

APPROVAL SHEET

FPC ANTENNA

2.4/5.x GHz Working Frequency

Halogens Free Product

P/N: RFFPA451016IMLB301

Customer : _____
Customer 's Part No. : _____
Approval No. : _____
Issue Date : _____

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

Version	Date	Description	Author
V01	2022 Dec.	New Release	SHLEE

ELECTRICAL CHARACTERISTICS

Item	Specification
Working Frequency Range	2.4 ~ 2.5 / 5.15 ~ 5.85 GHz(Note-1)
Return Loss	-10 dB(Max)
Gain(peak)	2.05 dBi@2.4~2.5 GHz 5.91 dBi@5.15~5.85 GHz
VSWR	< 2.0
Impedance	50 Ohm Nominal
Radiation	Omni-directional
Polarization	Linear Vertical
Operation Temperature	-20°C ~ +65°C

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

MATERIAL TABLE

Items	Description
Antenna	FPC 0.5oz
Double Tape	3M467
Cable	Ø1.13 Cable (Black)
Connector	IPEX Compatible (Gold)

ORDERING RULE

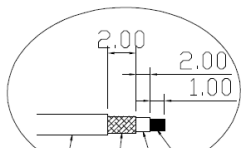
RF	FPA	4510	16	I	M	L	B	3	01
Type Code	Product Code	PCB Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	FPC Antenna	Per 2 digits of length, width e.g.: 2712 Length 27mm, Width 12mm	2 digits for cable length e.g.: 23 Length 21.5cm	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: 5GHz 6: 6GHz A: 2.4GHz ISM band B: GSM 900/1800 dual band G: GPS band L: 2.4/5.2/5.8 GHz tri-band N: NFC T: LTE band W: WCDMA band	B: MP T: During Test 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

Dimensions

ELECTRICAL

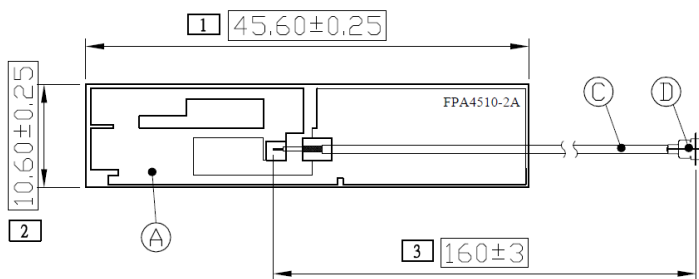
Frequency:
2.4~2.5/5.15~5.85 GHz

No.	DESCRIPTION	MAT'L	Color	Q'TY
A	Body	FPC (0.5oz) (Single Layer)	Black	1
B	Double Tape	3M 467	—	1
C	(Coaxial Cable $\phi 1.13$)	—	Black	1
D	IPEX Compatible(721308000377)	—	Gold	1

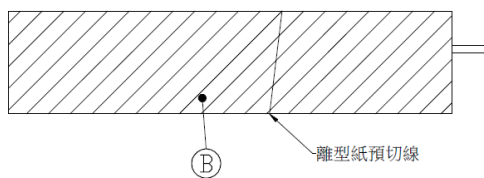


D C B A
A - center conductor
B - Dielectric
C - Outer conductor
D - Jacket

(Front View)



(Back View)



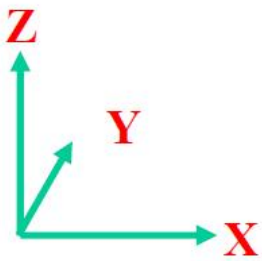
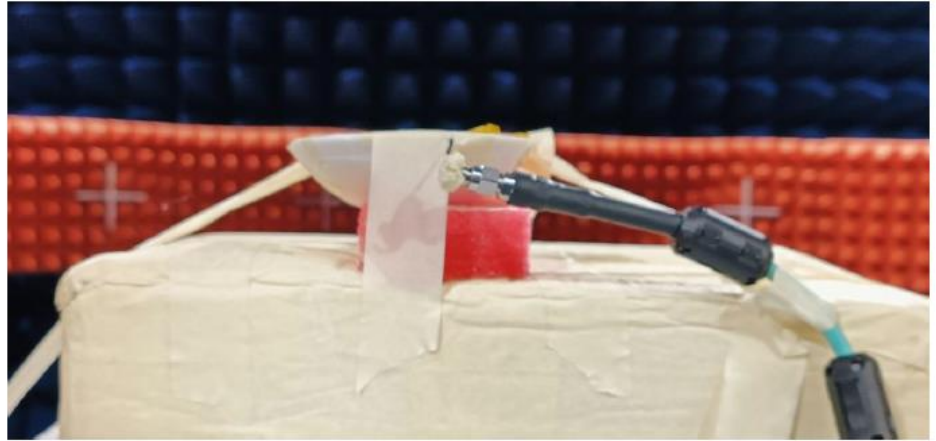
IPEX方向:
100mm : $\pm 90^\circ$
200mm : $\pm 135^\circ$
200mm以上不管控

