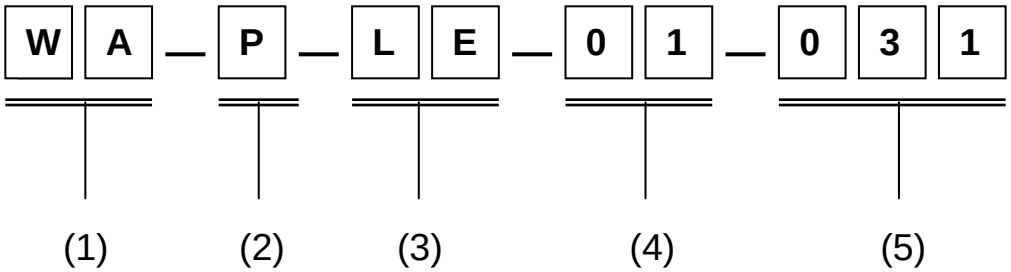
Embedded Multi-Band Antenna for WA-P-LE-01-031

1. Explanation of part number :



1. Product Type：Wireless Antenna
2. Material：PCB
3. Frequency/Band code：2400~2500 & 5150~7125MHz
4. Coaxial Cable Type：White Coaxial Cable
5. Suffix：031

2. Electrical Specification :

Ant. Part Number (main & aux parts)	Type	Highest Peak Gain with Cable Loss (dBi)		Cable loss (dB)		Connector Type	Cable Length (mm)	Laptop/ Host Model
		2400~2500 MHz	5150~7125 MHz	2400~2500 MHz	5150~7125 MHz			
Aux: INPAQ P/N: WA-P-LE-01-031 ASUS P/N: 14008-05410100	PIFA	2.97	4.74	0.91	1.61	I-PEX MHF4-L	329.5	UX5304

Antenna Type	PIFA Antenna For WIFI 802.11a/b/g/n/ac/ax	
Connector Type	I-PEX MHF4-L Connector	
Cable Type	OD 1.13 LLS RF Cable	
Impedance	50Ω	
Polarization	Linear	
Radiation Pattern	Omni-directional	
Frequency Range	WLAN 802.11a/b/g/n/ac/ax	2.4~2.5GHz & 5.15~7.125 GHz
VSWR	WLAN 802.11a/b/g/n/ac/ax	≦3.5
Operation Temperature	-10℃~+55℃	
Storage Temperature	-30℃~+75℃	
Return Loss	≦ -6 dB	
Max Power	1W	

UNLESS OTHER SPECIFIED TOLERANCES ON：
X=± X.X=± X.XX=±
ANGLES=± HOLEDIA=±

INPAQ TECHNOLOGY CO., LTD.

SCALE：N/A | UNIT：mm

DRAWN BY:周敬晨 | CHECKED BY:鄭榮謀

DESIGNED BY:高楨棋 | APPROVED BY:張建焜

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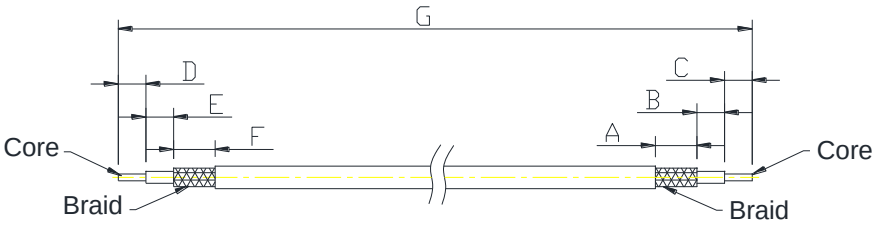
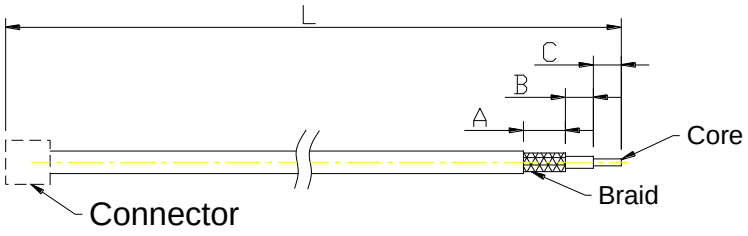
5. RF Connector：

5-1 Cable Dimension：





Connector：I-PEX MHF-4L；Cable：RF Cable ϕ 1.13 Low Loss(White)

L：339.5±2.0	D：1.20±0.15
A：3.0±0.5(沾錫)	E：0.72±0.15
B：1.0±0.5	F：1.00±0.15
C：1.0±0.5(沾錫)	G：338.5±2.0

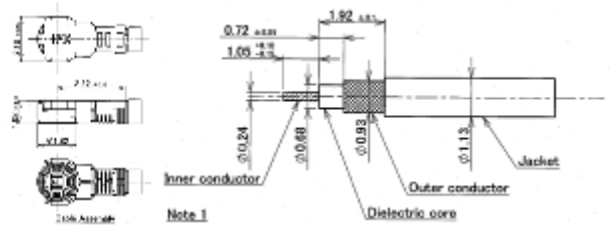
unit：mm

5-1.1 Electric SPEC：

短路/斷路測試：(使用三用電表量測)

- 芯線與 Braid wires 間不可短路。
- Connecter 之 Ground 與線路另一端之 Braid wires 間不可斷路。
- Connecter 之芯線與線路另一端之芯線間不可斷路。

5-1.2 Connector Appearance：I-PEX MHF-4L (此為示意圖)



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TITLE：Embedded Multi-Band Antenna for WA-P-LE-01-031		DOCUMENT NO.	SPEC REV. P0

6. Electrical Specification：

Those specifications were specially defined for UX5304 model, and all characteristics were measured under the model's handset testing jig.

