

# APPROVAL SHEET

**FPC Antenna**

**698~960 / 1710~2170 / 2300~2690 MHz**

**Working Frequency**

**P/N: RFFPA714105IMTB301**

Customer :

Customer 's Part No. : 0790A2013L-A06

Approval No. :

Issue Date :



## 品名：RFFPA714105IMTB301

### 1. Explanation of part number :

RF	FPA	7140	05	I	M	T	B	3	01
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	FPC 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	698~960 / 1710~2170 / 2300~2690 MHz
Peak Gain	Low Band @ 3.17 dBi High Band @ 4.31 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 : 林育帆

APPROVED BY : 陳振榮

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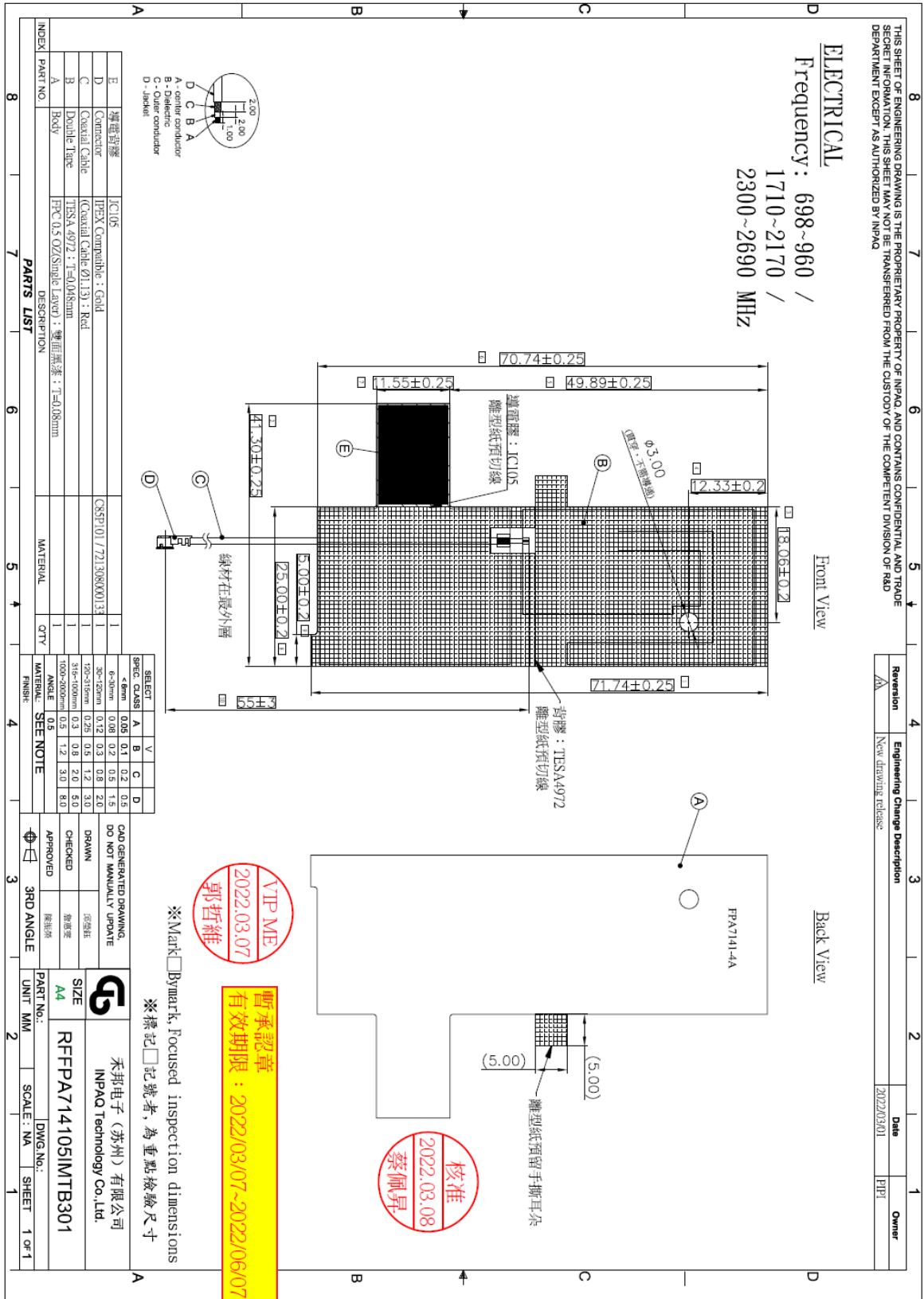
TITLE : RFFPA714105IMTB301

DOCUMENT NO.

ENS070024050-000803804398

SPEC REV.  
**A0**

3. Drawing :



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  
DRAWN BY : 邱發鈺  
DESIGNED BY : 林育帆

