

Manufacturer:ALFA network Inc

ARS-4G-35D

Version: V 1.0

Released Date: 2024/09/02

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Revision History

Released Date	Version	Record
2024/09/02	V1.0	LTE x1(617MHz-5000MHz) Test Report(New Test)

Summary & Comments

Antenna Performance Summary

- **New Testing**

Comments for Further Improvement

- **To be confirmed by the customer**

Specification

Requirements of Antenna Design

RF Function	Number of ANT	Frequency Band	Remark
LTE	1	617-960(MHz);1427-2690(MHz) ;3300-5850(MHz)	

Requirements of Measurement

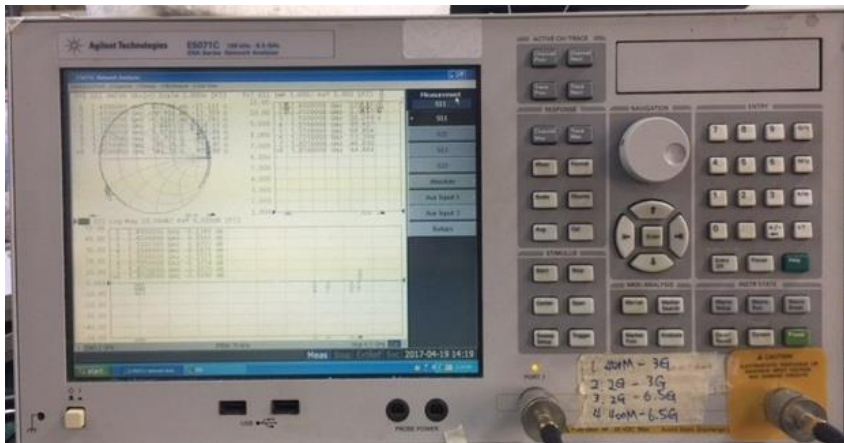
Test Item	Specification	Remark
Return Loss	> 6dB	
Isolation		
Peak gain	<5dBi	
Efficiency	>30%	
Radiation pattern	Scale: +10 ~ -40dBi, Angle step size: 2 degree	

