

客戶名稱 : 系統電子  
CUSTOMER

Documnet No.: ENS000160410

Approval Sheet Rev.: A1

Spec. Rev. : P1

# 承認書

## APPROVAL SHEET

產品品名/Product Model No. : **WA-M-LB-02-262 (WIFI Main)**

客戶料號/Customer No. : **354-0302020-011**

案名/Model Name: **Butterfly**

發行日期/ Issue Date : **2022/1/24**

承認日期/ Approved Date :

Approved by customer: (signing or stamping here)

  
2022/1/25 2022.01.25



佳邦科技股份有限公司  
INPAQ TECHNOLOGY CO., LTD.

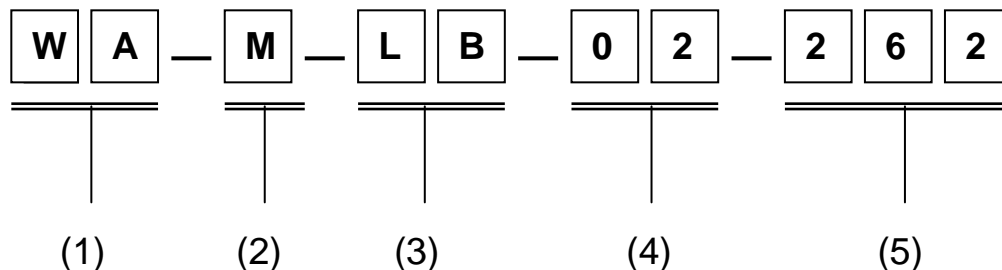
- 350 苗栗縣竹南鎮公義里11鄰科義街11號     428 台中市大雅區科雅路27號4樓  
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# Embedded Dual-Band Antenna for WA-M-LB-02-262

## 1. Explanation of part number :



- (1) Product type : Wireless Antenna
- (2) Material : Metal
- (3) Frequency : 2400~2500;5150~5850 MHz
- (4) Coaxial Cable Type : Black Coaxial Cable
- (5) Suffix : 262

## 2. Electrical Specification :

Those specifications were specially defined for **Butterfly** model, and all characteristics were measured under the model's handset testing.

### 2-1. Frequency Band :

Band Type	Frequency (MHz)
Dual-Band	2400-2500;5150~5850 MHz

### 2-2. Impedance :

50 ohm nominal

### 2-3. Matching circuit :

None

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SCALE : N/A	UNIT : mm			
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DESIGNED BY:林易暄	APPROVED BY:張建焜			
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2-4. Return loss/VSWR :

Frequency(MHz)	2400	2450	2500	5150	5850
Main VSWR(dB)	1.48	1.16	1.13	1.62	1.86



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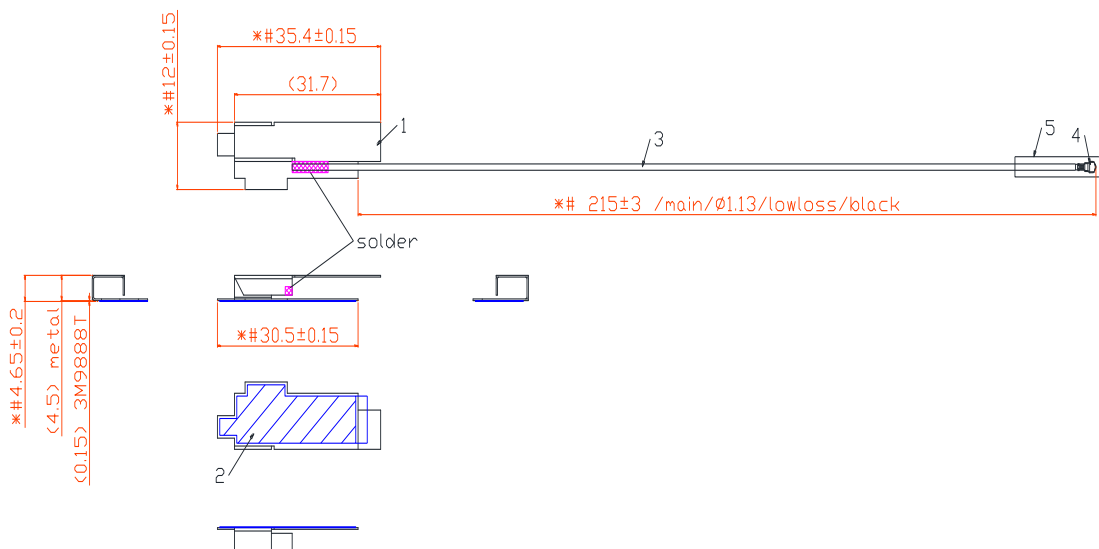
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### 3. Antenna Drawing :



NOTE:  
 1. 工程圖上 \* 為重點尺寸標註指示  
 Mark \* are the key dimensions.  
 2. 工程圖上 # 為Cpk量測尺寸標註指示  
 Mark # are CPK dimensions.

