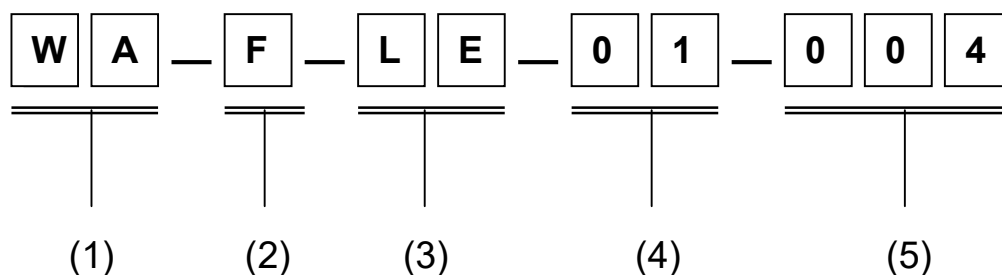


Embedded Multi-Band Antenna for WA-F-LE-01-004

1. Explanation of part number :



1. Product Type : Wireless Antenna
2. Material : FPCB
3. Frequency/Band code : 2400~2500 & 5150~7125MHz
4. Coaxial Cable Type : White Coaxial Cable
5. Suffix : 004

2. Electrical Specification :

Ant. Part Number (main & aux parts)	Type	Highest Peak Gain with Cable Loss (dBi)		Cable loss (dB)		Connector Type	Cable length	Laptop/ Host Model
		2400~2500	5150~7125	2400~2500	5150~7125			
		MHz	MHz	MHz	MHz			
Aux: INPAQ P/N: WA-F-LE-01-004 ASUS P/N: 14008-05570100	PIFA	2.9	4.6	1.17	1.83	I-PEX MHF4-L	420mm	H7604

Antenna Type	PIFA Antenna For WIFI 802.11a/b/g/n/ac/ax	
Connector Type	I-PEX MHF4-L Connector 20565-001R-13	
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 :

$$\mathbf{X}=\pm \quad \mathbf{X.X}=\pm \quad \mathbf{X.XX}=\pm$$

ANGLES=+ **HOLEDIA=+**



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

CHECKED BY:鄭榮謀

DESIGNED BY:林易暄

APPROVED BY:張建焜

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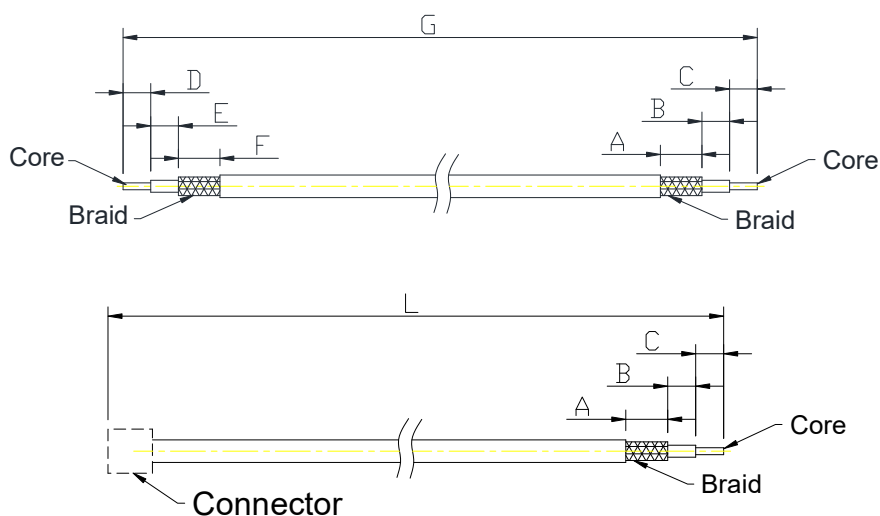
**TITLE : Embedded Multi-Band Antenna for
WA-F-LE-01-004**

DOCUMENT
NO.

SPEC	REV.
P0	

4. RF Connector :

4-1 Cable Dimension :



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

L : 438.5.0 $\pm$ 2.0

D : 1.2 $\pm$ 0.15

A : 3.0 $\pm$ 0.5(沾錫)

E : 0.72 $\pm$ 0.15

B : 1.0 $\pm$ 0.5

F : 1.00 $\pm$ 0.15

C : 1.0 $\pm$ 0.5(沾錫)

G : 437.5 $\pm$ 2.0

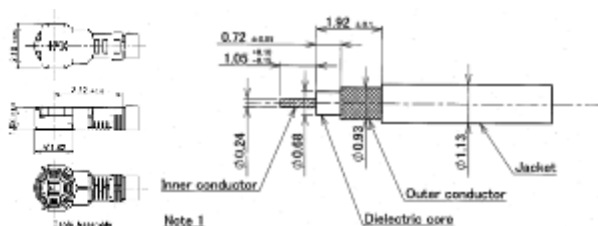
unit : mm

4-1.1 Electric SPEC :

短路/斷路測試：(使用三用電表量測)

- 心線與 Braid wires 間不可短路。
- Connector 之 Ground 與線路另一端之 Braid wires 間不可斷路。
- Connector 之心線與線路另一端之心線間不可斷路。

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



UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±

X.X=±

X.XX=±

ANGLES=±

HOLEDIA=±



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UNIT : mm

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TITLE : Embedded Multi-Band Antenna for
WA-F-LE-01-004

DOCUMENT
NO.

SPEC REV.
P0

5. Electrical Specification :

Those specifications were specially defined for H7604 model, and all characteristics were measured under the model's handset testing jig.

