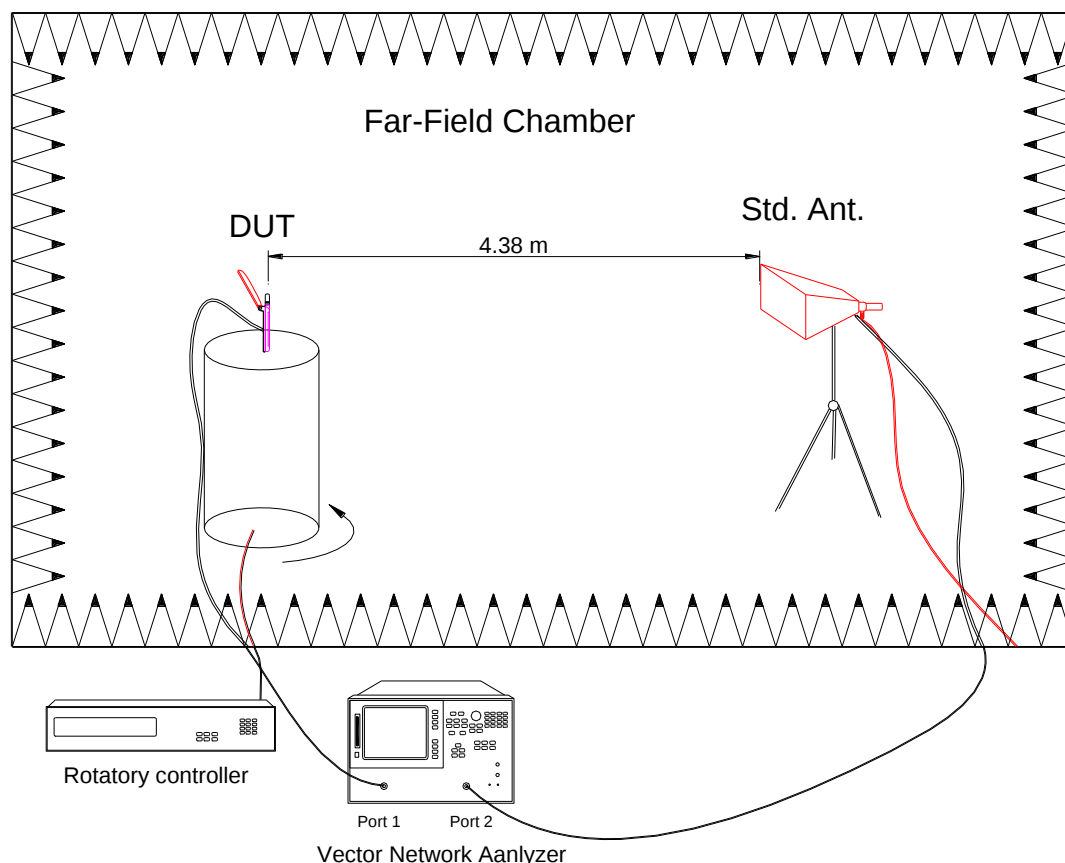
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4-5. Efficiency and Gain

4-5.1 Measure method

1. Using a low loss coaxial cable to link a standard handset
2. Fixed this handset jig on chamber's rotator plane
3. Linking jig into network analyzer port and using a probing horn antenna to collect data.
4. Using another standard gain horn antenna to calibrated those data

4-5.2 Chamber definition



1. An anechoic chamber (7mx4mx3m) which satisfied far-field condition was applied to avoid multi-path effect
2. The quiet room region is 40cmx40cmx40cm at the center of rotator
3. The distance between DUT and standard antenna is 4.38 m
4. Probing antenna (9120D horn antenna) and standard gain horn antenna (BBHA9120 LPF 700MHz ~6GHz)

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4-5.3 Efficiency and Gain

Antenna gain is marked (dBi) and is based on STANDARD HORN antenna. The data shows Peak Gain and Average Gain.