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ITEM	DESCRIPTION	MATERIAL SPECIFICATION	QUANTITY	UNIT	Supplier	UL File NO.
1	Metal	35.4x12x4.5mm	1	PCS	HA0278	N/A
2	Adhesive (3M9888T)	29.5x10.4x0.15mm	1	PCS	HA0026	N/A
3	Cable	OD 1.13 Low Loss Black	1	PCS	HA0008	E318898
4	Connector	I-PEX MHF4-L I-PEX Equivalent(compatible)	1	PCS	HA0063	E213445
5	Tube	OD1.5*20mm	1	PCS	HA0059	N/A

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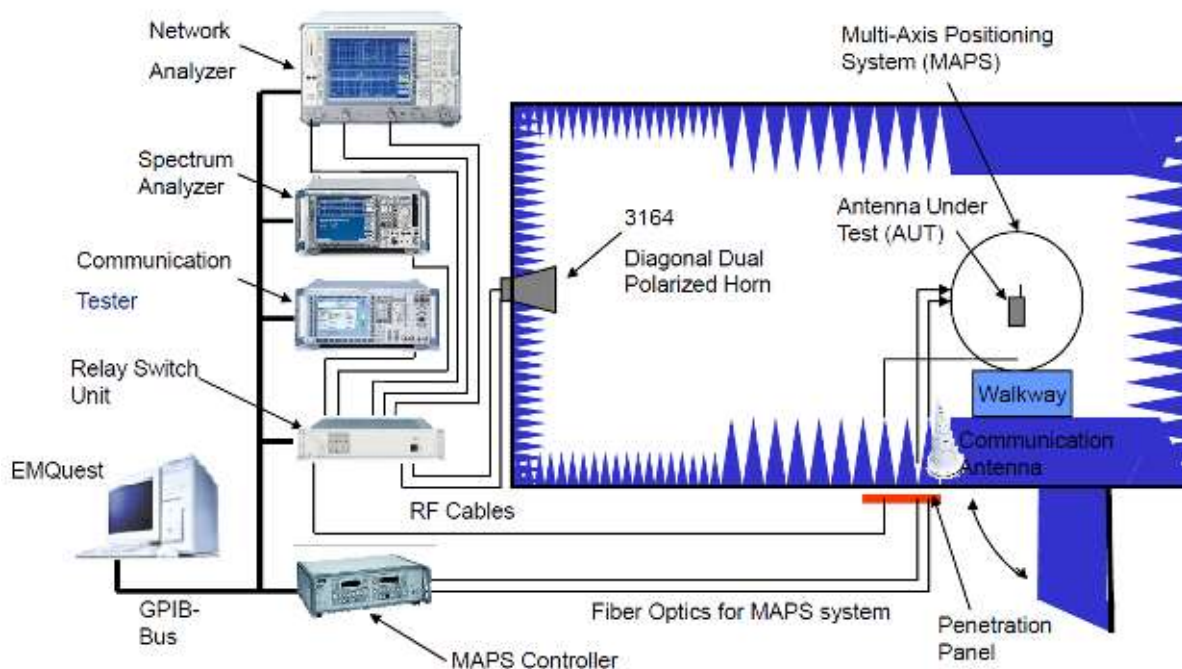
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## 4. Gain and Radiation Pattern

### 4-1.1 Measure method

1. Using a low loss coaxial cable to link a standard handset jig
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

### 4-1.2 Chamber definition



1. An anechoic chamber (10mx3mx3m) which satisfied far-field condition was applied to avoid multi-path effect
2. The quiet room region is 50cmx50cmx50cm at the center of rotator
3. The distance between DUT and standard antenna is 9.14m
4. Two measurement antennas is 3164-06 (300MHz - 6GHz) and 3164-05 (2 - 18GHz)