5-1. Frequency Band :

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

5-2. Impedance :

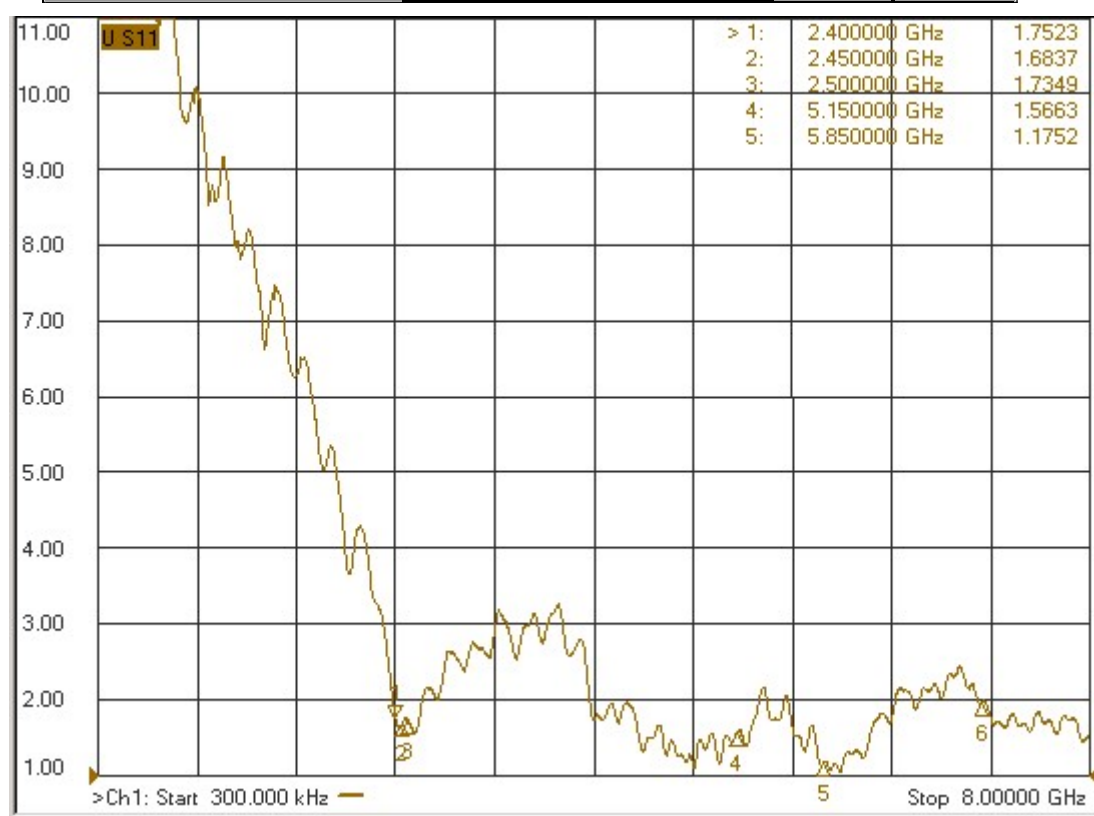
50 ohm nominal

5-3. Matching circuit :

None

5-4. Return loss/VSWR :

Frequency(MHz)	2400	2500	5150	5850	7125
Aux VSWR(dB)	1.75	1.73	1.56	1.17	1.88



UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±
 ANGLES=± HOLEDIA=±



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

CHECKED BY:鄭榮謀

DESIGNED BY:林易喧

APPROVED BY:張建焜

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 WA-F-LE-01-004

DOCUMENT
 NO.

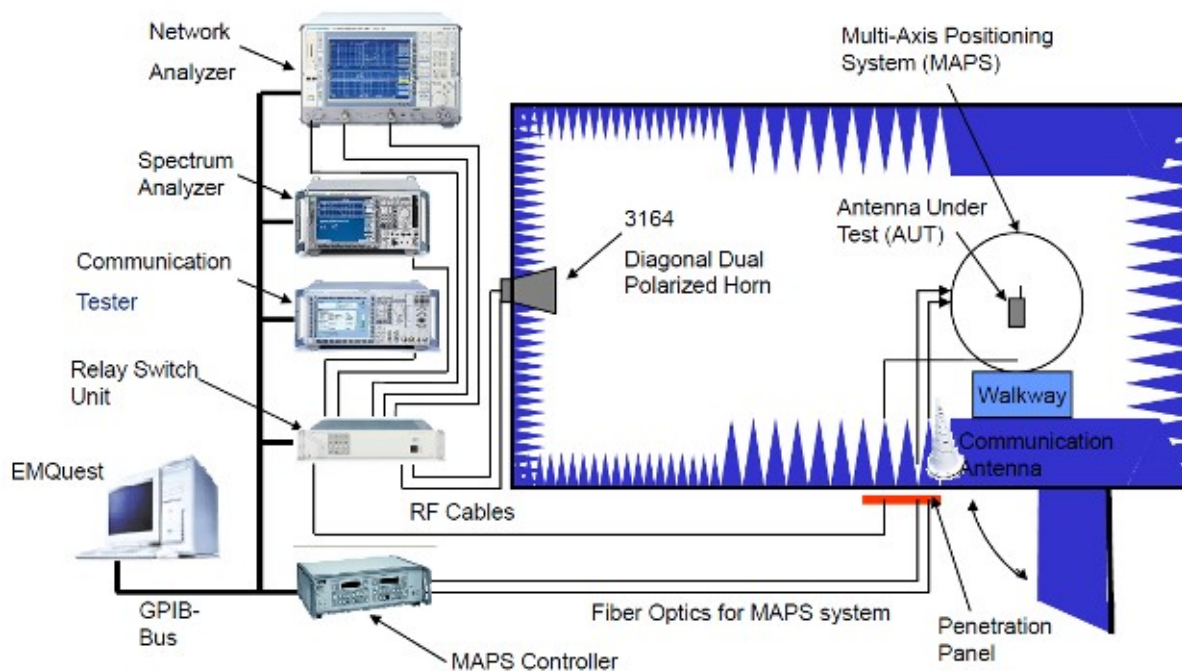
SPEC REV.
 P0

5-5 Gain and Radiation Pattern

5-5.1 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

5-5.2 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)

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±
 ANGLES=± HOLEDIA=±



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

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APPROVED BY:張建焜

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TITLE : Embedded Multi-Band Antenna for
 WA-F-LE-01-004

DOCUMENT
 NO.