※標記□記號者, 為重點檢驗尺寸

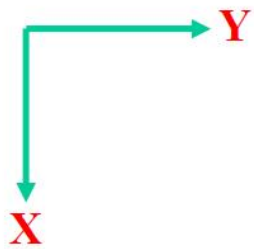
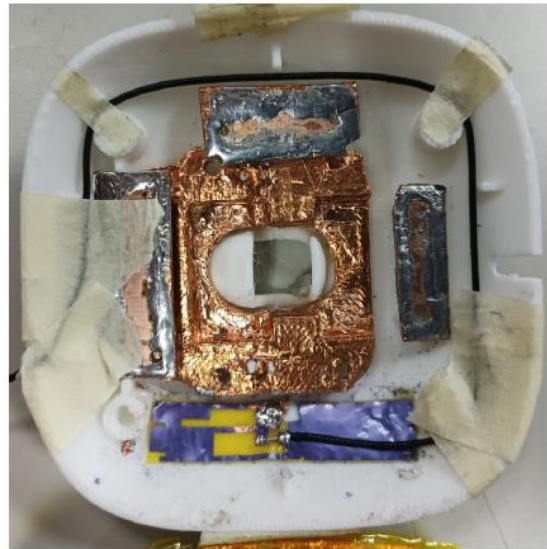
設計 DR. SHLEE 2022.12.19		品名		版本 REV.
核准 APPD. MARCO		ARTICLE		A
容許公差 TOLERANCE		RFFPA451016IMLB301		
LTR	DESCRIPTION	DATE	REQ. BY	
PSA 華新科技股份有限公司 WALSIN TECHNOLOGY CORPORATION		單位 UNIT	比例 SCALE	張數 SHEET
		mm	****	1