UNIT : mm  
CHECKED BY : 詹惠愛  
APPROVED BY : 陳振榮

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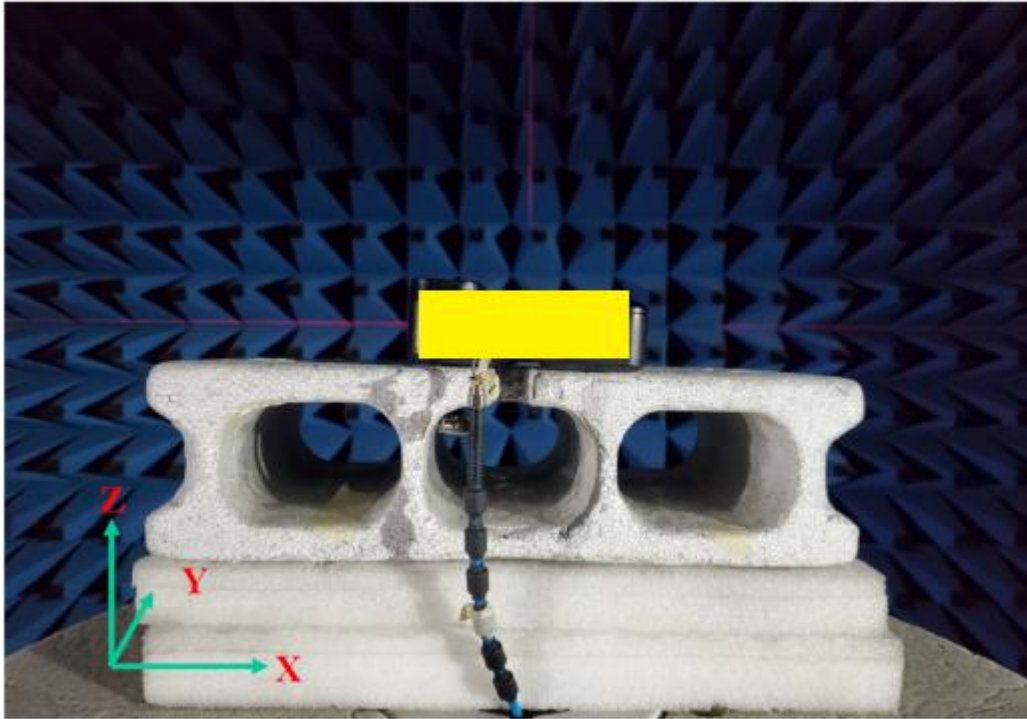
TITLE : RFFPA714105IMTB301


DOCUMENT NO. ENS070024050-000803804398

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# 4. Test Report

## Experimental Setup



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.	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 : 林育帆	APPROVED BY : 陳振榮		
TITLE : RFFPA714105IMTB301		DOCUMENT NO.	ENS070024050-000803804398
			SPEC REV. A0