SPEC REV.
 P0

5-5.3 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.

Frequency (MHz)	Aux		
	Efficiency (dB)	Efficiency (%)	3D Peak gain (dBi)
2400	-5.1	31%	1.8
2412	-4.7	34%	2.2
2437	-4.6	35%	2.2
2462	-5.3	29%	2.0
2500	-4.6	35%	2.9
5150	-4.7	34%	3.2
5250	-5.0	32%	3.4
5350	-5.8	26%	2.8
5470	-5.1	31%	3.1
5600	-5.1	31%	2.9
5725	-4.5	36%	4.4
5780	-5.3	30%	4.3
5850	-5.0	31%	4.5
5895	-5.2	30%	4.4
5925	-5.3	30%	3.9
6125	-4.4	36%	4.6
6425	-4.7	34%	3.5
6525	-5.5	28%	3.6
6725	-5.4	29%	2.9
6875	-5.9	25%	3.4
6925	-6.1	25%	3.1
7125	-7.0	20%	2.2

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±
 ANGLES=± HOLEDIA=±



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

CHECKED BY:鄭榮謀

DESIGNED BY:林易暄

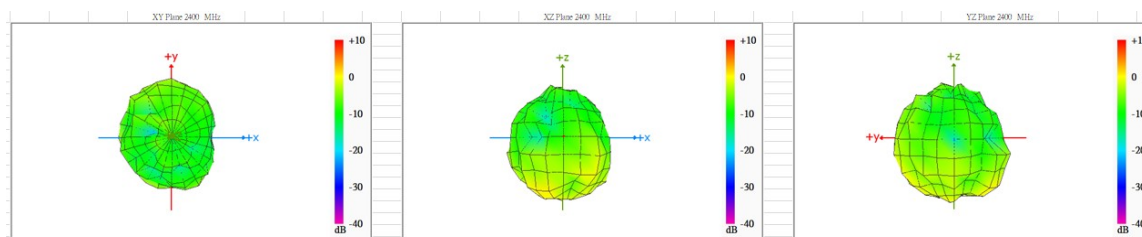
APPROVED BY:張建焜

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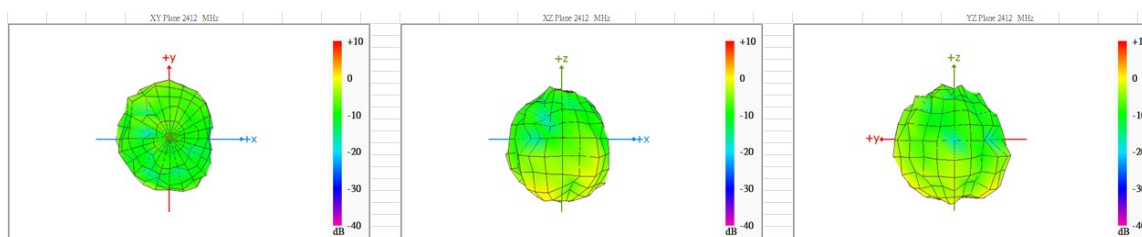
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WA-F-LE-01-004

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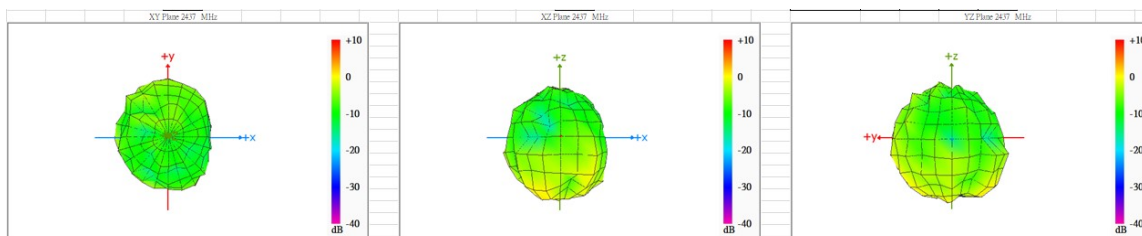
SPEC REV.
P0

2400-2500MHz radiation characteristic**Aux antenna: 2400 MHz**

Center Frequency	2400 MHz
Three-dimensional (dBi) peak	1.8

Aux antenna: 2412 MHz

Center Frequency	2412 MHz
Three-dimensional (dBi) peak	2.2

Aux antenna: 2437 MHz

Center Frequency	2437 MHz
Three-dimensional (dBi) peak	2.2

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±
 ANGLES=± HOLEDIA=±

**INPAQ TECHNOLOGY CO., LTD.**

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

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DESIGNED BY:林易暄

APPROVED BY:張建焜

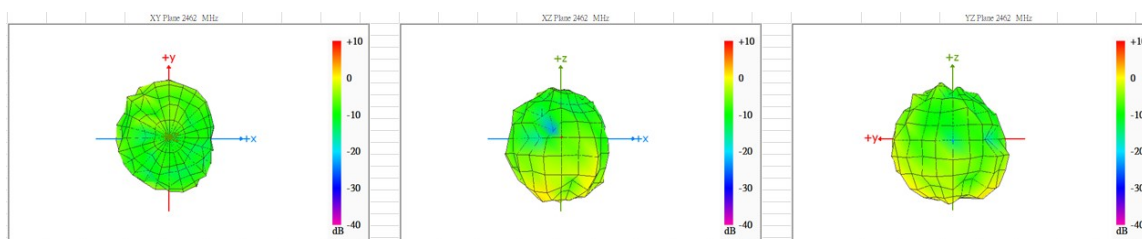
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 WA-F-LE-01-004

