

APPROVAL SHEET

FPC ANTENNA

**698~960/1390~1435/1575/1710~2170/
2400~2700/3400~3600/4800~6000MHz**

Working Frequency

Halogens Free Product

P/N: RFFPA125015IMMB901

Customer : _____
Customer 's Part No. : _____
Production : _____
Address : _____

*Contents in this sheet are subject to change without prior notice.

Version	Date	Description	Author
V01	2019 Oct.	New Release	CXLIU

ELECTRICAL CHARACTERISTICS

Item	Specification
Working Frequency Range	698~960/1390~1435/1575/1710~2170/ 2400~2700/3400~3600/4800~6000MHz (Note-1)
VSWR	698~960/1390~1435/1575/1710~2170/ 2400~2700/3400~3600@<2 4800~6000MHz @<3
Return Loss	-10dB(Max)
Peak Gain	698~690MHz@2.78 dBi 1390~1435 MHz@3.52 dBi 1575 MHz@4.25 dBi 1710~2170 MHz@3.88 dBi 2400~2700 MHz@3.42 dBi 3400~3600 MHz@4.08 dBi 4800~6000 MHz@4.88 dBi
Polarization	Linear
Radiation Pattern	Omni-directional
Impedance	50Ω
Operation Temperature	-20° C~+65° C

*Note 1. Central Frequency should be defined after customers' application approval.

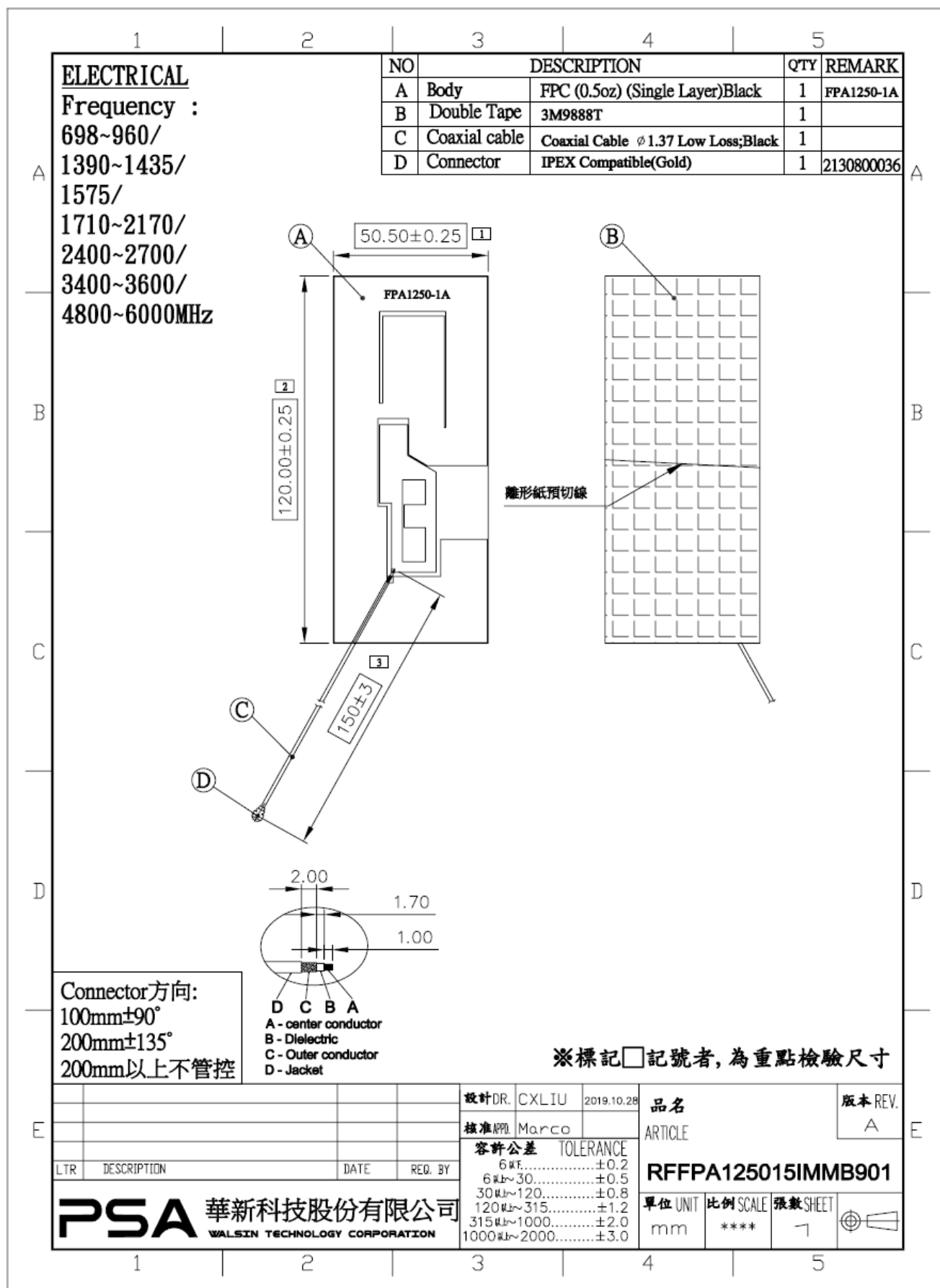
MATERIAL TABLE

Items	Description
Antenna	FPC (單面黑漆)
Double Tape	3M9888T
Cable	Coaxial Cable ϕ 1.37 Low Loss (Black)
Connector	IPEX Compatible (Gold)

ORDERING RULE

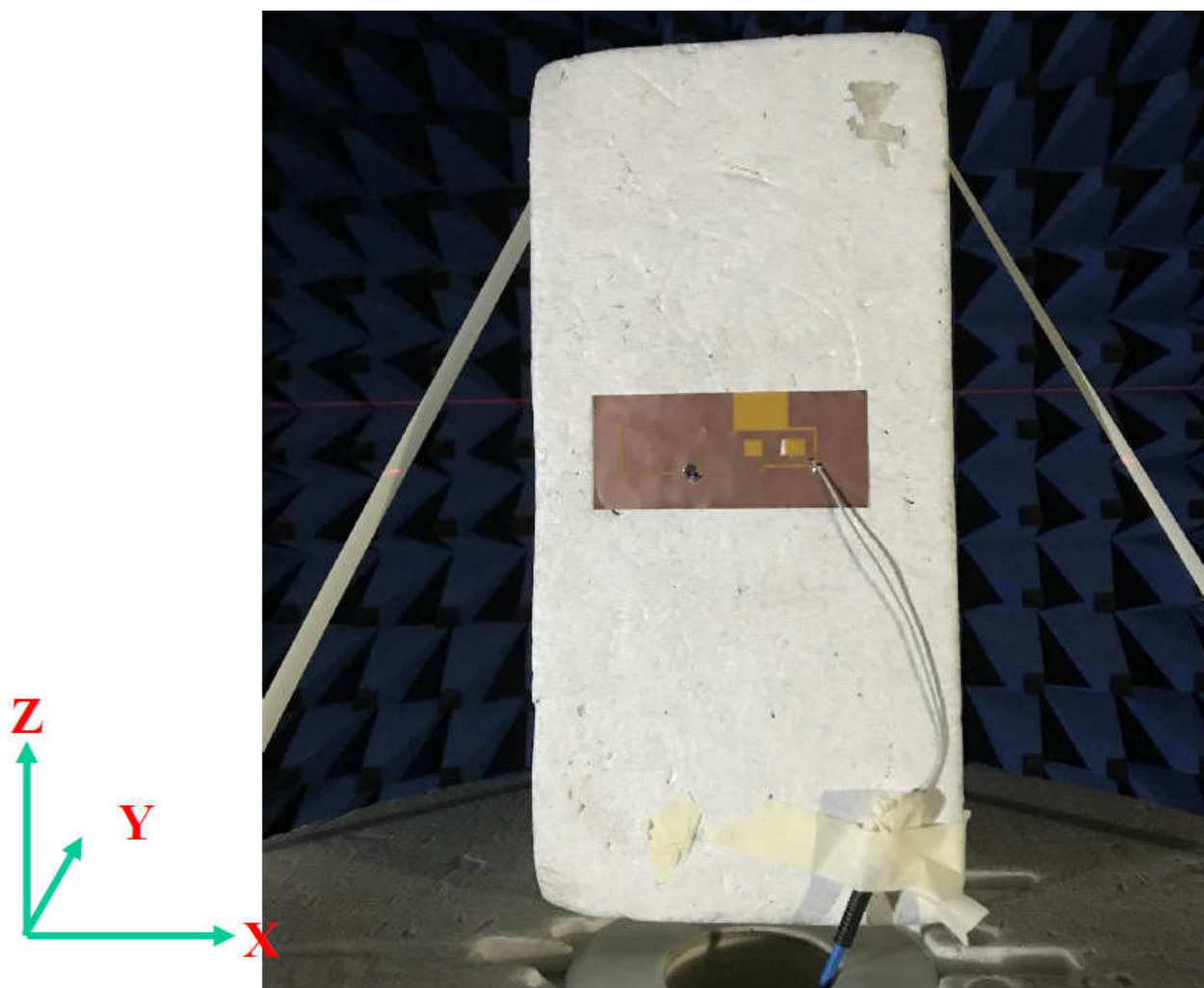
RF	FPA	1250	15	I	M	M	B	9	01
Type Code	Product Code	FPCB Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	FPC Antenna	Per 2 digits of length, width e.g.: 1250 Length 120.0mm, Width 50.0mm	2 digits for cable length e.g.: 15 Cable Length:15cm	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: Reverse Male F: Female M: Male N: None	0: 0GHz 3: 3GHz 5: 5 GHz 6: 6GHz A: 2.4GHz ISM band B: GSM 900/1800 dual band G: GPS band L: 2.4/5.x GHz tri-band N: NFC band T:LTE band M: LTE+Sub-6G+5G	B: MP T:During Test X: Pile Run	0:None 1:Ø0.81 3:Ø1.13 6:RG316 7:Ø1.37 8:RG178 9: Low LossØ1.37	01~99 series number