6-1. Frequency Band：

Frequency Band	MHz	MHz
Wi-Fi 6e	2400~2500	5150~7125

6-2. Impedance：

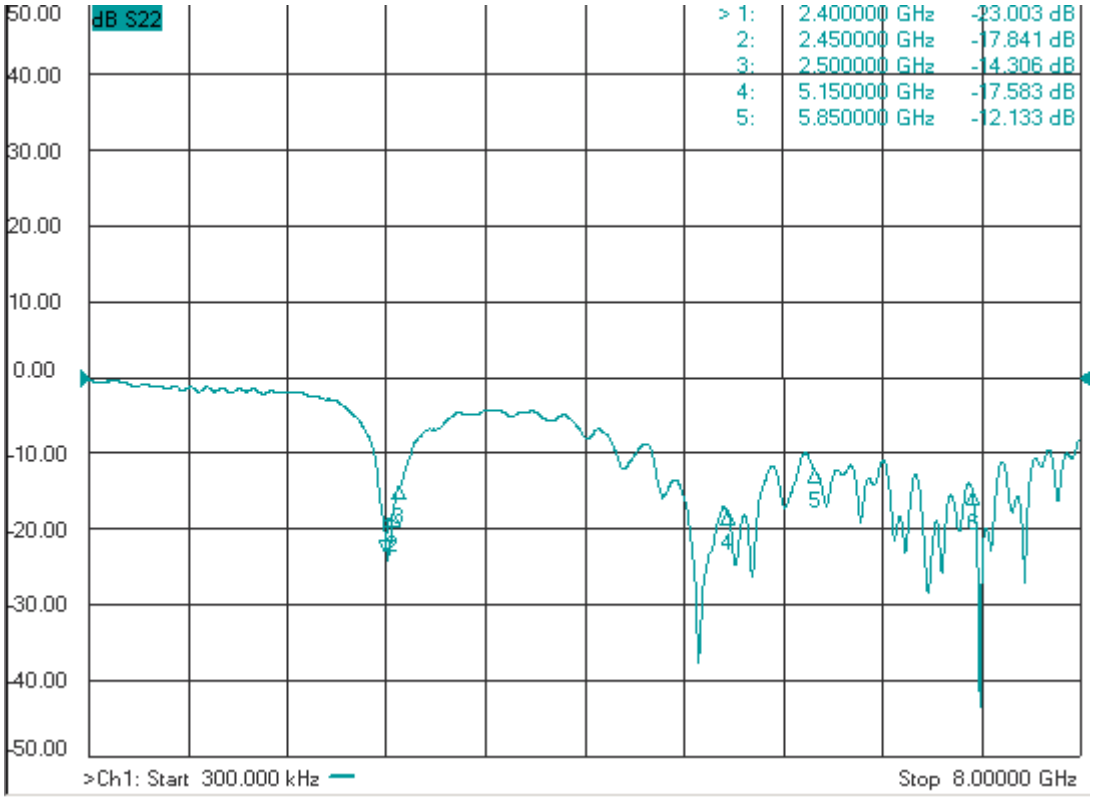
50 ohm nominal

6-3. Matching circuit：

None

6-4. Return loss/VSWR：

Frequency(MHz)	2400	2500	5150	5850	7125
Aux S11(dB)	-23.00	-14.31	-17.58	-12.13	-13.42



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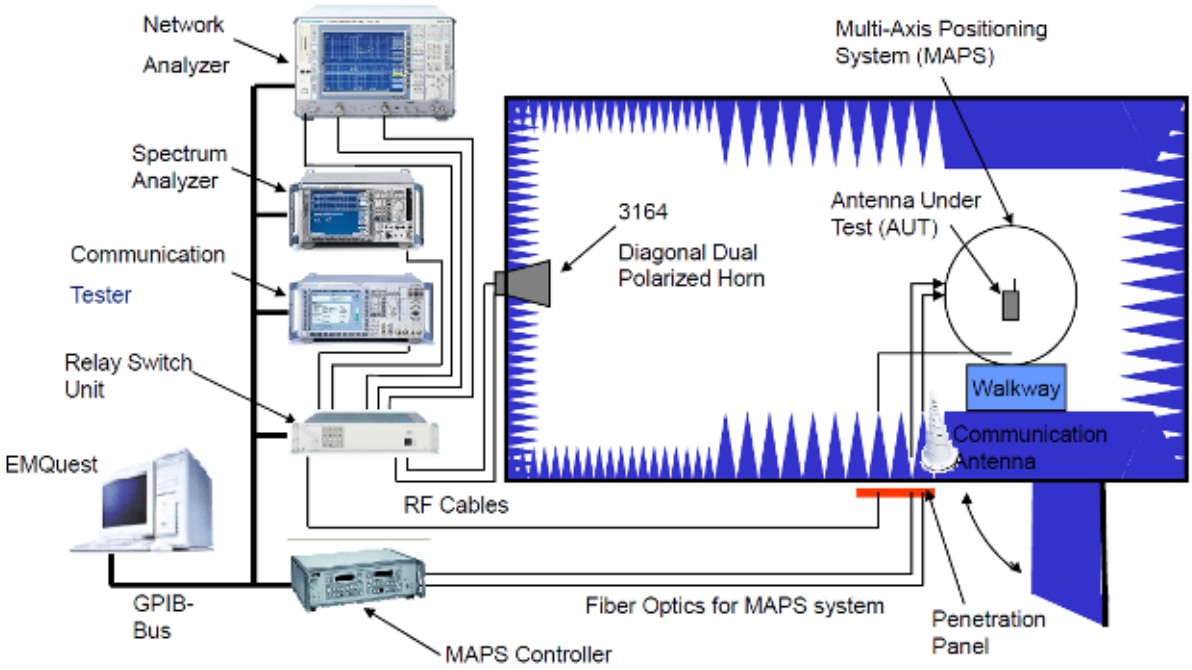
6-5 Gain and Radiation Pattern