DOCUMENT
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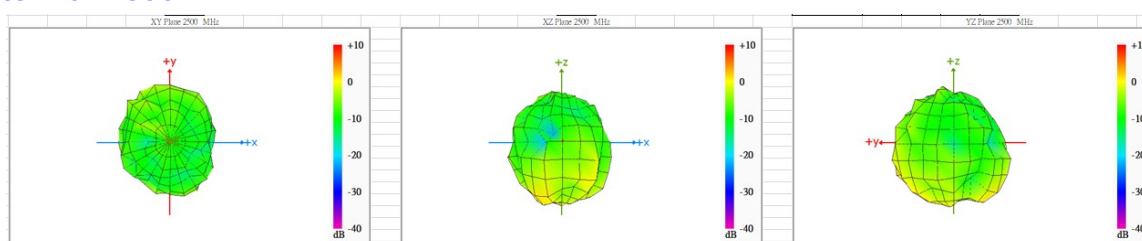
SPEC REV.
 P0

Aux antenna: 2462 MHz



Center Frequency	2462 MHz
Three-dimensional (dBi) peak	2.0

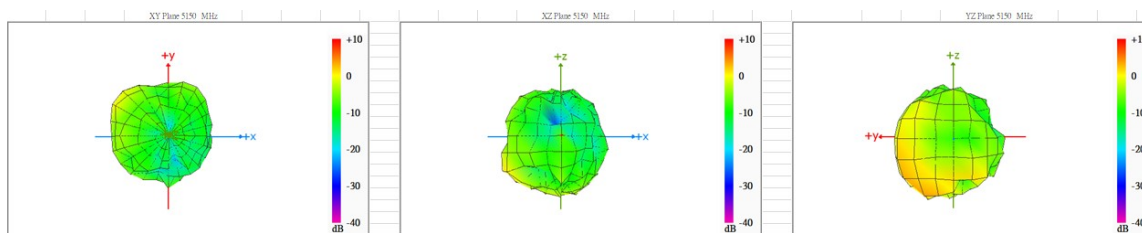
Aux antenna: 2500 MHz



Center Frequency	2500 MHz
Three-dimensional (dBi) peak	2.9

5150-5350MHz radiation characteristic

Aux antenna: 5150 MHz



Center Frequency	5150 MHz
Three-dimensional (dBi) peak	3.2

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±
 ANGLES=± HOLEDIA=±



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

CHECKED BY:鄭榮謀

DESIGNED BY:林易暄

APPROVED BY:張建焜

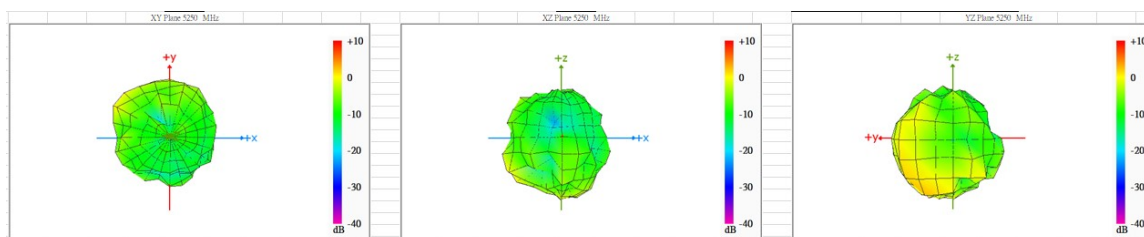
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 WA-F-LE-01-004

DOCUMENT
 NO.