DIMENSIONS



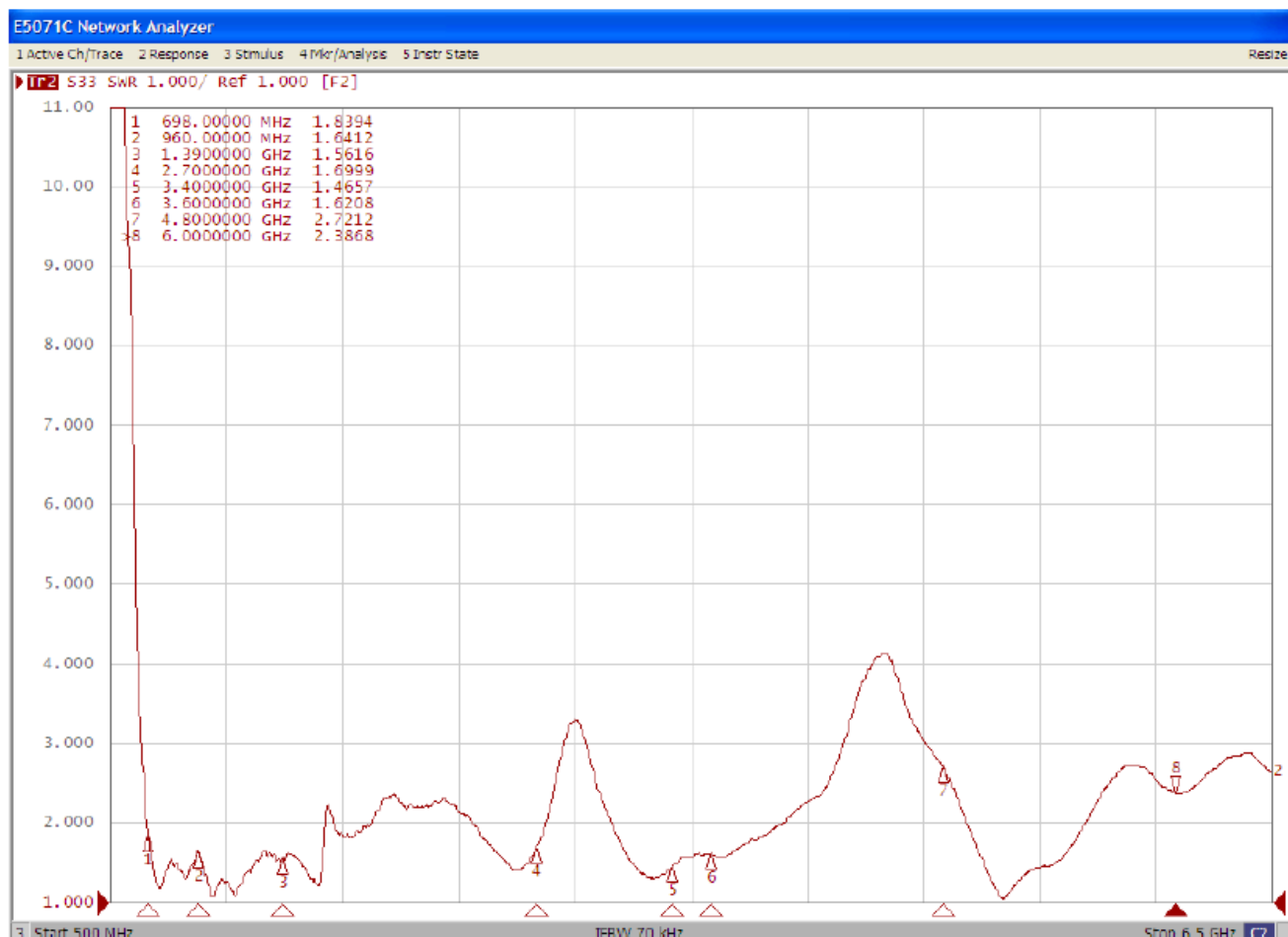
Test Report

■ Experimental Setup



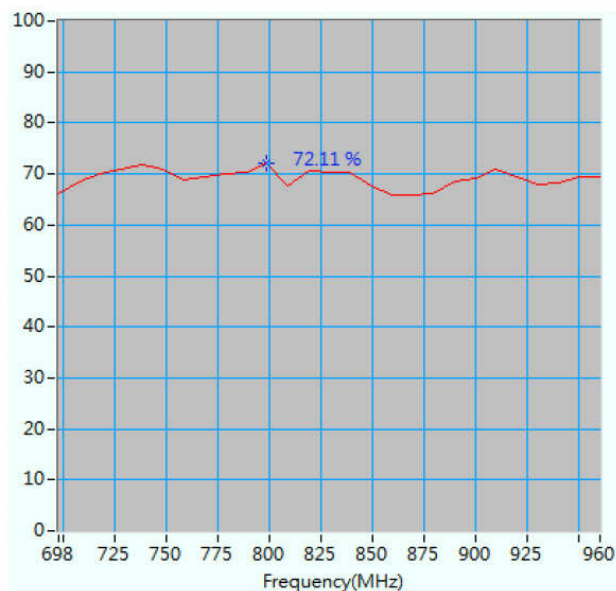
ELECTRICAL CHARACTERISTICS

VSWR

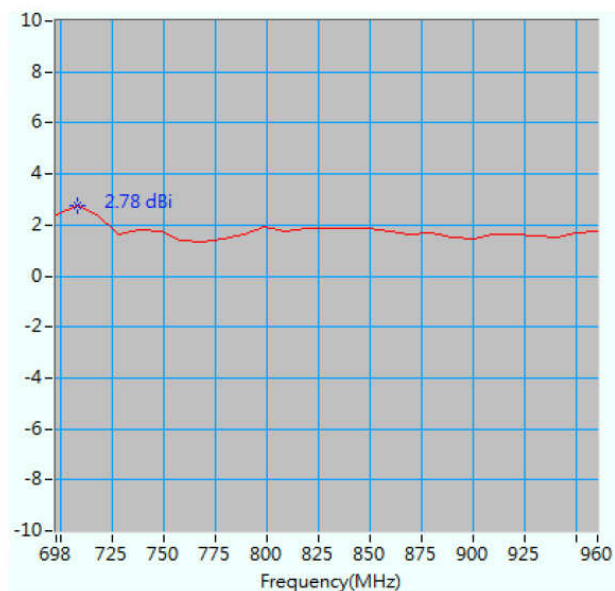


Efficiency & Peak Gain

698-960 MHz

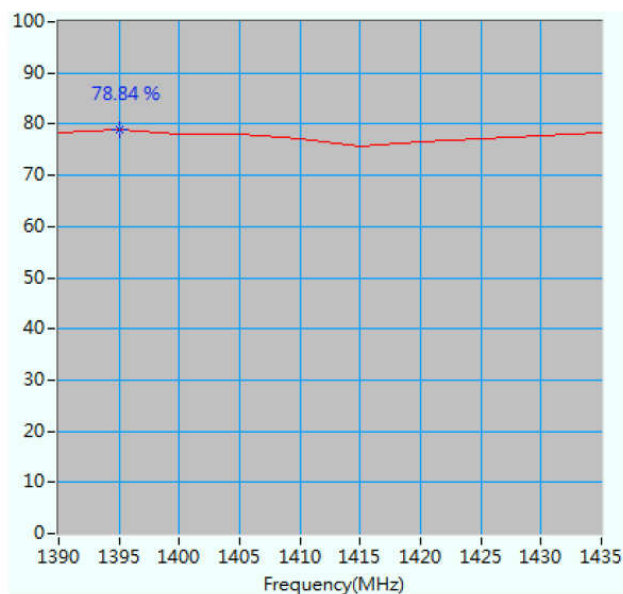


Maximum Efficiency at 800 MHz : 72.1 %

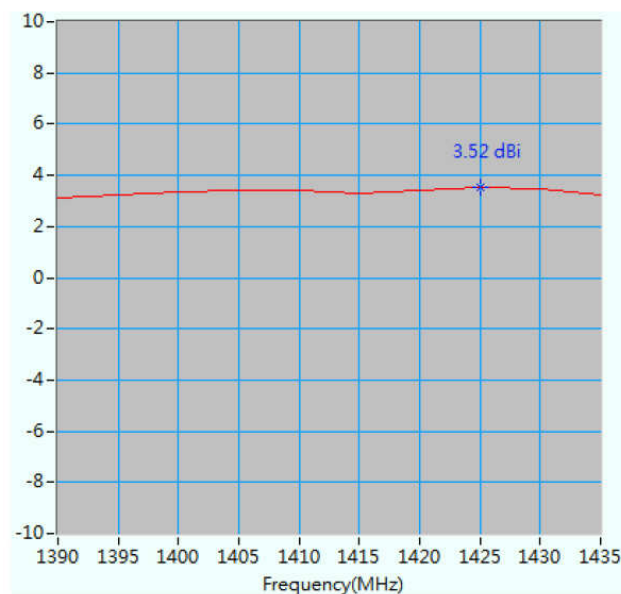


Maximum Peak Gain at 708 MHz : 2.78 dBi

1390-1435 MHz

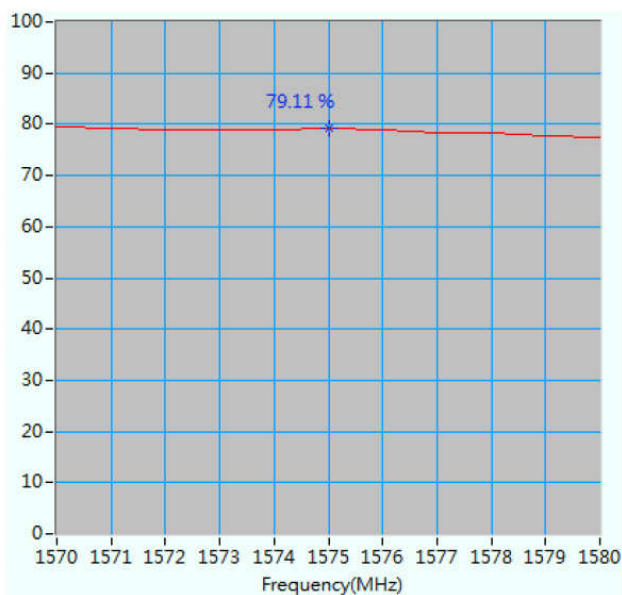


Maximum Efficiency at 1395 MHz : 78.8 %

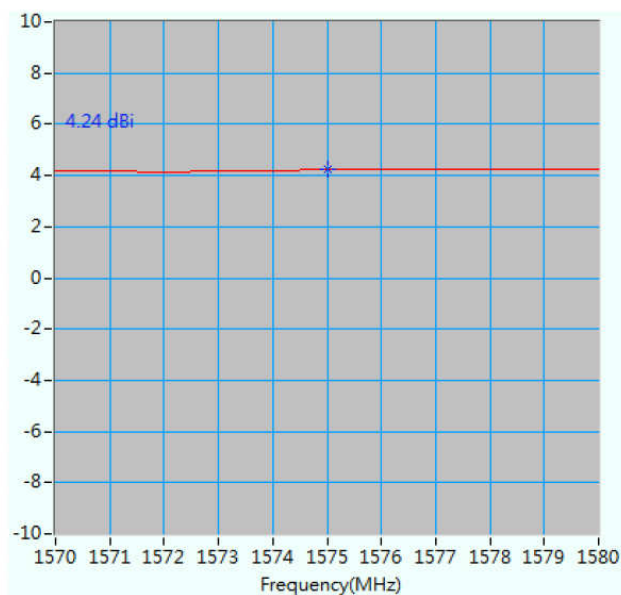


Maximum Peak Gain at 1425 MHz : 3.52 dBi

1575 MHz

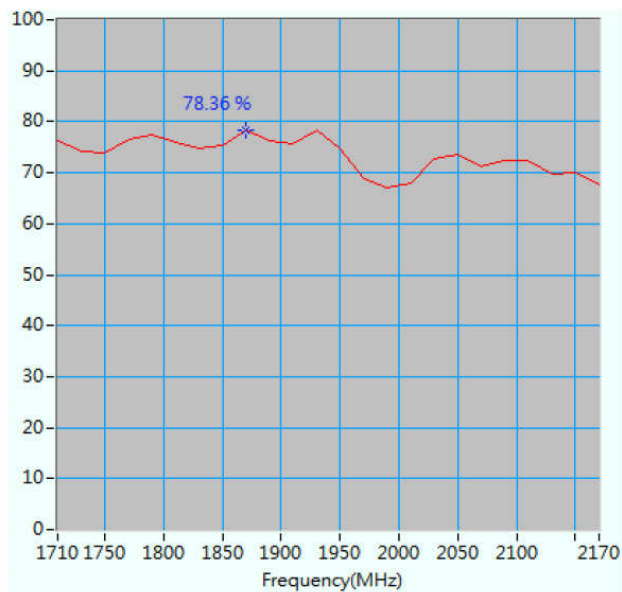


Maximum Efficiency at 1575 MHz : 79.1 %

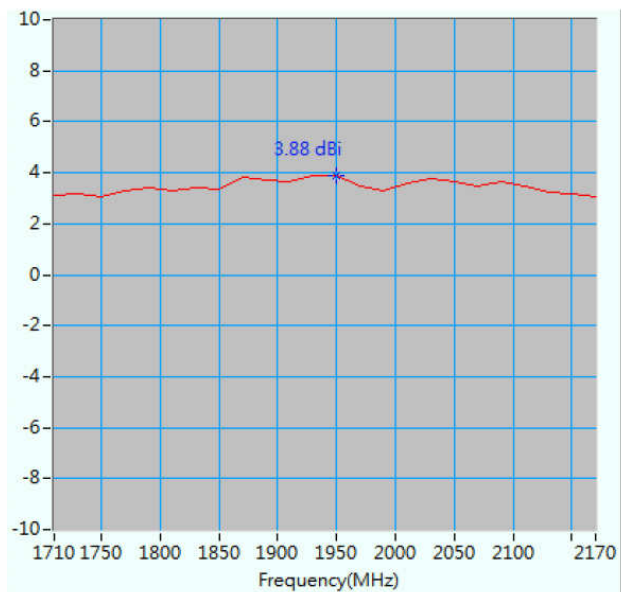


Maximum Peak Gain at 1575 MHz : 4.24 dBi

1710-2170 MHz

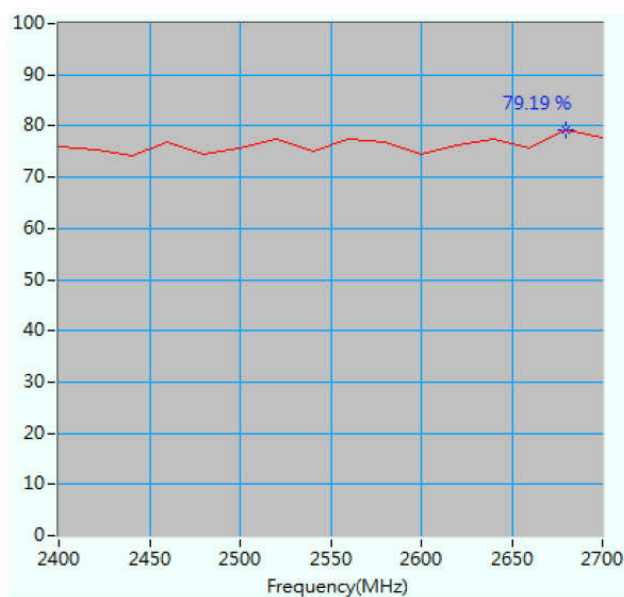


