

Antenna proposal for project FAST3896 V2.2 TA

Pegatron BU6
2026/2/3

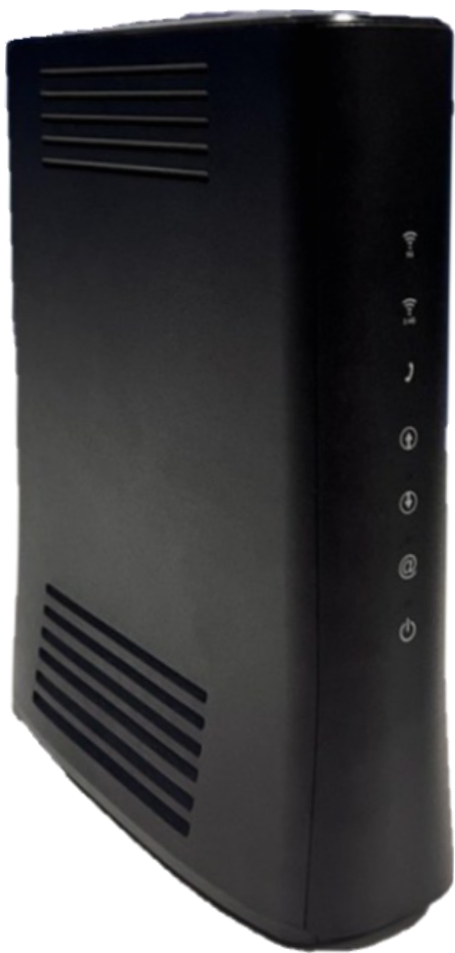
Contents

- Reversion history
- Antenna proposal & specification
- Antenna placement
- Measurement data
- Summary

Reversion history

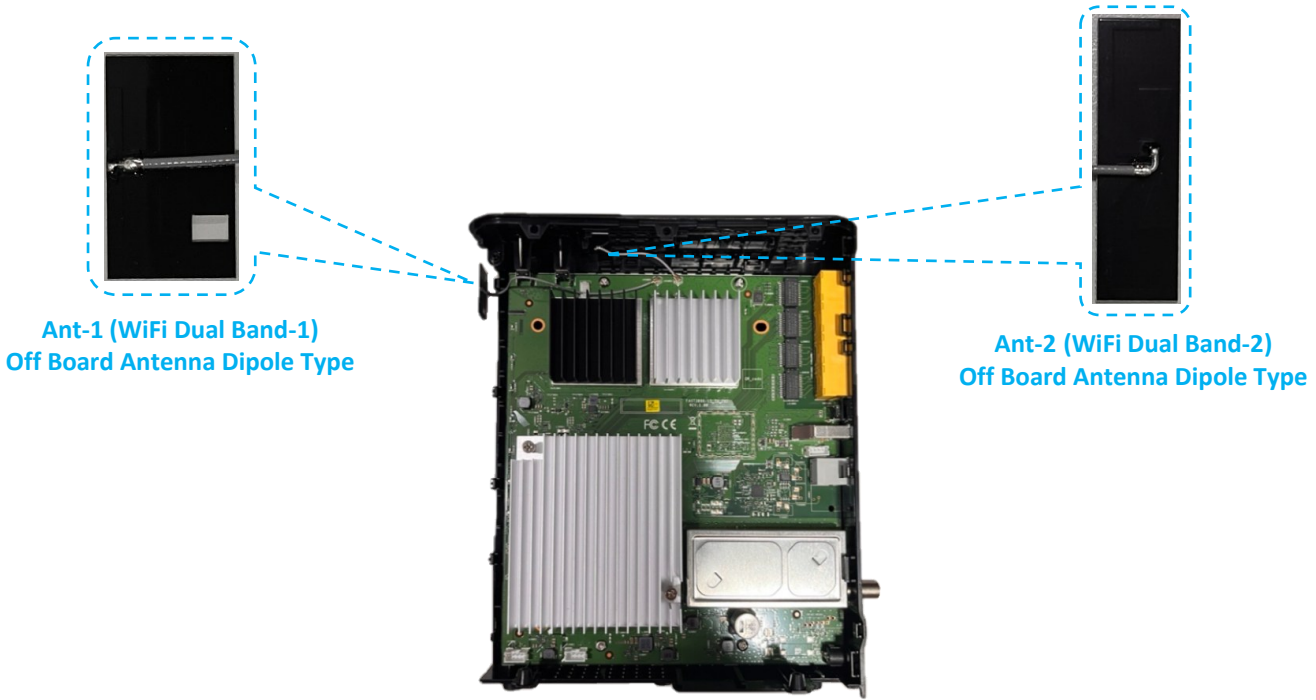
Rev	Date	Description
V1.0	SR	SR real test

