

# PAS2333MF4G-113-18M

## Engineering Specification

### 1. Typical Electrical Properties

Symbol	Parameter	Test Condition	Limits			Unit	
			Min	Fc	Max		
$f_i$	Input Frequency	Note: (1)	2320	2332.5	2345	MHz	
$G_{AE}$	Antenna Passive Gain ( $G_{AE}$ is measured over the entire 25 MHz BW)	Elevation angle 90°	Average	5.20	5.64	5.37	dBic
			Max	5.48	5.77	5.66	
			Min	4.81	5.36	5.01	
		Elevation angle 80°	Ripl	0.67	0.41	0.65	
			Average	5.78	5.93	5.92	
			Max	6.14	6.32	6.29	
		Elevation angle 70°	Min	5.42	5.68	5.48	
			Ripl	0.72	0.64	0.81	
			Average	5.07	5.20	5.20	
		Elevation angle 60°	Max	5.57	5.48	5.60	
			Min	4.70	4.95	4.71	
			Ripl	0.87	0.53	0.89	
		Elevation angle 50°	Average	4.59	4.73	4.69	
			Max	5.16	5.14	5.18	
			Min	4.18	4.44	4.30	
		Elevation angle 40°	Ripl	0.98	0.70	0.88	
			Average	3.60	3.70	3.67	
			Max	4.24	4.21	4.31	
		Elevation angle 30°	Min	3.06	3.26	3.15	
			Ripl	1.18	0.95	1.16	
			Average	2.34	2.50	2.50	
		Elevation angle 25°	Max	3.33	3.42	3.47	
			Min	1.45	1.90	1.84	
			Ripl	1.88	1.52	1.63	
Elevation angle 20°	Average	0.97	1.08	1.04			
	Max	2.11	2.23	2.31			
	Min	-0.14	0.19	0.26			
Elevation angle 15°	Ripl	2.25	2.14	2.05			
	Average	0.82	0.71	0.04			
	Max	1.84	1.67	1.25			
Elevation angle 10°	Min	-0.04	0.05	-0.90			
	Ripl	1.88	1.62	2.15			
	Average	-0.36	-0.24	-0.26			
Elevation angle 5°	Max	0.98	1.13	1.46			
	Min	-0.77	-1.38	-1.49			
	Ripl	2.75	2.51	2.95			

Note: (1) Patch Antenna is Located on 1 m Ground

PAS2333MF4G-113-18M, G : Green parts (RoHS compliance)

-113 are the code of project number, -18M show of appendix

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±

X.X=±

X.XX=±

ANGLES=±

HOLEDIA=±



INPAQ TECHNOLOGY CO., LTD.

SCALE :

UNIT : mm

DRAWN BY : 羅孟仙

CHECKED BY : 馬敏勝

DESIGNED BY : 鄭大福

APPROVED BY : 曾源標

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TITLE : PAS2333MF4G-113-18M

Engineering Specification

DOCUMENT NO.