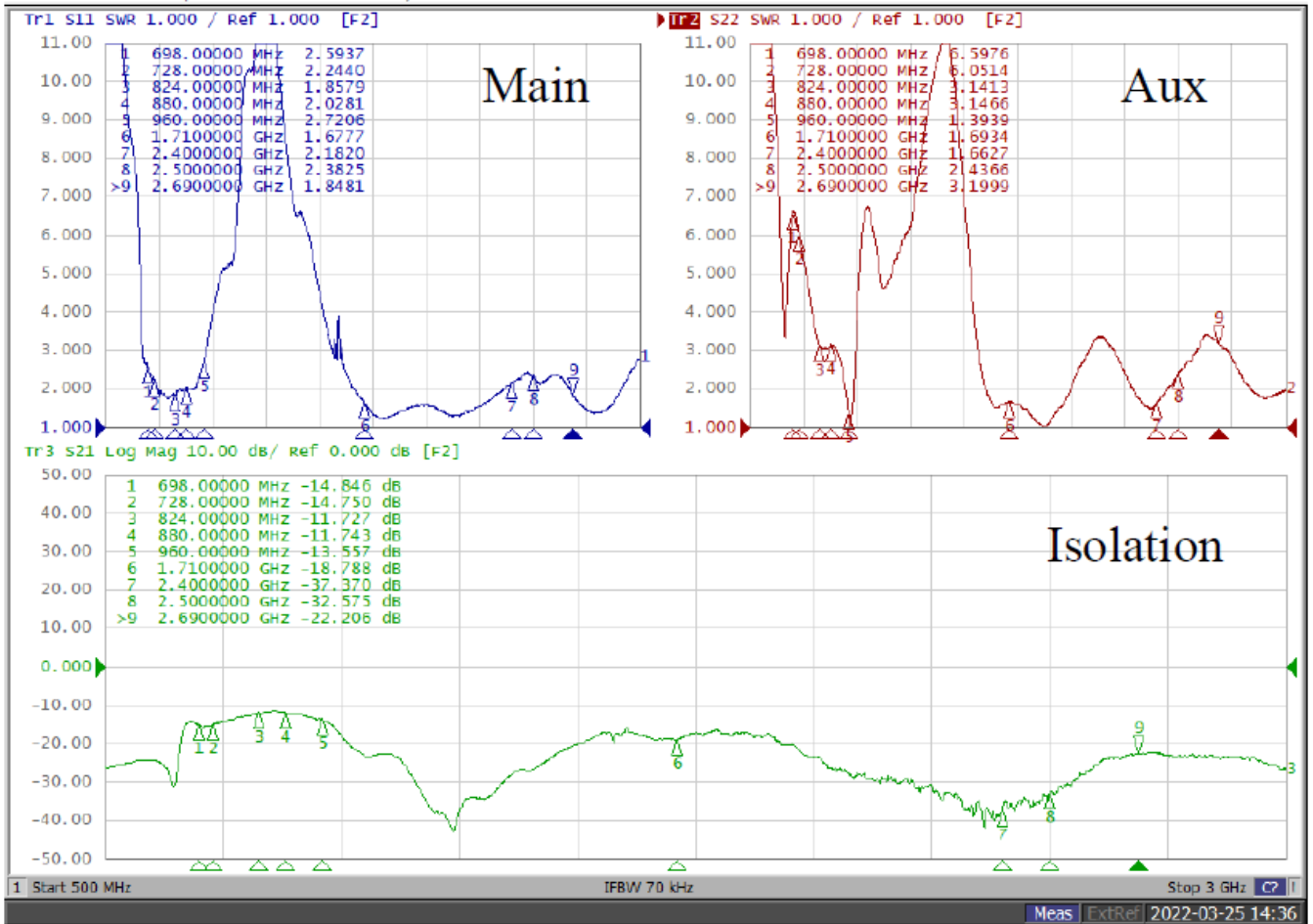
# ELECTRICAL CHARACTERISTICS


## Return Loss & Smith Chart

E5063A Network Analyzer

1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State

Resize




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>
SCALE : N/A	UNIT : mm	
DRAWN BY : 邱瑩鈺	CHECKED BY : 詹惠雯	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
DESIGNED BY : 林育帆	APPROVED BY : 陳振榮	
TITLE : RFFPA714105IMTB301		DOCUMENT NO. ENS070024050-000803804398
		SPEC REV. <b>A0</b>

E5063A Network Analyzer

1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State

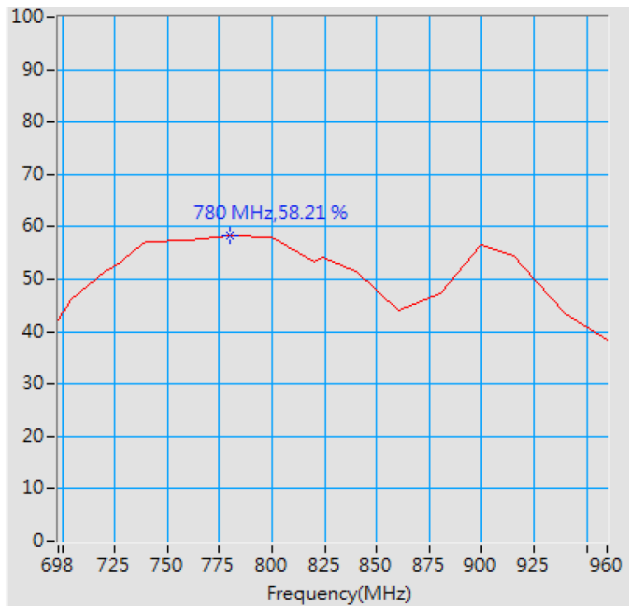
Resize



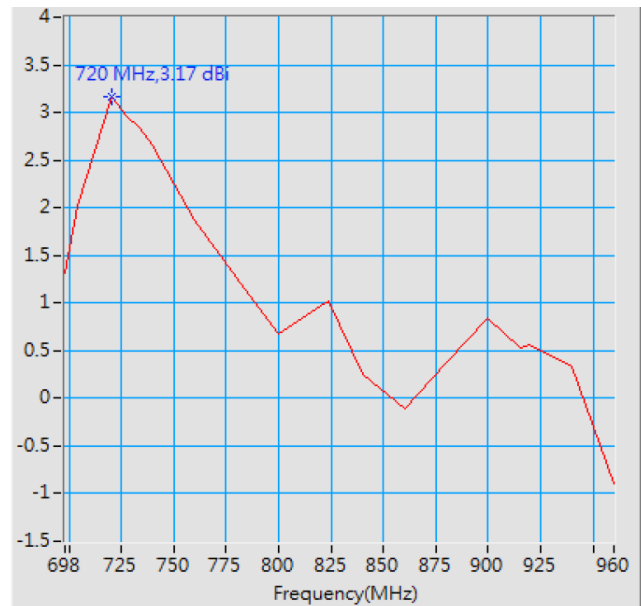
UNLESS OTHER SPECIFIED TOLERANCES ON :		 <b>INPAQ TECHNOLOGY CO., LTD.</b>	
X=N/A	X.X=N/A X.XX=N/A		
ANGLES=N/A HOLEDIA=N/A		THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
SCALE : N/A	UNIT : mm		
DRAWN BY : 邱瑩鈺	CHECKED BY : 詹惠雯		
DESIGNED BY : 林育帆	APPROVED BY : 陳振榮		
TITLE : RFFPA714105IMTB301		DOCUMENT NO. ENS070024050-000803804398	SPEC REV. A0