Antenna proposal & specification



Antenna Proposal		
Wireless Function	■ Wi-Fi 2G antenna 2X2 ■ Wi-Fi 5G antenna 2X2	
Antenna type	■ Off-board : Dual Band antenna*2	
Specification and Measurement data		
	Customer spec	Measurement data
Return loss	<-12 dB	<-12 dB
Isolation	■ 2.4G to 2.4G antenna < -17 dB ■ 5G to 5G antenna < -20 dB	■ 2.4G to 2G antenna < -27 dB ■ 5G to 5G antenna < -24 dB
Peak Gain	■ 2.4G antenna : 3.5 dBi ■ 5G antenna : 5 dBi	■ 2.4G antenna : 3.48 dBi ■ 5G antenna : 4.97 dBi
Directional Peak Gain (Correlated gain)	■ 2.4G Correlated gain < 6 dBi ■ 5G Correlated gain < 6.5 dBi	■ 2.4G Correlated gain : 3.78 dBi ■ 5G Correlated gain : 6.48 dBi
Directional Peak Gain (Uncorrelated gain)	■ 2.4G Uncorrelated gain < 3 dBi ■ 5G Uncorrelated gain < 4 dBi	■ 2.4G Uncorrelated gain : 1.24 dBi ■ 5G Uncorrelated gain : 3.98 dBi
Antenna efficiency	■ 2.4G > 65% ■ 5G > 70%	■ 2.4G > 66% ■ 5G > 67%

Antenna placement



Left View

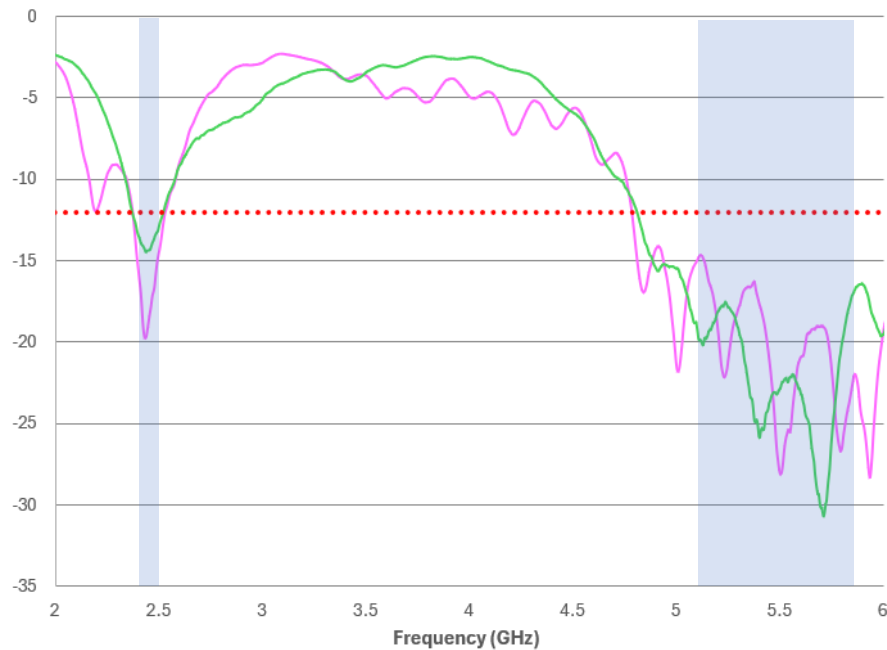
	Ant-1 (Dual Band-1)	Ant-2 (Dual Band-2)
Dimension (mm)	27*15.6*0.6	36*10.5*0.6
Cable length (mm)	121	52
Cable Type	1.13 normal	

