

# APPROVAL SHEET

**Metal Antenna**

**2.4~2.5 GHz**

**Working Frequency**

**P/N: RFMTA190800NNAB003**

Customer :

Customer 's Part No. : 0790A2013L-A11

Approval No. :

Issue Date :



## 品名：RFMTA190800NNAB003

### 1. Explanation of part number :

RF	MTA	1908	00	N	N	A	B	0	03
Type Code	Product Code	PCB Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
RF Device	Antenna	Per 2 digits of length, width e.g.: 1614 Length 160.0mm, Width140.0mm	2 digits for cable length e.g.:20 5G1 : Length 17.5cm 5G2 : Length 17.5cm 2G1 : Length 20.0cm 2G2 : Length 13.0cm BT : Length 7.0cm	A: N C:MCX D:IPEX III E: IPEX IV F: IPEX A13 H: Hirose I: IPEX M: MMCX S: SMA T: TNC U:MURATA N: None	A: Reverse Female <b>B: Reverse Male</b> F: Female M: Male N: None	<b>0: 0GHz</b> <b>3: 3GHz</b> <b>6: 6GHz</b> <b>5: 5GHz</b> A: 2.4GHz ISM band B: GSM 900/1800 dual band G: GPS band L: 2.4/5.X GHz tri-band <b>N: NFC</b> <b>T: LTE band</b> W: WCDMA band	B: MP <b>T:During Test</b> X: Pile Run	0:None 1:∅ 0.81 2:∅ 1.32 3:∅ 1.13 4:Low Loss ∅ 1.13 5:∅ 0.5 6:RG316 7: ∅ 1.37 8:RG178 9:Low Loss ∅ 1.37	01~99 series number

### 2. Electrical Specification :

Item	Specification
Working Frequency Range	2.4~2.5 GHz
Peak Gain	Typical @ 2.35 dBi Finger Touch @ 3.87 dBi Finger Touch+Metal @ 2.45 dBi
Return Loss	-10dB(Max)
VSWR	2 max.
Polarization	Linear
Radiation Pattern	Omni-directional
Impedance	50Ω
Operation Temperature	-20℃ ~ +65℃

UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X=N/A      X.X=N/A      X.XX=N/A  
 ANGLES=N/A      HOLEDIA=N/A



**INPAQ TECHNOLOGY CO., LTD.**

SCALE : N/A

UNIT : mm

DRAWN BY : 邱瑩鈺

CHECKED BY : 詹惠雯

DESIGNED BY : 葉子維

APPROVED BY : 陳振榮

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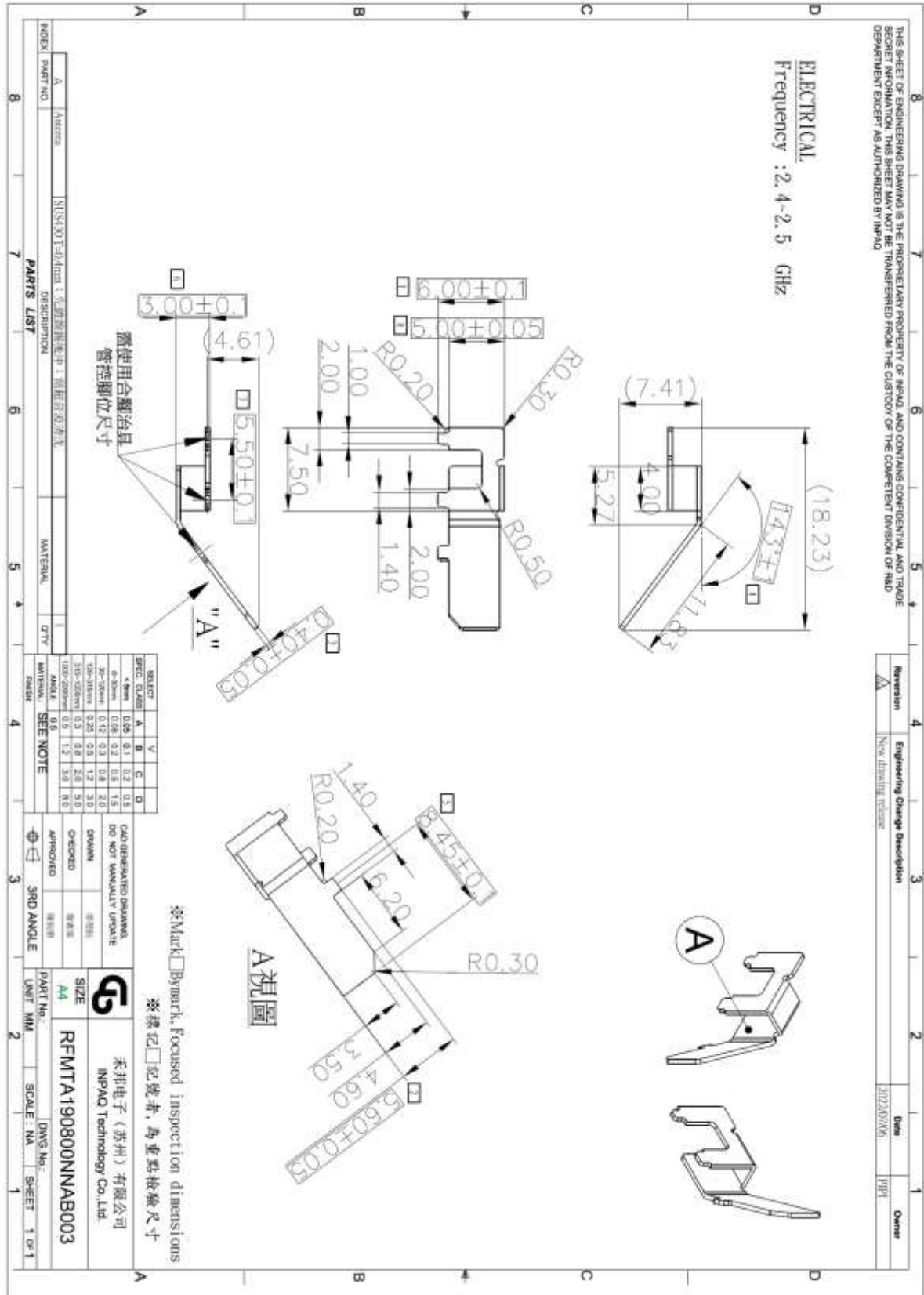
TITLE : RFMTA190800NNAB003

DOCUMENT NO.


ENS070025890-000803719713

SPEC REV.  
**A1**

3. Drawing :



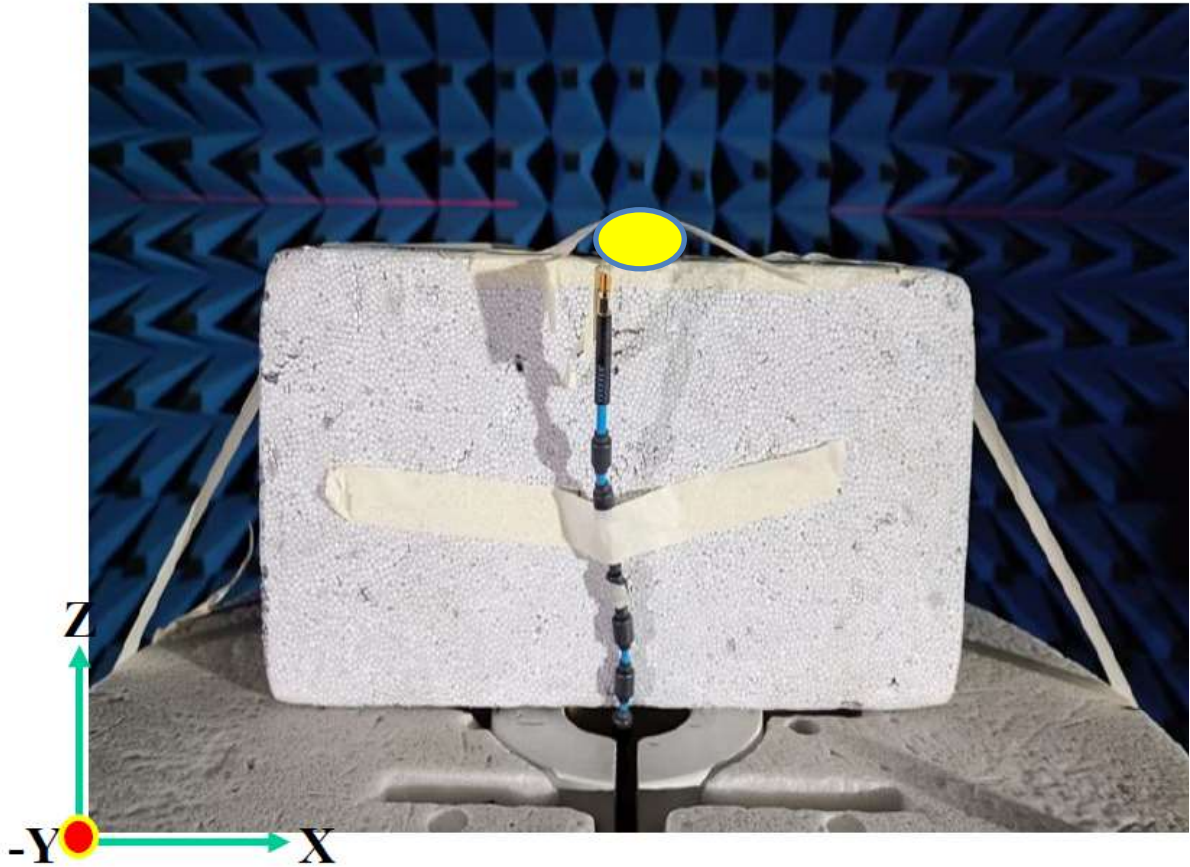
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X=N/A	X.X=N/A	X.XX=N/A
ANGLES=N/A		HOLEDIA=N/A
SCALE : N/A	UNIT : mm	
DRAWN BY : 邱登鈺	CHECKED BY : 詹惠雯	
DESIGNED BY : 葉子維	APPROVED BY : 陳振榮	
TITLE : RFMTA190800NNAB003		