## Antenna Efficiency and Peak Gain

### Low band

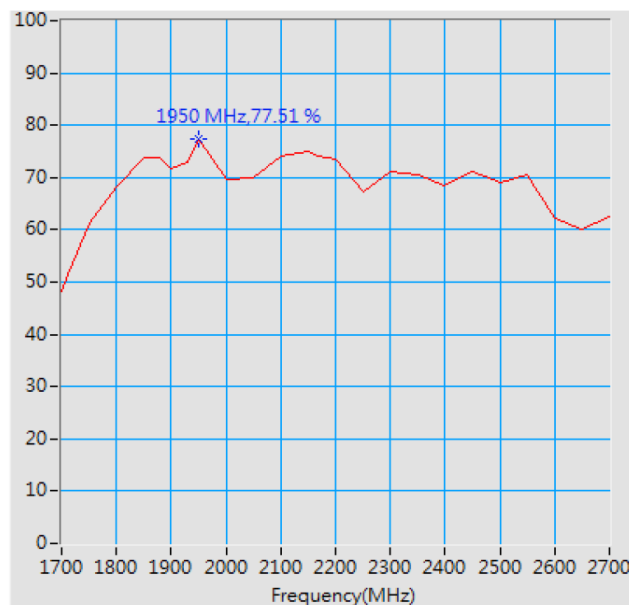


Maximum Efficiency at 780 MHz : 58.2 %

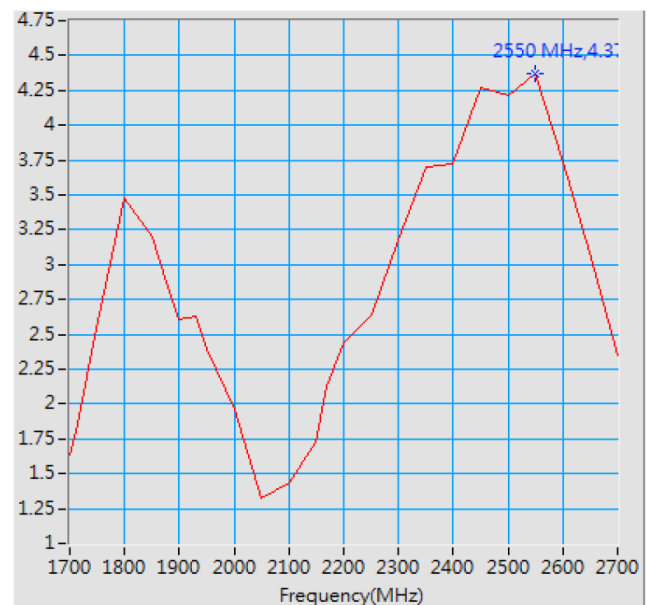


Maximum Peak Gain at 720 MHz : 3.17 dBi

### High band



Maximum Efficiency at 1950 MHz : 77.5 %



Maximum Peak Gain at 2550 MHz : 4.31 dBi

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 : 林育帆

APPROVED BY : 陳振榮

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	Main	
Frequency (MHz)	Efficiency (%)	Peak gain (dBi)
698	42.3	1.31
800	58.0	0.68
880	47.2	0.38
960	38.4	-0.89
1700	45.0	1.34
2000	65.1	1.66
2400	63.8	3.43
2700	58.2	2.05

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 : 林育帆

APPROVED BY : 陳振榮

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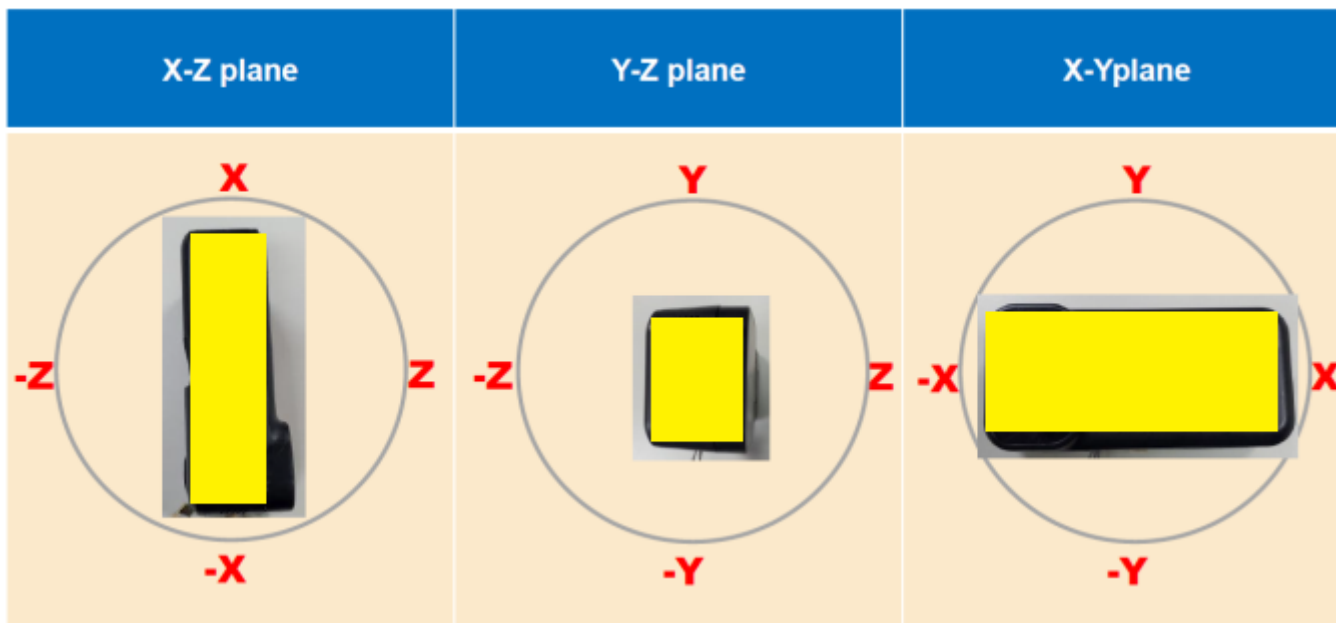
TITLE : RFFPA714105IMTB301


DOCUMENT NO.