Antenna Placement & Solution



Antenna	ANT Type	Size (L * W * H)	Cable Type
ANT	Dipole ANT	135mm*20.1mm*6mm	SMA

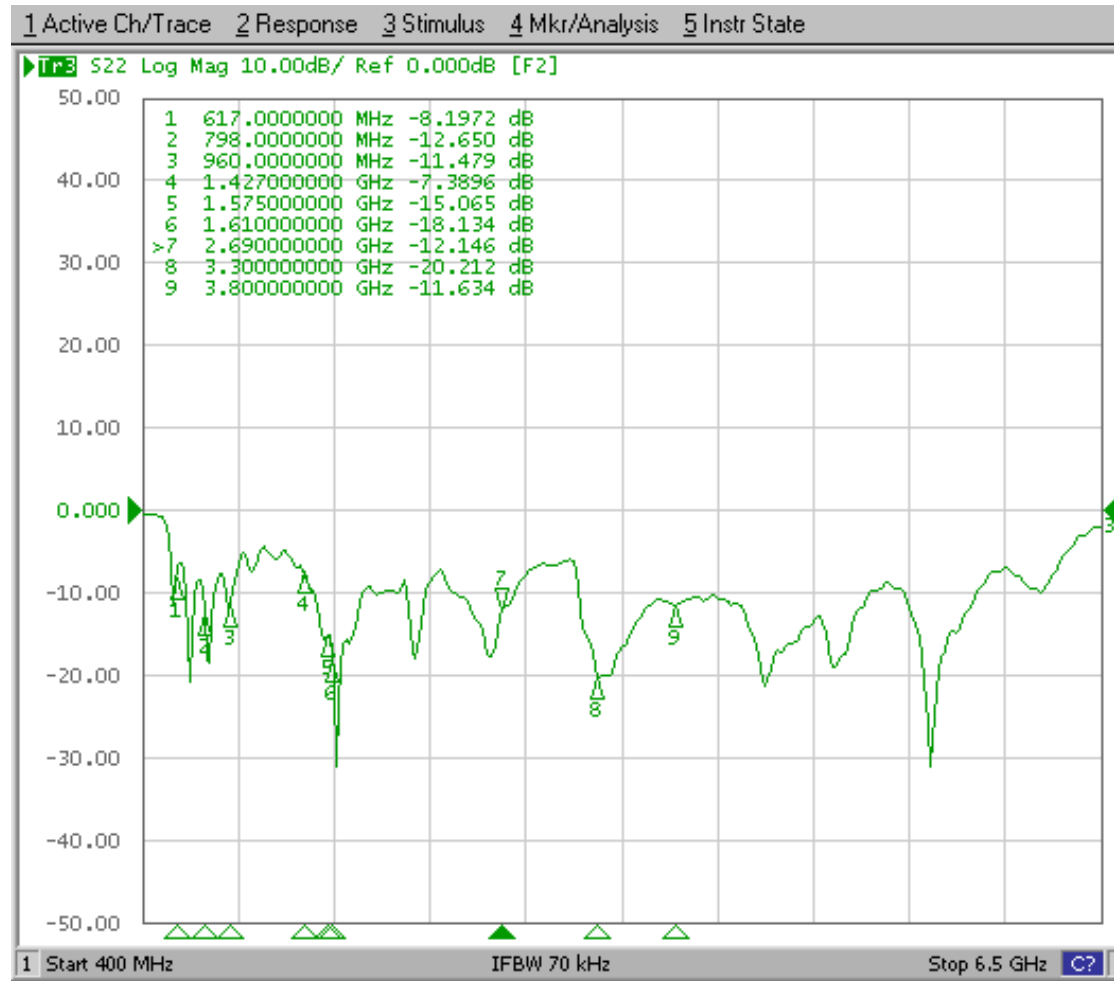
Test Setup for S-parameter Measurement



Equipment	Brand	Model	S/N