6-5.1 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

6-5.2 Chamber definition



1. An anechoic chamber (10mx3mx3m) which satisfied far-field condition was applied to avoid multi-path effect
2. The quite 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)

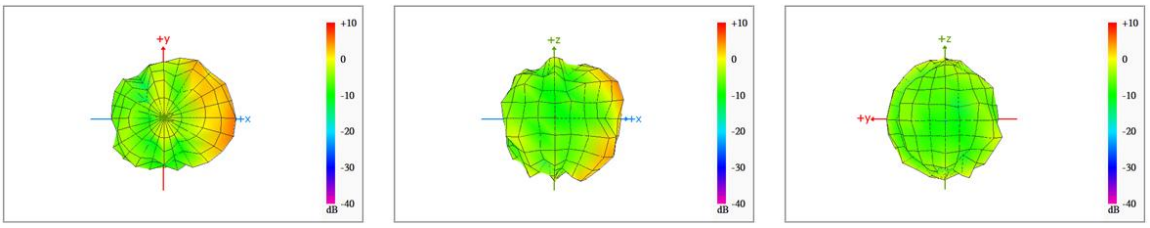
6-5.3 Gain data and radiation pattern

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

	Aux Gain Data		
Frequency (MHz)	Three-dimensional peak (dBi]	Average (dBi)	Efficiency(%)
2400	2.84	-2.29	59
2412	2.97	-2.08	62
2437	2.90	-2.15	61
2462	2.93	-2.01	63
2500	2.90	-1.87	65
5150	3.60	-3.19	48
5250	3.55	-4.32	37
5350	3.71	-3.77	42
5470	4.74	-2.84	52
5600	4.17	-3.10	49
5725	4.59	-3.19	48
5785	4.44	-3.19	48
5850	4.57	-3.01	50
5895	4.36	-3.47	45
5925	4.02	-3.87	41
6125	4.27	-3.98	40
6425	3.99	-3.67	43
6525	4.10	-3.77	42
6725	4.32	-3.57	44
6875	4.03	-4.44	36
6925	3.79	-4.32	37
7125	4.03	-3.67	43

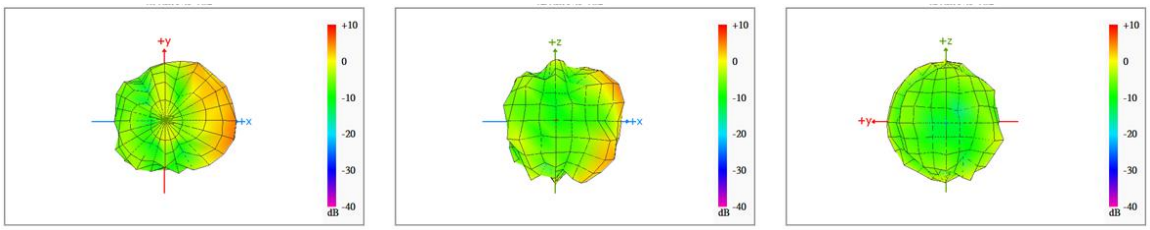
2400-2500MHz radiation characteristic

Aux antenna: 2400 MHz



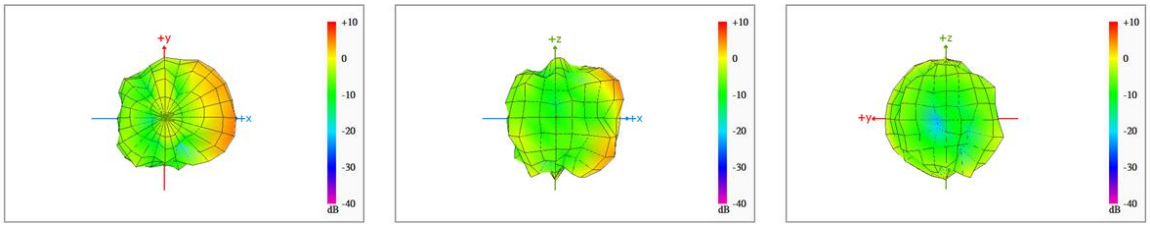
Center Frequency	**2400 MHz**
Three-dimensional (dBi) peak	**2.84**

Aux antenna: 2412 MHz



Center Frequency	**2412 MHz**
Three-dimensional (dBi) peak	**2.97**

Aux antenna: 2437 MHz



Center Frequency	**2437 MHz**
Three-dimensional (dBi) peak	**2.90**

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DESIGNED BY:高楨棋	APPROVED BY:張建焜		
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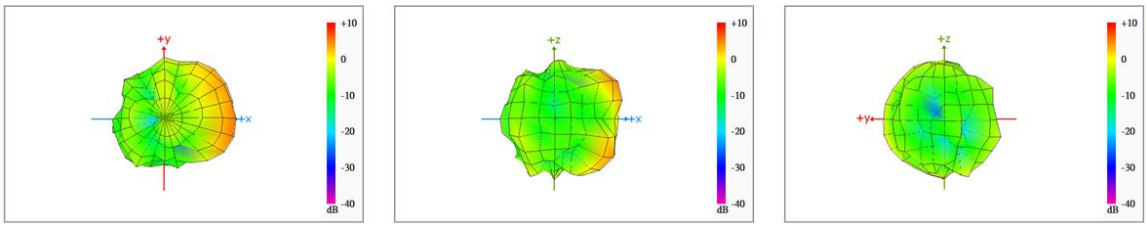
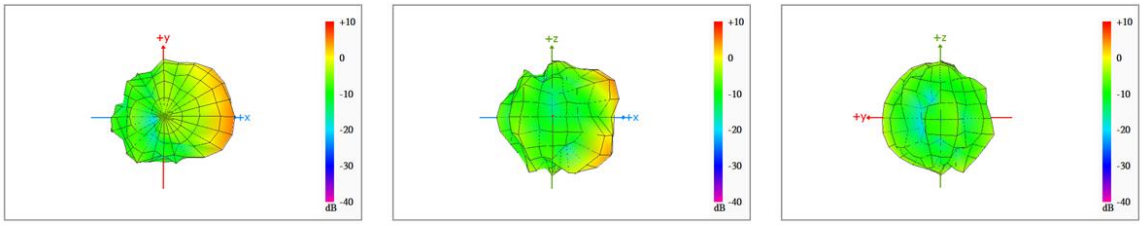
Aux antenna: 2462 MHz