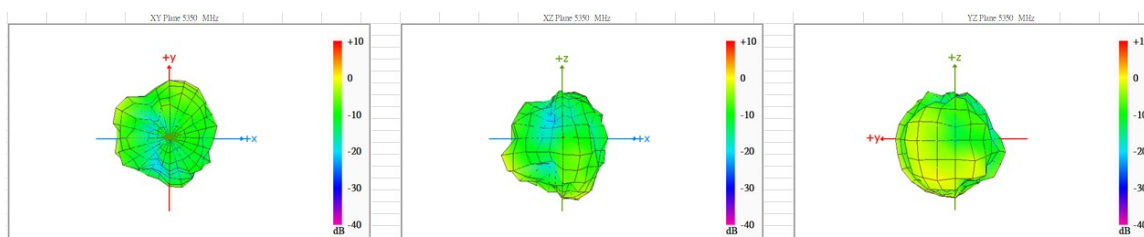
SPEC REV.
 P0

Aux antenna: 5250 MHz



Center Frequency	5250 MHz
Three-dimensional (dBi) peak	3.4

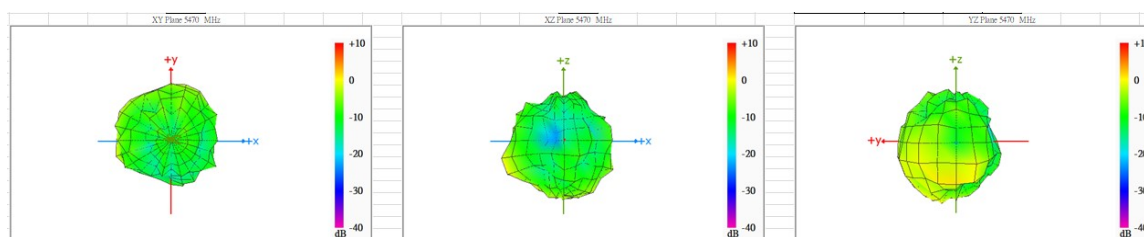
Aux antenna: 5350 MHz



Center Frequency	5350 MHz
Three-dimensional (dBi) peak	2.8

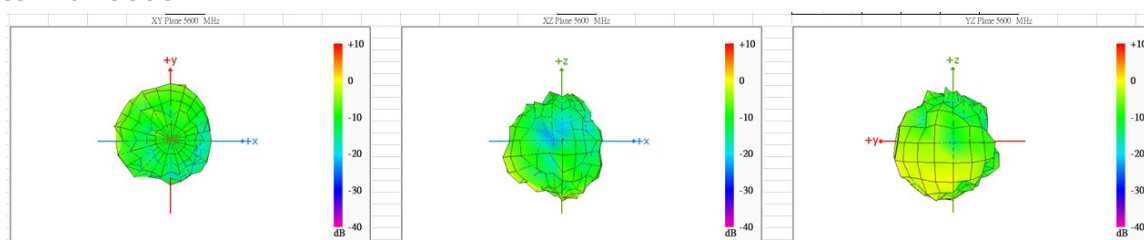
5470-5725MHz radiation characteristic

Aux antenna: 5470 MHz



Center Frequency	5470 MHz
Three-dimensional (dBi) peak	3.1

Aux antenna: 5600 MHz



Center Frequency	5600 MHz
Three-dimensional (dBi) peak	2.9

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±
 ANGLES=± HOLEDIA=±



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

CHECKED BY:鄭榮謀

DESIGNED BY:林易暄

APPROVED BY:張建焜

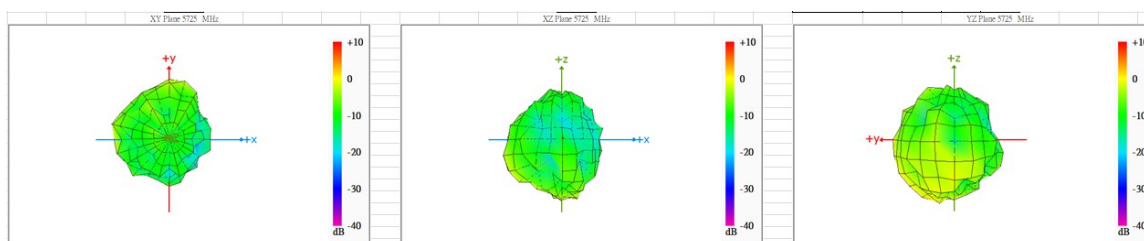
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 WA-F-LE-01-004

DOCUMENT
 NO.

SPEC REV.
 P0

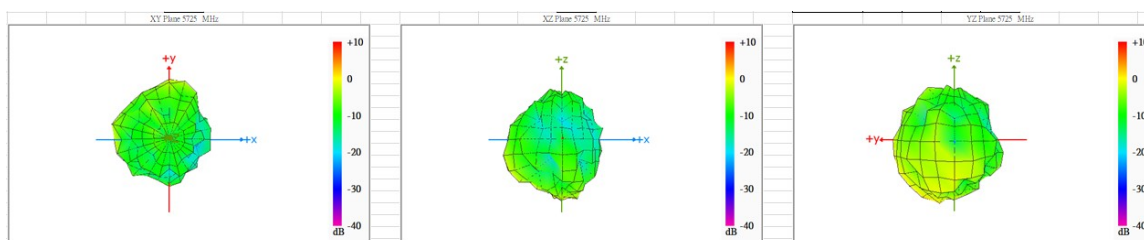
Aux antenna: 5725 MHz



Center Frequency	5725 MHz
Three-dimensional (dBi) peak	4.4

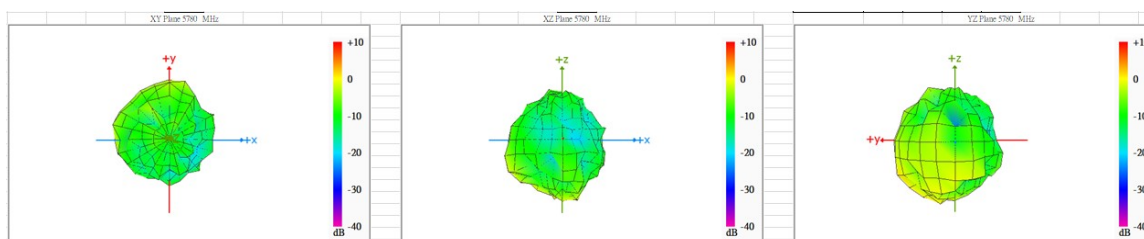
5725-5895MHz radiation characteristic

Aux antenna: 5725 MHz



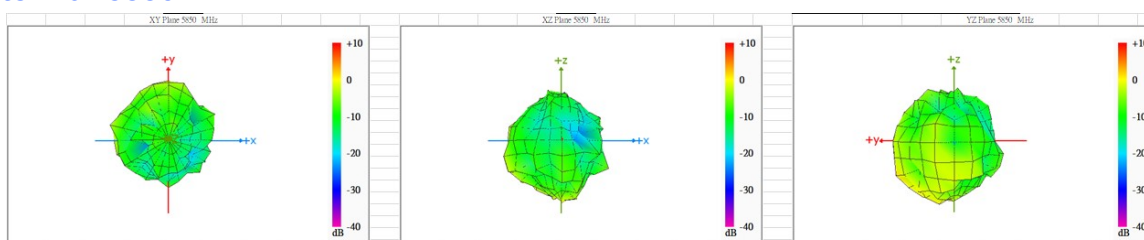
Center Frequency	5725 MHz
Three-dimensional (dBi) peak	4.4