Test Report

■ Experimental Setup

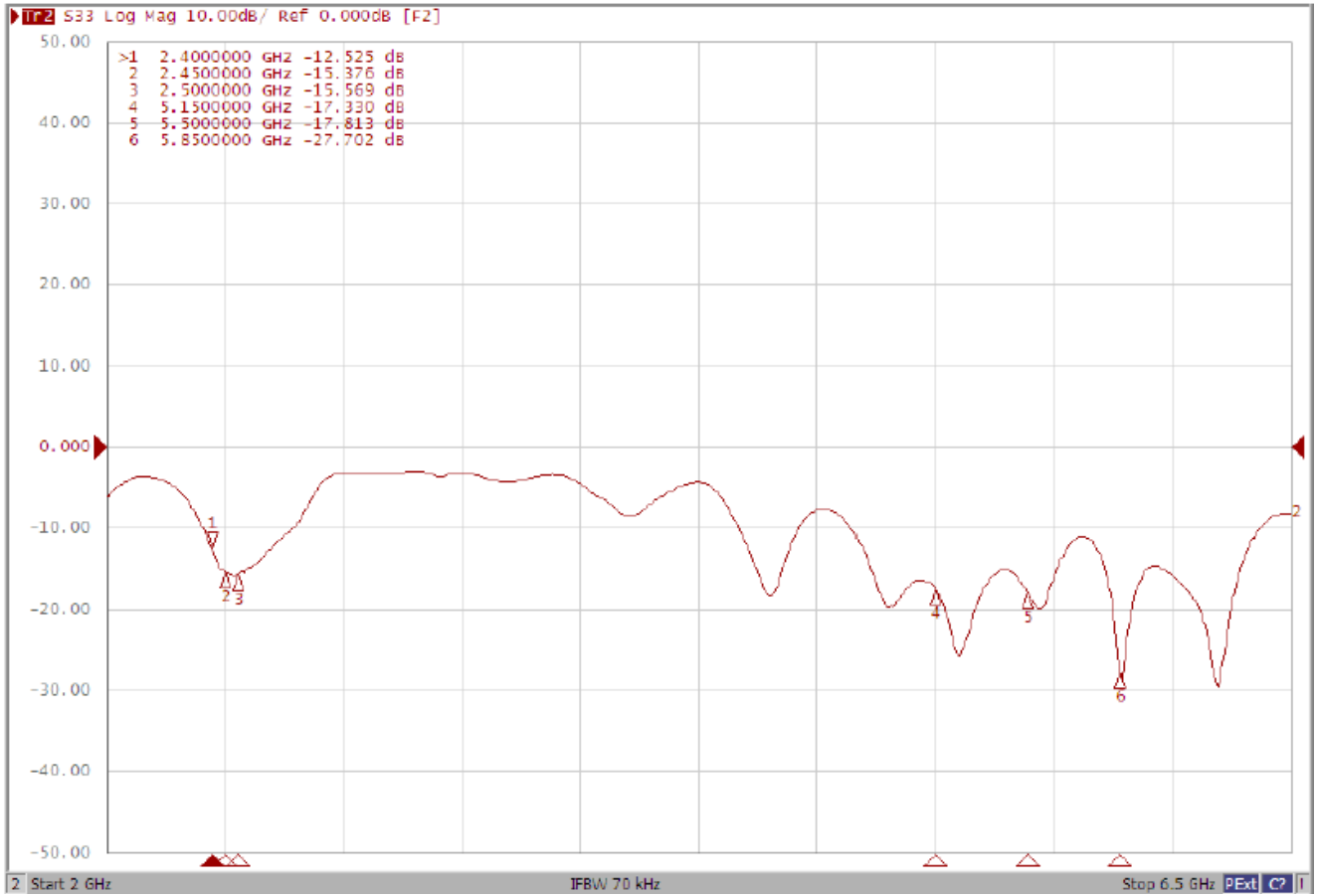


■ Antenna Solution Detail



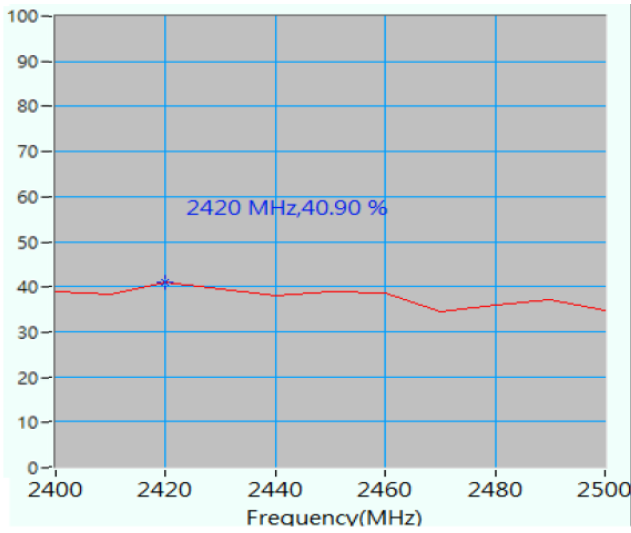
ELECTRICAL CHARACTERISTICS

Return Loss