Center Frequency	**2462 MHz**
Three-dimensional (dBi) peak	**2.93**

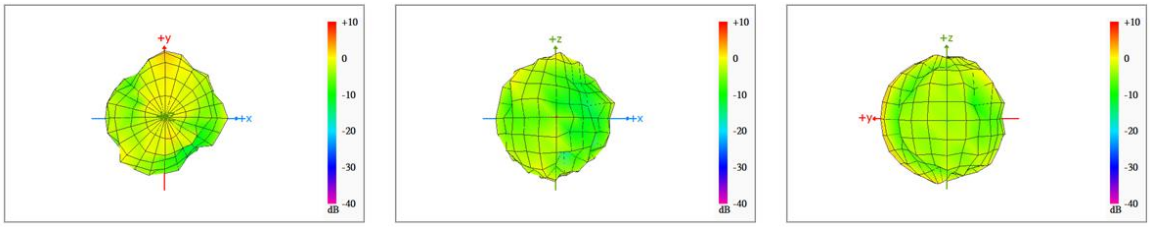
Aux antenna: 2500 MHz



Center Frequency	**2500 MHz**
Three-dimensional (dBi) peak	**2.90**

5150-5350MHz radiation characteristic

Aux antenna: 5150 MHz



Center Frequency	**5150 MHz**
Three-dimensional (dBi) peak	**3.60**

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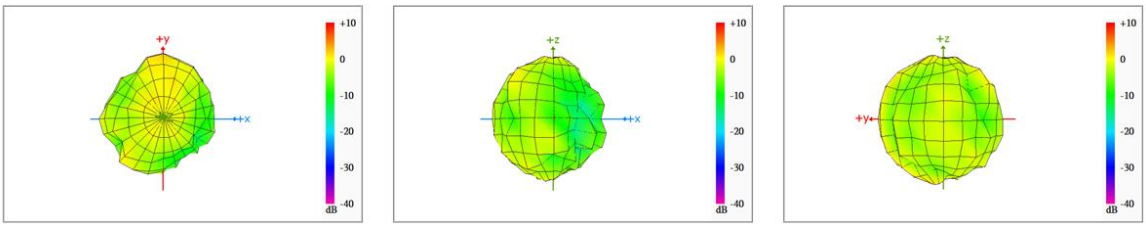
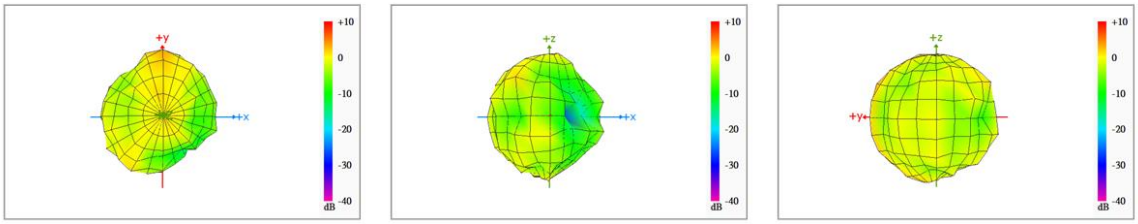
Aux antenna: 5250 MHz