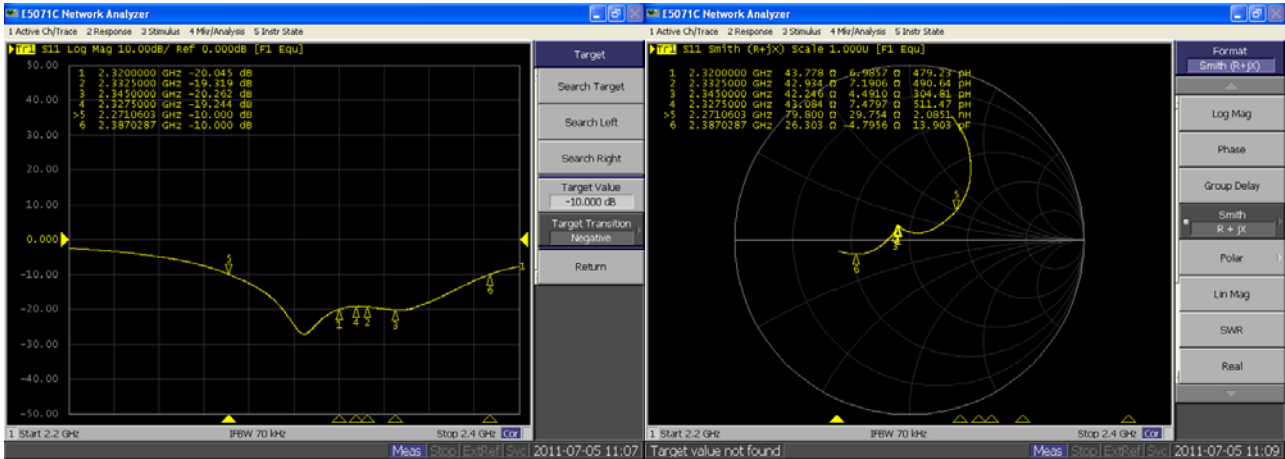
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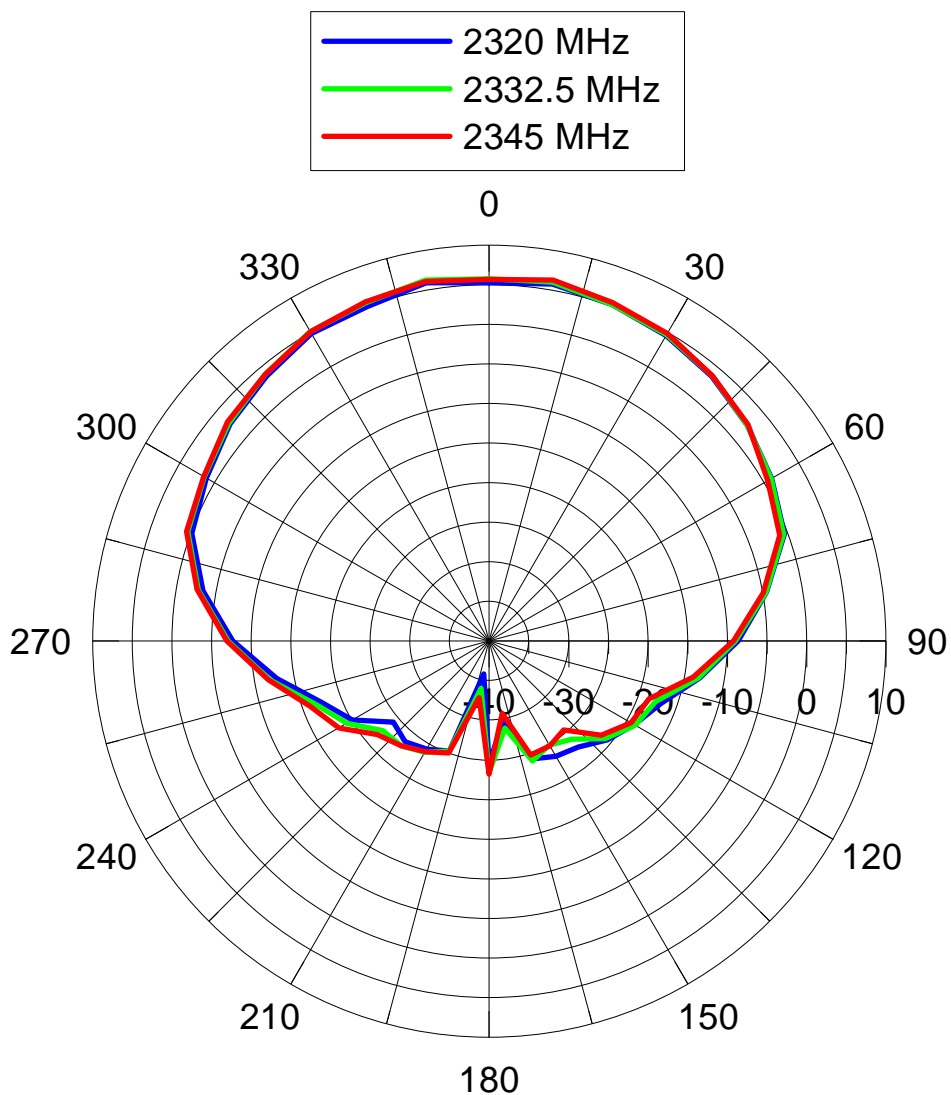
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## 2. Patch Antenna Performance and Characteristic Data on 1 m Ground

### 2.1 Smith Chart/S<sub>11</sub>



### 2.2 2D Circular Polarization Gain Pattern: LHCP (Unit : dBic)



UNLESS OTHER SPECIFIED TOLERANCES ON :

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

SCALE :      UNIT : mm

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DESIGNED BY : 鄭大福      APPROVED BY : 曾源標