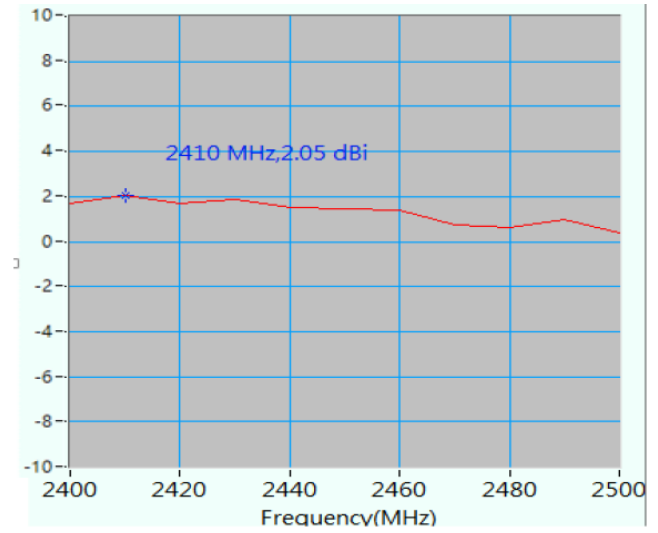


■ Antenna Efficiency & Peak Gain

2400~2500 MHz

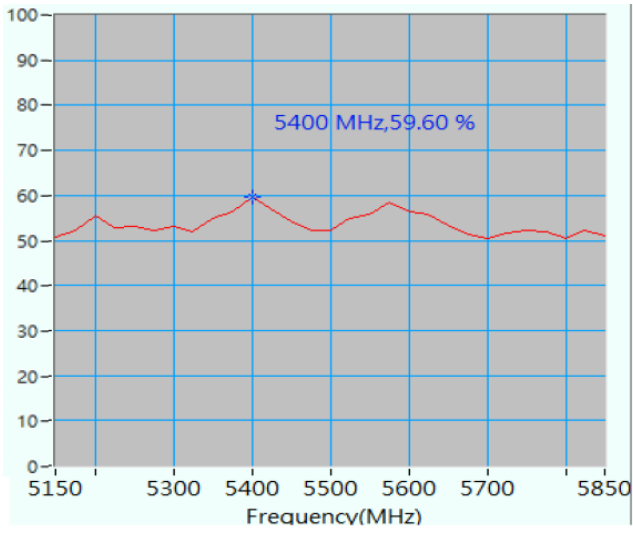


Maximum Efficiency at 2420 MHz : 40.90 %

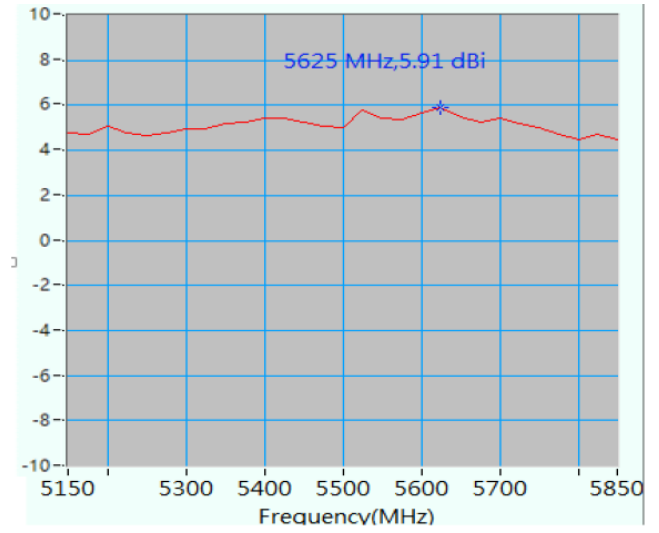