Center Frequency	**5250 MHz**
Three-dimensional (dBi) peak	**3.55**

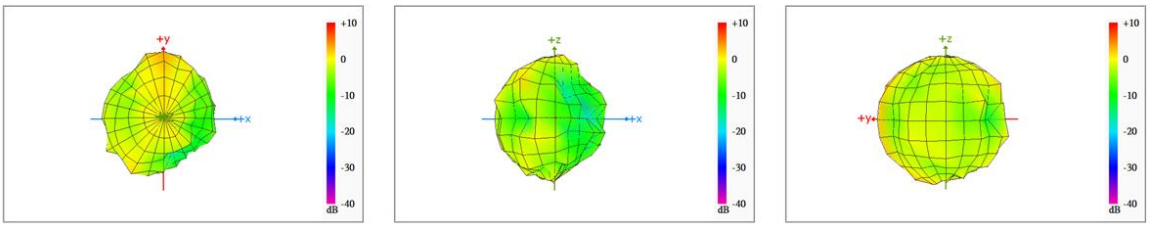
Aux antenna: 5350 MHz



Center Frequency	**5350 MHz**
Three-dimensional (dBi) peak	**3.71**

5470-5725MHz radiation characteristic

Aux antenna: 5470 MHz



Center Frequency	**5470 MHz**
Three-dimensional (dBi) peak	**4.74**

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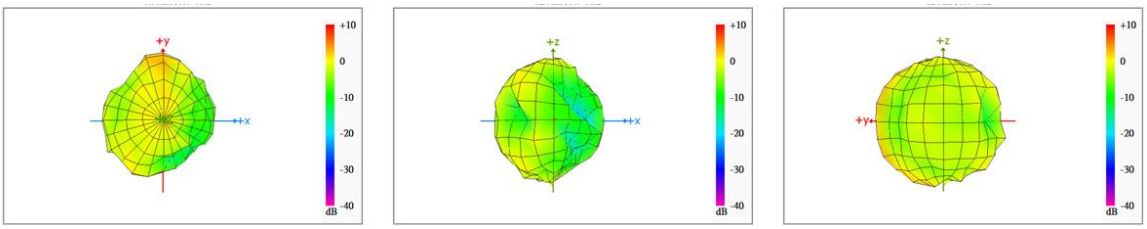
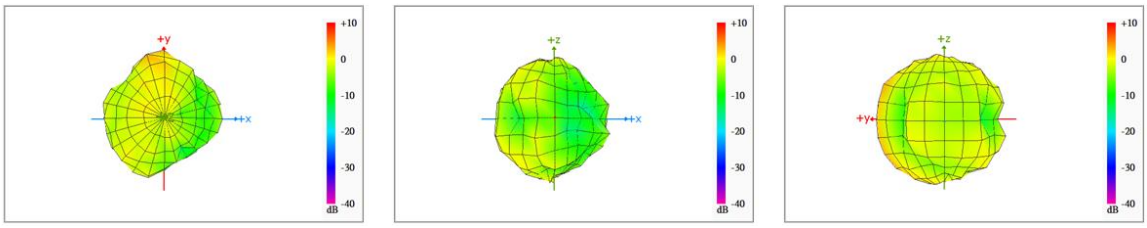
Aux antenna: 5600 MHz



Center Frequency	**5600 MHz**
Three-dimensional (dBi) peak	**4.17**

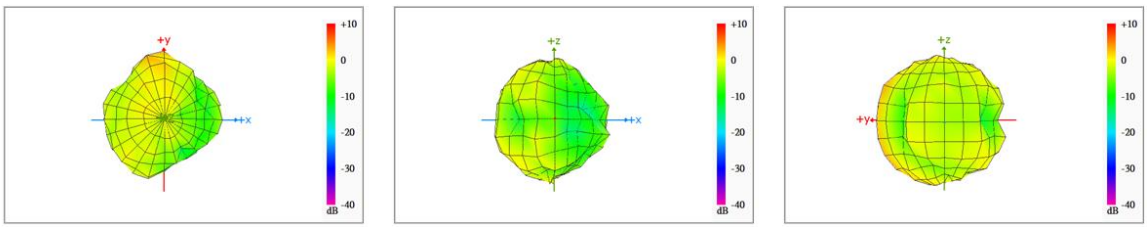
Aux antenna: 5725 MHz



Center Frequency	**5725 MHz**
Three-dimensional (dBi) peak	**4.59**

5725-5850MHz radiation characteristic

Aux antenna: 5725 MHz



Center Frequency	**5725 MHz**
Three-dimensional (dBi) peak	**4.59**

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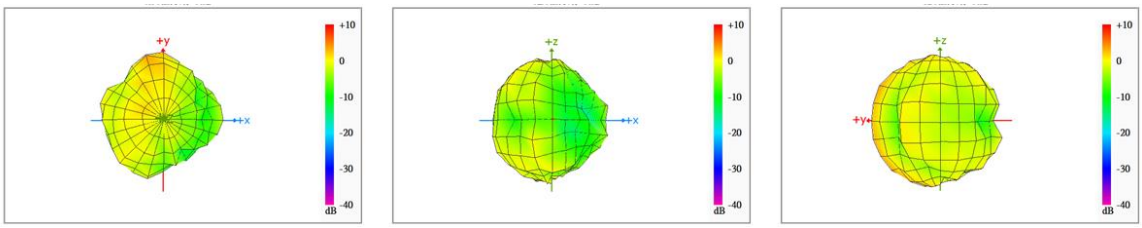
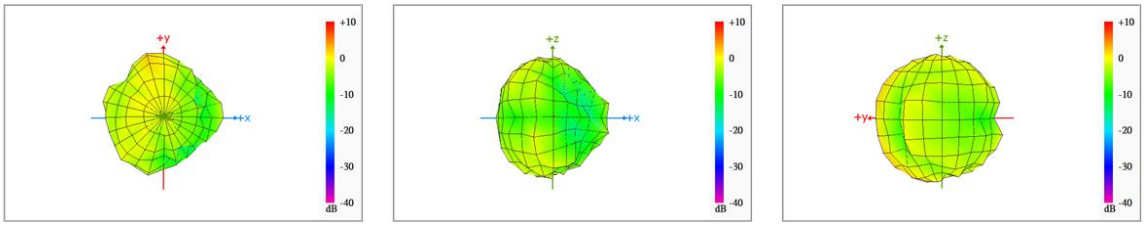
Aux antenna: 5785 MHz