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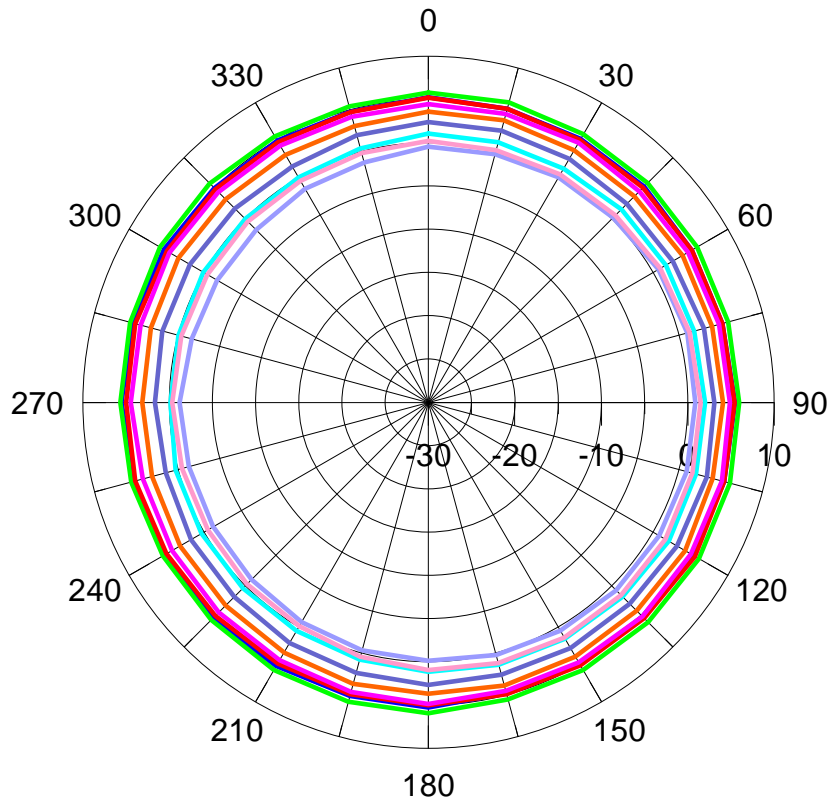


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2.3 Elevation Angle Gain Pattern (Unit : dBic)



2320 MHz	Average	Max	Min	Ripl
Elevation Angle 90°	5.20	5.48	4.81	0.67
Elevation Angle 80°	5.78	6.14	5.42	0.72
Elevation Angle 70°	5.07	5.57	4.70	0.87
Elevation Angle 60°	4.59	5.16	4.18	0.98
Elevation Angle 50°	3.60	4.24	3.06	1.18
Elevation Angle 40°	2.34	3.33	1.45	1.88
Elevation Angle 30°	0.97	2.11	-0.14	2.25
Elevation Angle 25°	0.82	1.84	-0.04	1.88
Elevation Angle 20°	-0.36	0.98	-1.77	2.75

UNLESS OTHER SPECIFIED TOLERANCES ON :

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



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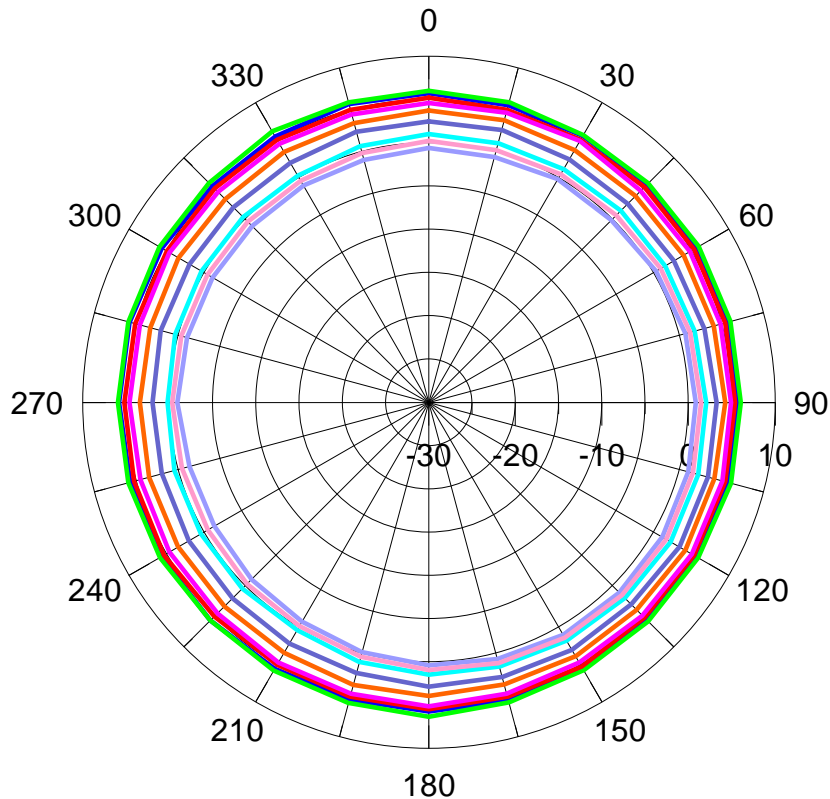
TITLE : PAS2333MF4G-113-18M  
 Engineering Specification