Aux antenna: 5780 MHz



Center Frequency	5780 MHz
Three-dimensional (dBi) peak	4.3

Aux antenna: 5850 MHz



Center Frequency	5850 MHz
Three-dimensional (dBi) peak	4.5

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±
 ANGLES=± HOLEDIA=±



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

CHECKED BY:鄭榮謀

DESIGNED BY:林易暄

APPROVED BY:張建焜

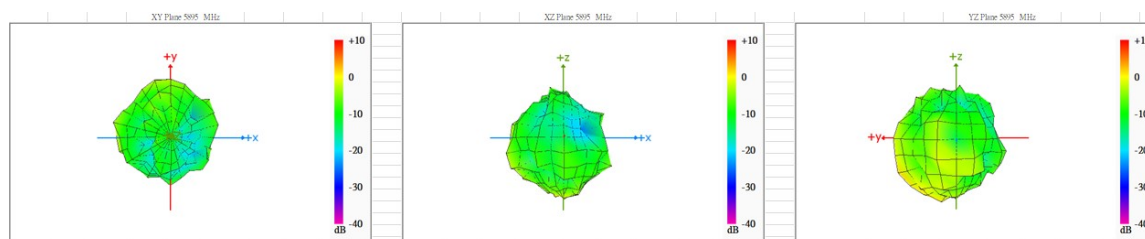
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 NO.

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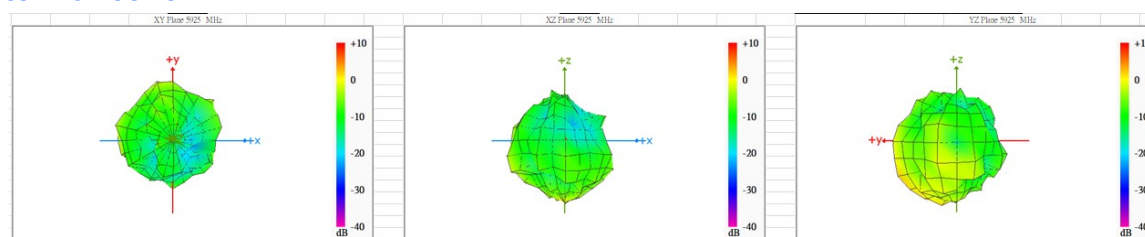
Aux antenna: 5895 MHz



Center Frequency	5895 MHz
Three-dimensional (dBi) peak	4.4

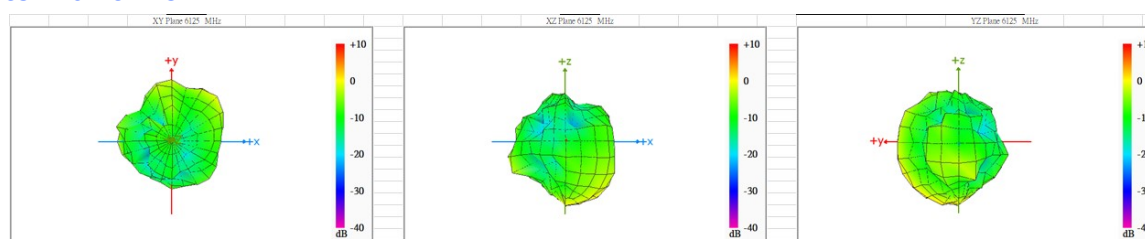
5925-6425MHz radiation characteristic

Aux antenna: 5925 MHz



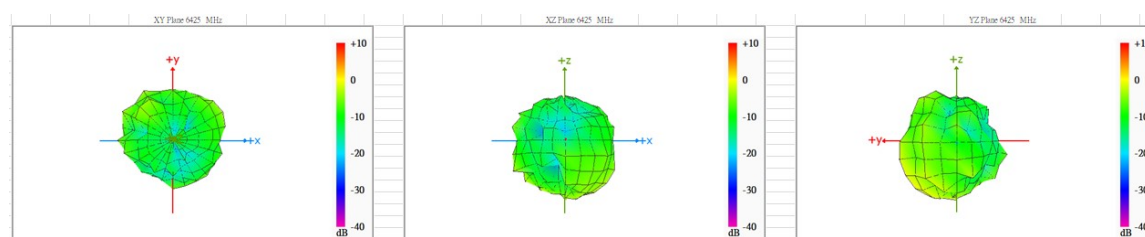
Center Frequency	5925 MHz
Three-dimensional (dBi) peak	3.9