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Measurement data

- S-parameter : Return loss- WiFi Antenna



— Dual Band-1
 — Dual Band-2

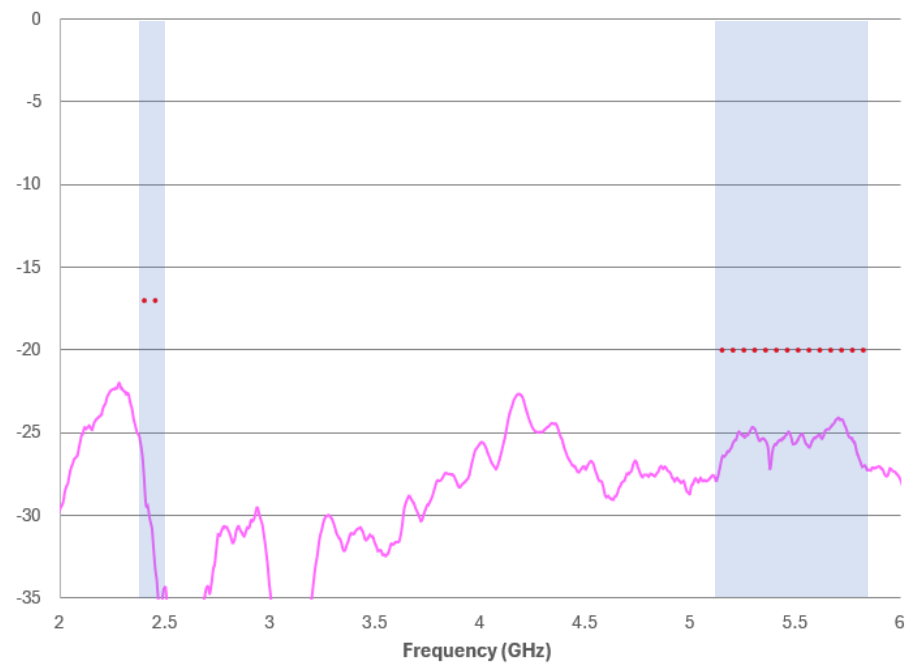
Frequency (MHz)	Dual Band-1	Dual Band-2
2400	-15.22	-13.33
2450	-18.77	-14.36
2500	-14.60	-12.99
5150	-15.79	-19.68
5350	-16.60	-22.50
5470	-23.40	-23.13
5725	-19.28	-29.93
5850	-22.98	-17.28

Unit: dB

Return loss table

Measurement data

- S-parameter : Isolation



— Dual Band-1 to Dual Band-2

Frequency (MHz)	Dual Band-1 to Dual Band-2
2400	-27.12
2450	-32.63
2500	-34.34
5150	-26.64
5350	-25.30
5470	-24.91
5725	-24.16
5850	-27.20