Maximum Efficiency at 1870 MHz : 78.3 %

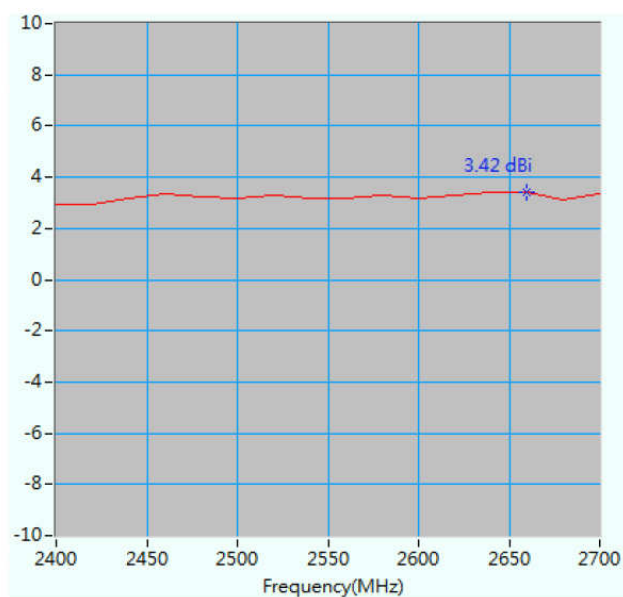


Maximum Peak Gain at 1950 MHz : 3.88 dBi

2400-2700 MHz

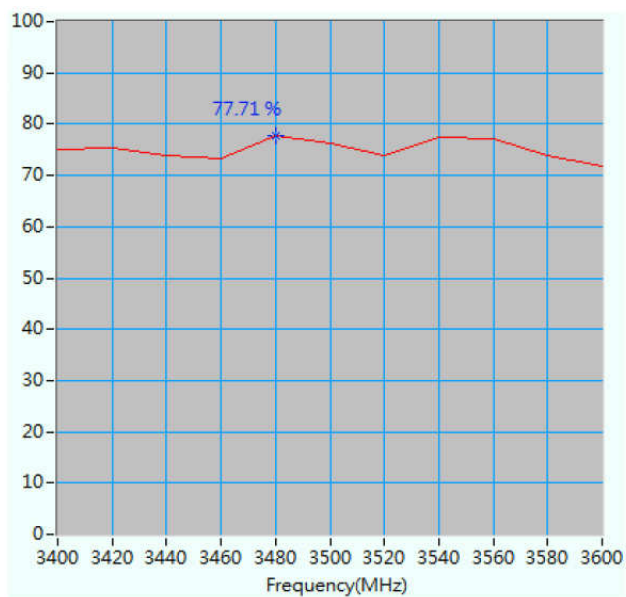


Maximum Efficiency at 2680 MHz : 79.1 %

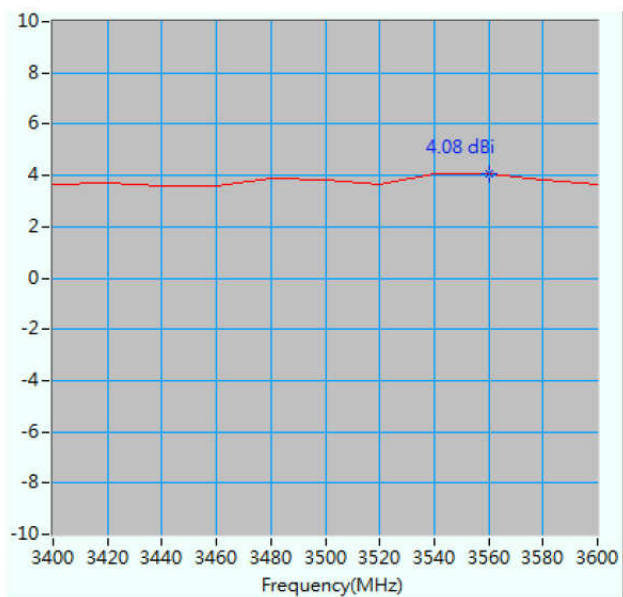


Maximum Peak Gain at 2640 MHz : 3.42 dBi

3400-3600 MHz

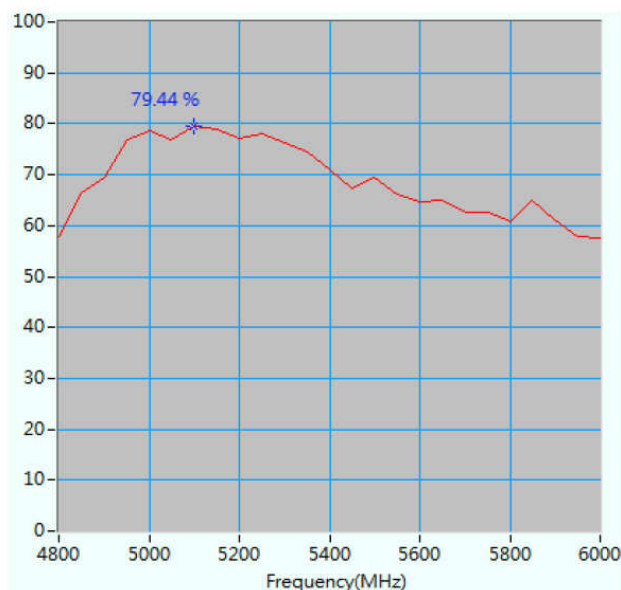


Maximum Efficiency at 3480 MHz : 77.7 %

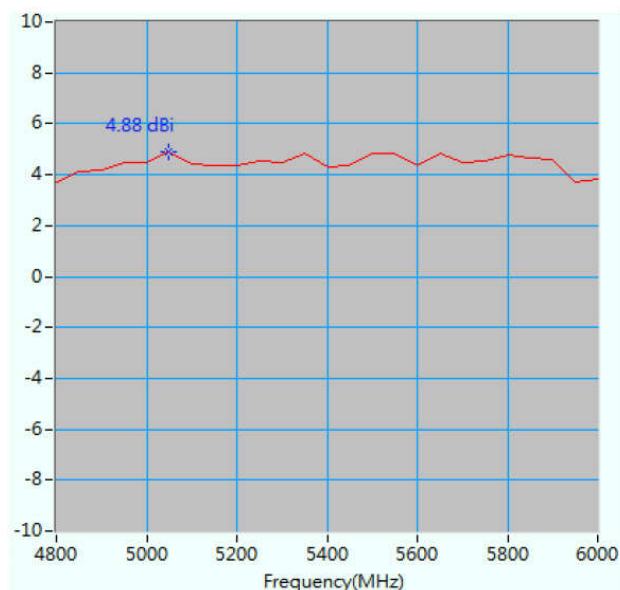


Maximum Peak Gain at 3560 MHz : 4.08 dBi

4800-6000 MHz



Maximum Efficiency at 5100 MHz : 79.4 %



Maximum Peak Gain at 5050 MHz : 4.88 dBi

698-960MHz		
Frequency (MHz)	Efficiency (%)	Peak gain (dBi)
698	66.1	2.39
849	67.6	1.85
960	69.4	1.77

1390-1435MHz		
Frequency (MHz)	Efficiency (%)	Peak gain (dBi)
1390	78.3	3.12
1415	75.6	3.27
1435	78.2	3.25