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DOCUMENT NO.	ENS070025890-000803719713	SPEC REV. A1

### 4. Test Report

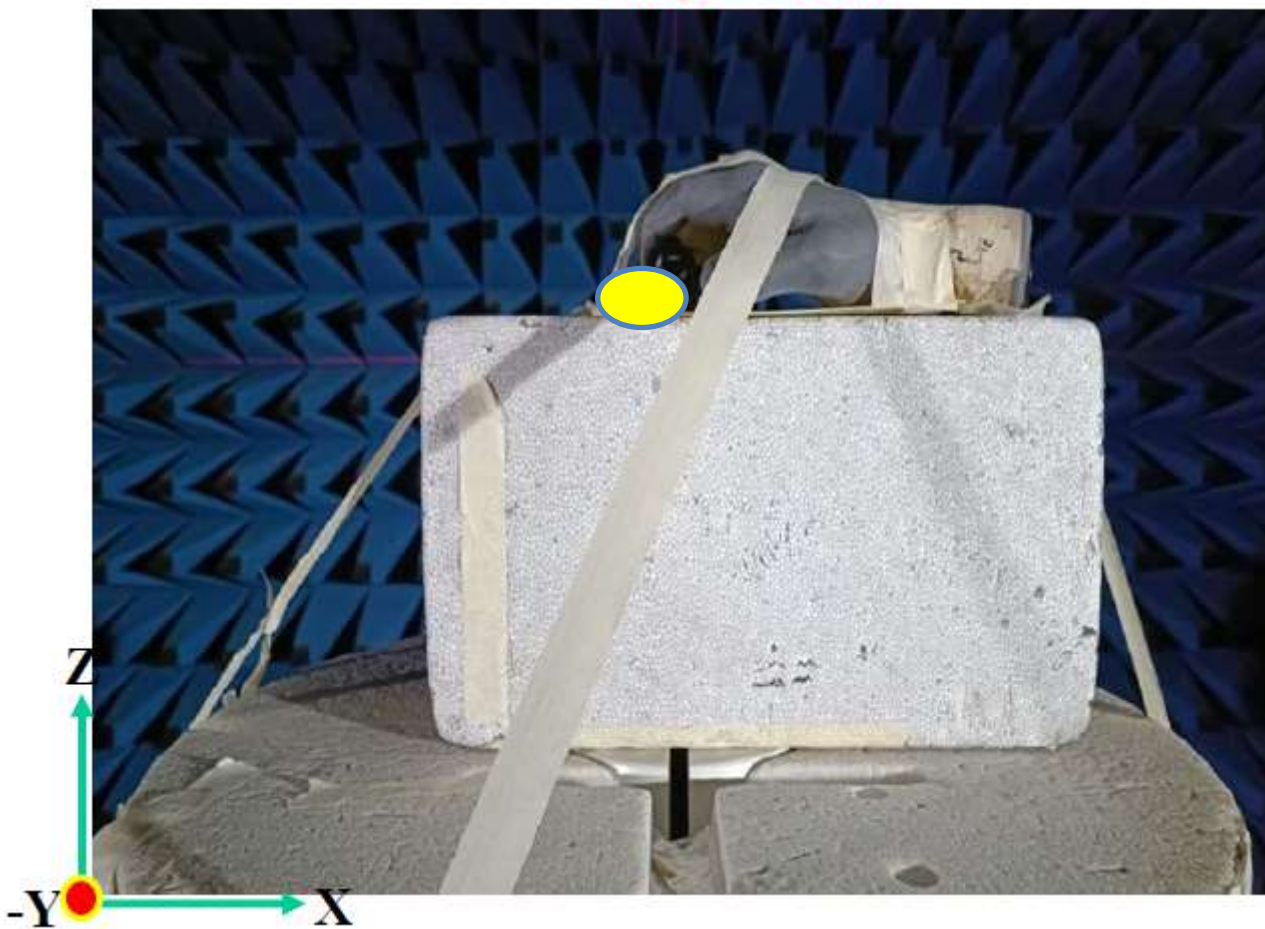
### Experimental Setup


Typical



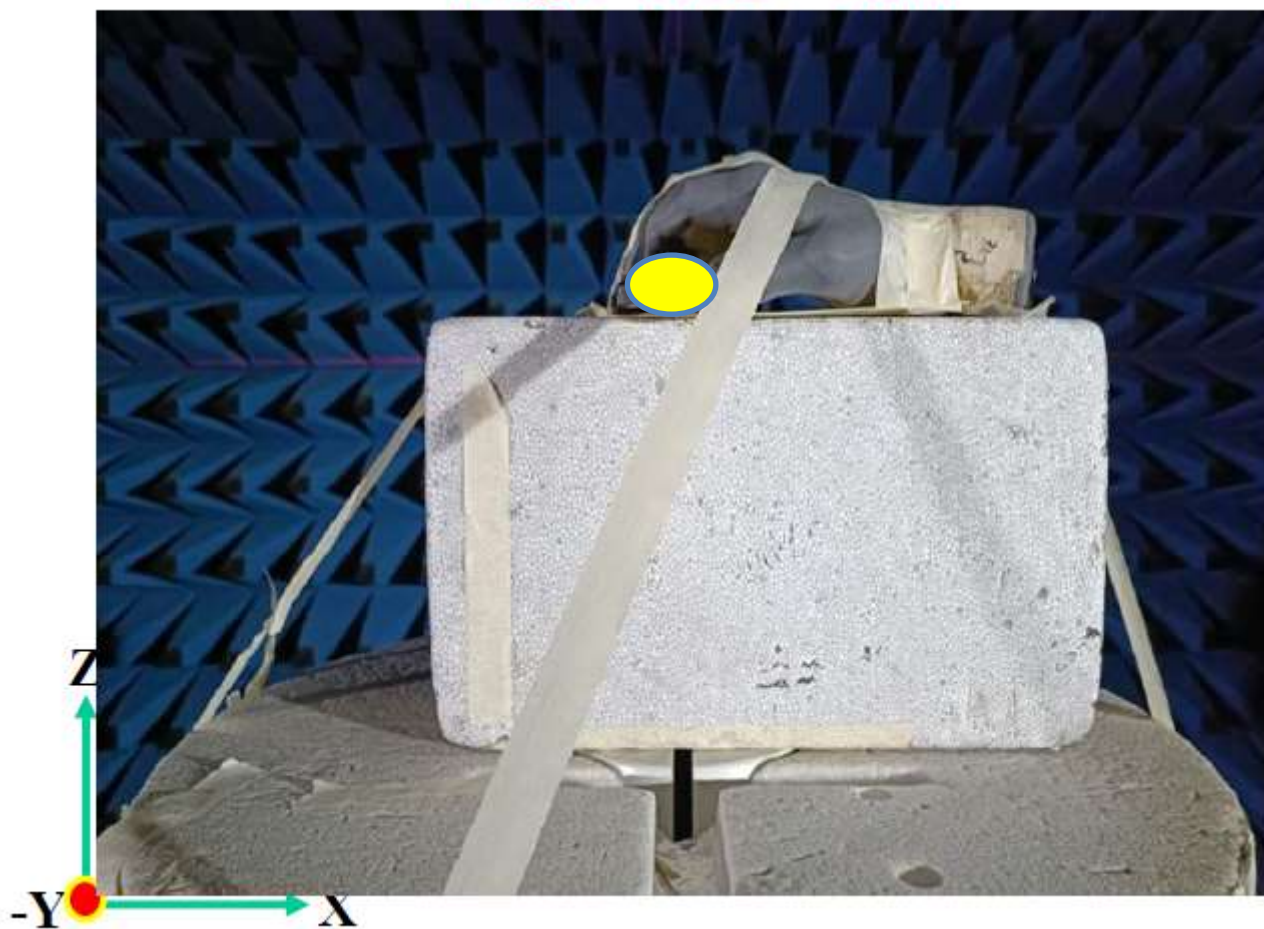
UNLESS OTHER SPECIFIED TOLERANCES ON :			<b>INPAQ TECHNOLOGY CO., LTD.</b>
X = N/A	X.X = N/A      X.XX = N/A		
ANGLES = N/A	HOLEDIA = N/A	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
SCALE : N/A	UNIT : mm		
DRAWN BY : 邱瑩鈺	CHECKED BY : 詹惠雯		
DESIGNED BY : 葉子維	APPROVED BY : 陳振榮		
TITLE : RFMTA190800NNAB003		DOCUMENT NO.	ENS070025890-000803719713
			SPEC REV. A1