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### 4-1.3 Gain data and radiation pattern

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

Frequency (MHz)	Main Gain Data	
	Peak Gain (dBi)	Efficiency (%)
2400	2.18	39.23
2450	2.44	42.99
2500	2.06	44.76
5150	3.37	37.41
5250	3.74	40.74
5350	3.44	41.04
5470	3.29	39.87
5600	3.52	44.83
5725	3.75	45.91
5780	3.57	46.64
5850	4.08	45.4

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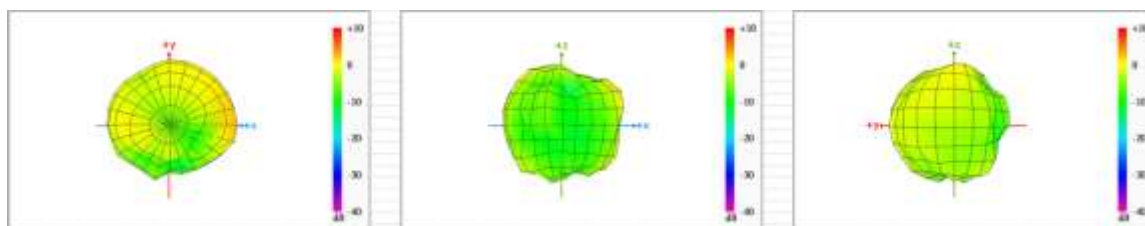
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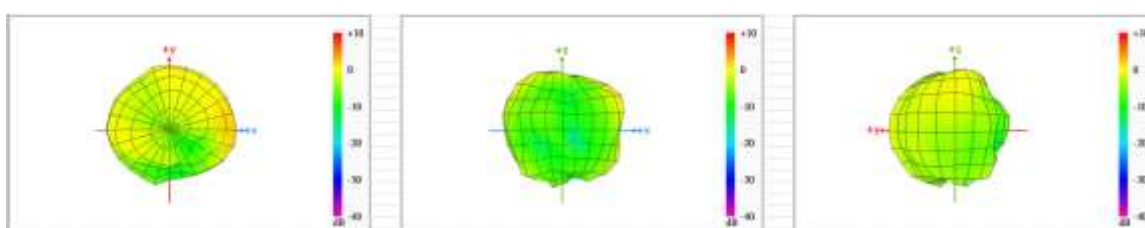
**2400-2500MHz radiation characteristic**

**Main antenna: 2400 MHz**



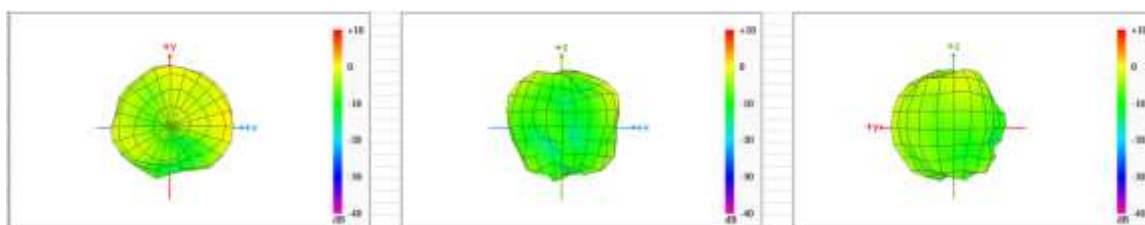
Center Frequency	<b>2400 MHz</b>
Three-dimensional (dBi) peak	<b>2.18</b>

**Main antenna: 2450 MHz**



Center Frequency	<b>2450 MHz</b>
Three-dimensional (dBi) peak	<b>2.44</b>

**Main antenna: 2500 MHz**



Center Frequency	<b>2500 MHz</b>
Three-dimensional (dBi) peak	<b>2.06</b>

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±      X.X=±      X.XX=±  
 ANGLES=±      HOLEDIA=±