Frequency (MHz)	2400	2450	2500
Efficiency (%)	44.28	48.68	43.09
Peak Gain (dBi)	2.95	4.43	2.45

Freq. (MHz)	Efficiency (%)	Peak Gain (dBi)
2400	44.28	2.95
2410	45.45	3.44
2420	46.44	3.89
2430	47.62	4.22
2440	47.47	4.35
2450	48.68	4.43
2460	48.3	4.18
2470	47.45	3.85
2480	47.82	3.5
2490	46.39	3.13
2500	43.09	2.45
AVG	46.64	

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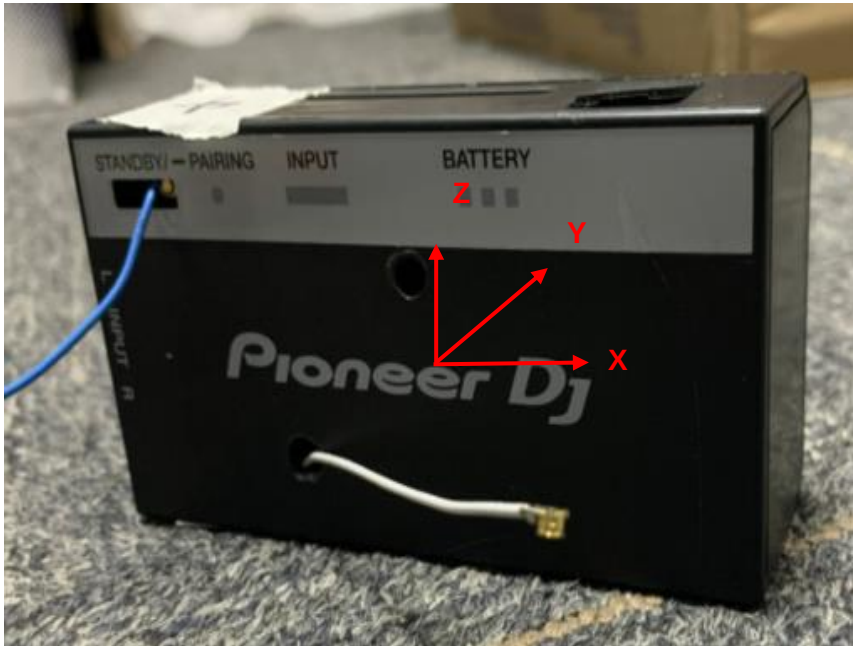
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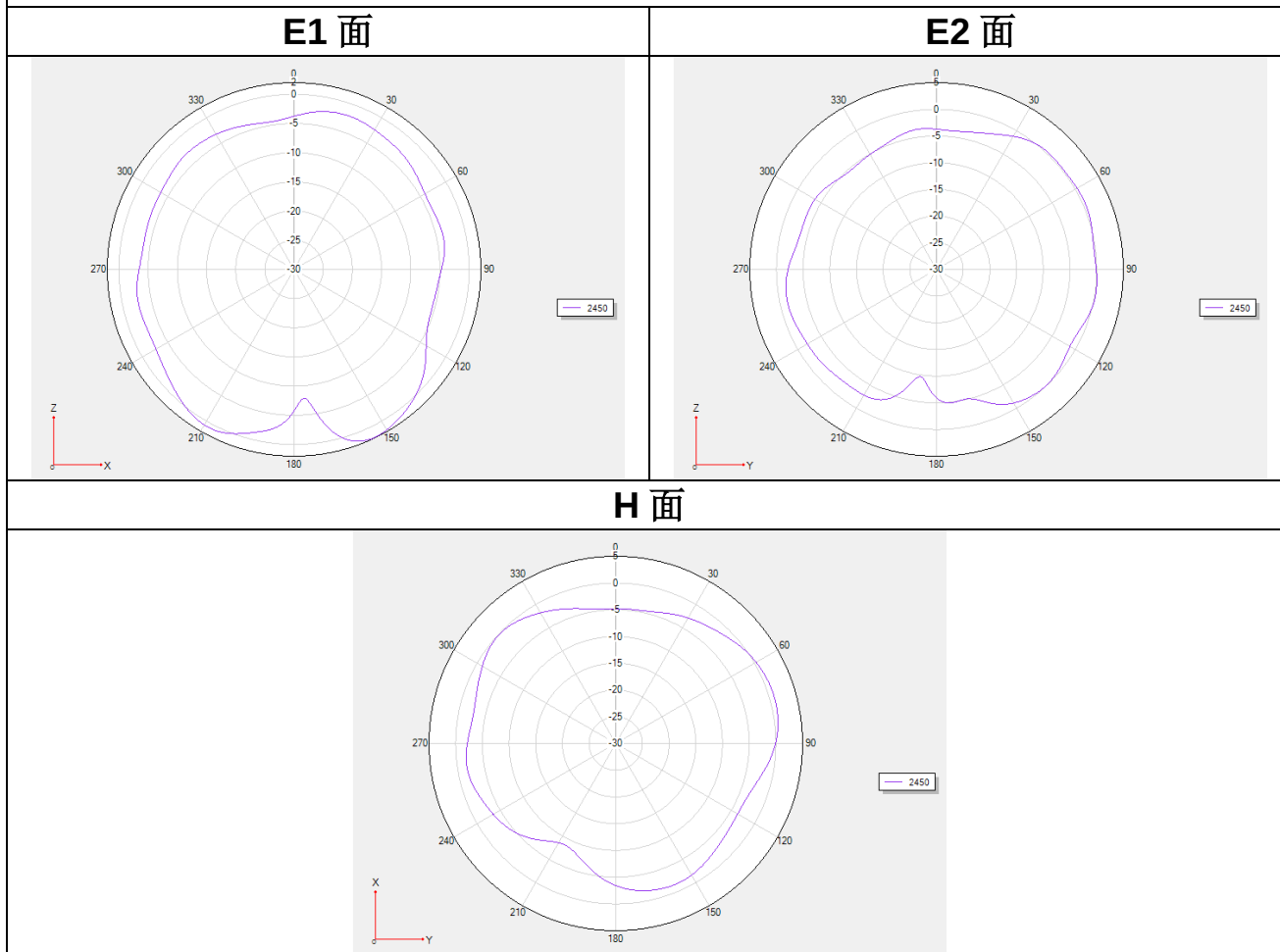
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4-5.4 2D&3D Radiation Pattern Results