# Finger Touch



UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A			<b>INPAQ TECHNOLOGY CO., LTD.</b>	
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DESIGNED BY : 葉子維	APPROVED BY : 陳振榮			
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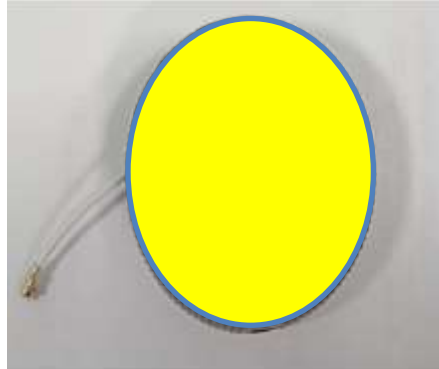
# Finger Touch + Metal



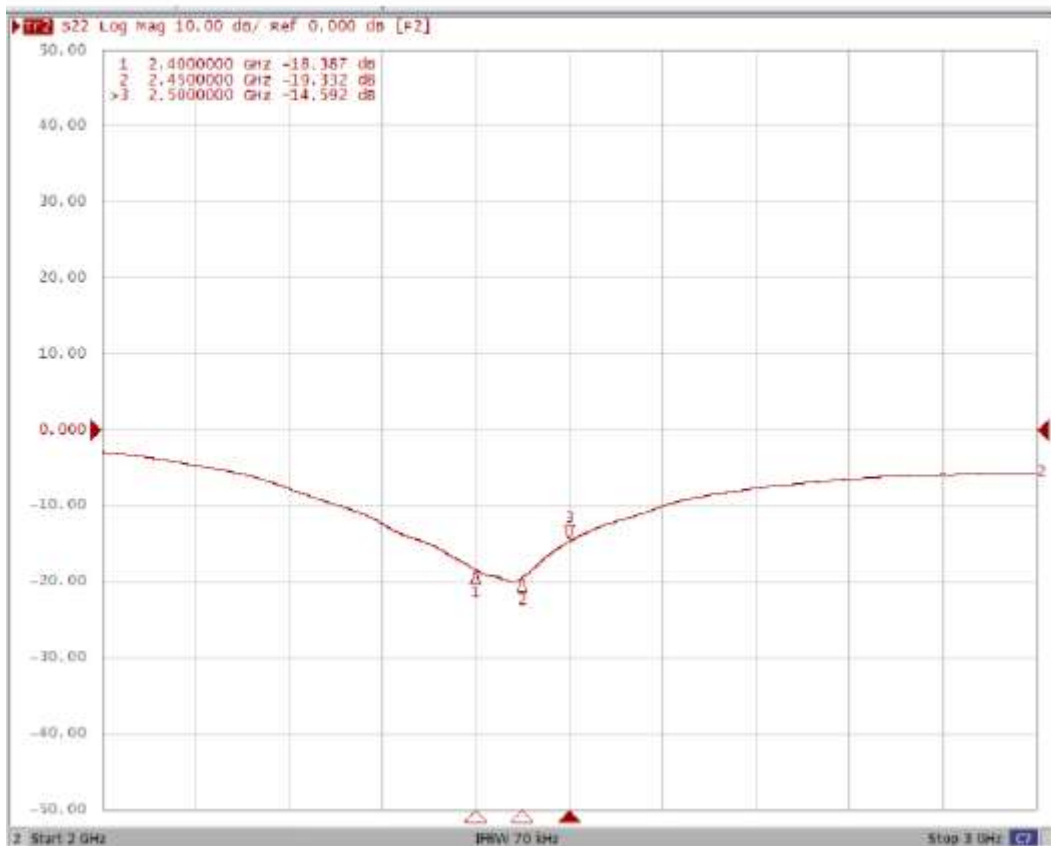
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# ELECTRICAL CHARACTERISTICS

S-Parameter

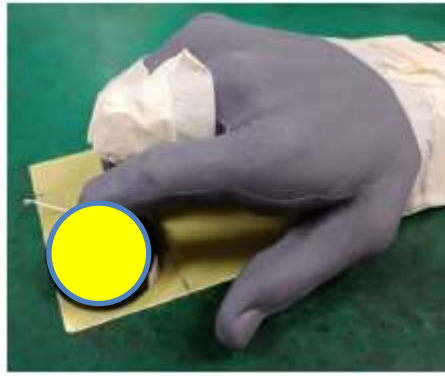


Typical

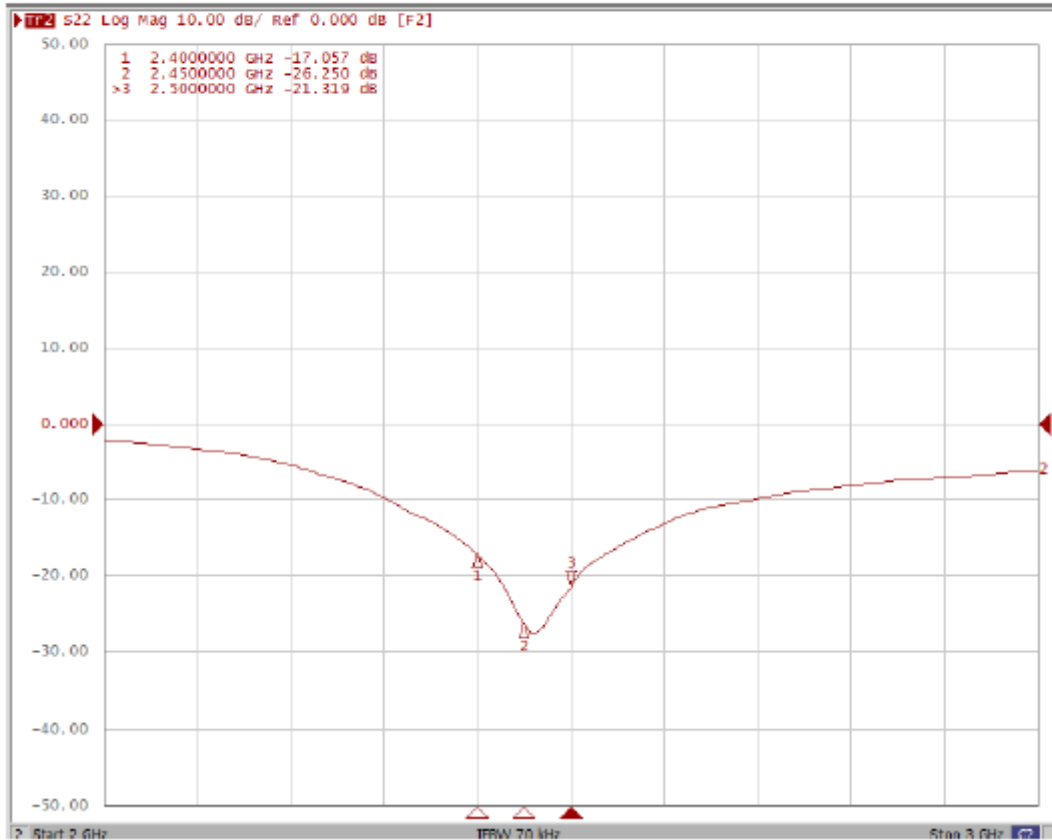



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SCALE : N/A	UNIT : mm	
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		SPEC REV. <b>A1</b>