Maximum Peak Gain at 2410 MHz : 2.05 dBi

5150~5850 MHz



Maximum Efficiency at 5400 MHz : 59.60 %



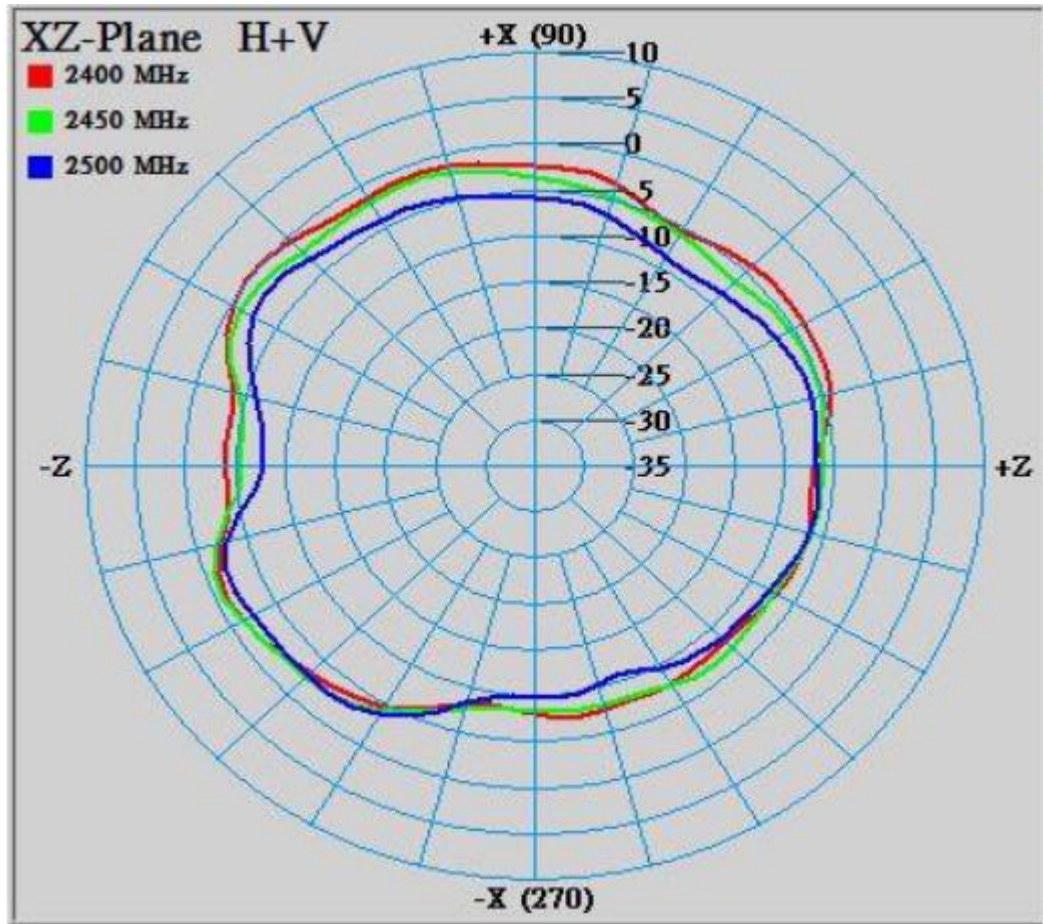
Maximum Peak Gain at 5625 MHz : 5.91 dBi