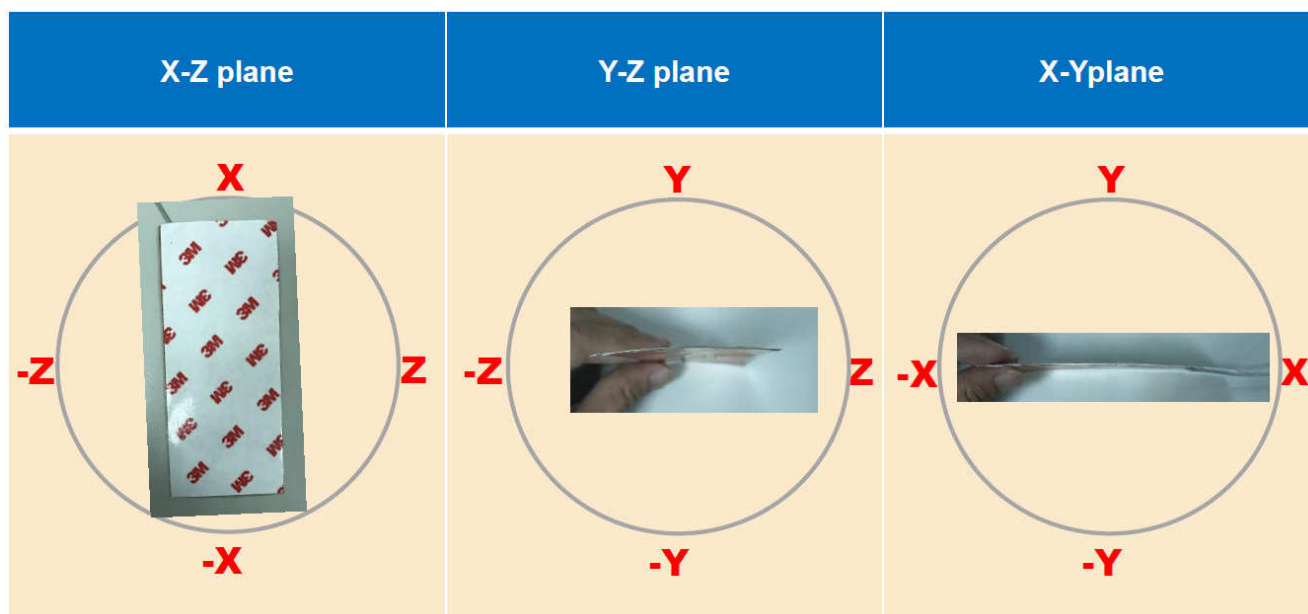
1575MHz		
Frequency (MHz)	Efficiency (%)	Peak gain (dBi)
1575	79.1	4.24

1710-2170MHz		
Frequency (MHz)	Efficiency (%)	Peak gain (dBi)
1710	76.3	3.14
1970	68.7	3.48
2170	67.7	3.07

	2400-2700MHz	
Frequency (MHz)	Efficiency (%)	Peak gain (dBi)
2400	75.8	2.94
2560	77.4	3.17
2700	77.7	3.34

	3400-3600MHz	
Frequency (MHz)	Efficiency (%)	Peak gain (dBi)
3400	74.9	3.64
3500	76.3	3.80
3600	71.9	3.64

	4800-6000MHz	
Frequency (MHz)	Efficiency (%)	Peak gain (dBi)
4800	58.1	3.72
5500	69.4	4.82
6000	57.8	3.79

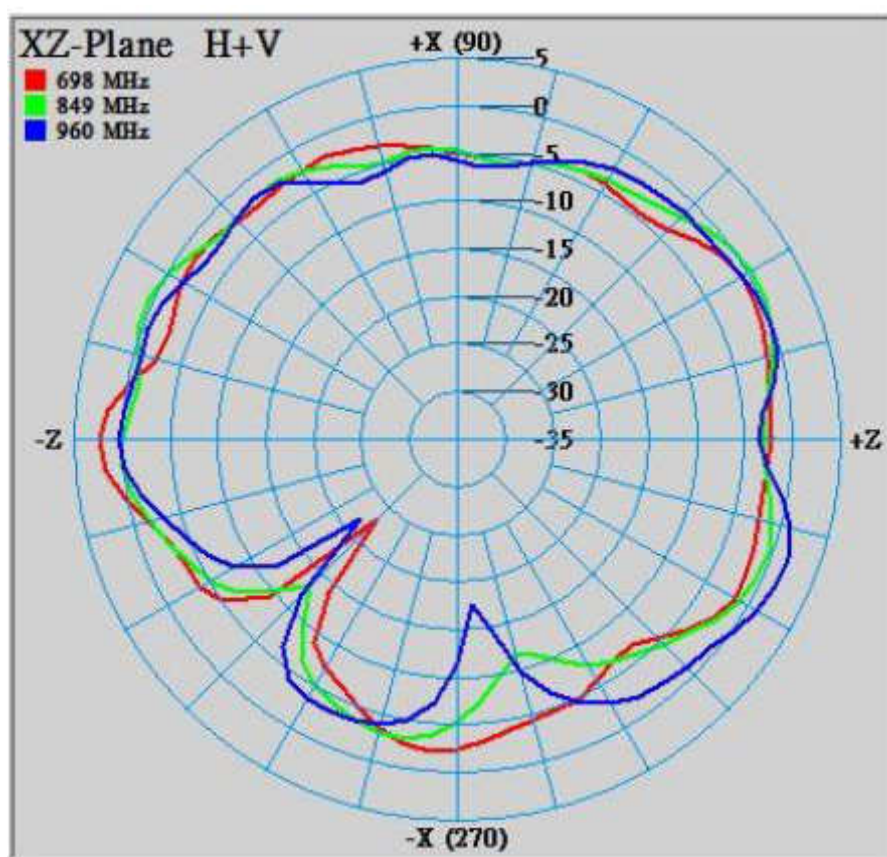
3 Views of antenna

RADIATION PATTERN

698-960MHz

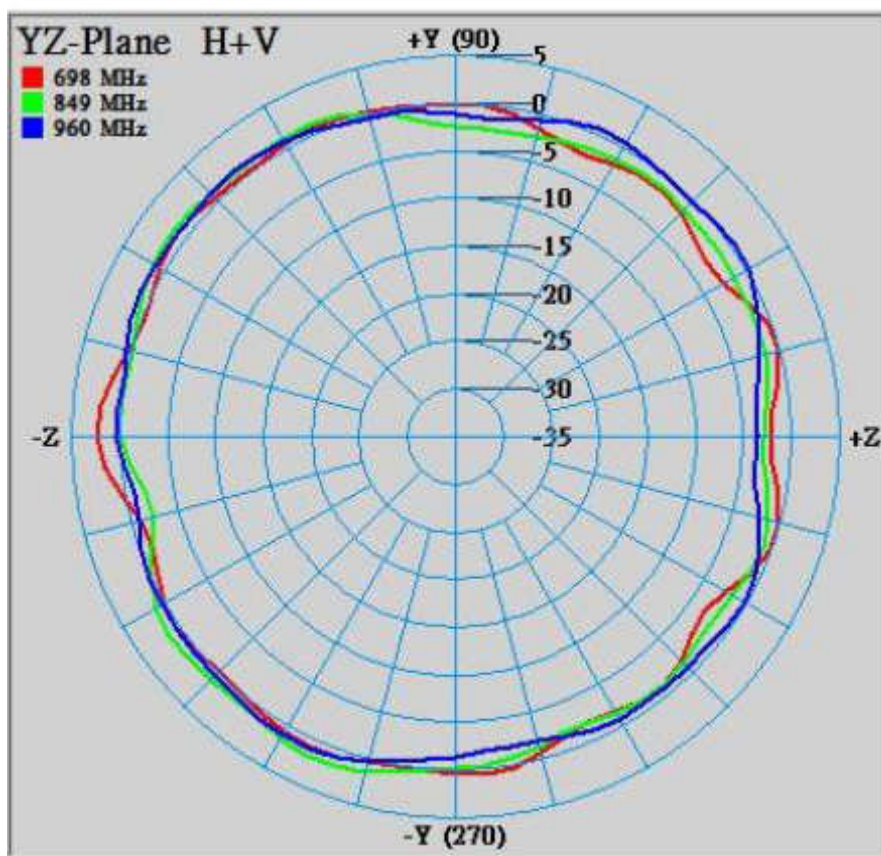
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Gain . dB



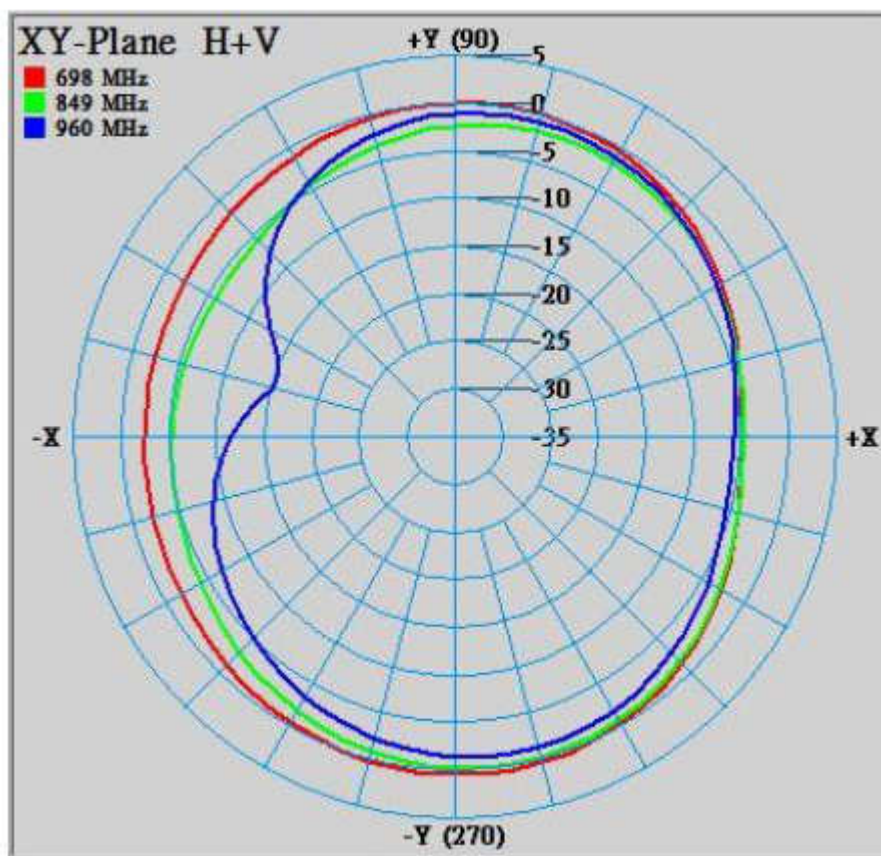
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Gain . dB



Theta=90.00deg

Gain . dB

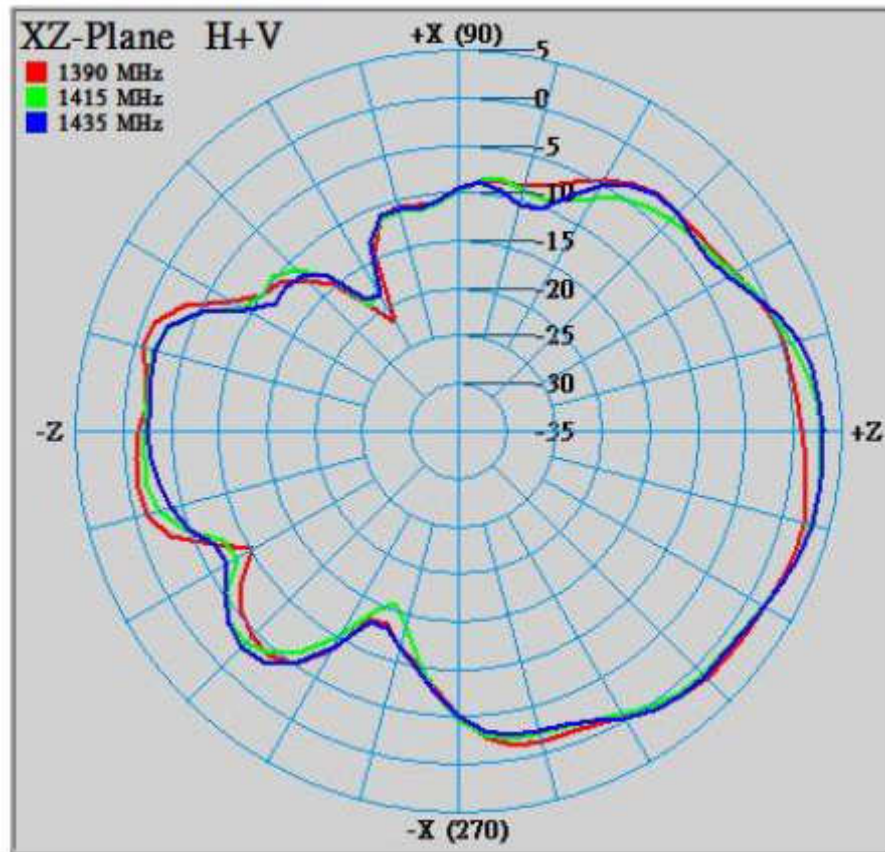


	ZX plane		ZY plane		XY plane	
Frequency [MHz]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
698	2.34	-2.83	2.37	-0.37	0.51	-1.34
849	0.48	-2.78	1.85	-0.42	-0.11	-2.82
960	1.75	-2.55	1.19	-0.29	-0.80	-3.63