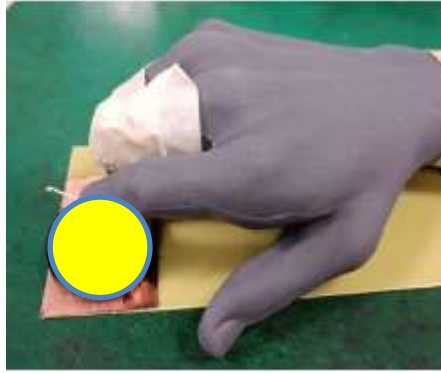




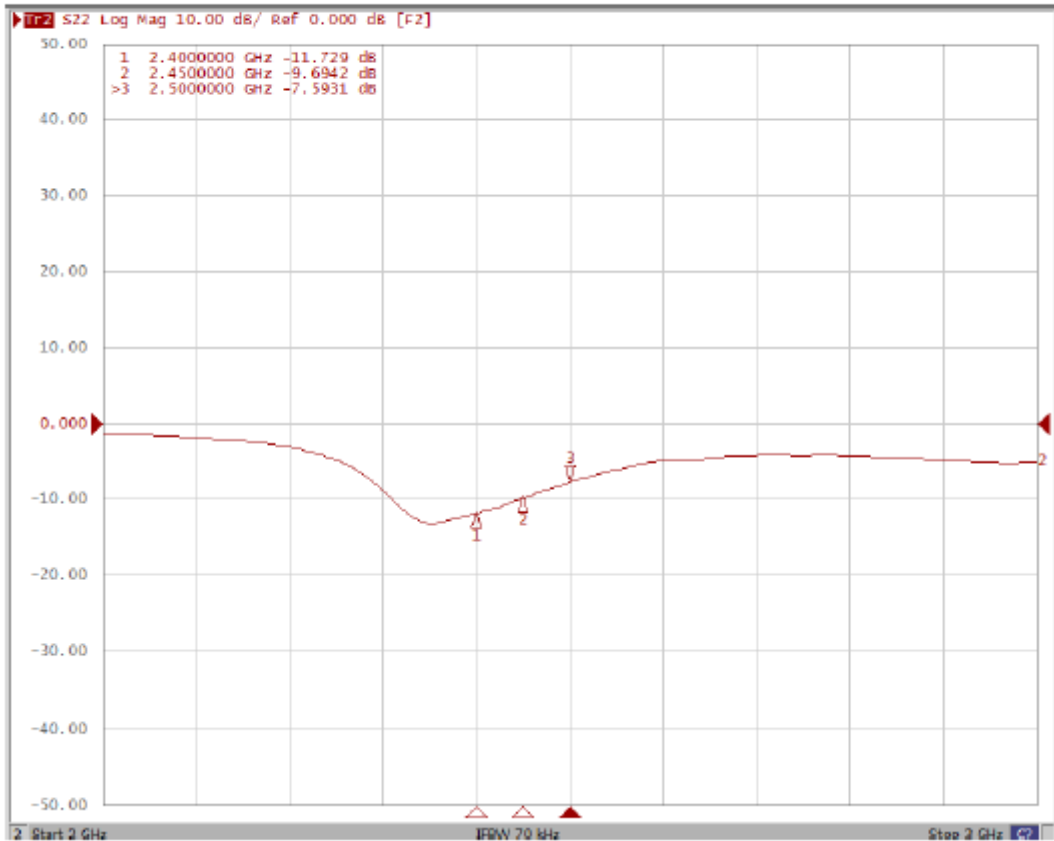
Finger Touch



UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A		 <p><b>INPAQ TECHNOLOGY CO., LTD.</b></p>
SCALE : N/A	UNIT : mm	
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		SPEC REV. <b>A1</b>



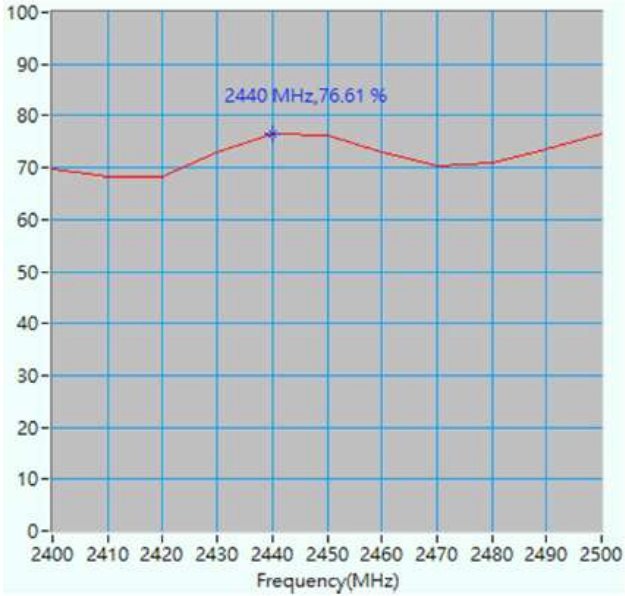
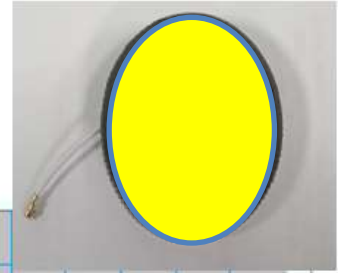
## Finger Touch + Metal



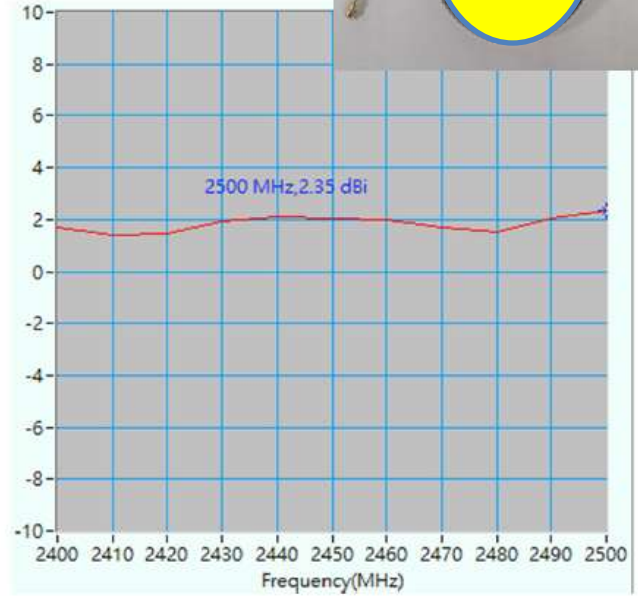
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## Antenna Efficiency and Peak Gain

Typical



Maximum Efficiency at 2400MHz : 76.61%



Maximum Peak Gain at 2500MHz : 2.35dBi

UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X = N/A      X.X = N/A      X.XX = N/A  
 ANGLES = N/A      HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 邱瑩鈺