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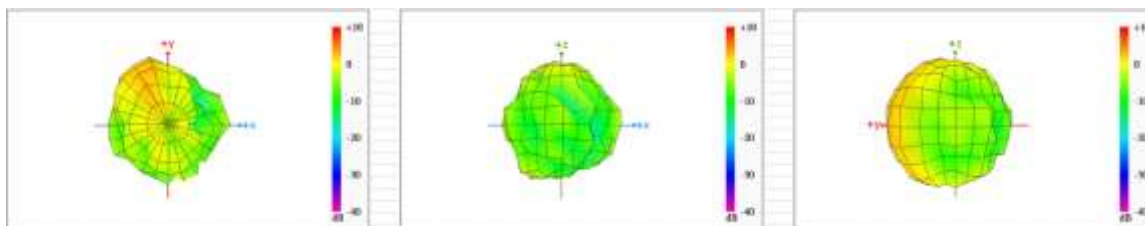
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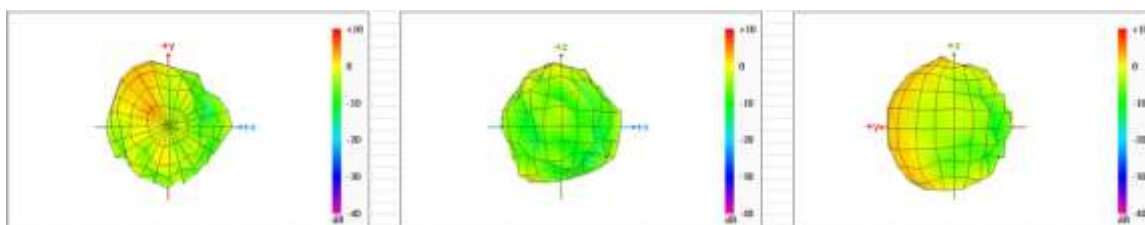
**5150-5850MHz radiation characteristic**

**Main antenna: 5150 MHz**



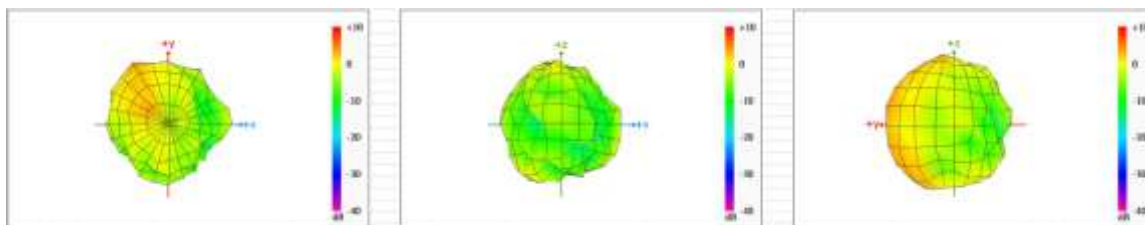
Center Frequency	<b>5150 MHz</b>
Three-dimensional (dBi) peak	<b>3.37</b>

**Main antenna: 5250 MHz**



Center Frequency	<b>5250 MHz</b>
Three-dimensional (dBi) peak	<b>3.74</b>

**Main antenna: 5350 MHz**



Center Frequency	<b>5350 MHz</b>
Three-dimensional (dBi) peak	<b>3.44</b>

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±            X.X=±            X.XX=±  
 ANGLES=±            HOLEDIA=±



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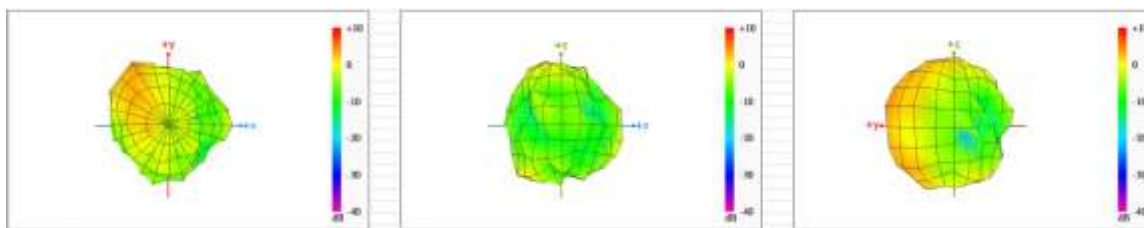
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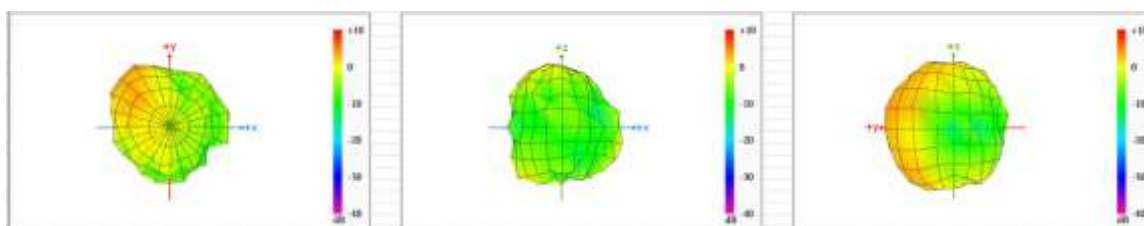