RADIATION PATTERN

2400~2500 MHz

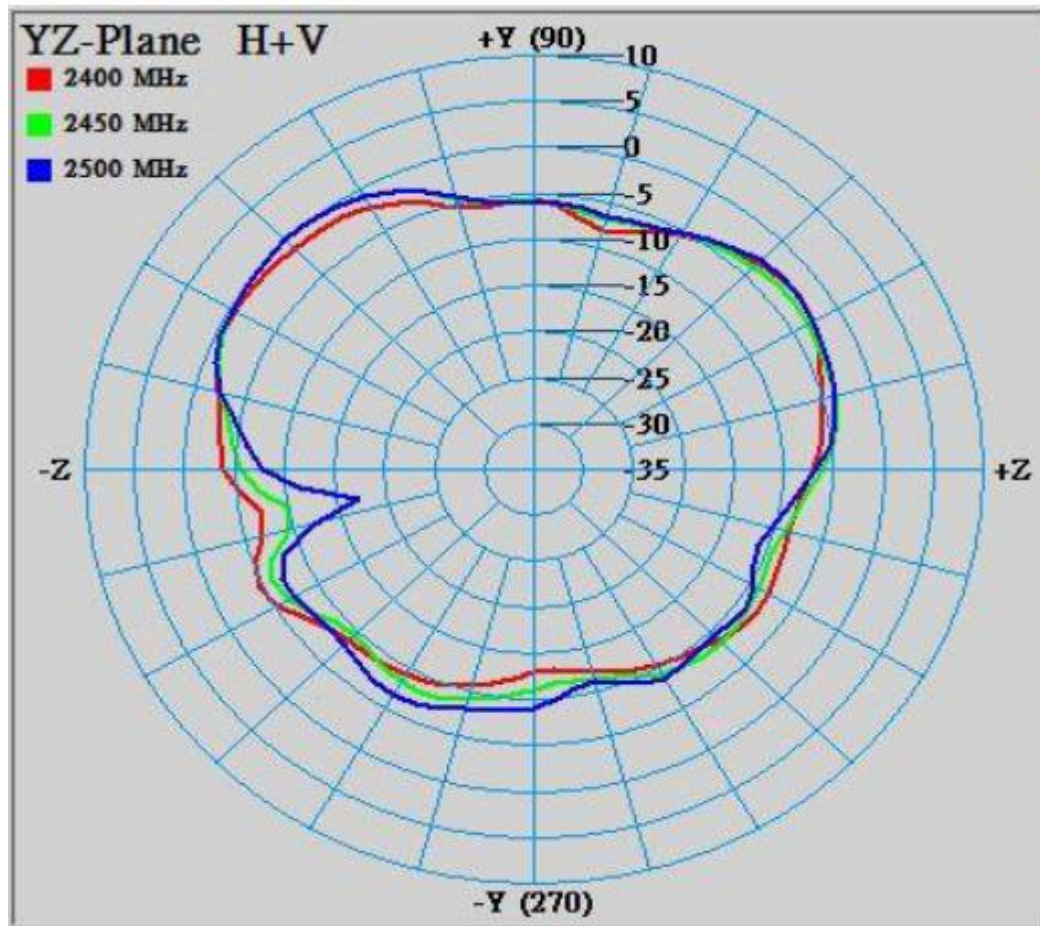
Phi=0.00deg

Gain . dB



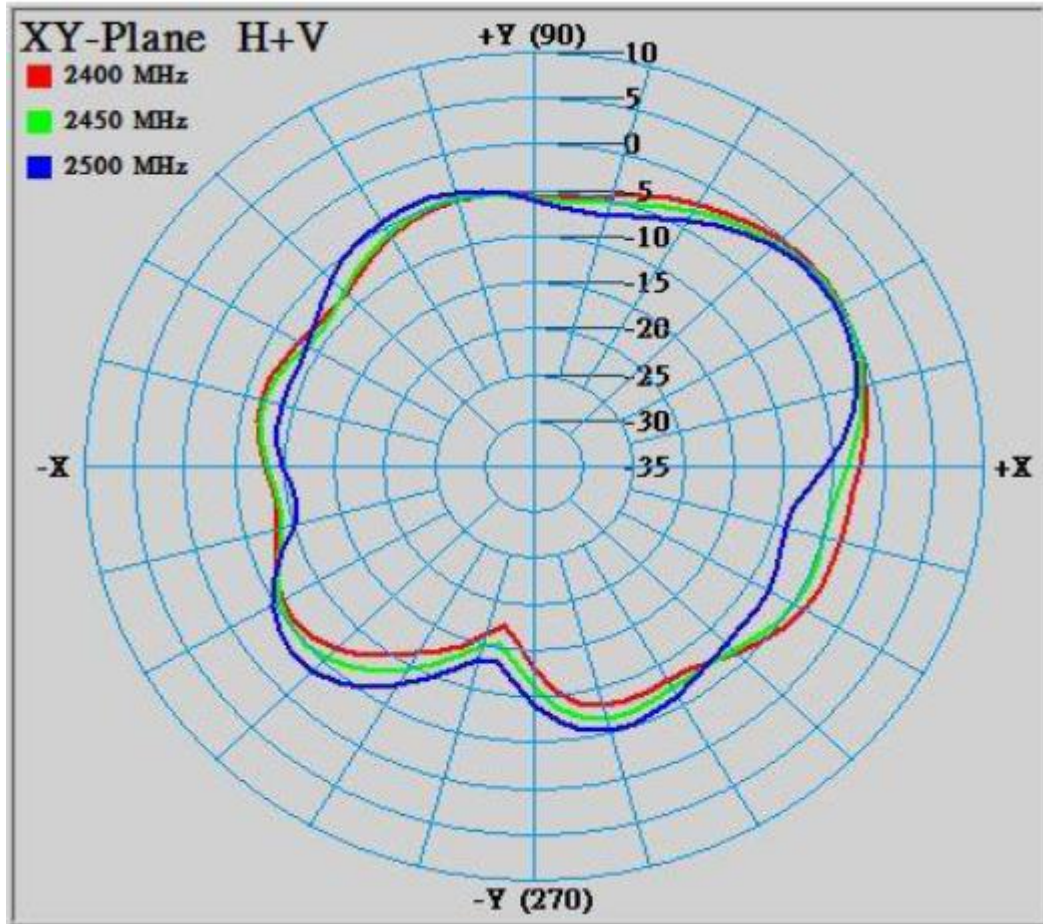
Phi=90.00deg

Gain . dB



Theta=90.00deg

Gain . dB