Center Frequency	**5785 MHz**
Three-dimensional (dBi) peak	**4.44**

Aux antenna: 5850 MHz



Center Frequency	**5850 MHz**
Three-dimensional (dBi) peak	**4.57**

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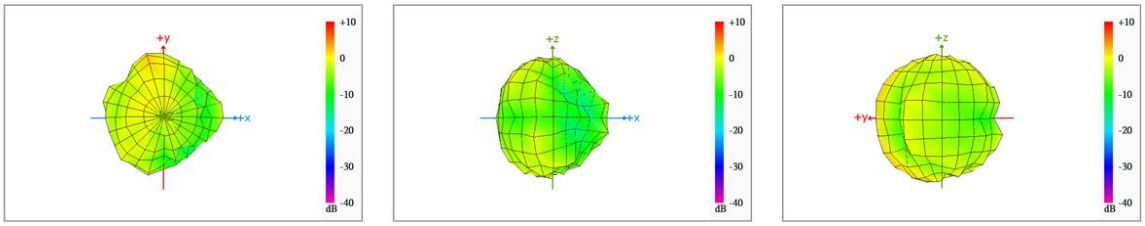
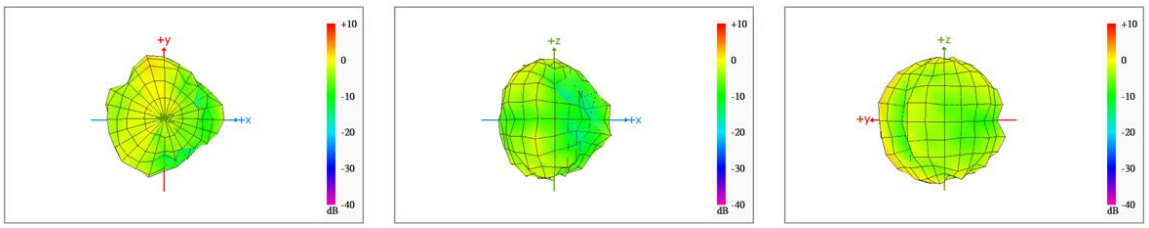
5850-5895MHz radiation characteristic

Aux antenna: 5850 MHz



Center Frequency	**5850 MHz**
Three-dimensional (dBi) peak	**4.57**

Aux antenna: 5895 MHz



Center Frequency	**5895 MHz**
Three-dimensional (dBi) peak	**4.36**

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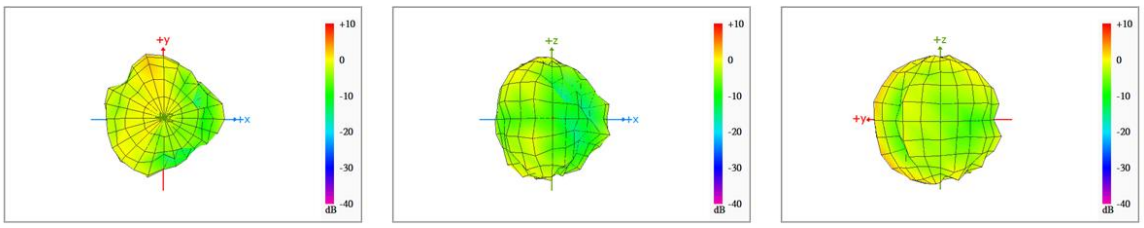
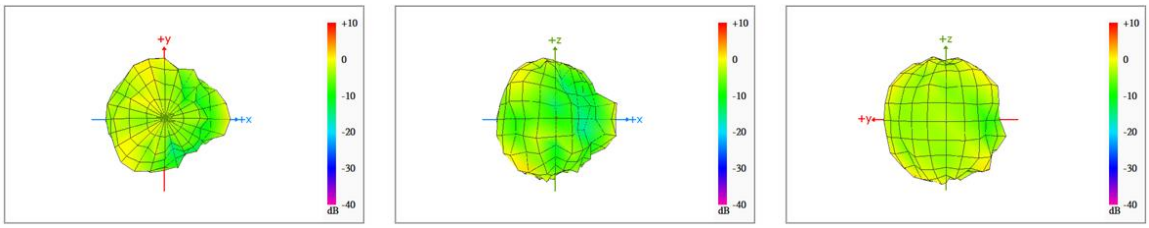
5925-6425MHz radiation characteristic

Aux antenna: 5925 MHz



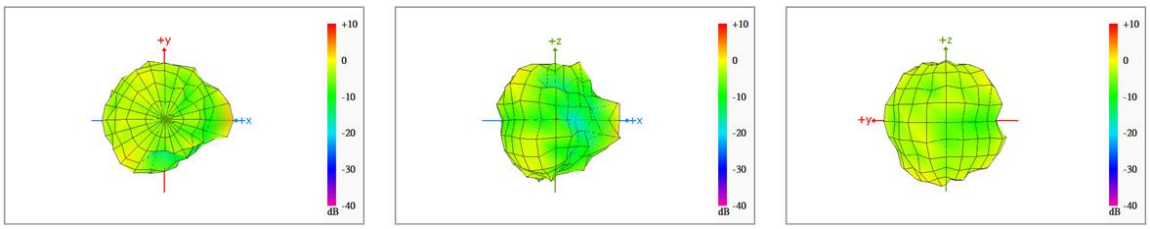
Center Frequency	5925 MHz
Three-dimensional (dBi) peak	4.02

Aux antenna: 6125 MHz



Center Frequency	6125 MHz
Three-dimensional (dBi) peak	4.27

Aux antenna: 6425 MHz



Center Frequency	6425 MHz
Three-dimensional (dBi) peak	3.99

UNLESS OTHER SPECIFIED TOLERANCES ON：
X＝± X.X＝± X.XX＝±
ANGLES＝± HOLEDIA＝±

INPAQ TECHNOLOGY CO., LTD.

SCALE：N/A	UNIT：mm
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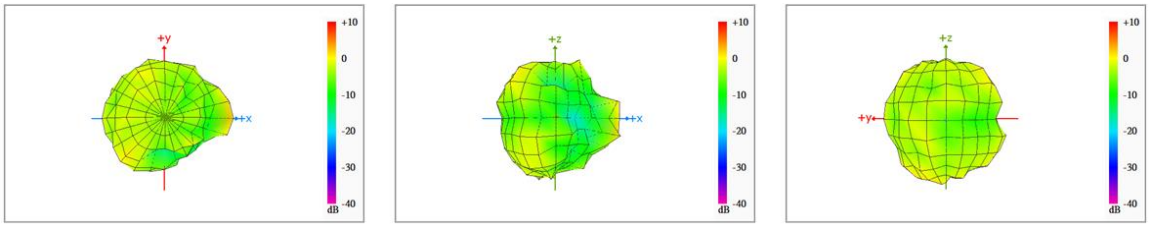
DOCUMENT NO.