Unit:dB

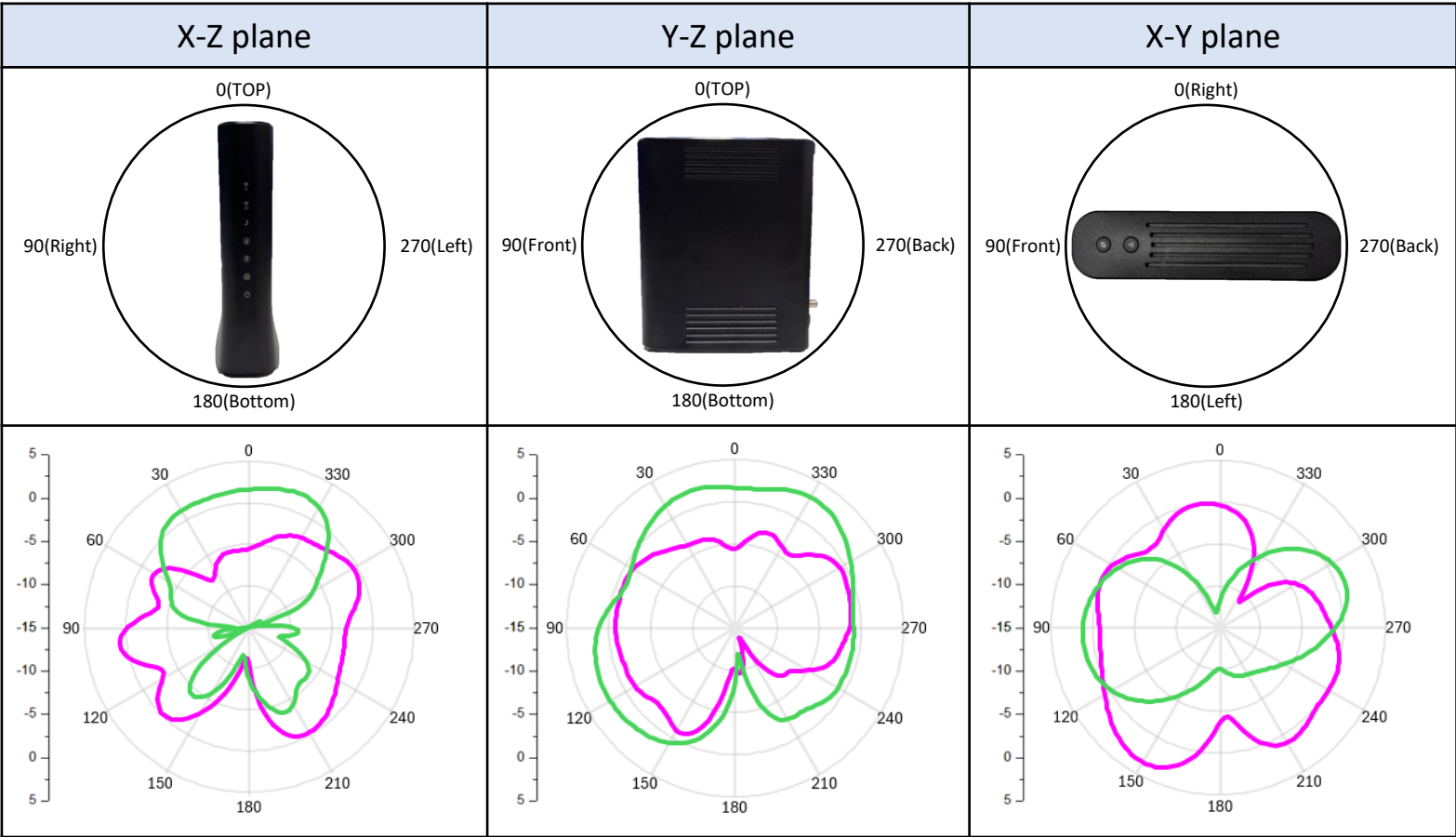
Isolation table

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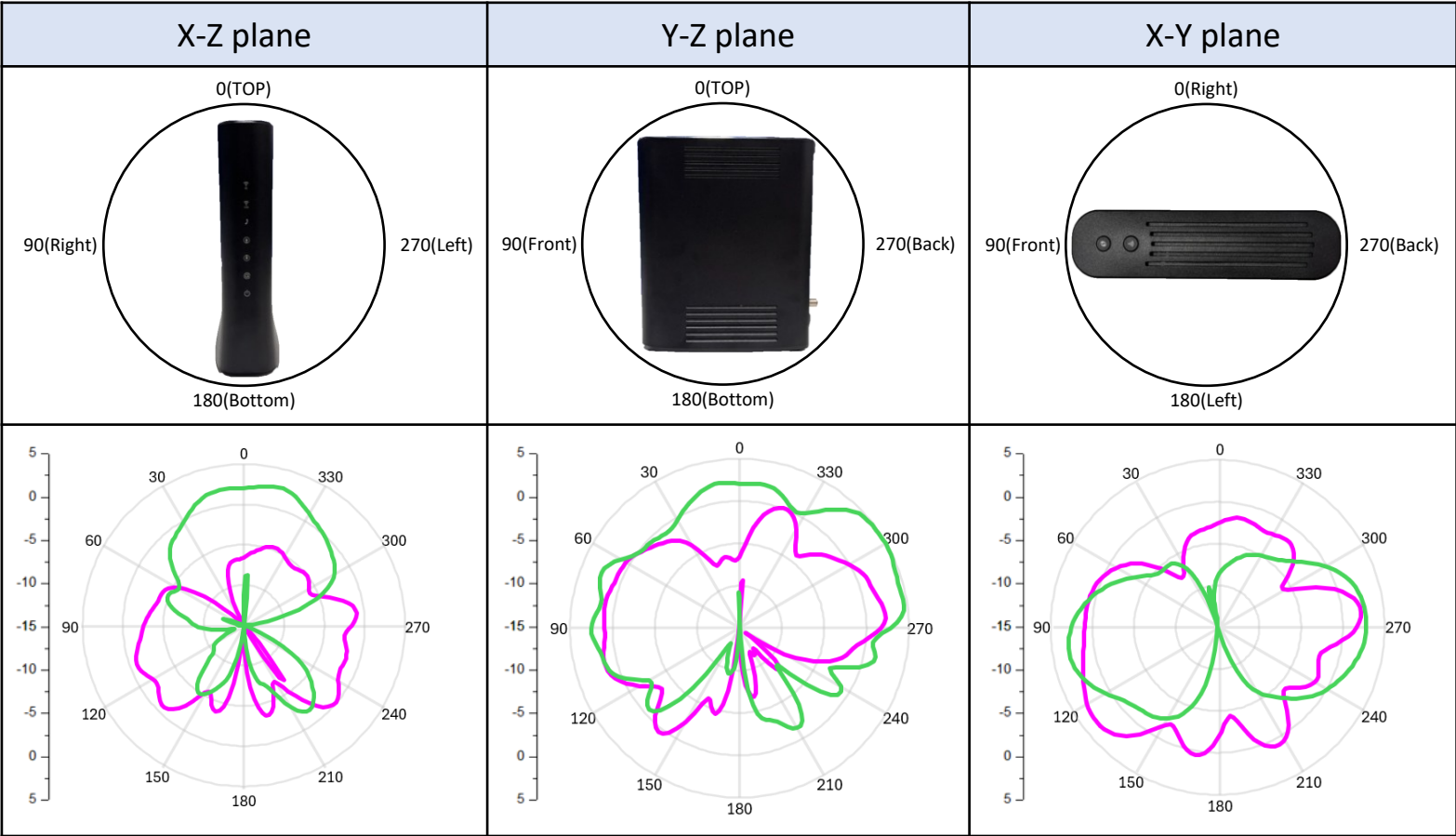
- Radiation pattern – WiFi 2.45GHz