CHECKED BY : 詹惠雯

DESIGNED BY : 葉子維

APPROVED BY : 陳振榮

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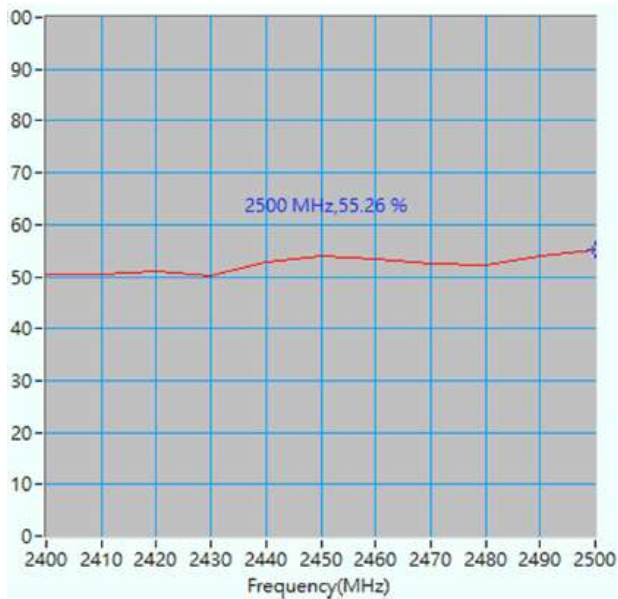
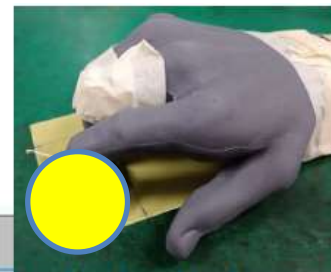
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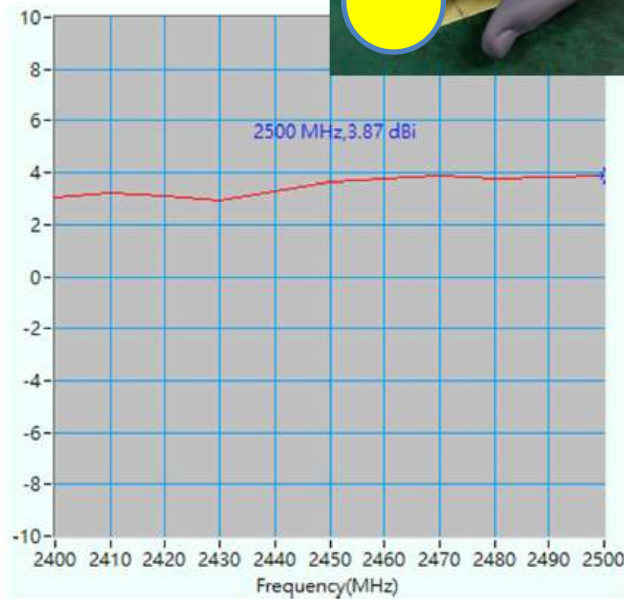
ENS070025890-000803719713

SPEC REV.  
A1

Finger Touch



Maximum Efficiency at 2500MHz : 55.26%



Maximum Peak Gain at 2500MHz : 3.87dBi

UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X = N/A      X.X = N/A      X.XX = N/A  
 ANGLES = N/A      HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

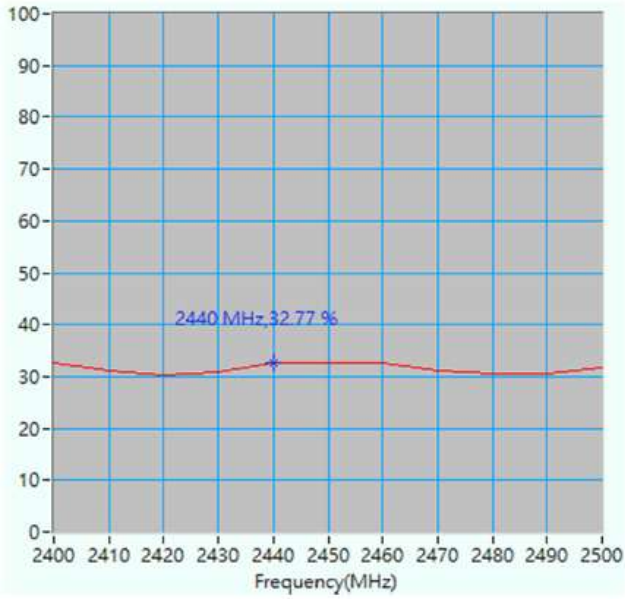
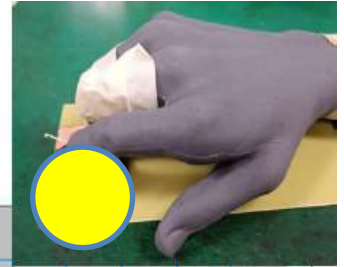
SCALE : N/A      UNIT : mm  
 DRAWN BY : 邱瑩鈺      CHECKED BY : 詹惠雯  
 DESIGNED BY : 葉子維      APPROVED BY : 陳振榮

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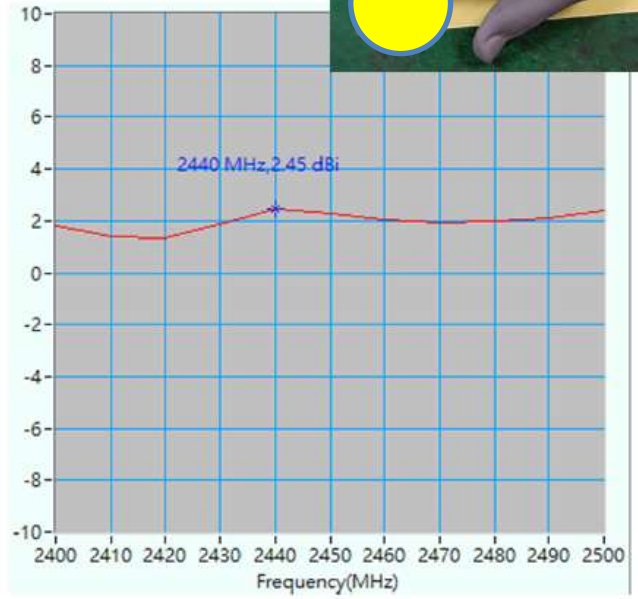
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		A1

Finger Touch + Metal



Maximum Efficiency at 2400MHz : 32.77%



Maximum Peak Gain at 2440MHz : 2.45dBi

UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X = N/A      X.X = N/A      X.XX = N/A  
 ANGLES = N/A      HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A      UNIT : mm  
 DRAWN BY : 邱瑩鈺      CHECKED BY : 詹惠雯  
 DESIGNED BY : 葉子維      APPROVED BY : 陳振榮

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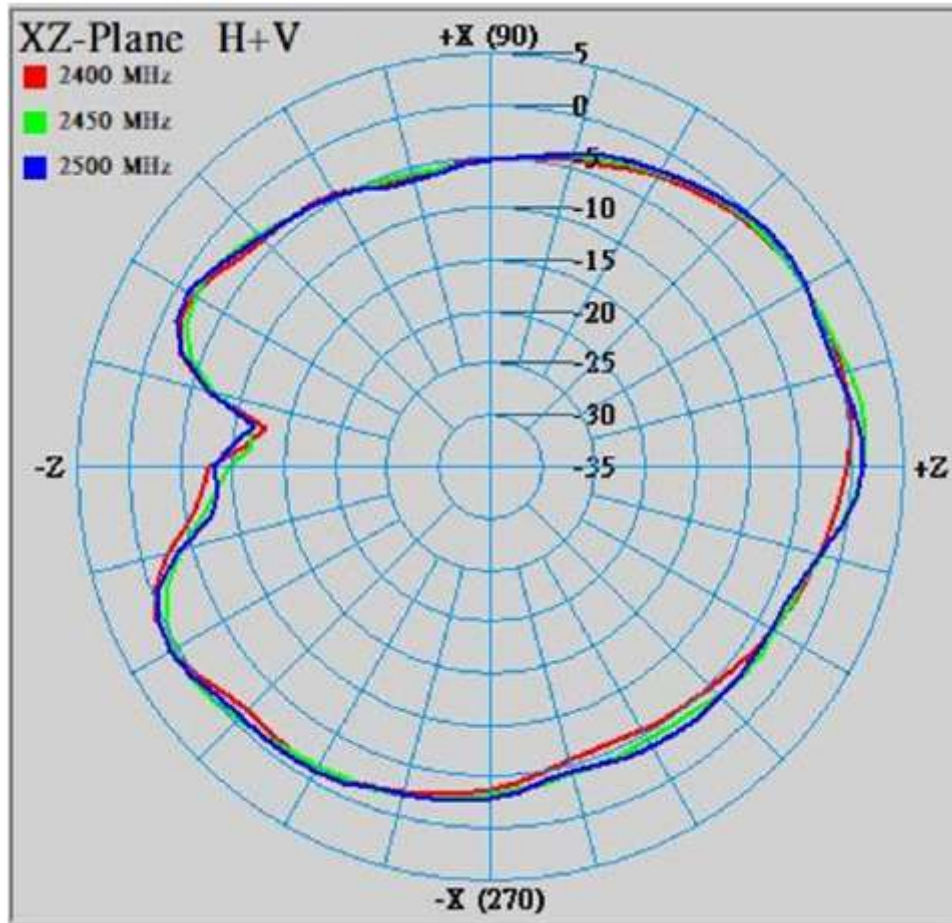
**Radiation Patterns**