SPEC REV. P0

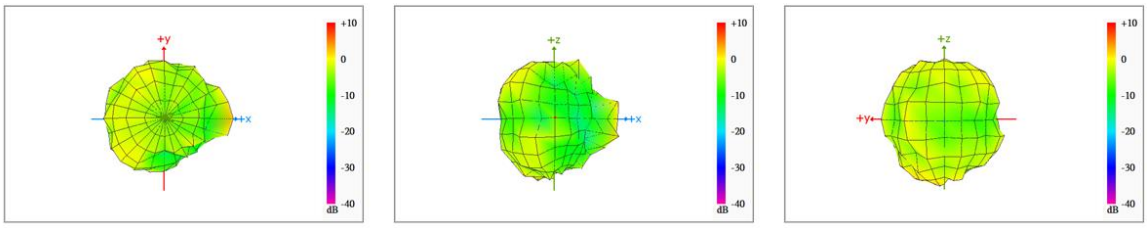
6425-6525MHz radiation characteristic

Aux antenna: 6425 MHz



Center Frequency	6425 MHz
Three-dimensional (dBi) peak	3.99

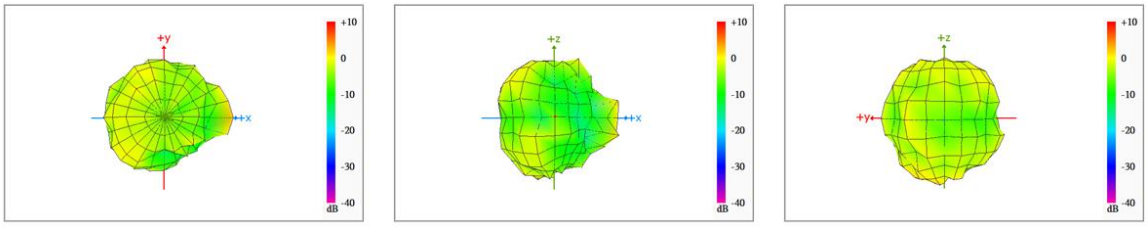
Aux antenna: 6525 MHz



Center Frequency	6525 MHz
Three-dimensional (dBi) peak	4.10

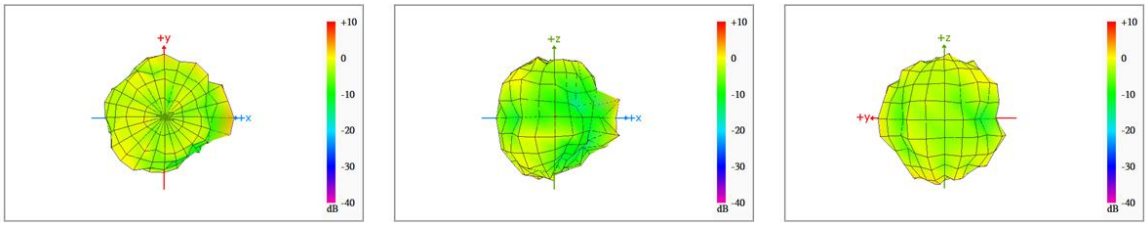
6525-6875MHz radiation characteristic

Aux antenna: 6525 MHz



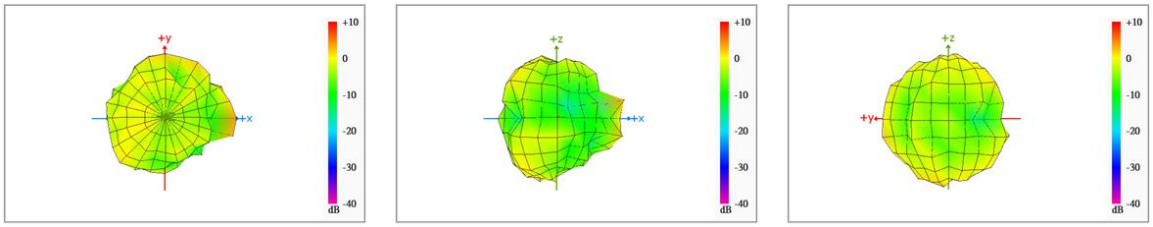
Center Frequency	6525 MHz
Three-dimensional (dBi) peak	4.10