2D Radiation Pattern



UNLESS OTHER SPECIFIED TOLERANCES ON :

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ANGLES = $\pm$

HOLEDIA=±

SCALE :

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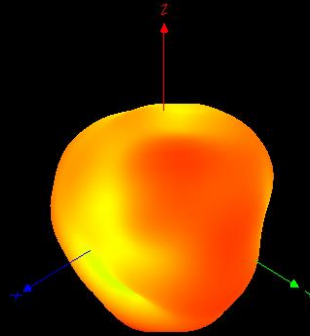
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3D Radiation Pattern

Freq:2450MHz



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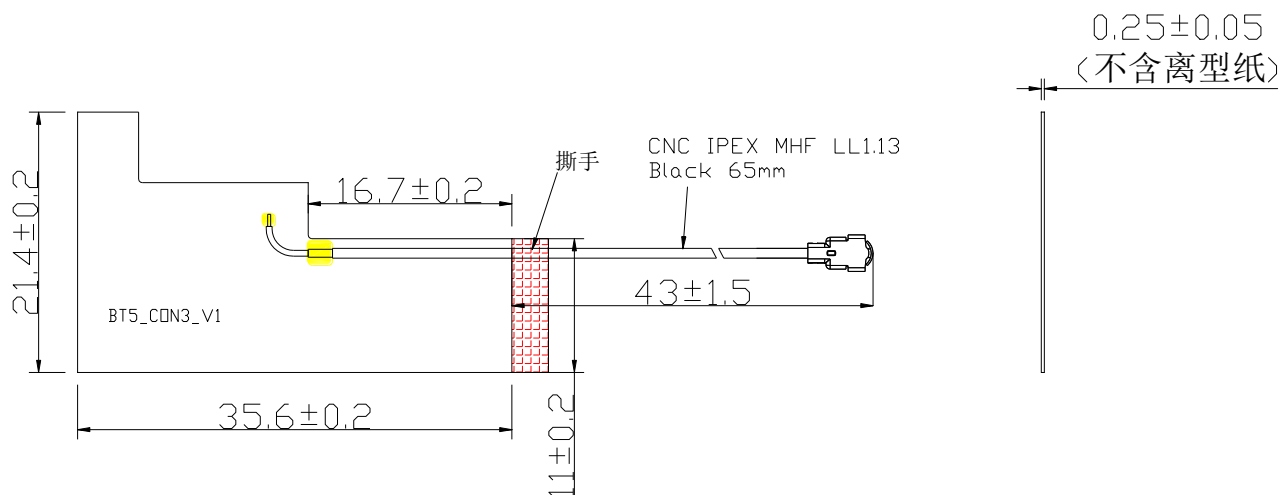
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5. Mechanical Specification:

5-1. Mechanical Configuration (Unit: mm)

The appearance of the antenna is according to drawing Figure 5-1-1



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