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The Measurement 2332.5 MHz Elevation Angle Gain Pattern

- EA90
- EA80
- EA70
- EA60
- EA50
- EA40
- EA30
- EA25
- EA20



2332.5 MHz	Average	Max	Min	Ripl
Elevation Angle 90°	5.64	5.77	5.36	0.41
Elevation Angle 80°	5.93	6.32	5.68	0.64
Elevation Angle 70°	5.20	5.48	4.95	0.53
Elevation Angle 60°	4.73	5.14	4.44	0.70
Elevation Angle 50°	3.70	4.21	3.26	0.95
Elevation Angle 40°	2.50	3.42	1.90	1.52
Elevation Angle 30°	1.08	2.23	0.19	2.04
Elevation Angle 25°	0.71	1.67	0.05	1.62
Elevation Angle 20°	-0.24	1.13	-1.38	2.51

UNLESS OTHER SPECIFIED TOLERANCES ON :

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



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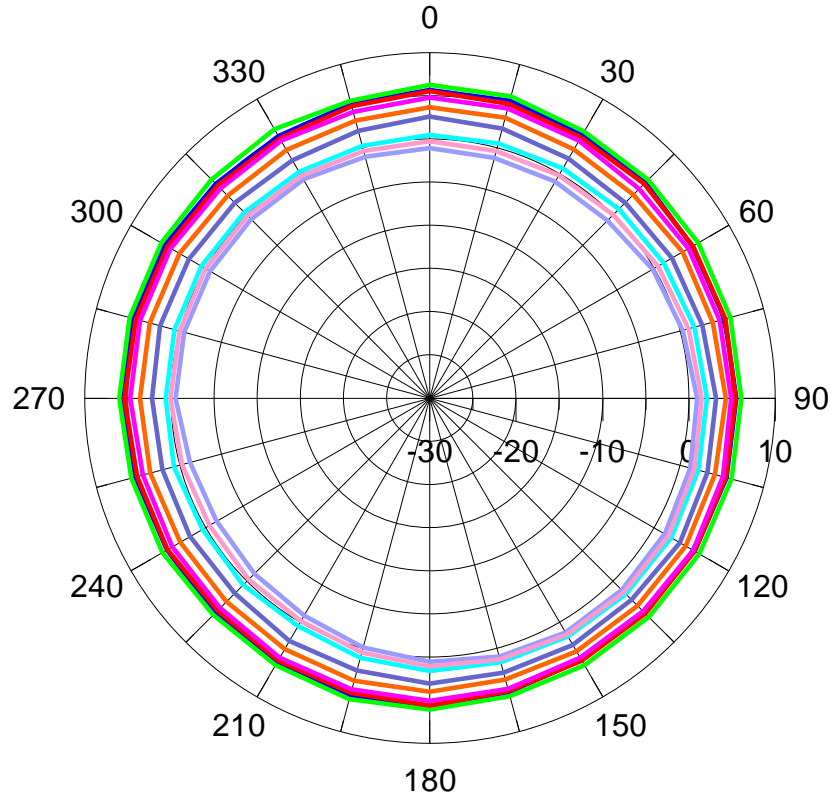
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 Engineering Specification

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The Measurement 2345 MHz Elevation Angle Gain Pattern

- EA90
- EA80
- EA70
- EA60
- EA50
- EA40
- EA30
- EA25
- EA20



2345 MHz	Average	Max	Min	Ripl
Elevation Angle 90°	5.37	5.66	5.01	0.65
Elevation Angle 80°	5.92	6.29	5.48	0.81
Elevation Angle 70°	5.20	5.60	4.71	0.89
Elevation Angle 60°	4.69	5.18	4.30	0.88
Elevation Angle 50°	3.67	4.31	3.15	1.16
Elevation Angle 40°	2.50	3.47	1.84	1.63
Elevation Angle 30°	1.04	2.31	0.26	2.05
Elevation Angle 25°	0.04	1.25	-0.90	2.15
Elevation Angle 20°	-0.26	1.46	-1.49	2.95