Aux antenna: 6725 MHz



Center Frequency	6725 MHz
Three-dimensional (dBi) peak	4.32

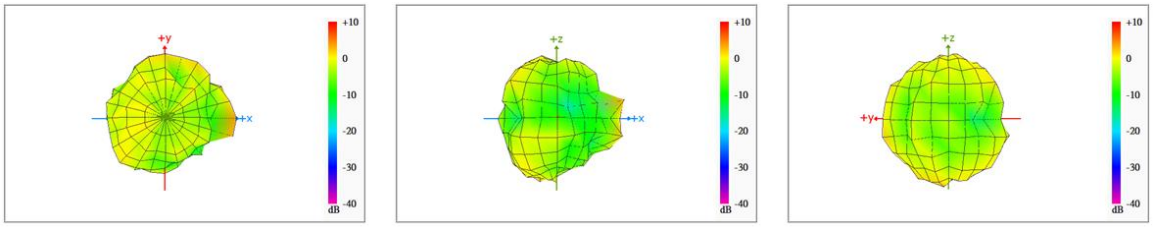
Aux antenna: 6875 MHz



Center Frequency	6875 MHz
Three-dimensional (dBi) peak	4.03

6875-7125MHz radiation characteristic

Aux antenna: 6875 MHz



Center Frequency	6875 MHz
Three-dimensional (dBi) peak	4.03

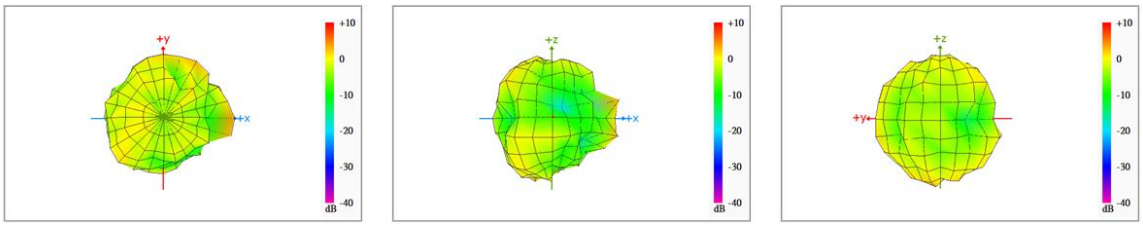
UNLESS OTHER SPECIFIED TOLERANCES ON：
X＝± X.X＝± X.XX＝±
ANGLES＝± HOLEDIA＝±

INPAQ TECHNOLOGY CO., LTD.

SCALE：N/A	UNIT：mm
DRAWN BY:周敬晨	CHECKED BY:鄭榮謀
DESIGNED BY:高楨棋	APPROVED BY:張建焜

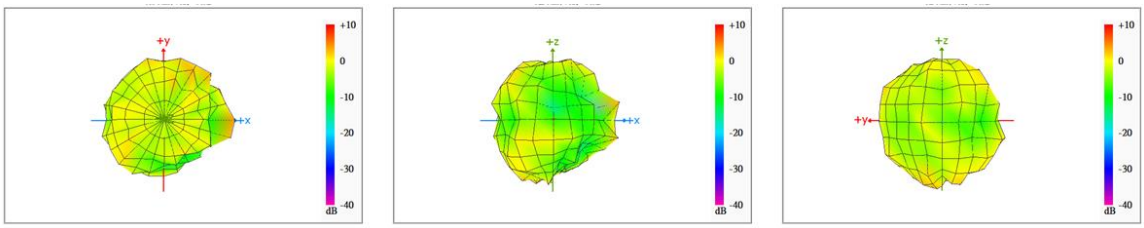
TITLE：Embedded Multi-Band Antenna for WA-P-LE-01-031	DOCUMENT NO.		SPEC REV. P0

Aux antenna: 6925 MHz



Center Frequency	**6925 MHz**
Three-dimensional (dBi) peak	**3.79**

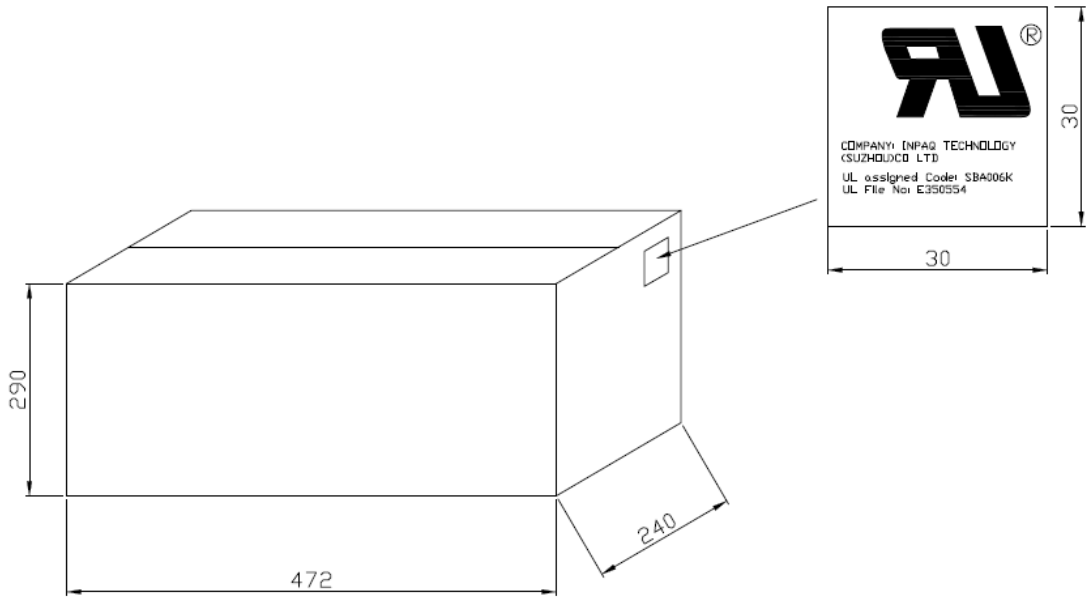
Aux antenna: 7125 MHz



Center Frequency	**7125 MHz**
Three-dimensional (dBi) peak	**4.03**

7. 外箱貼附 Cable 的 UL 標籤：

The appearance of cable UL label is according to drawing Figure 7-1-1



帶線材的產品出貨時皆需貼附此標籤

UNLESS OTHER SPECIFIED TOLERANCES ON： X＝± X.X＝± X.XX＝± ANGLES＝± HOLEDIA＝±		INPAQ TECHNOLOGY CO., LTD.	
SCALE：N/A	UNIT：mm	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
DRAWN BY:周敬晨	CHECKED BY:鄭榮謀		
DESIGNED BY:高楨棋	APPROVED BY:張建焜		
TITLE：Embedded Multi-Band Antenna for WA-P-LE-01-031		DOCUMENT NO.	SPEC REV. P0