— Dual Band-1
— Dual Band-2

Measurement data

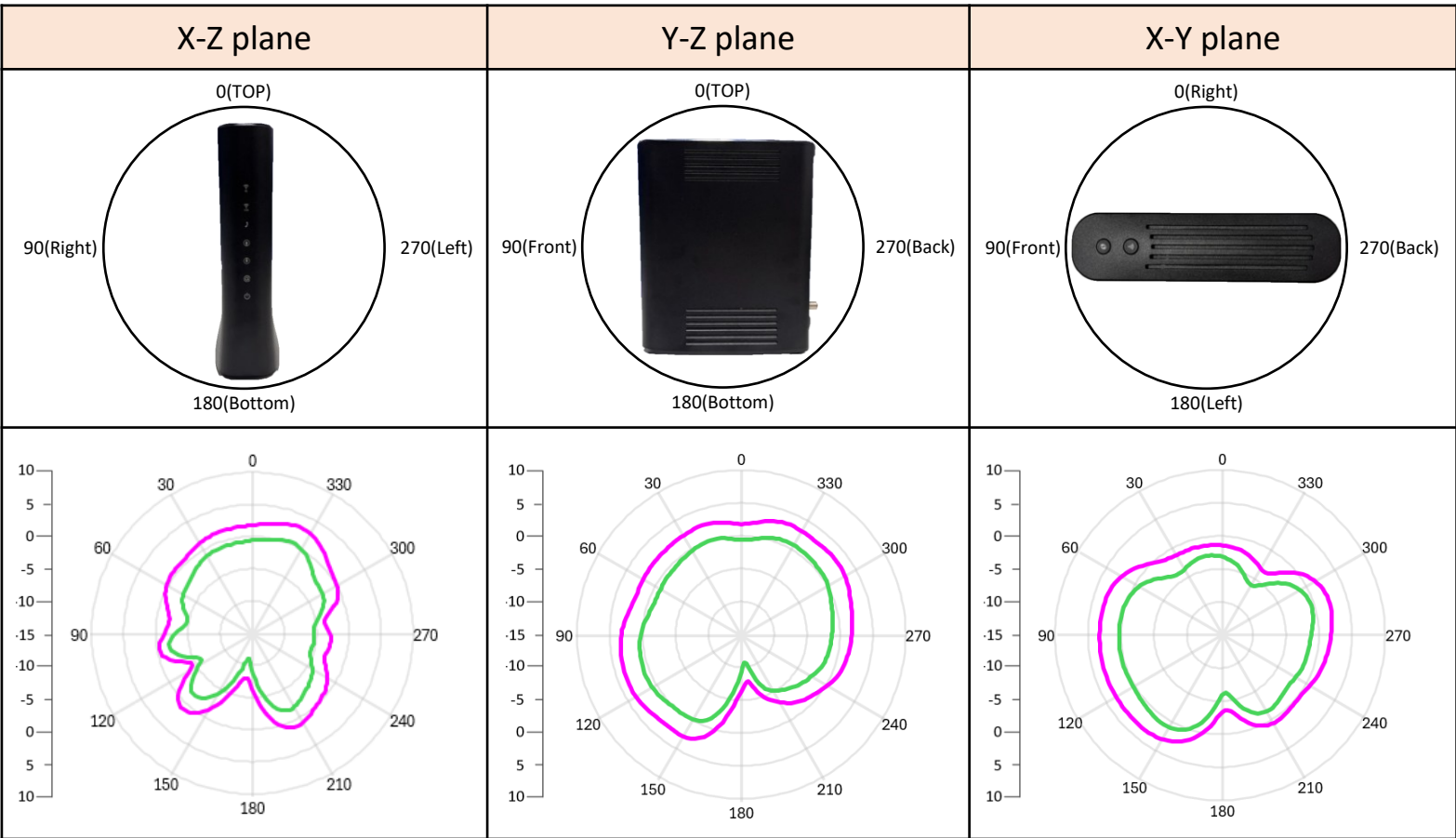
- Radiation pattern – WiFi 5.47GHz



— Dual Band-1