UNLESS OTHER SPECIFIED TOLERANCES ON :

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



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## 2.4 Antenna on 1 m Ground:

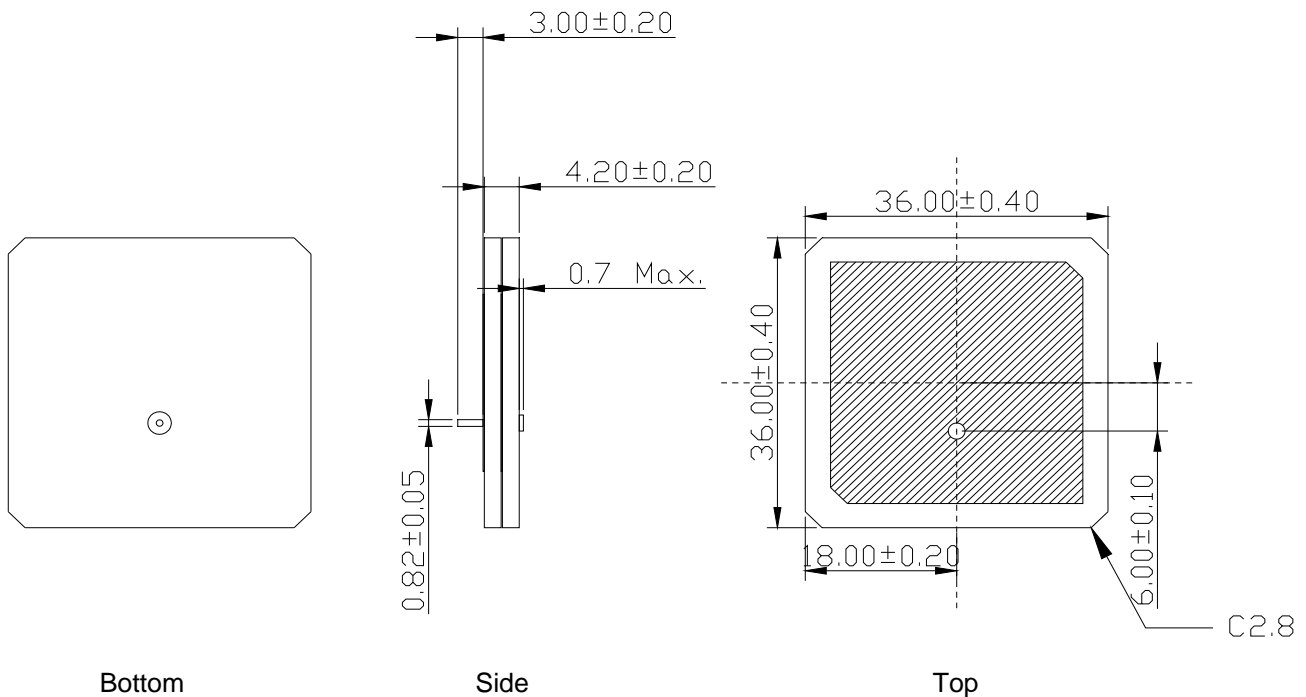


## 3. Typical Electrical Properties

Characteristics	Specification	Unit	Conditions
Center Frequency	2390±10	MHz	By Test Ground Plane
Polarization	LHCP		
Impedance	(46.71±8)+j(4.06±8)	dB	By Test Ground Plane
Frequency Temperature Coefficient	0±20	ppm/°C	-40°C to +85°C

## 4. Dimension

Unit : mm



UNLESS OTHER SPECIFIED TOLERANCES ON :