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SPEC REV.  
A0

3 Views of antenna



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.	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 : 林育帆	APPROVED BY : 陳振榮		
TITLE : RFFPA714105IMTB301		DOCUMENT NO.	ENS070024050-000803804398 SPEC REV. <b>A0</b>

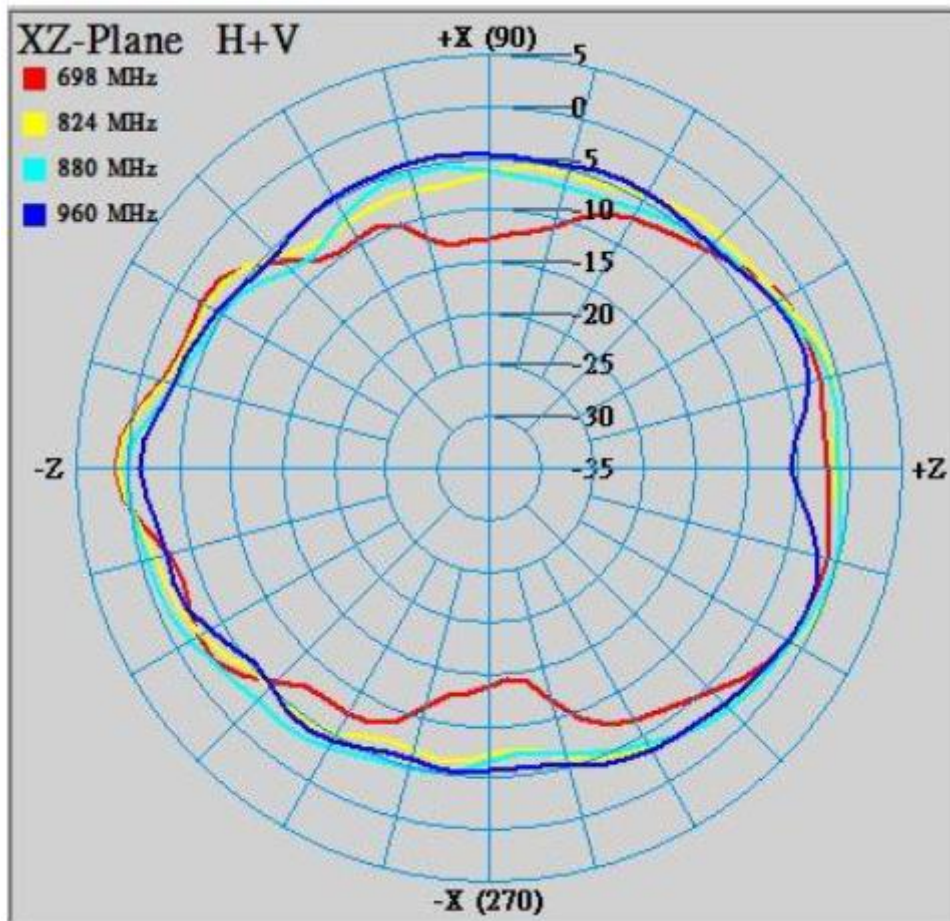
**Radiation Patterns**


**Low band**

X-Z Plane

Phi=0.00deg

Gain . dB

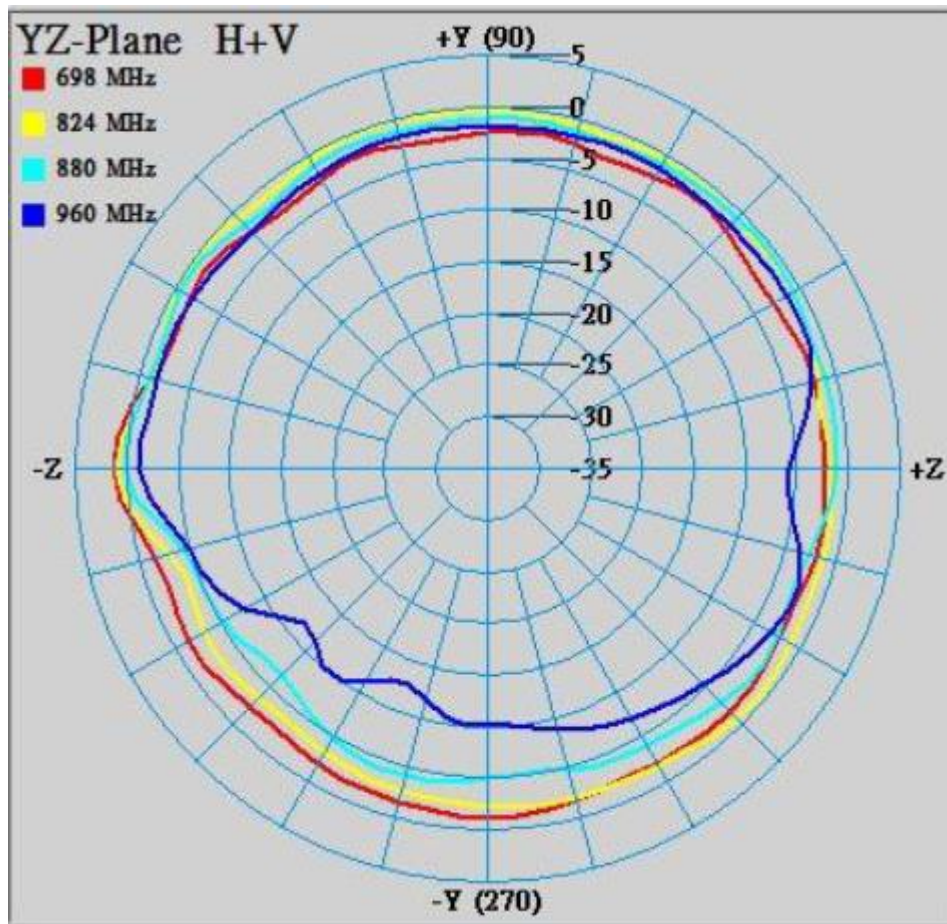



UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A		 <b>INPAQ TECHNOLOGY CO., LTD.</b>	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION
SCALE : N/A	UNIT : mm		
DRAWN BY : 邱瑩鈺	CHECKED BY : 詹惠雯	DOCUMENT NO.    ENS070024050-000803804398	SPEC REV. <b>A0</b>
DESIGNED BY : 林育帆	APPROVED BY : 陳振榮		
TITLE : RFFPA714105IMTB301			