Aux antenna: 6125 MHz



Center Frequency	6125 MHz
Three-dimensional (dBi) peak	4.6

Aux antenna: 6425 MHz



Center Frequency	6425 MHz
Three-dimensional (dBi) peak	3.5

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±
 ANGLES=± HOLEDIA=±



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

CHECKED BY:鄭榮謀

DESIGNED BY:林易暄

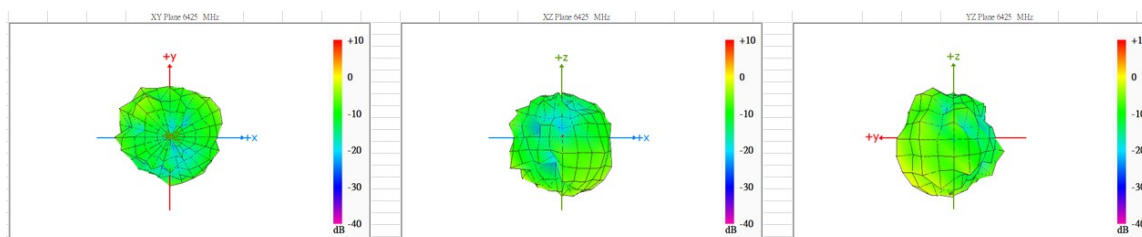
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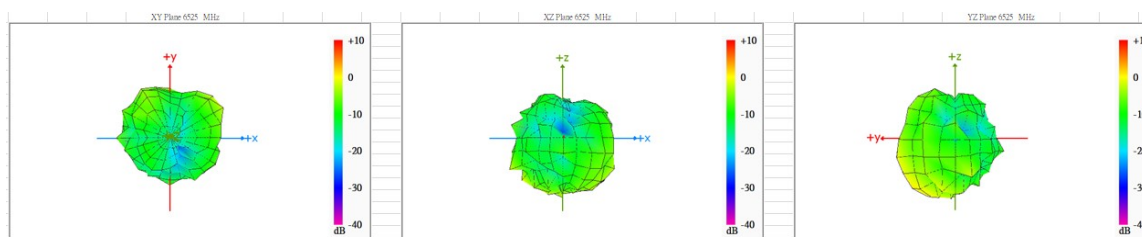
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 WA-F-LE-01-004

DOCUMENT
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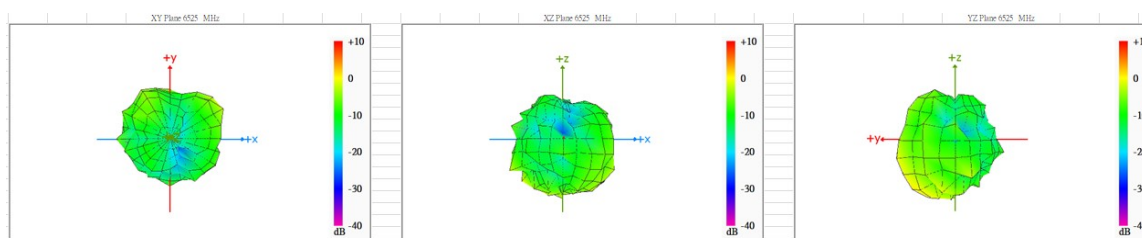
SPEC REV.
 P0

6425-6525MHz radiation characteristic**Aux antenna: 6425 MHz**

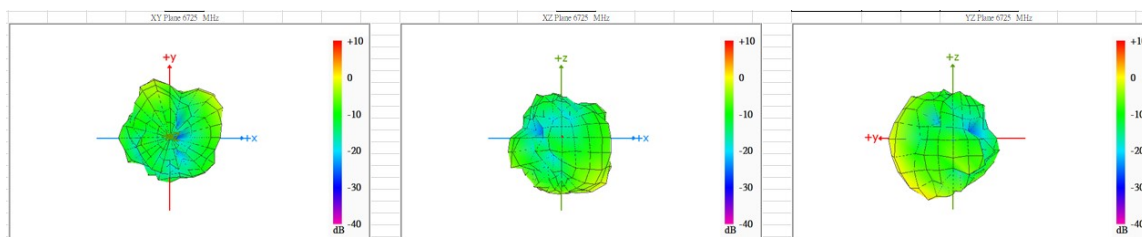
Center Frequency	6425 MHz
Three-dimensional (dBi) peak	3.5

Aux antenna: 6525 MHz

Center Frequency	6525 MHz
Three-dimensional (dBi) peak	3.6

6525-6875MHz radiation characteristic**Aux antenna: 6525 MHz**

Center Frequency	6525 MHz
Three-dimensional (dBi) peak	3.6

Aux antenna: 6725 MHz

Center Frequency	6725 MHz
Three-dimensional (dBi) peak	2.9

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±

ANGLES=± HOLEDIA=±

**INPAQ TECHNOLOGY CO., LTD.**

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

CHECKED BY:鄭榮謀

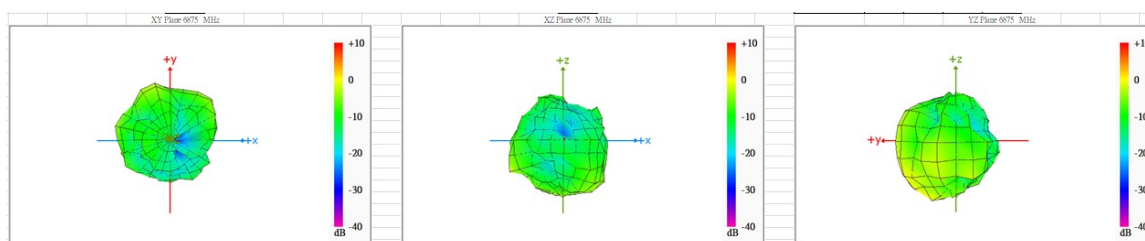
DESIGNED BY:林易暄

APPROVED BY:張建焜

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TITLE : Embedded Multi-Band Antenna for
WA-F-LE-01-004DOCUMENT
NO.SPEC REV.
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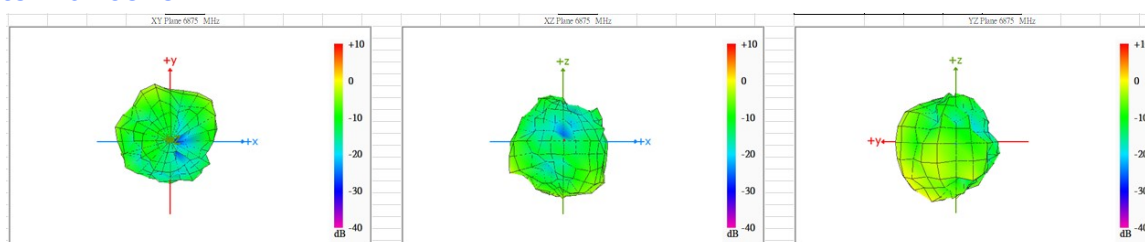
Aux antenna: 6875 MHz