1390-1435MHz

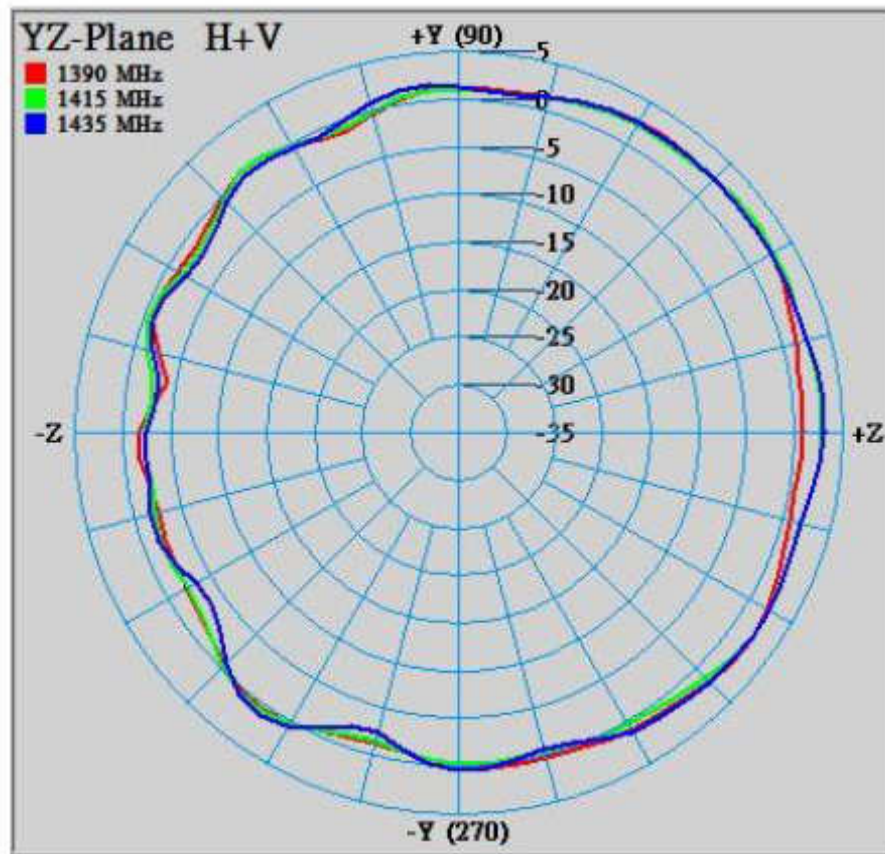
Phi=0.00deg

Gain . dB



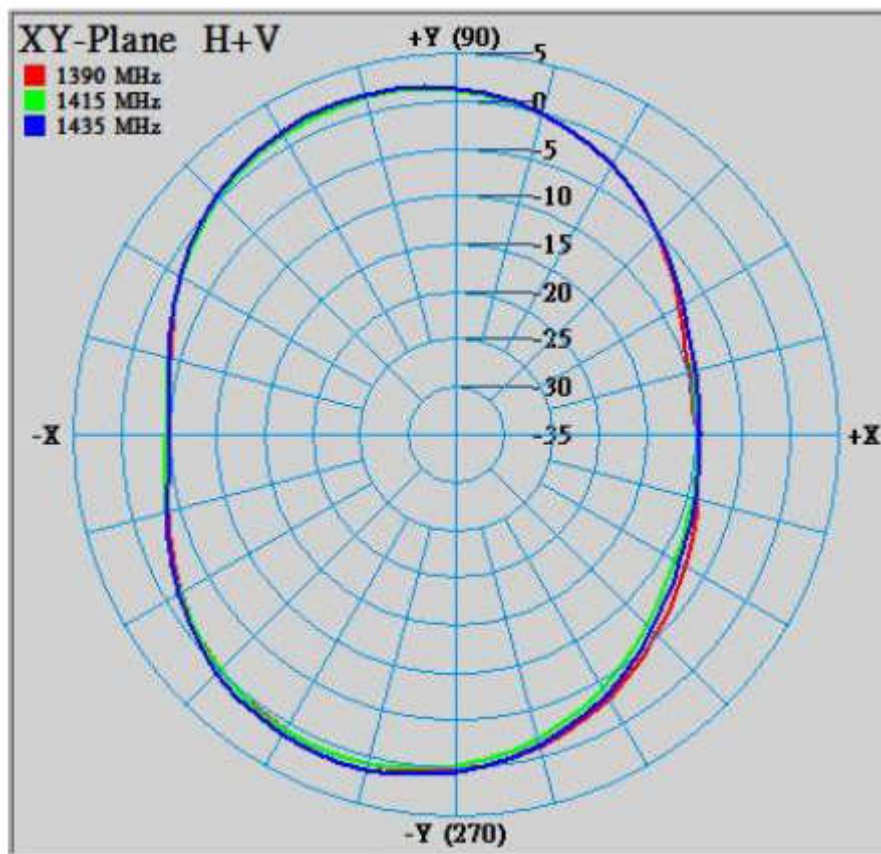
$\Phi = 90.00^\circ$

Gain . dB



Theta=90.00deg

Gain . dB

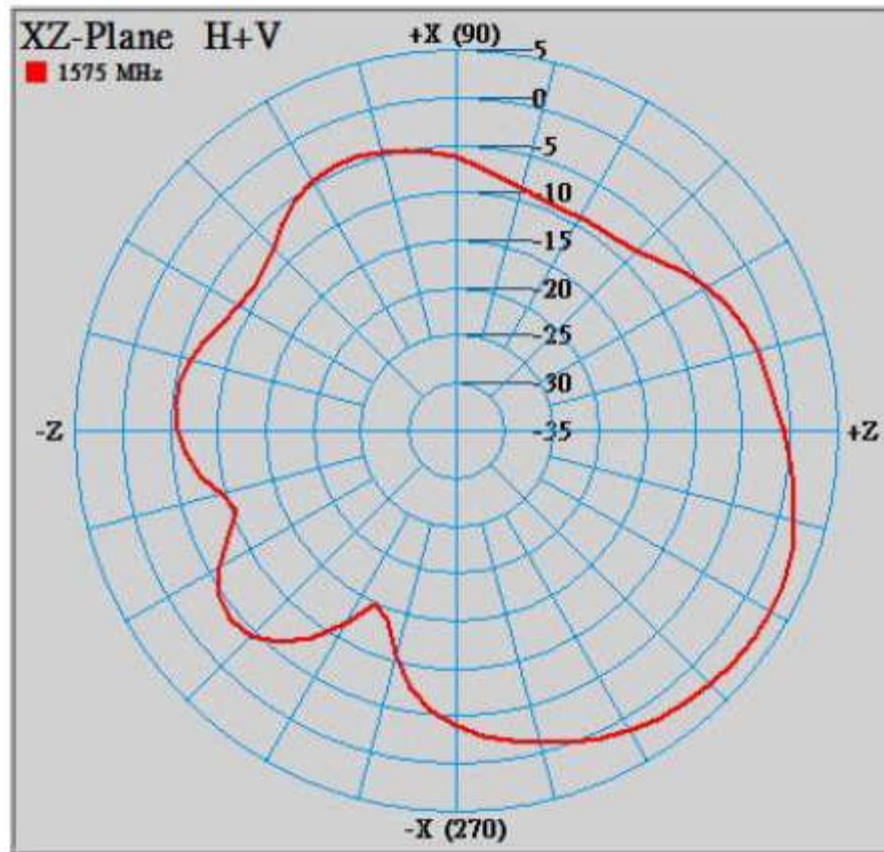


	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
1390	2.36	-2.38	2.78	0.53	1.86	-1.70
1415	3.10	-2.33	2.98	0.69	1.58	-1.89
1435	3.21	-2.16	3.08	0.73	1.93	-1.54

1575MHz

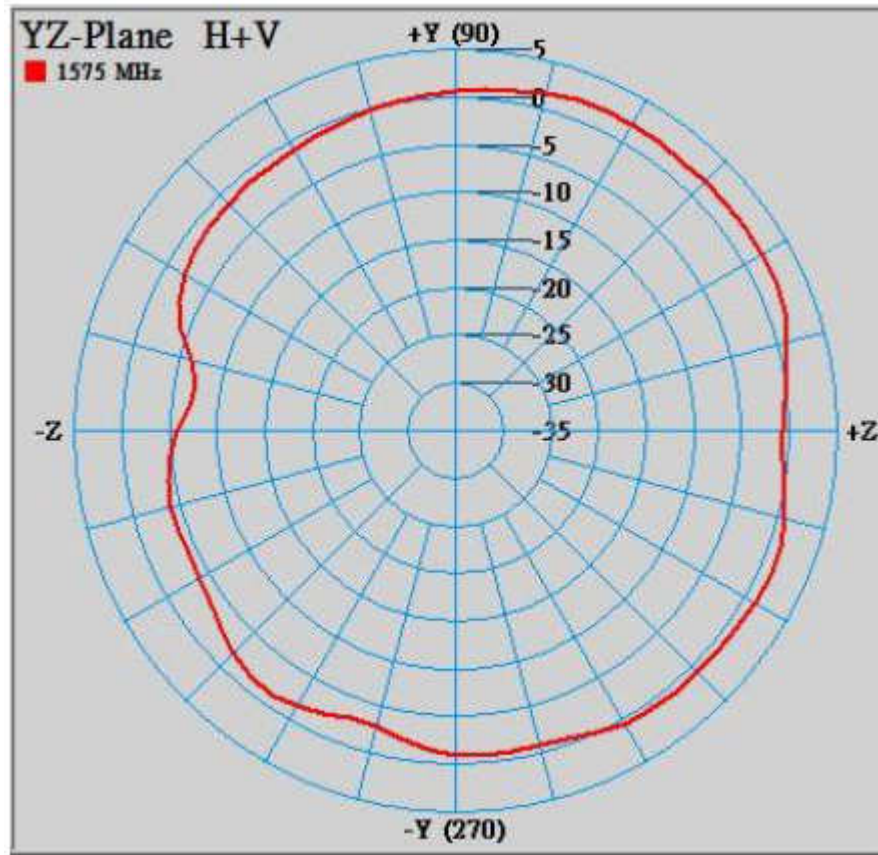
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Gain . dB