**Typical**

X-Z Plane

Phi=0.00deg

Gain . dB

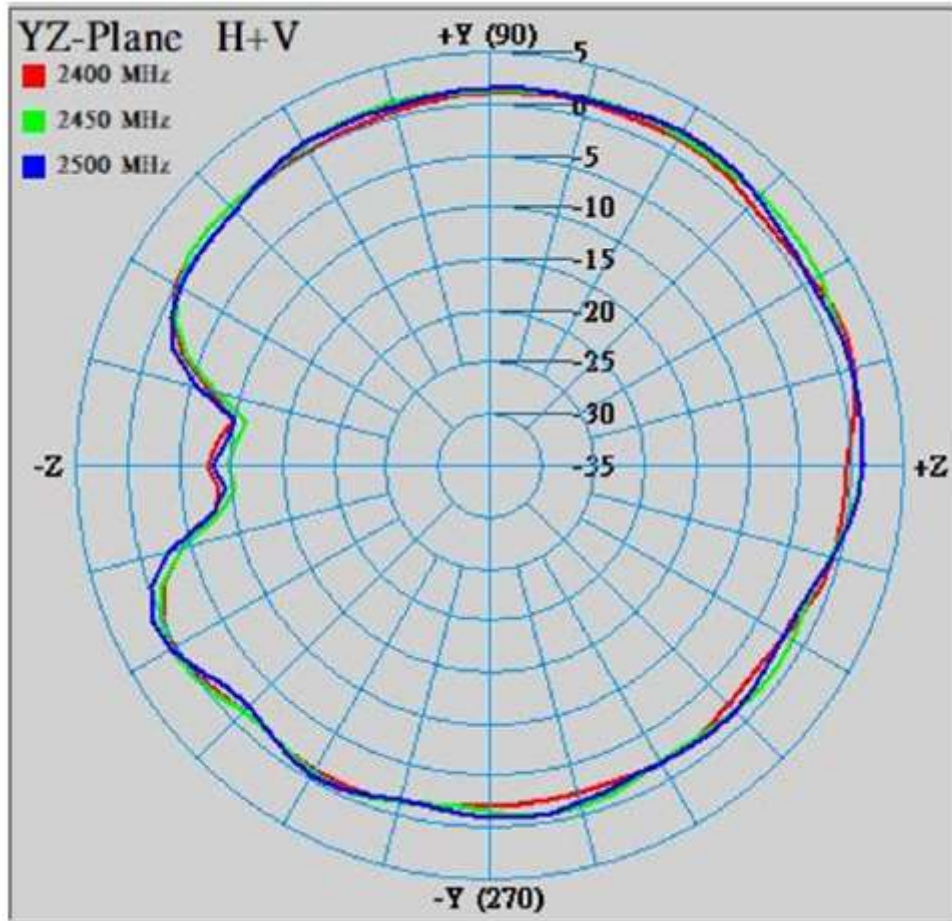



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ANGLES = N/A		THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
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TITLE : RFMTA190800NNAB003		DOCUMENT NO.	ENS070025890-000803719713
			SPEC REV. A1

Y-Z Plane

Phi=90.00deg

Gain . dB

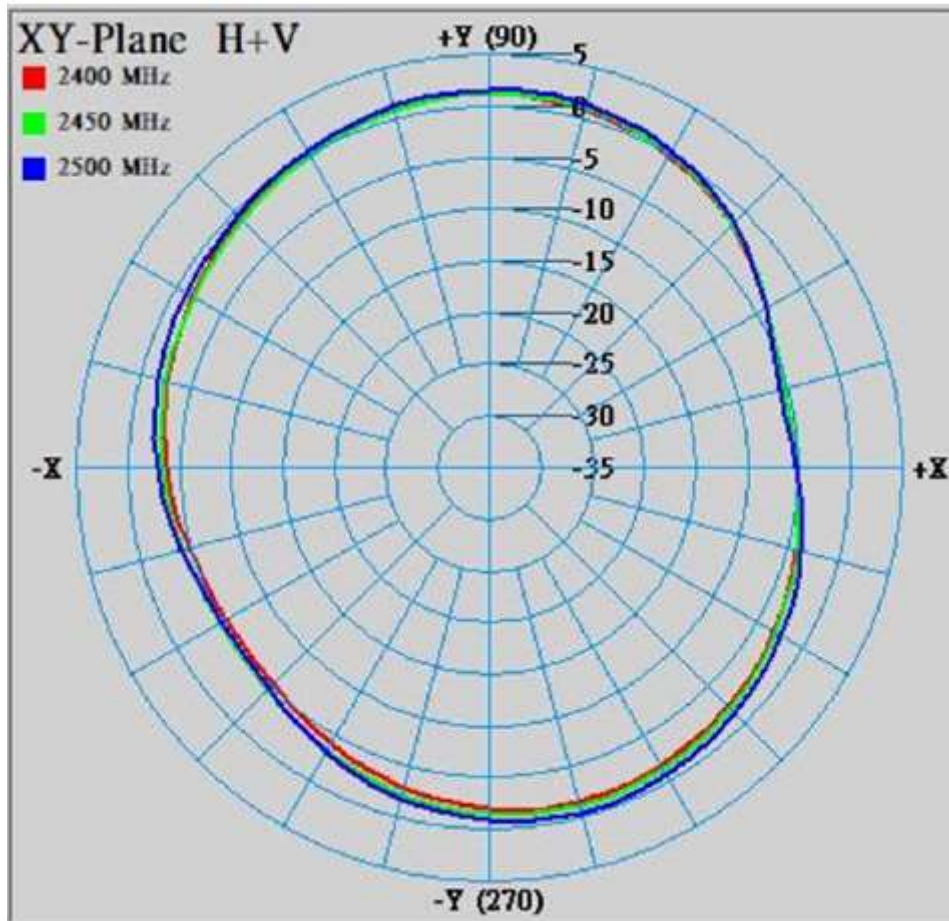


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TITLE : RFMTA190800NNAB003			

X-Y Plane

Theta=90.00deg

Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2400	0.68	-2.63	1.68	-0.57	1.13	-2.05
2450	1.40	-2.31	2.00	-0.15	1.28	-1.85
2500	1.11	-2.24	2.32	-0.21	1.56	-1.46

UNLESS OTHER SPECIFIED TOLERANCES ON :  
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 ANGLES=N/A      HOLEDIA=N/A



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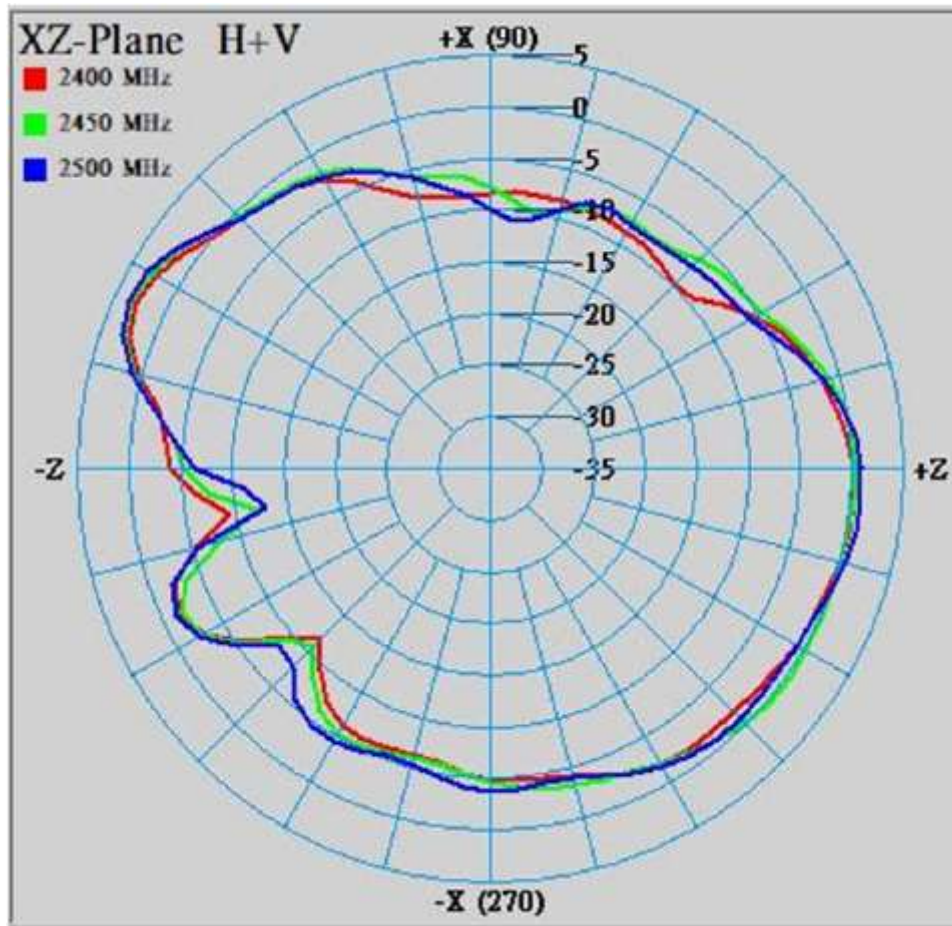


# Finger Touch

X-Z Plane

Phi=0.00deg

Gain . dB



UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X=N/A      X.X=N/A      X.XX=N/A  
 ANGLES=N/A      HOLEDIA=N/A



INPAQ TECHNOLOGY CO., LTD.