Center Frequency	6875 MHz
Three-dimensional (dBi) peak	3.4

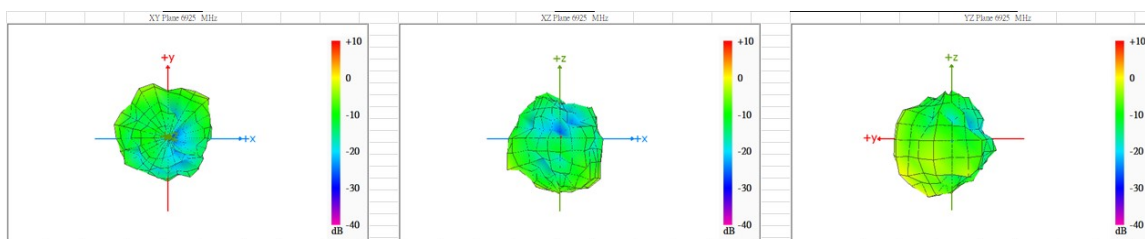
6875-7125MHz radiation characteristic

Aux antenna: 6875 MHz



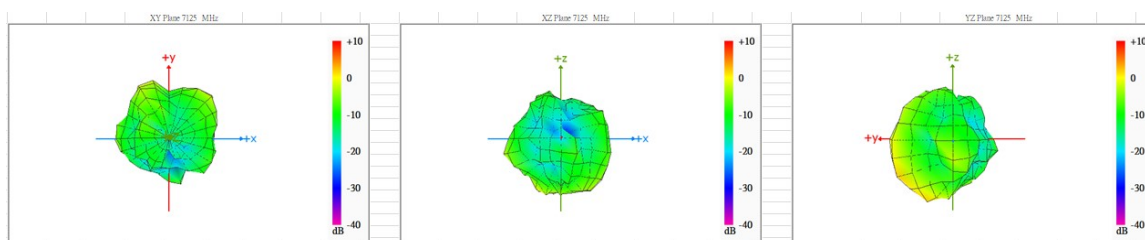
Center Frequency	6875 MHz
Three-dimensional (dBi) peak	3.4

Aux antenna: 6925 MHz



Center Frequency	6925 MHz
Three-dimensional (dBi) peak	3.1

Aux antenna: 7125 MHz



Center Frequency	7125 MHz
Three-dimensional (dBi) peak	2.2

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±
 ANGLES=± HOLEDIA=±



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:王聖元

CHECKED BY:鄭榮謀

DESIGNED BY:林易喧

APPROVED BY:張建焜

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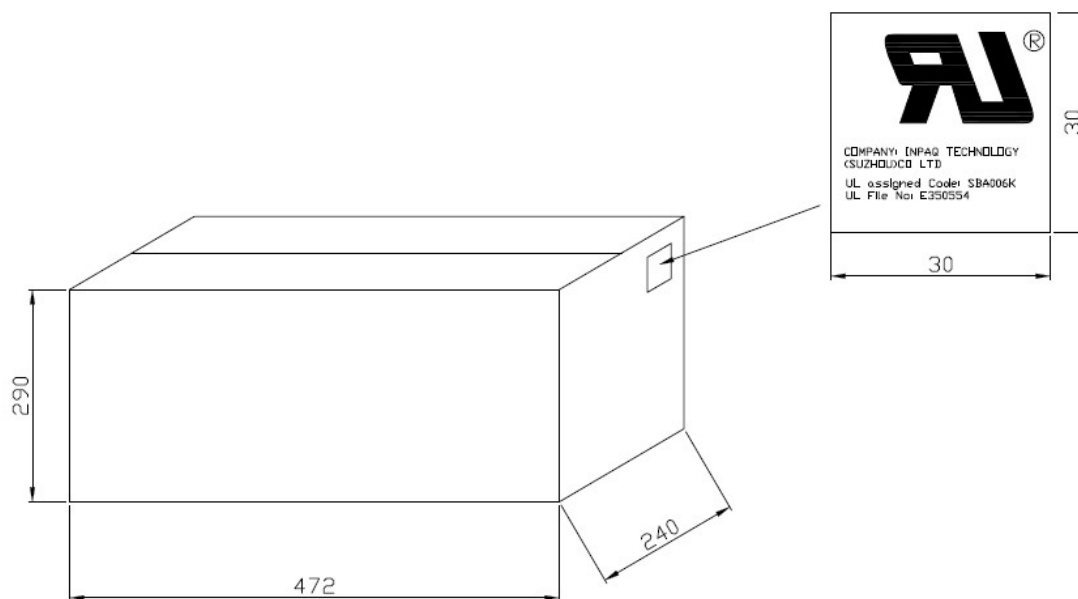
TITLE : Embedded Multi-Band Antenna for
 WA-F-LE-01-004

DOCUMENT
 NO.

SPEC REV.
 P0

6. 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

DRAWN BY:王聖元

CHECKED BY:鄭榮謀

DESIGNED BY:林易暄

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TITLE : Embedded Multi-Band Antenna for
 WA-F-LE-01-004

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