 $X = \pm$        $X.X = \pm$        $X.XX = \pm$ 

ANGLES = ±      HOLEDIA = ±

SCALE :      UNIT : mm

DRAWN BY : 羅孟仙      CHECKED BY : 馬敏勝

DESIGNED BY : 鄭大福      APPROVED BY : 曾源標

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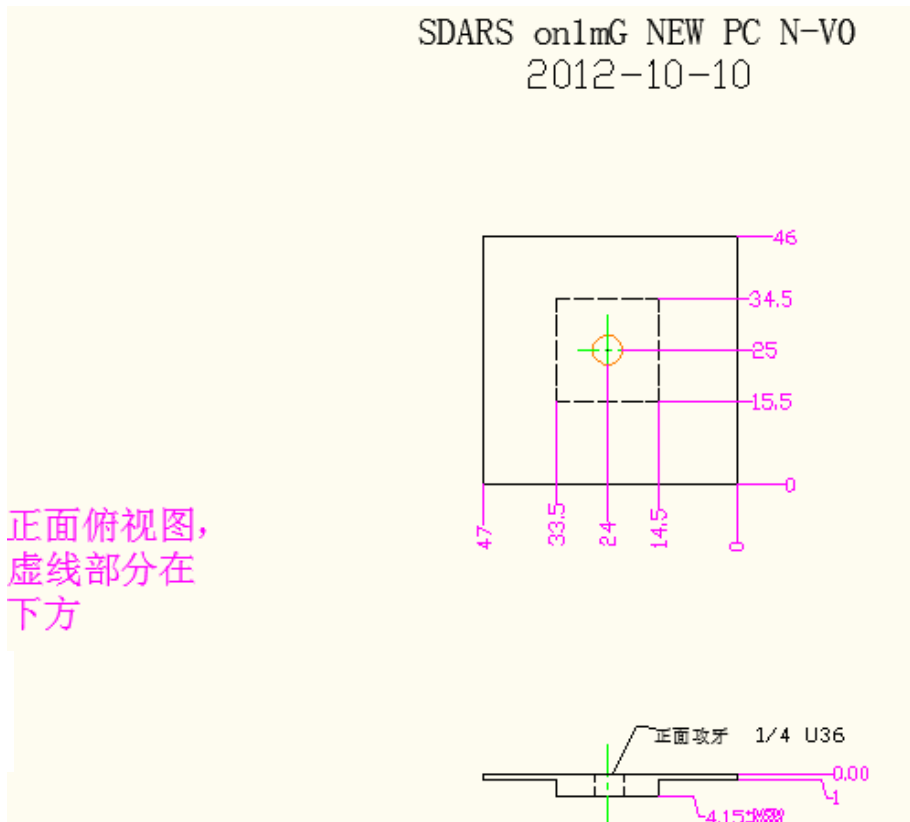
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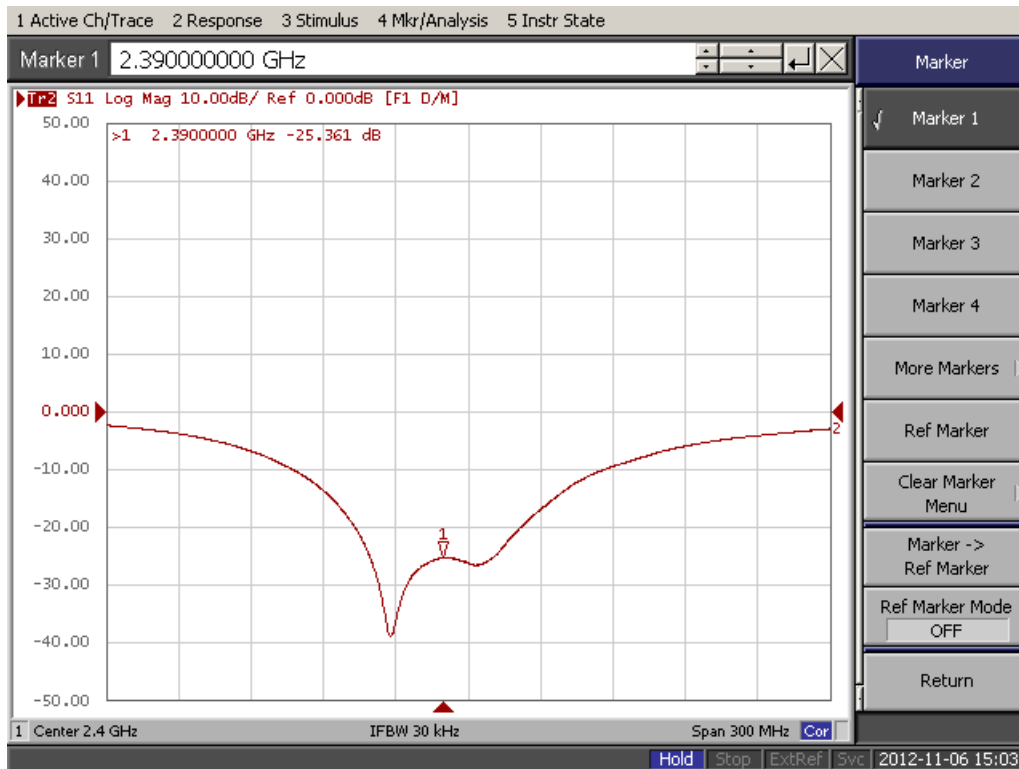
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### 5. The Test Ground Plane