— Dual Band-2

Measurement data

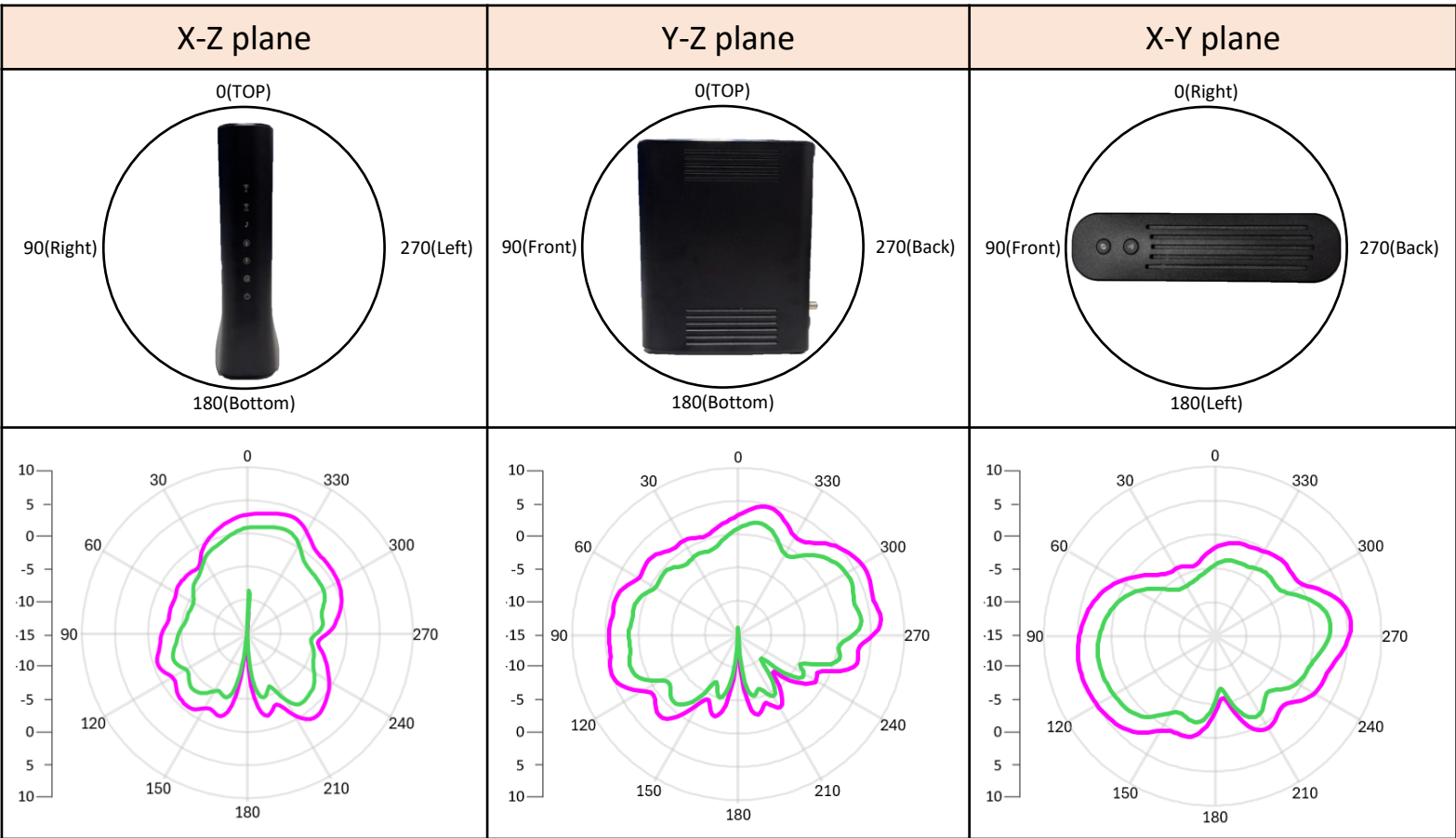
- Radiation pattern – Correlated / Uncorrelated WiFi 2.45GHz