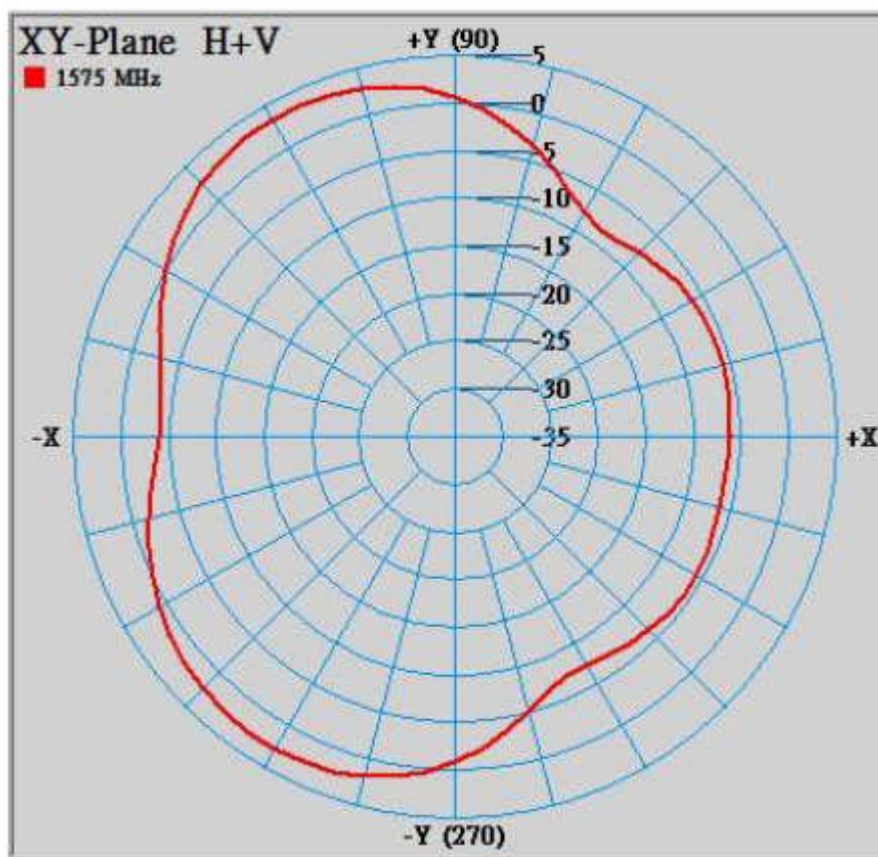
$\Phi = 90.00^\circ$

Gain . dB



Theta=90.00deg

Gain . dB

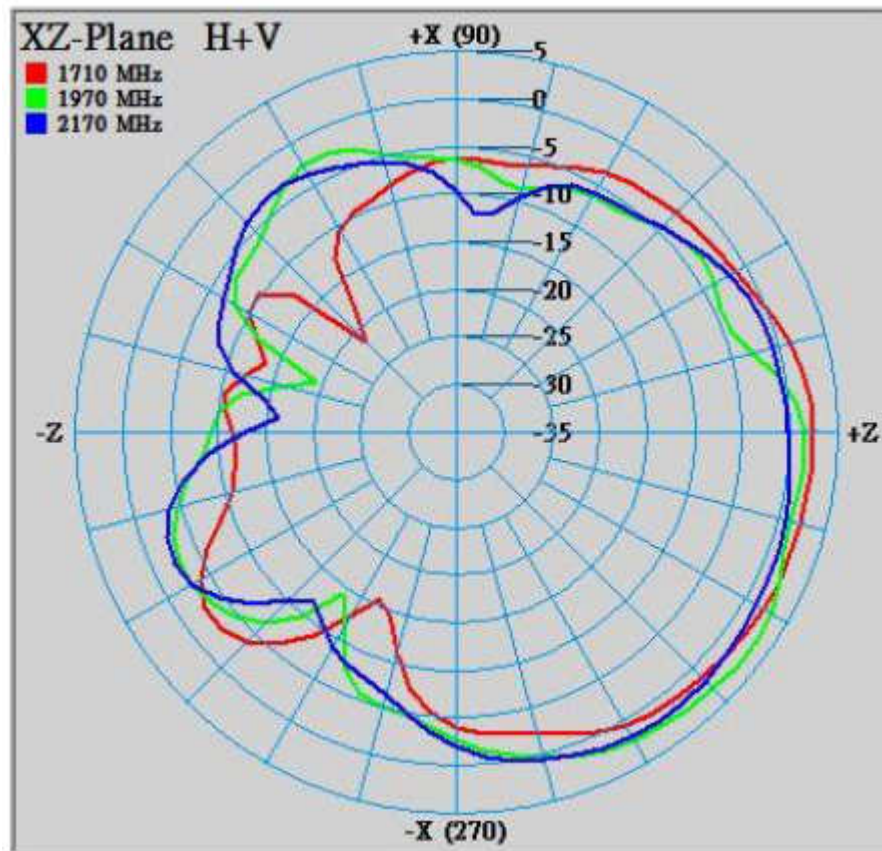


	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
Frequency [MHz]						
1575	3.06	-2.78	2.13	-0.37	3.42	-0.92