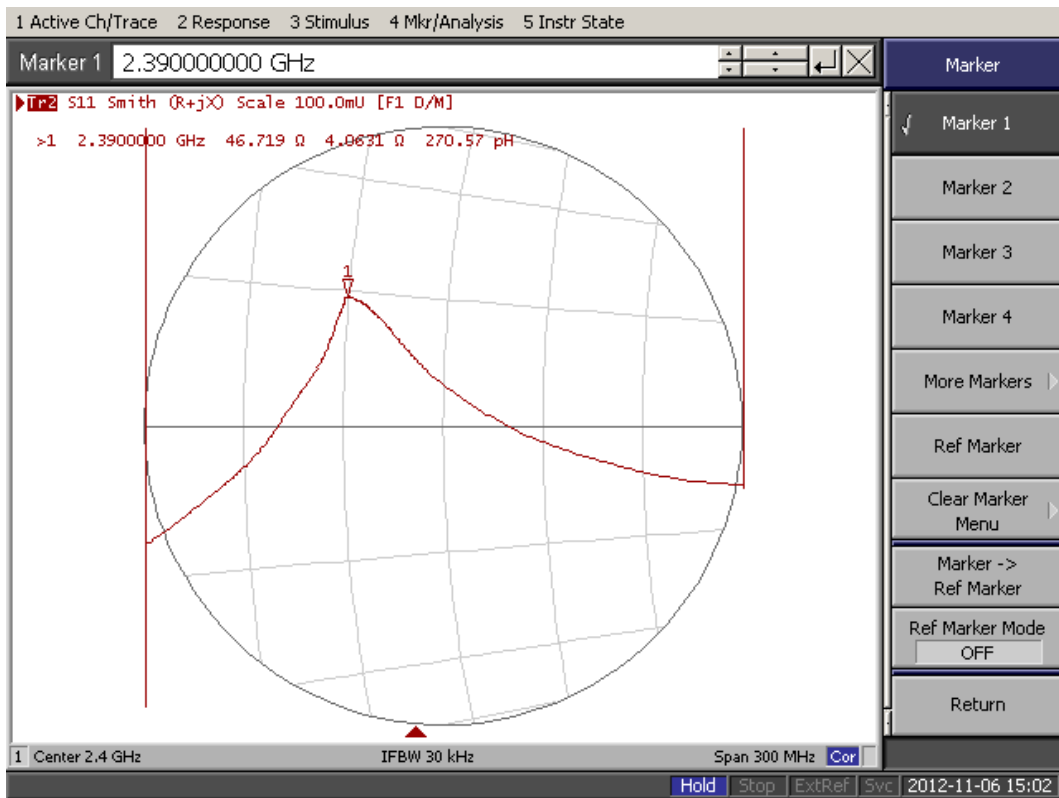
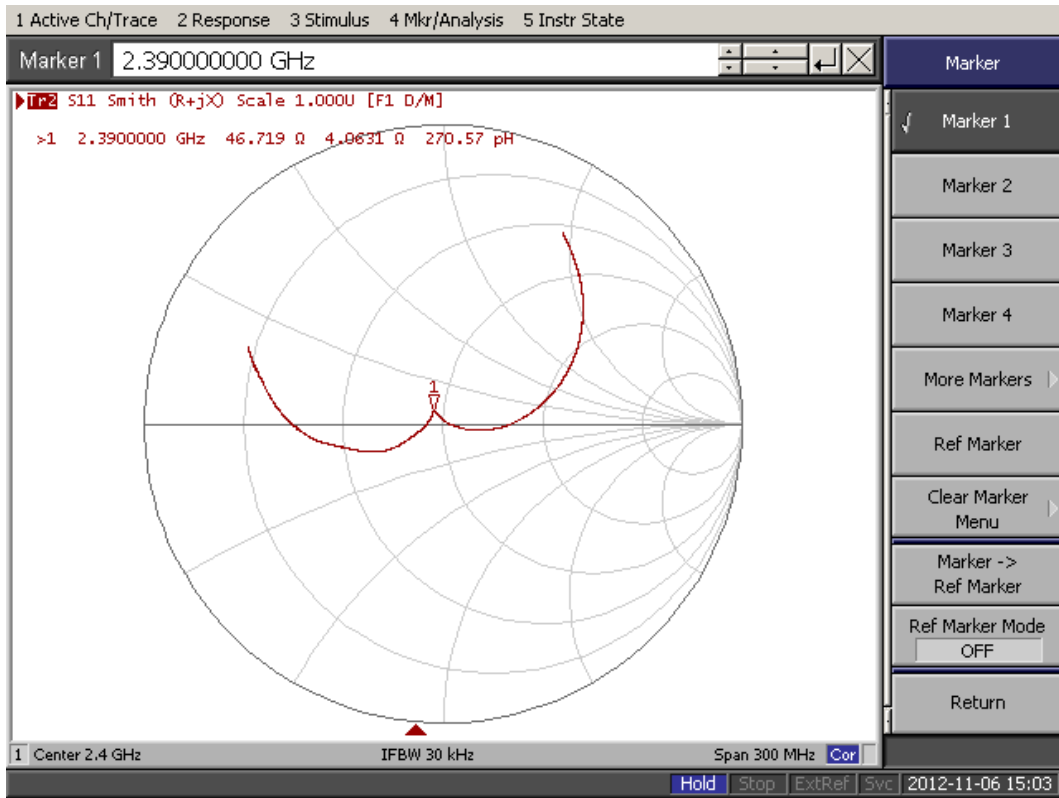
### 6. Return Loss Characteristics