Y-Z Plane

Phi=90.00deg

Gain . dB

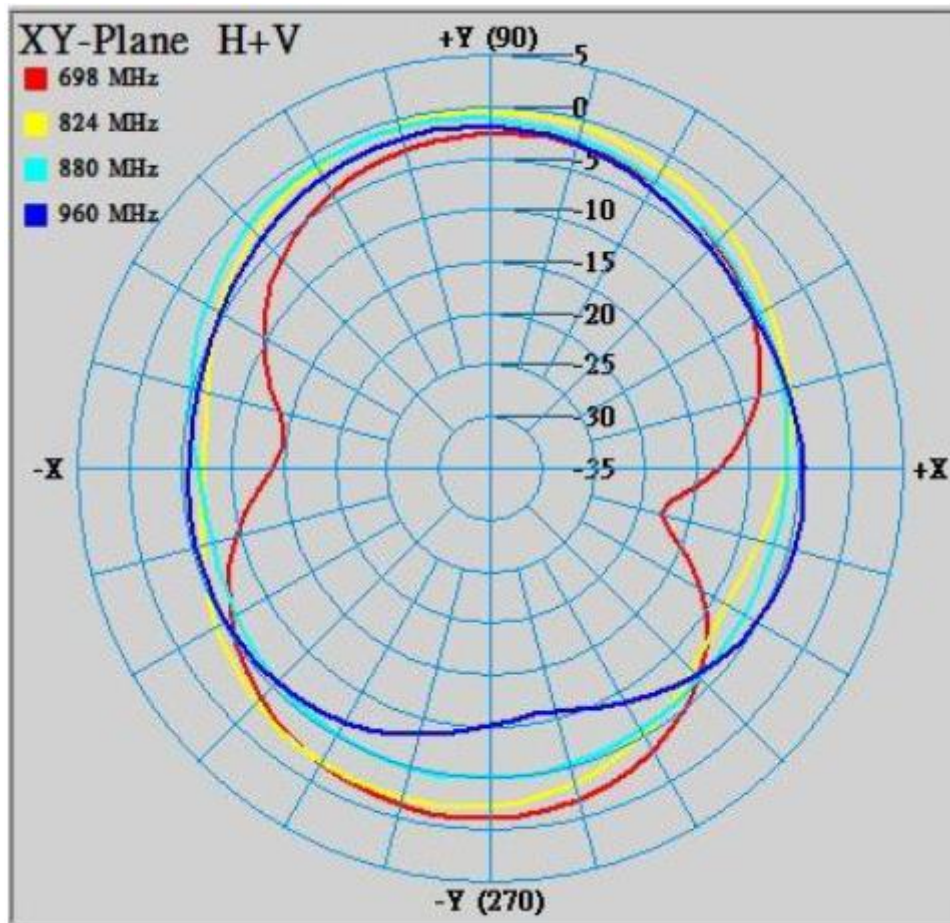


UNLESS OTHER SPECIFIED TOLERANCES ON :		 <b>INPAQ TECHNOLOGY CO., LTD.</b>
X = N/A	X.X = N/A      X.XX = N/A	
ANGLES = N/A		THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION
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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]
698	1.28	-4.22	1.29	-1.88	-1.13	-4.72
824	1.02	-3.16	1.02	-1.29	-0.44	-3.38
880	0.26	-3.19	0.32	-2.18	-0.86	-4.14
960	-1.09	-3.81	-1.02	-3.61	-1.82	-4.92

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 : 林育帆      APPROVED BY : 陳振榮