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 DRAWN BY : 邱瑩鈺      CHECKED BY : 詹惠雯  
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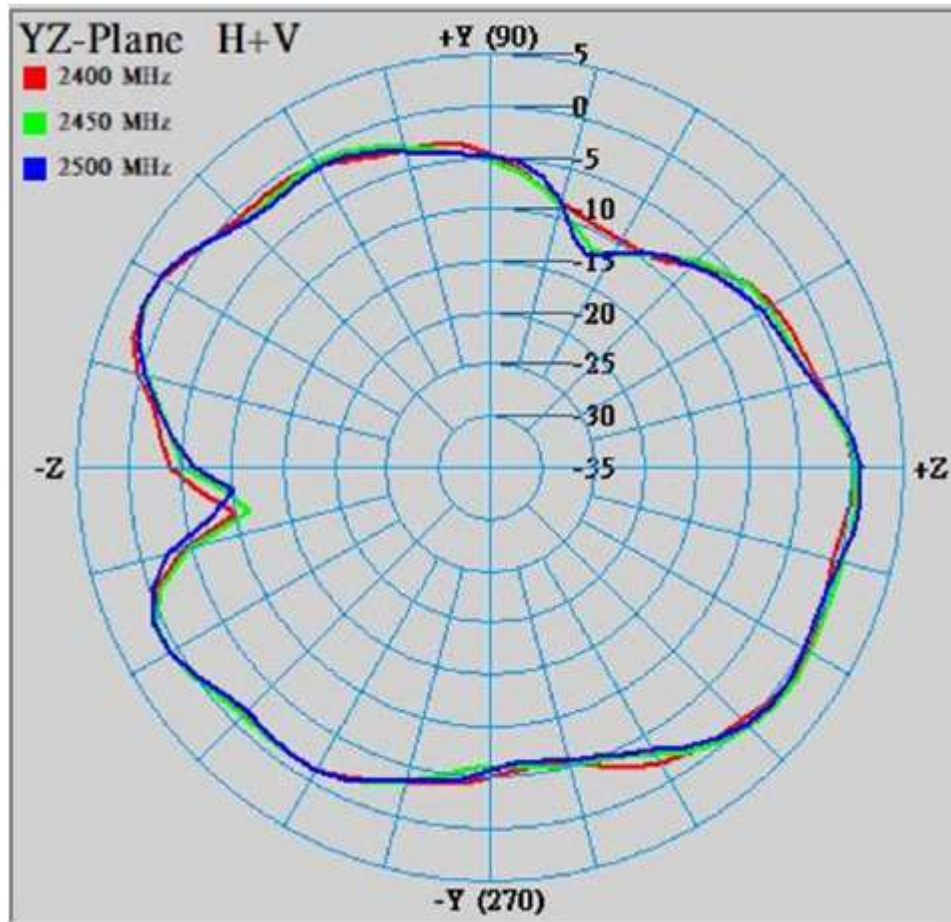
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SPEC REV. A1

Y-Z Plane

Phi=90.00deg

Gain . dB

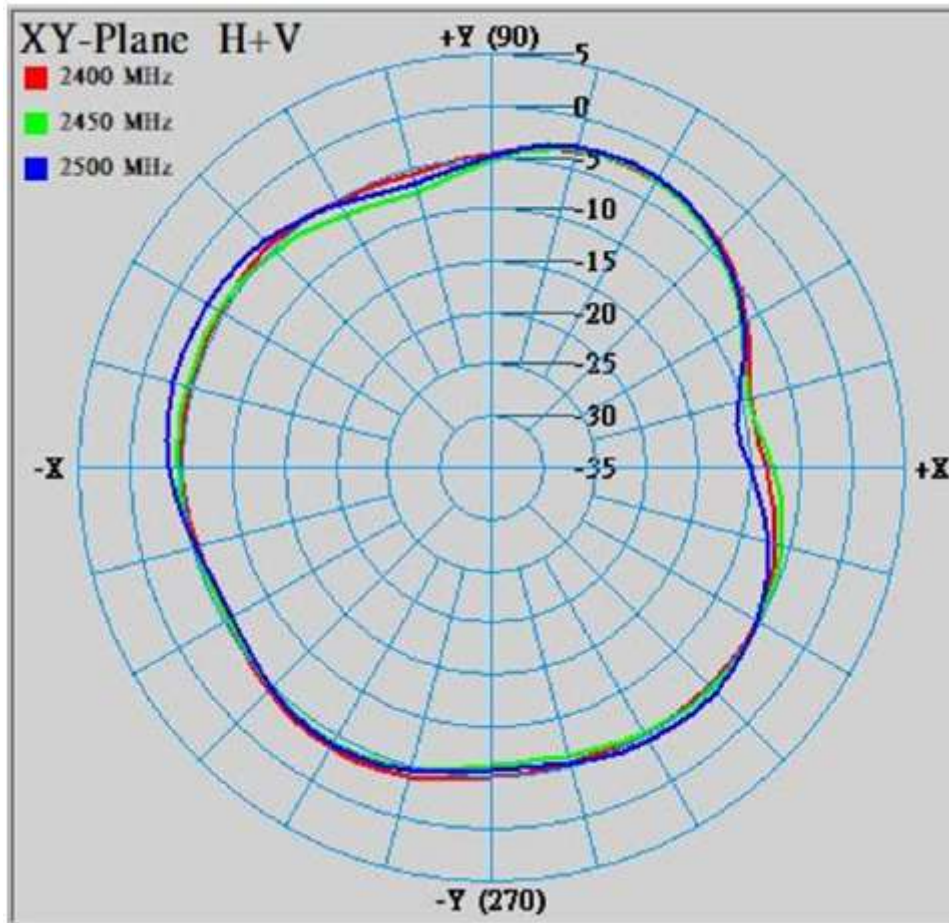


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X-Y Plane

Theta=90.00deg

Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2400	2.80	-2.88	2.14	-1.91	-2.93	-5.03
2450	3.25	-2.37	2.00	-1.94	-2.84	-5.29
2500	3.61	-2.38	2.06	-2.03	-2.55	-4.88

UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X = N/A      X.X = N/A      X.XX = N/A  
 ANGLES = N/A      HOLEDIA = N/A