1710-2170MHz

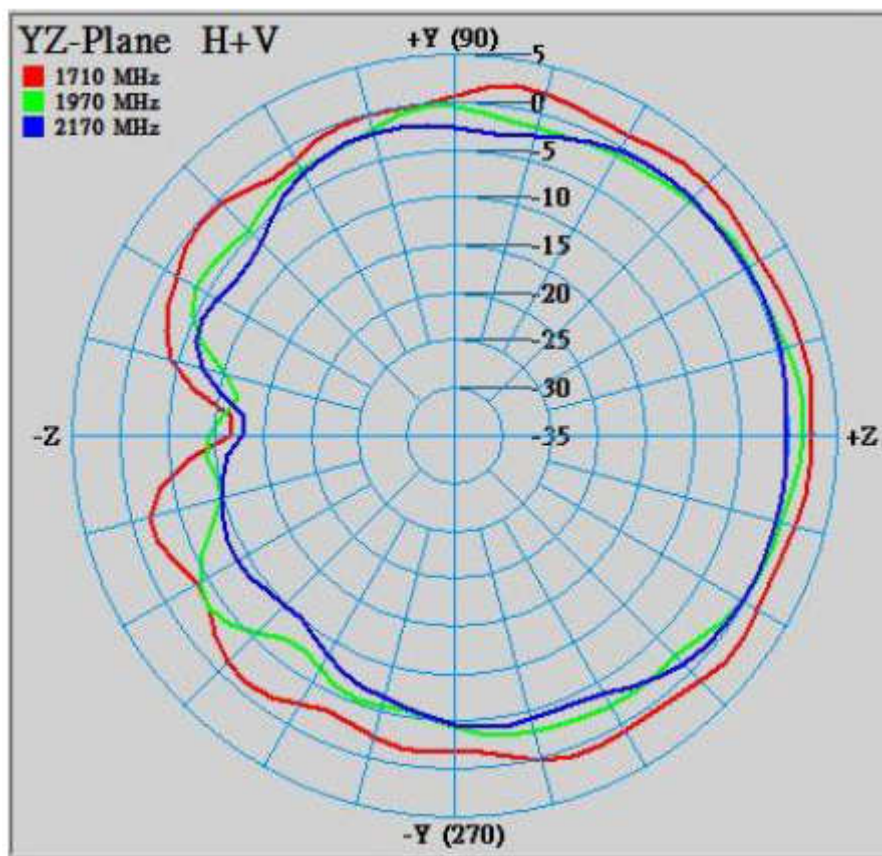
Phi=0.00deg

Gain . dB



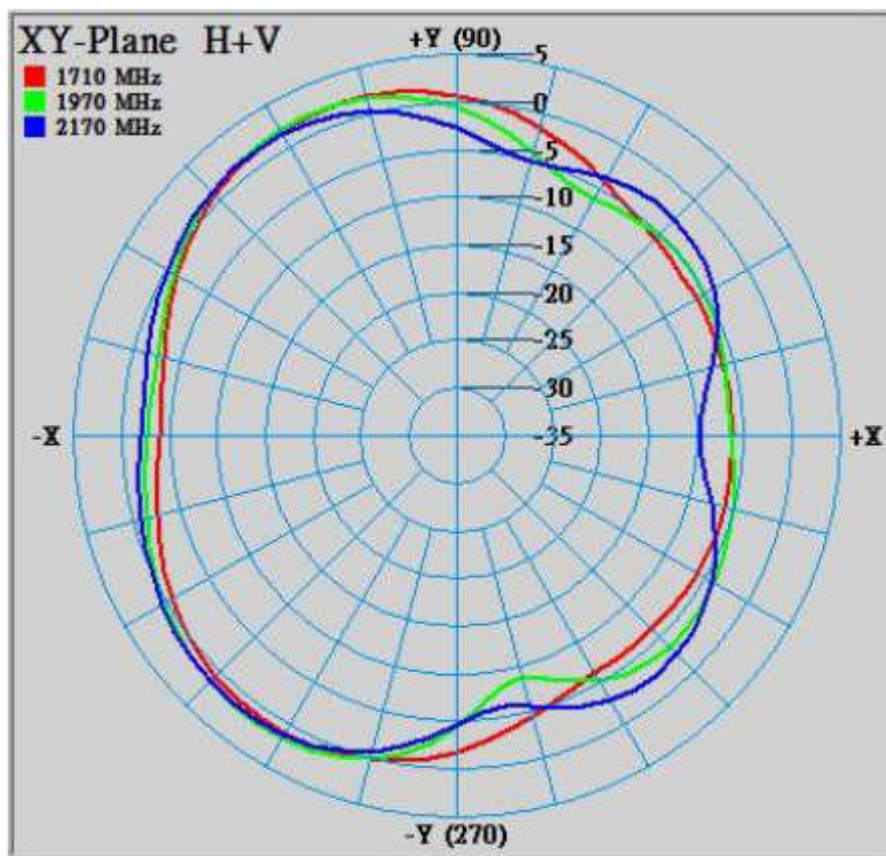
Phi=90.00deg

Gain . dB



Theta=90.00deg

Gain . dB

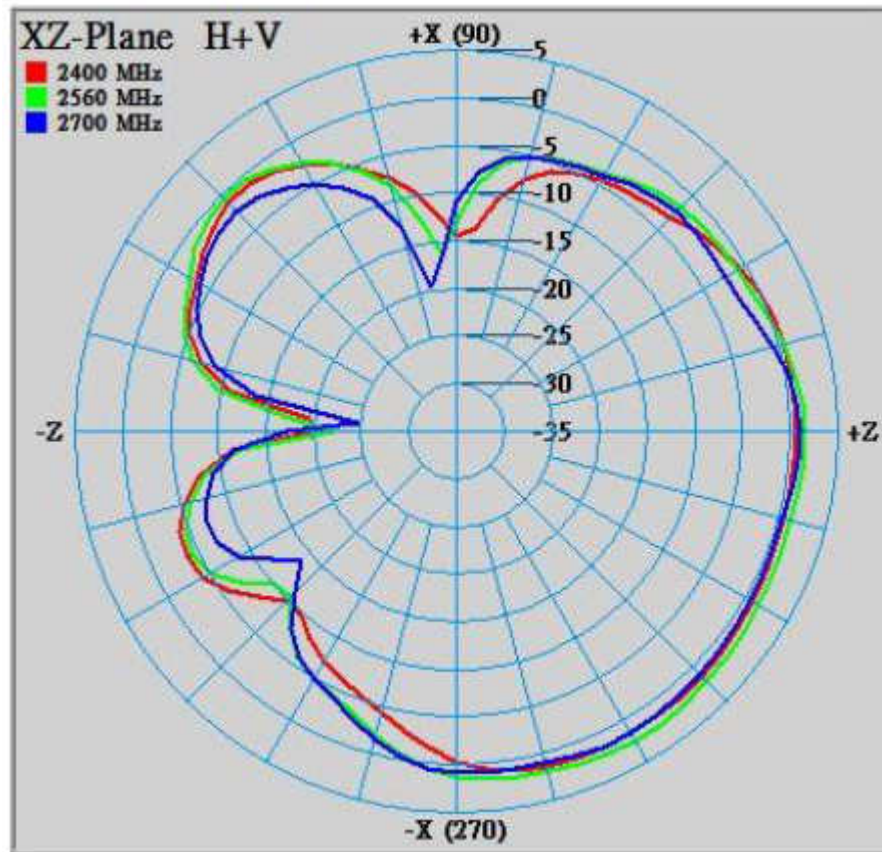


Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
1710	2.46	-2.45	2.64	0.14	1.95	-1.82
1970	3.38	-2.10	1.63	-2.14	2.08	-1.68
2170	2.09	-2.52	0.43	-2.87	1.55	-1.71

2400-2700MHz

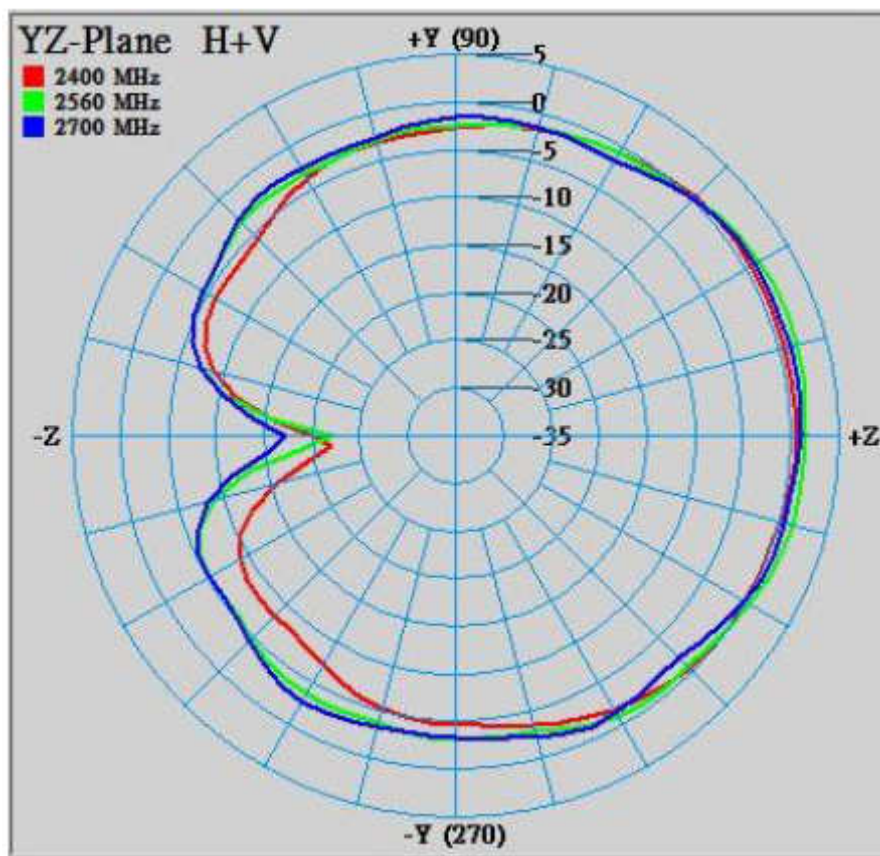
 $\Phi = 0.00^\circ$

Gain . dB



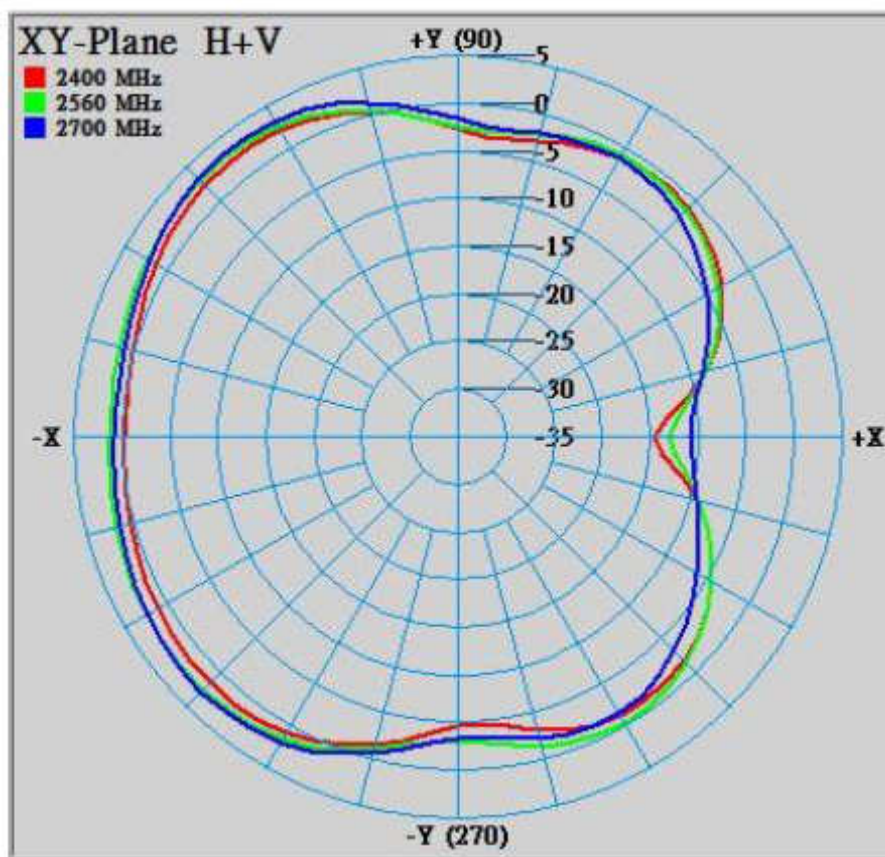
$\Phi = 90.00^\circ$

Gain . dB



Theta=90.00deg

Gain . dB

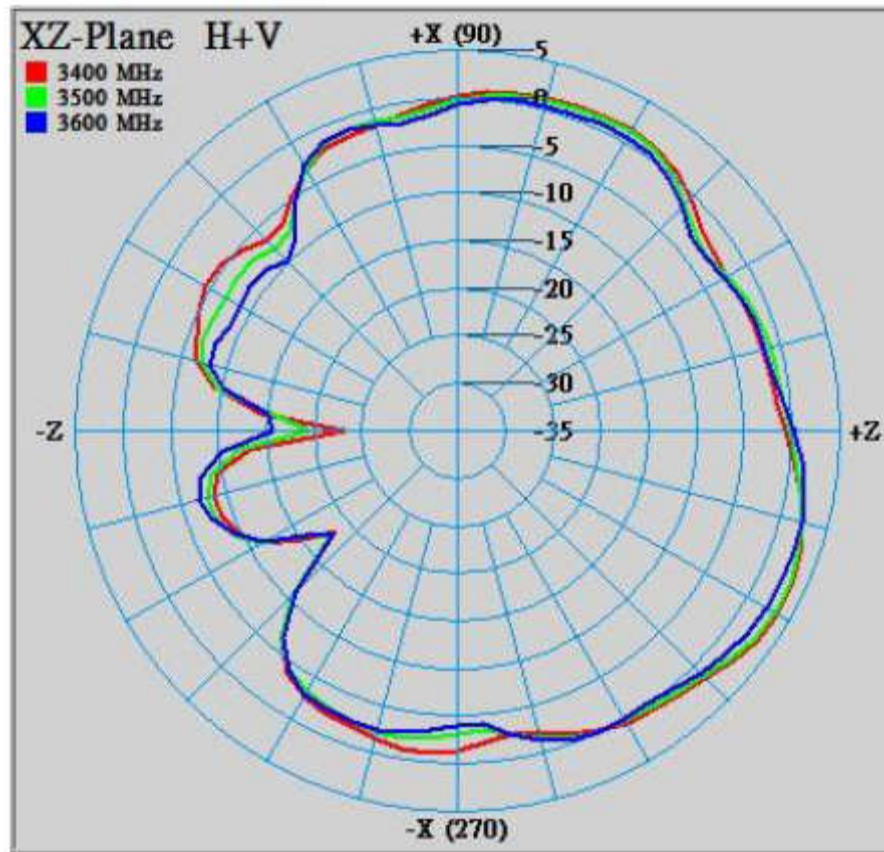


	ZX plane		ZY plane		XY plane	
Frequency [MHz]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2400	1.59	-2.02	0.64	-2.61	2.41	-0.96
2560	2.48	-1.29	1.94	-1.71	3.06	-0.14
2700	1.60	-2.24	1.15	-1.96	3.35	-0.24

3400-3600MHz

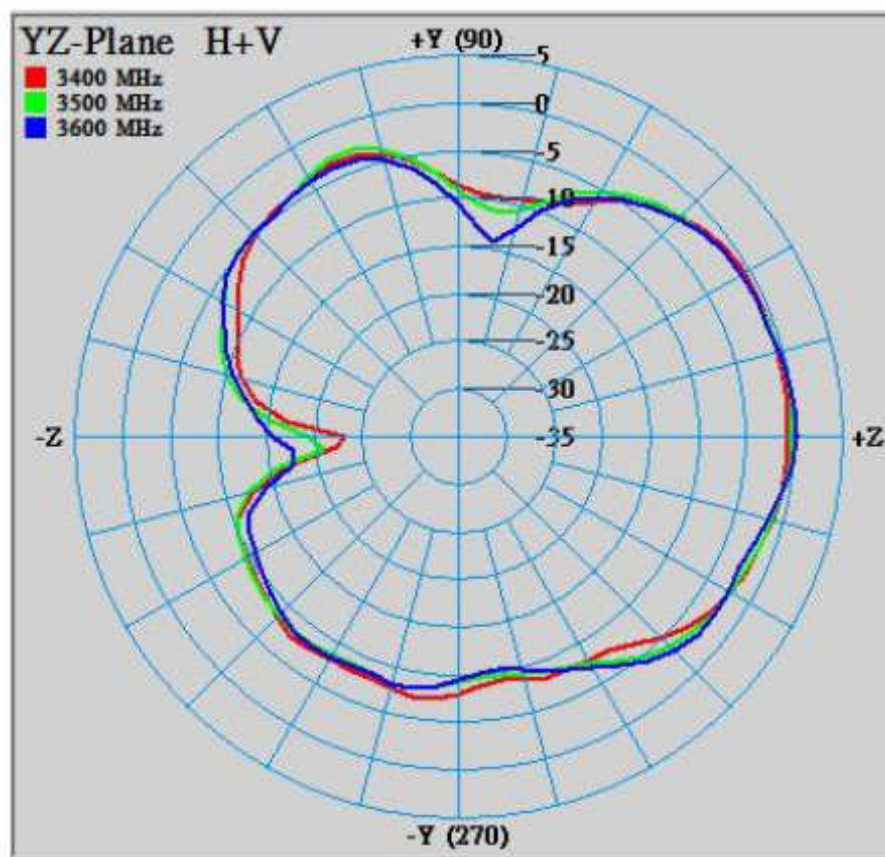
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Gain . dB