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		A0

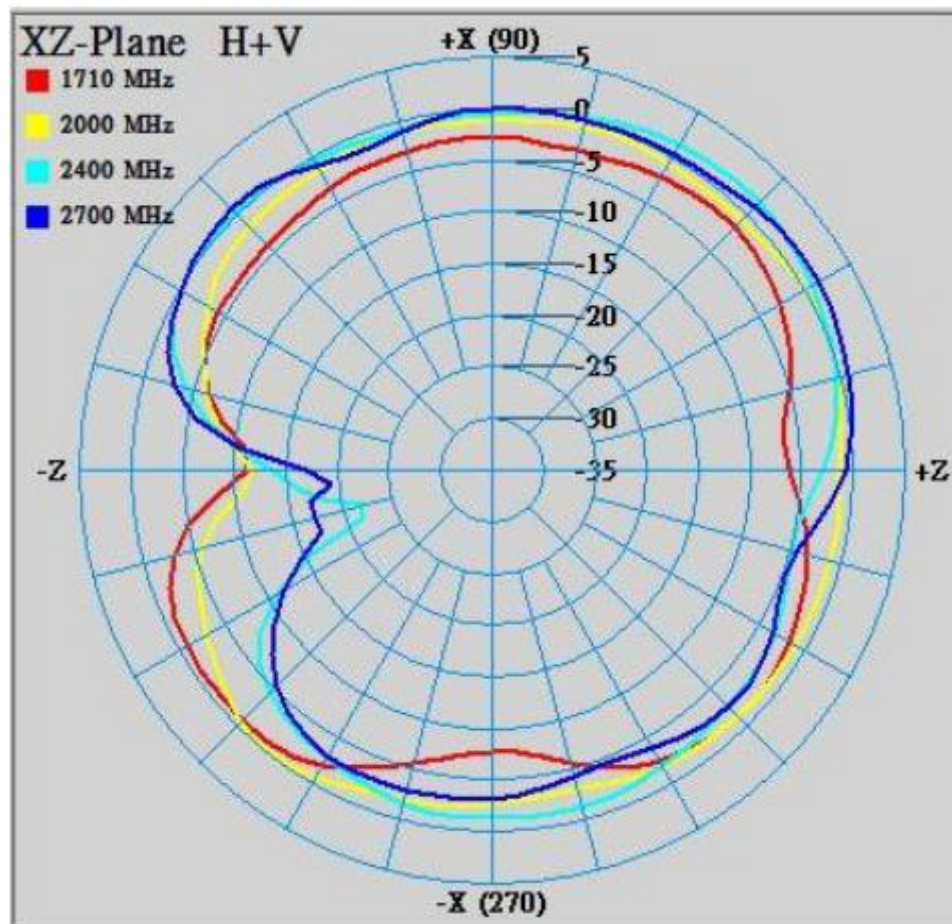


# High band

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.

SCALE : N/A      UNIT : mm  
 DRAWN BY : 邱瑩鈺      CHECKED BY : 詹惠雯  
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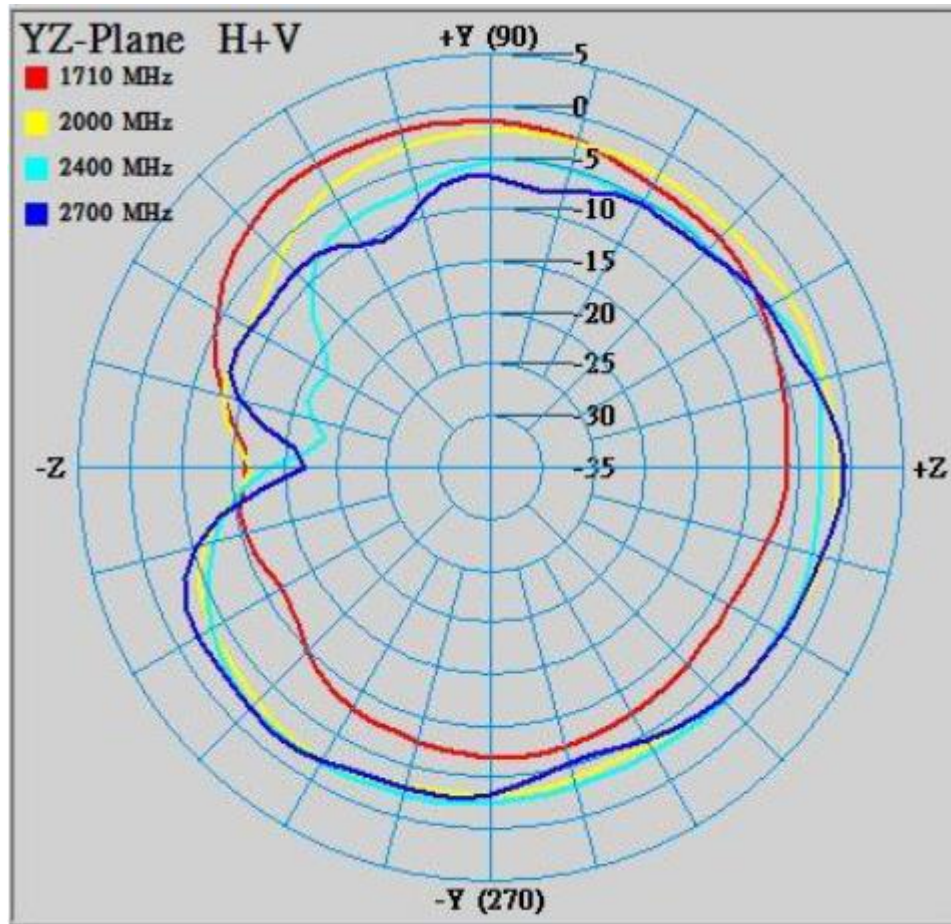
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SPEC REV. A0