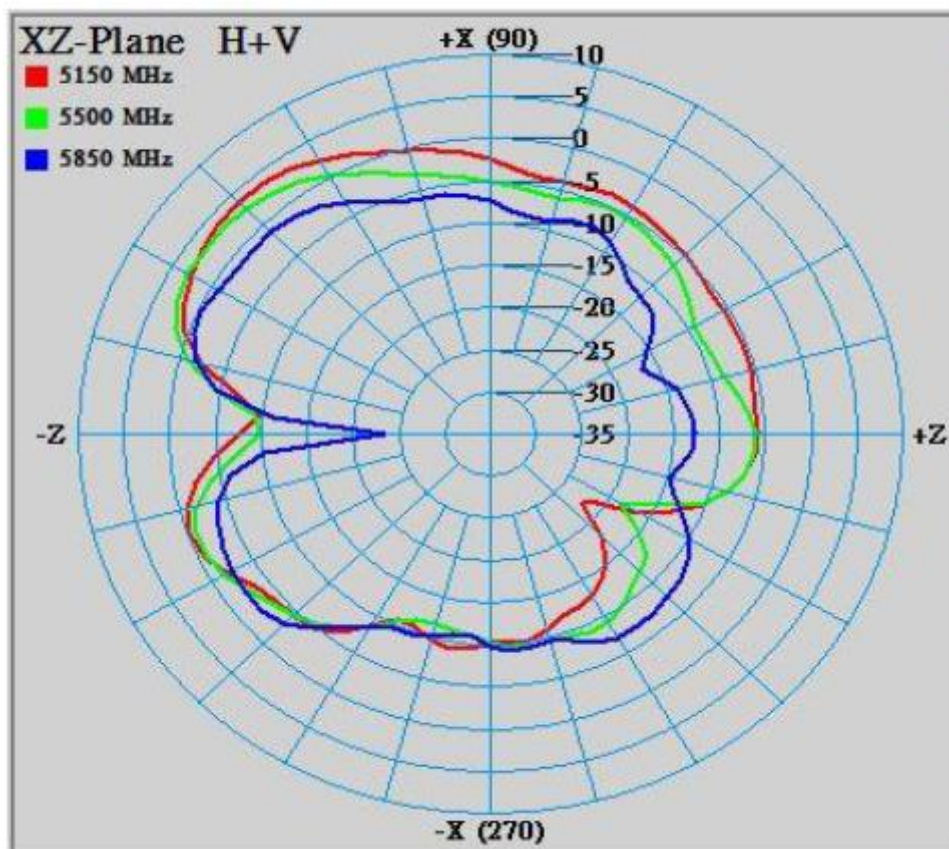


Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]
2400	0.31	-3.70	-0.45	-5.18	0.56	-4.67
2450	-0.62	-4.23	0.15	-4.94	0.37	-4.98
2500	-1.93	-5.60	0.15	-4.90	-0.08	-5.29