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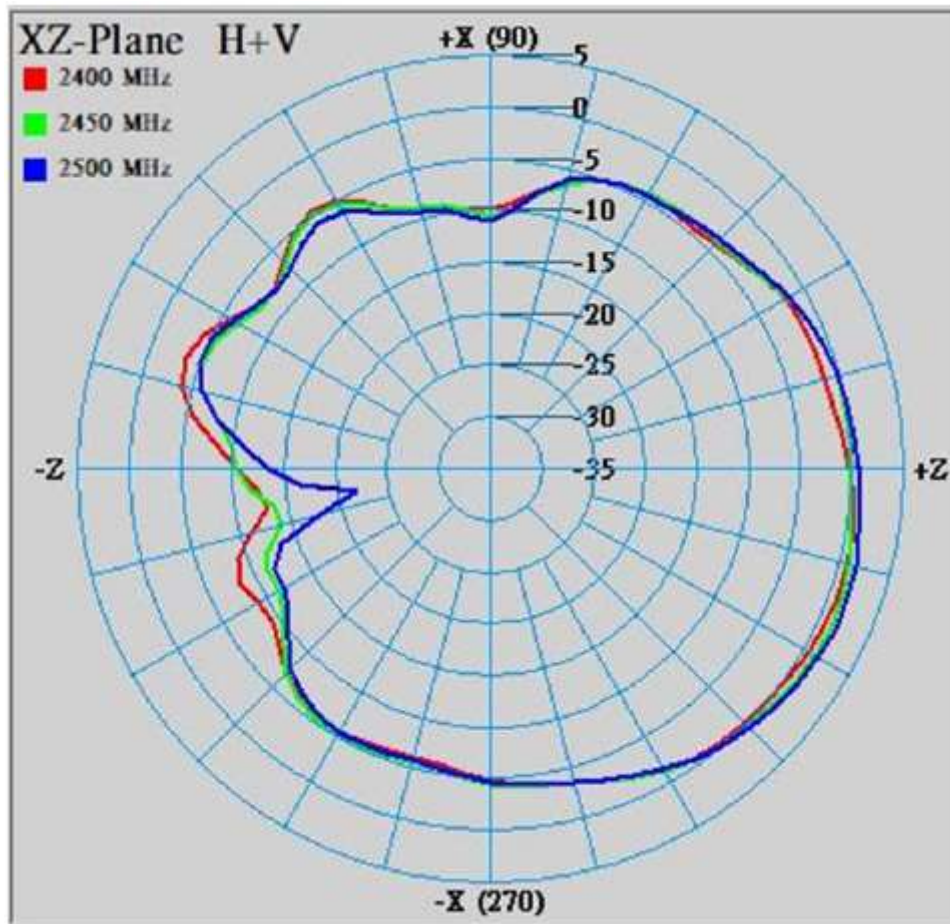
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		A1


# Finger Touch + Metal

X-Z Plane

Phi=0.00deg

Gain . dB

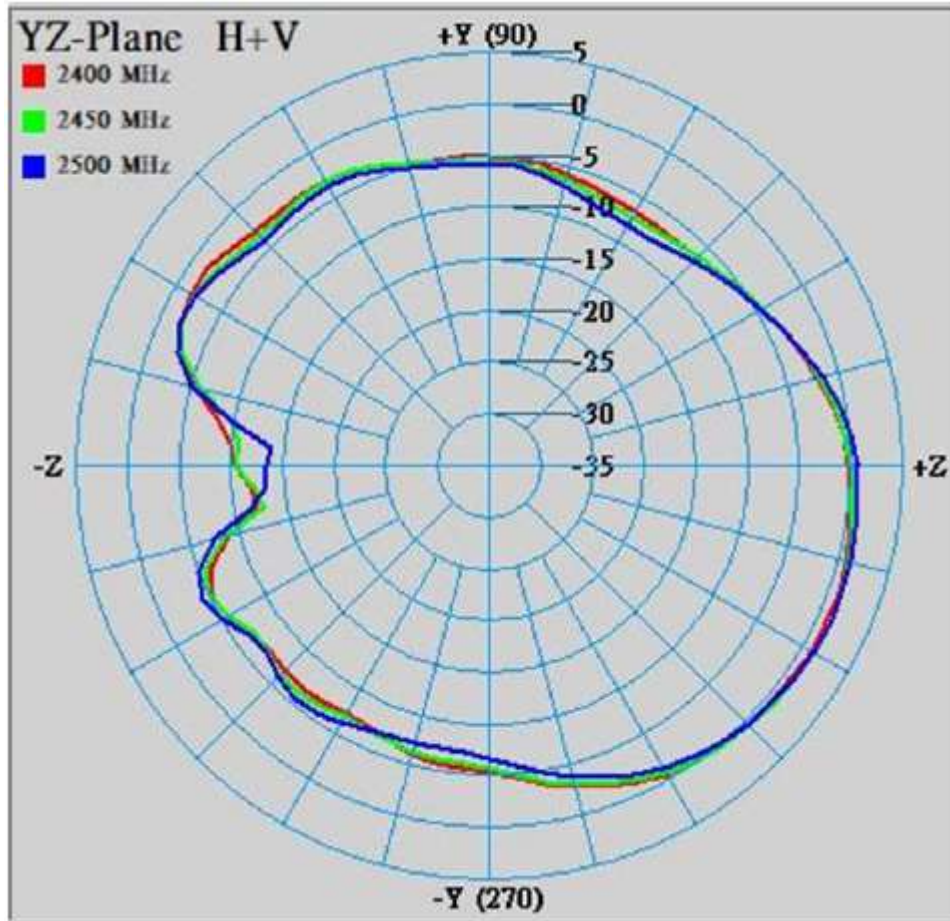



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ANGLES = N/A      HOLEDIA = N/A		THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION
SCALE : N/A	UNIT : mm	
DRAWN BY : 邱瑩鈺	CHECKED BY : 詹惠雯	
DESIGNED BY : 葉子維	APPROVED BY : 陳振榮	
TITLE : RFMTA190800NNAB003		DOCUMENT NO. ENS070025890-000803719713
		SPEC REV. <b>A1</b>

Y-Z Plane

Phi=90.00deg

Gain . dB

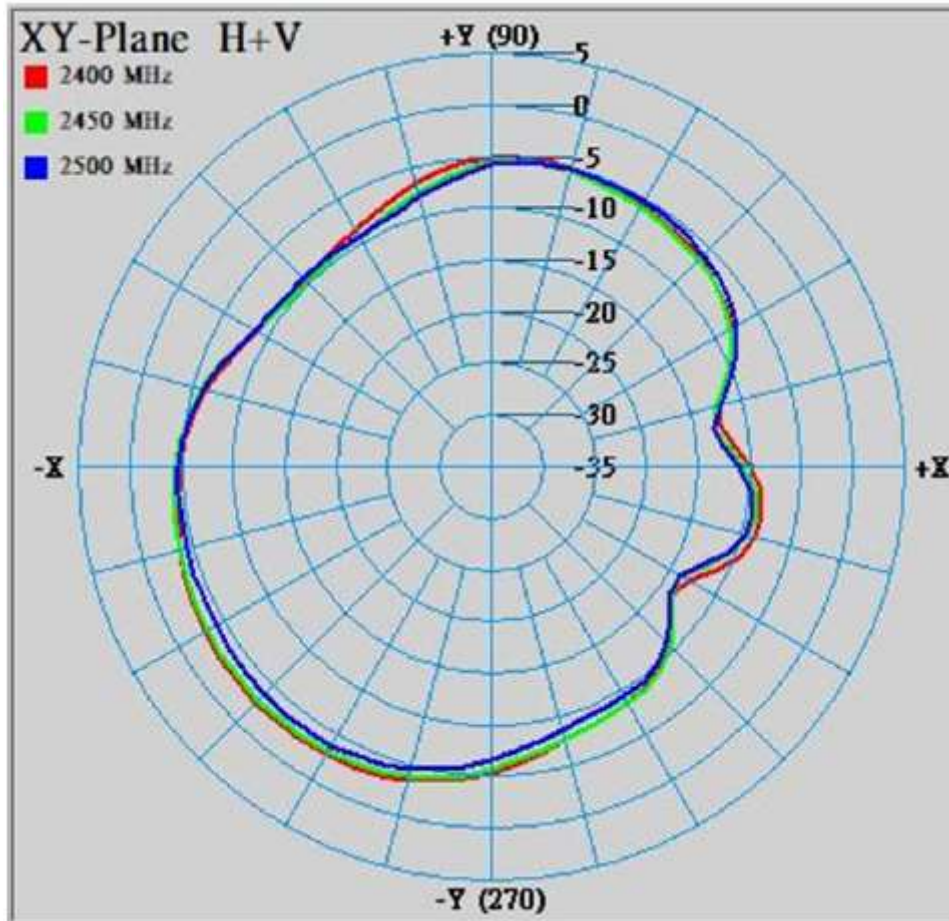


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TITLE : RFMTA190800NNAB003			

X-Y Plane

Theta=90.00deg

Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2400	0.83	-3.62	0.97	-3.18	-2.79	-6.15
2450	1.34	-3.43	1.28	-3.21	-3.08	-6.37
2500	1.79	-3.32	1.25	-3.30	-3.78	-6.72

UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X=N/A      X.X=N/A      X.XX=N/A  
 ANGLES=N/A      HOLEDIA=N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A      UNIT : mm  
 DRAWN BY : 邱瑩鈺      CHECKED BY : 詹惠雯  
 DESIGNED BY : 葉子維      APPROVED BY : 陳振榮

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DOCUMENT NO.	ENS070025890-000803719713	SPEC REV.
		A1