**Main antenna: 5470 MHz**



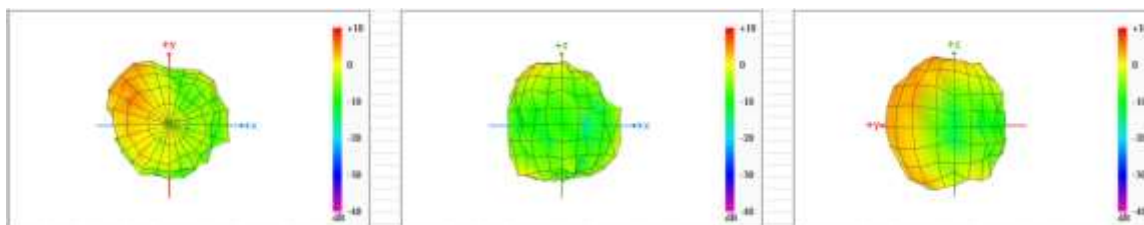
Center Frequency	<b>5470 MHz</b>
Three-dimensional (dBi) peak	<b>3.29</b>

**Main antenna: 5600 MHz**



Center Frequency	<b>5600 MHz</b>
Three-dimensional (dBi) peak	<b>3.52</b>

**Main antenna: 5725 MHz**



Center Frequency	<b>5725 MHz</b>
Three-dimensional (dBi) peak	<b>3.75</b>

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±            X.X=±            X.XX=±  
 ANGLES=±            HOLEDIA=±



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SCALE : N/A

UNIT : mm

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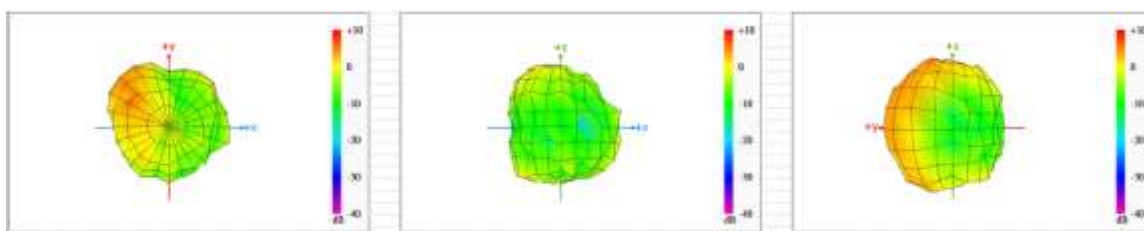
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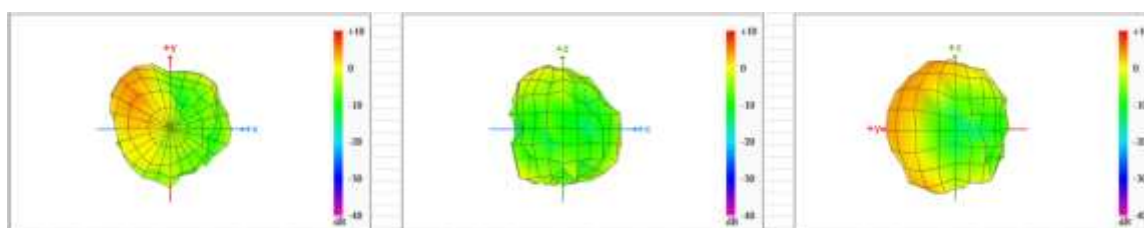
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**Main antenna: 5785 MHz**



Center Frequency	<b>5785 MHz</b>
Three-dimensional (dBi) peak	<b>3.57</b>

**Main antenna: 5850 MHz**



Center Frequency	<b>5850 MHz</b>
Three-dimensional (dBi) peak	<b>4.08</b>

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±            X.X=±            X.XX=±  
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SCALE : N/A

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