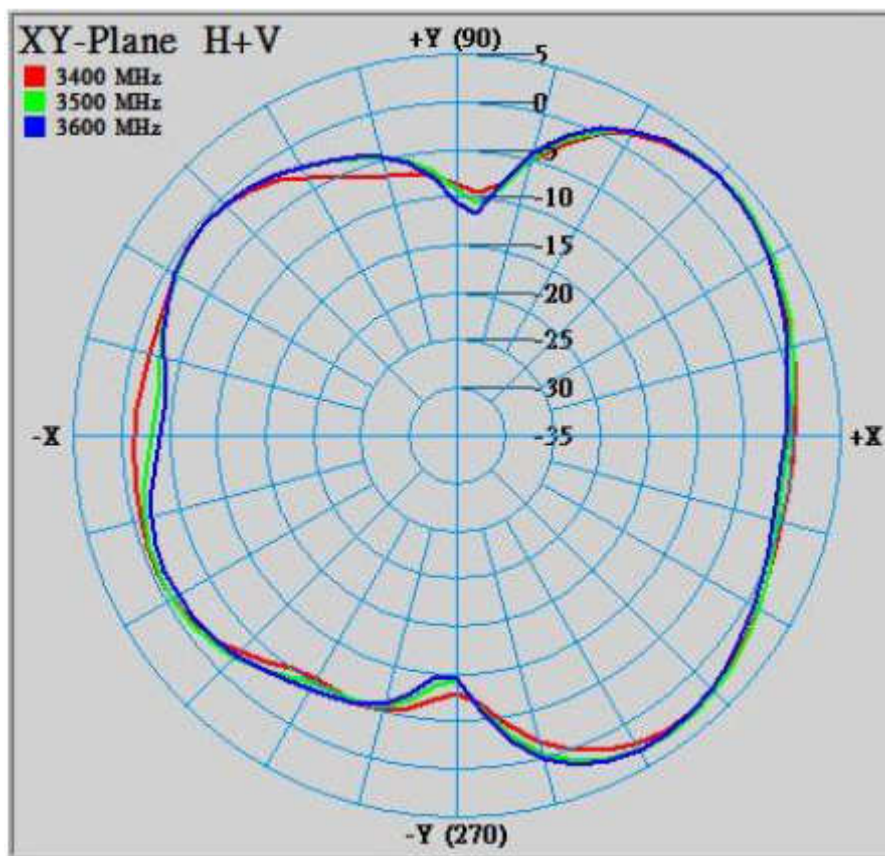
$\Phi = 90.00^\circ$

Gain . dB



Theta=90.00deg

Gain . dB

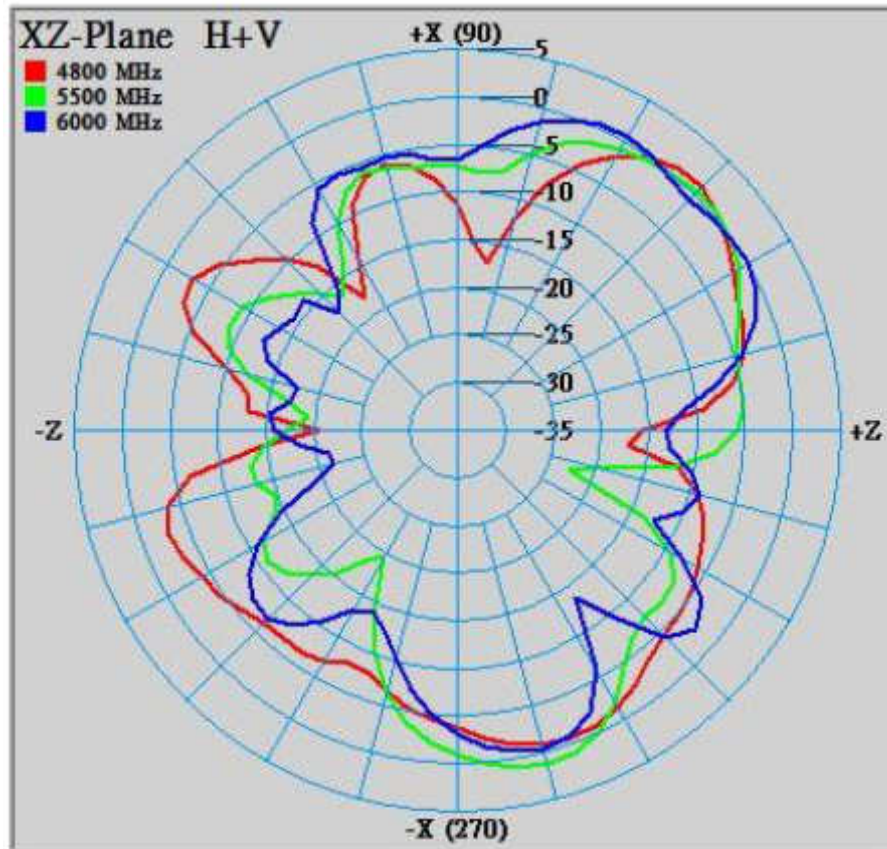


Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
3400	3.63	-1.23	-0.53	-4.92	3.49	-0.48
3500	3.40	-1.46	-0.15	-4.76	3.65	-0.37
3600	2.44	-1.85	0.17	-4.95	3.41	-0.60

4800-6000MHz

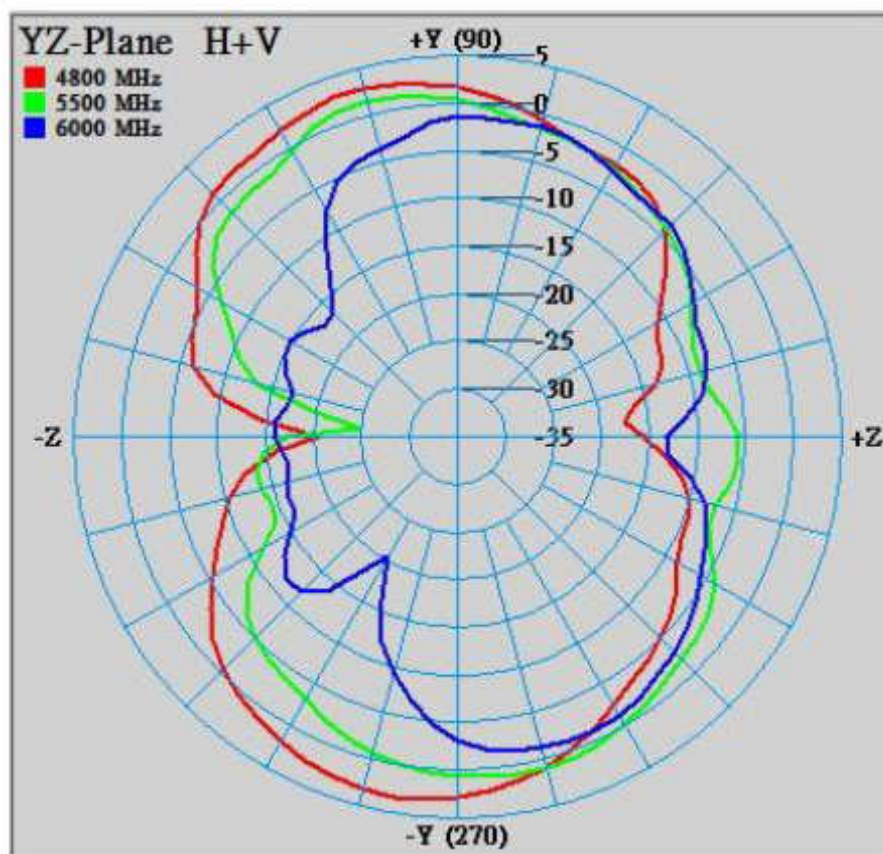
Phi=0.00deg

Gain . dB



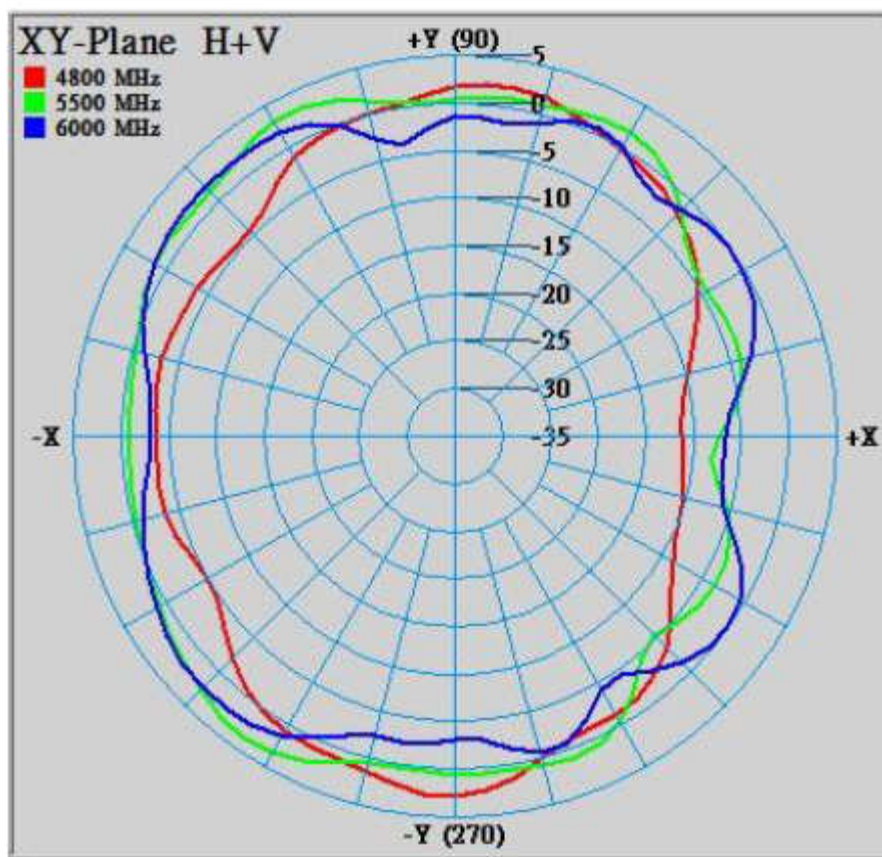
$\Phi = 90.00^\circ$

Gain . dB



Theta=90.00deg

Gain . dB



	ZX plane		ZY plane		XY plane	
Frequency [MHz]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
4800	0.94	-4.66	3.33	-1.27	2.75	-1.60
5500	1.29	-4.88	1.47	-2.70	3.60	0.15
6000	0.56	-4.94	-1.08	-5.62	2.40	-0.71