— Correlated
— Uncorrelated

Measurement data

- Radiation pattern – Correlated / Uncorrelated WiFi 5.47Hz



— Correlated
— Uncorrelated

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- Peak Gain table-WiFi Antenna

Frequency (MHz)	Dual Band-1	Dual Band-2
2400	3.48	3.25
2450	3.42	3.04
2500	3.39	2.7
5150	2.93	3.94
5350	3.13	4.93
5470	3.81	4.97
5725	4.84	4.75
5850	4.72	4.14

Unit: dBi

- Efficiency table-WiFi Antenna

Frequency (MHz)	Dual Band-1	Dual Band-2
2400	67%	67%
2450	68%	69%
2500	66%	68%
5150	67%	68%
5350	70%	73%
5470	68%	72%
5725	69%	71%
5850	67%	69%

Unit: %

Measurement data

- Directional gain table- WiFi Antenna

Frequency (MHz)	Correlated (Peak Gain)			Uncorrelated (Peak Gain)		
	Theta-Polar.	Phi--Polar.	E-total	Theta-Polar.	Phi-Polar.	E-total
2400	3.46	3.26	3.61	0.96	0.85	1.17
2450	3.00	3.14	3.78	0.44	0.70	1.24
2500	2.44	2.42	3.38	0.55	0.04	1.19
5150	2.98	4.05	5.13	0.38	1.67	2.64
5350	3.05	5.78	6.45	0.28	3.40	3.98
5470	3.59	5.67	6.38	1.10	3.34	3.96
5725	4.11	5.77	6.48	2.25	3.06	3.86
5850	4.03	5.16	5.79	1.75	2.32	3.10

Unit: dBi

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Summary

- Return loss
 - All antennas return loss can meet spec under -12 dB.
- Isolation
 - 2.4G to 2.4G isolation can meet spec under -17dB.
 - 5G to 5G isolation can meet spec under -20dB.
- Peak gain
 - 2.4G / 5G peak gain can meet spec.
- Correlated
 - 2.4G / 5G correlated gain can meet spec.
- Uncorrelated
 - 2.4G / 5G uncorrelated gain can meet spec.
- Efficiency
 - 2.4G efficiency can meet spec above 65%.
 - 5G efficiency can above 67% , part of efficiency can above 70%.