5150~5850 MHz

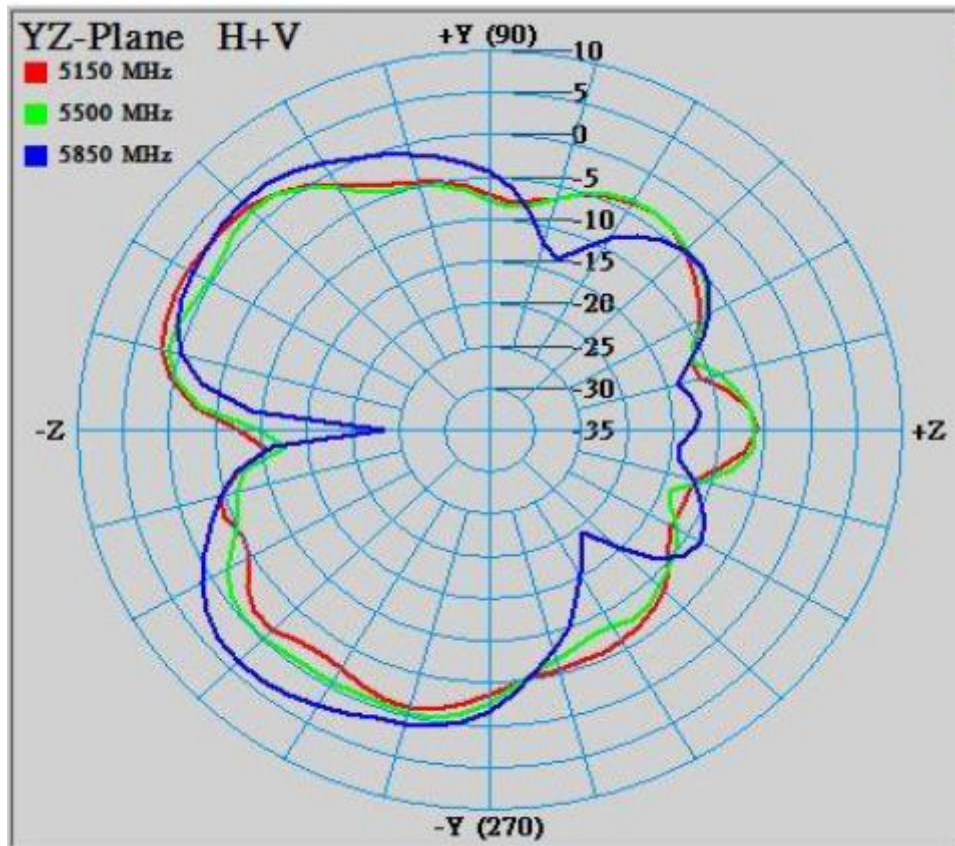
Phi=0.00deg

Gain . dB



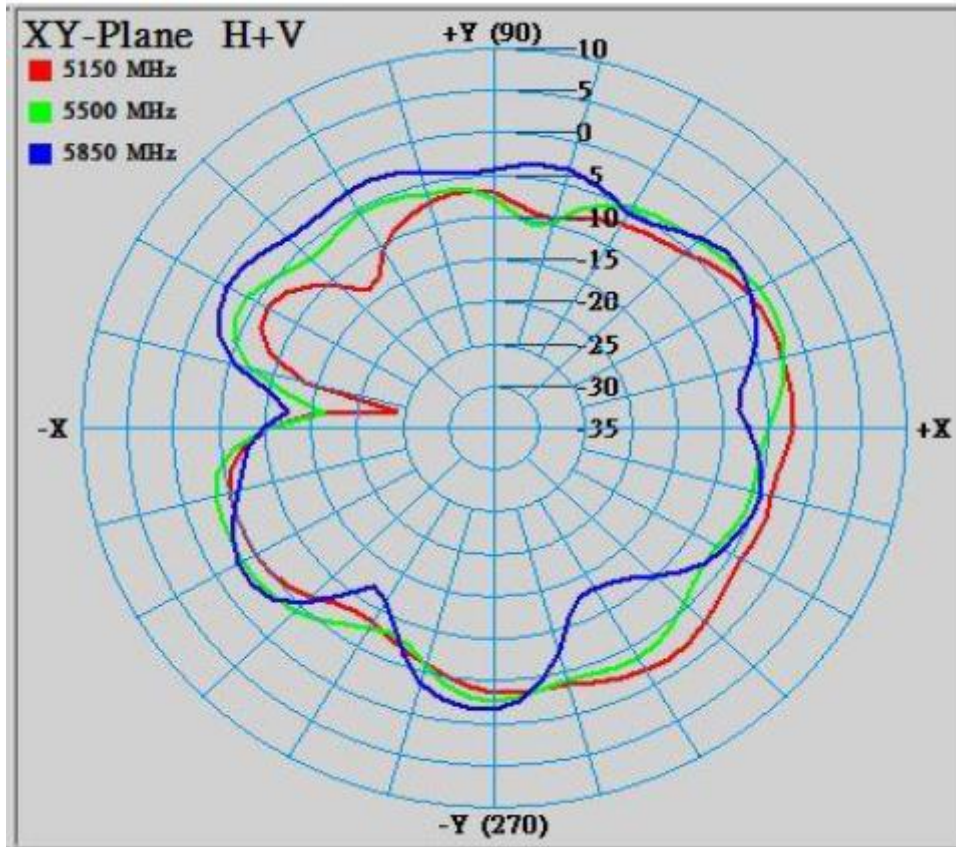
Phi=90.00deg

Gain . dB



Theta=90.00deg

Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]
5150	3.89	-2.72	2.94	-2.98	-1.60	-5.15
5500	3.16	-3.60	1.73	-3.17	-1.48	-4.83
5850	-0.19	-6.03	3.87	-1.65	-1.41	-4.67