Y-Z Plane

Phi=90.00deg

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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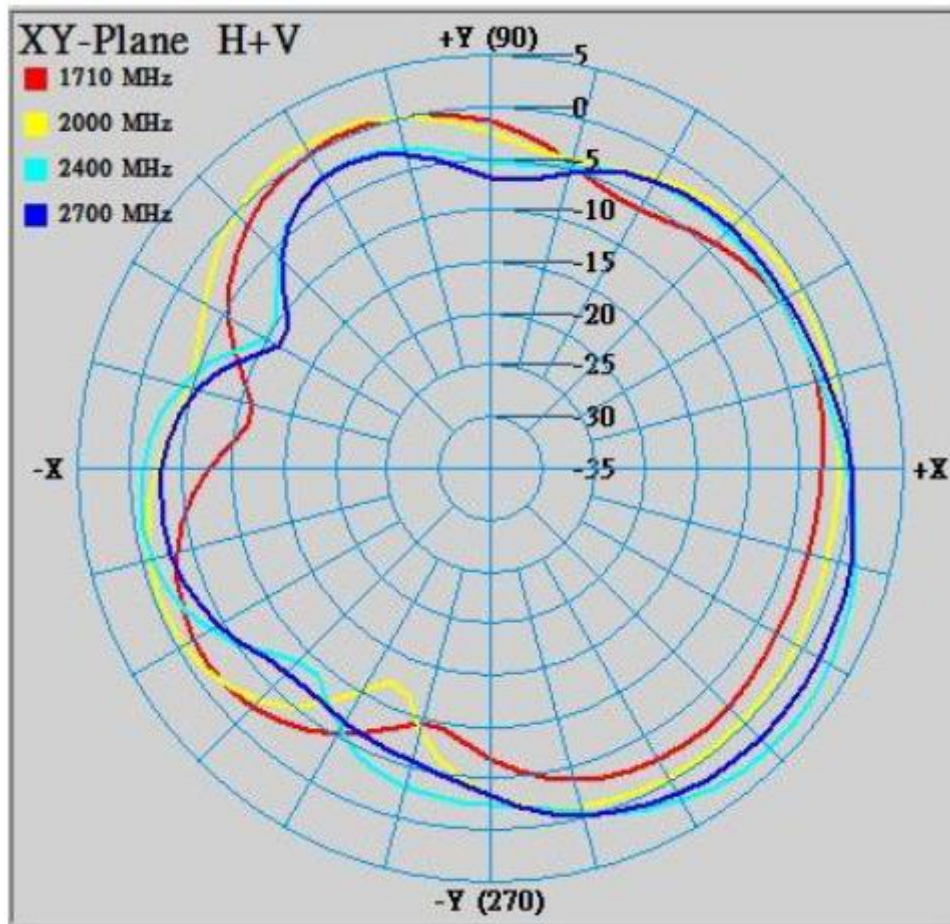
DOCUMENT NO. ENS070024050-000803804398

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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]
1710	-0.70	-3.29	-1.17	-5.08	0.34	-3.21
2000	0.18	-1.74	-1.24	-3.31	1.04	-1.65
2400	1.63	-1.57	-2.02	-4.36	3.38	-1.48
2700	1.49	-1.79	-0.77	-4.32	2.00	-2.11

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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		A0



**FAI Report**



蘇州禾邦電子有限公司

RF process the first pieces of recording

Applicant	Test Date		P/N		Sample Qty		Version		Producer						
	Line No.	2022/3/23	RFFPA714105IMTB301	5	5	ROSE	ROSE								
Test Instrument	1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C	14C	Remark
Test Qualification (Band)	71.74±0.25	41.30±0.25	18.06±0.2	12.33±0.2	49.89±0.25	70.7±0.25	11.55±0.25	25.00±0.2	5.0±0.2	55±.3					
1	71.70	41.28	18.05	12.33	49.94	70.71	11.52	25.01	5.01	55.00					
2	71.77	41.30	18.08	12.35	49.95	70.7	11.5	25.00	5.02	55.00					
3	71.71	41.26	18.06	12.30	49.92	70.72	11.52	25.02	5.00	54.00					
4	71.70	41.30	18.09	12.32	49.90	70.72	11.5	25.01	4.98	55.00					
5	71.76	41.28	18.10	12.30	49.92	70.72	11.52	25.02	4.99	54.50					
6	71.70	41.28	18.02	12.30	49.92	70.71	11.52	25.01	5.00	55.00					
7	71.74	41.32	18.06	12.34	49.91	70.7	11.53	25.00	4.94	55.00					
8	71.73	41.33	18.07	12.30	49.92	70.71	11.52	25.00	4.99	54.50					
9	71.74	41.34	18.06	12.32	49.91	70.72	11.5	25.02	4.98	55.00					
10	71.75	41.34	18.08	12.30	49.90	70.71	11.52	25.01	5.01	55.50					
Max	71.77	41.34	18.10	12.35	49.95	70.72	11.53	25.02	5.02	55.50	0.00	0.00	0.00	0.00	0.00
Average	71.73	41.30	18.07	12.32	49.92	70.71	11.52	25.01	4.99	54.85	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00
Min	71.70	41.26	18.02	12.30	49.90	70.70	11.50	25.00	4.94	54.00	0.00	0.00	0.00	0.00	0.00
Determination (OK/NG)	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK					
Determination	QC supervisor confirmed: <input checked="" type="checkbox"/> OK <input type="checkbox"/> NG		QC confirmed: <input type="checkbox"/> Other <input type="checkbox"/>		Production Leader confirmed: <input type="checkbox"/>										

Notes : 1. The test required a different color pen limit values recorded in the upper or lower specification for prompt alert.  
 2. The day before each work station on the line need to produce Specs samples confirm OK before beginning production.  
 3. The first test will be recorded pieces IPKX Rally 3pcs.



UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X=N/A      X.X=N/A      X.XX=N/A  
 ANGLES=N/A      HOLEDIA=N/A  
 SCALE : N/A      UNIT : mm  
 DRAWN BY : 邱瑩鈺      CHECKED BY : 詹惠愛  
 DESIGNED BY : 林育帆      APPROVED BY : 陳振榮  
 TITLE : RFFPA714105IMTB301

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