UNLESS OTHER SPECIFIED TOLERANCES ON :	
X=±	X.X=±
ANGLES=±	X.XX=±
	HOLEDIA=±
SCALE :	UNIT : mm
DRAWN BY : 羅孟仙	CHECKED BY : 馬敏勝
DESIGNED BY : 鄭大福	APPROVED BY : 曾源標
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### 7. Measured Input Impedance on a Smith Chart



UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±	X.X=±	X.XX=±
ANGLES=±	HOLEDIA=±	
SCALE :	UNIT : mm	
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### 8. Explanation of Appendix

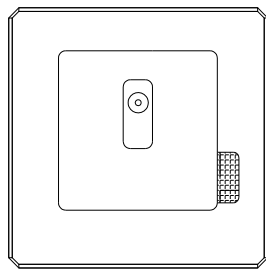
P A S 2 3 3 3 M F 4 G - 1 1 3 -  $\frac{1}{(1)}$   $\frac{8}{(2)}$   $\frac{M}{(3)}$

(1) Pin = 3 mm

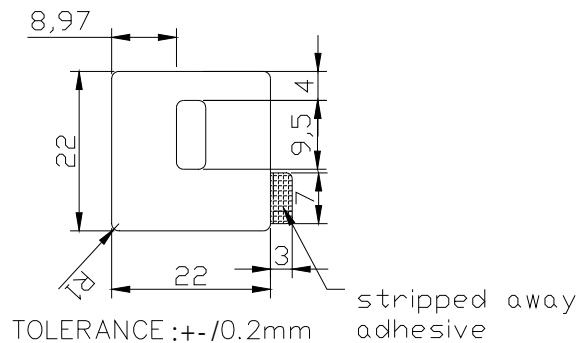
(2) Adhesive Tape for Customer **8** 22x22mm

Adhesive Transfer Tape Specification

- 2.1 TAPE : Nitto 5000NS 22x22x0.16mm
- 2.2 Thickness : 0.16 mm
- 2.3 Release Liner : 0.1mm (typ.) printed paper or paper
- 2.4 Dimension : mm





Unit:mm

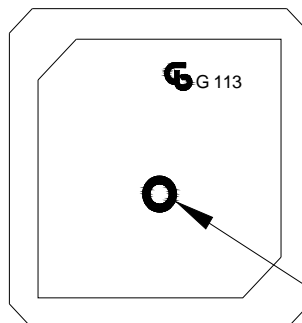


(3) Option appendix **M** Marking

Marking configuration

- 3.1 Logo  for INPAQ Logo
- 3.2 Type  for green product antenna
- 3.3 Three digits are the code of our project number

**113**



provide solder ring

UNLESS OTHER SPECIFIED TOLERANCES ON :	
X=±	X.X=±
ANGLES=±	X.XX=±
SCALE :	HOLEDIA=±
DRAWN BY : 羅孟仙	UNIT : mm
DESIGNED BY : 鄭大福	CHECKED BY : 馬敏勝
TITLE : PAS2333MF4G-113-18M	APPROVED BY : 曾源標
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