Network Analyzer	Keysight	E5071C	MY46107744

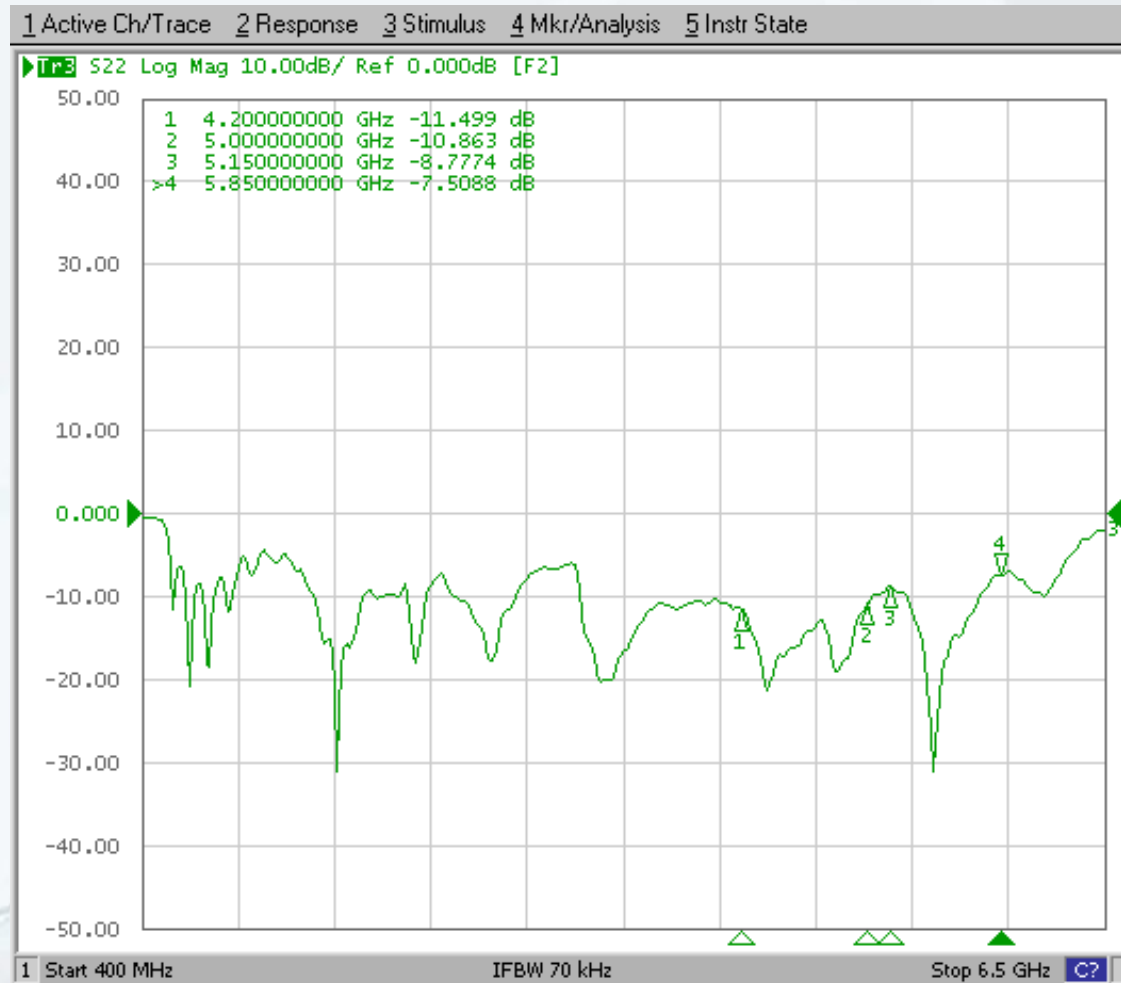
Return Loss Results

Ant(Criterion:>6 dB)



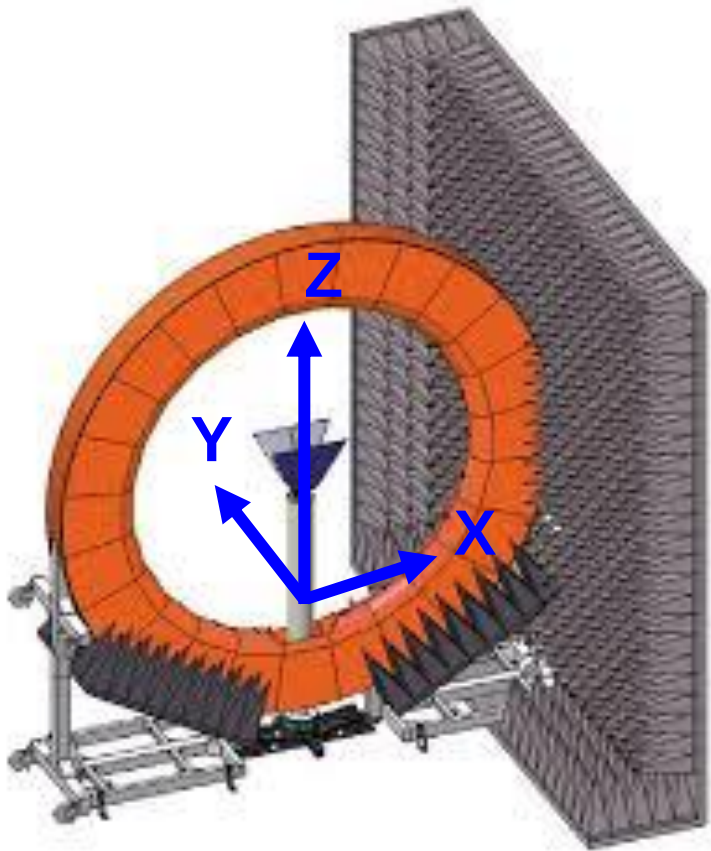
Return Loss Results

Ant(Criterion:>6 dB)



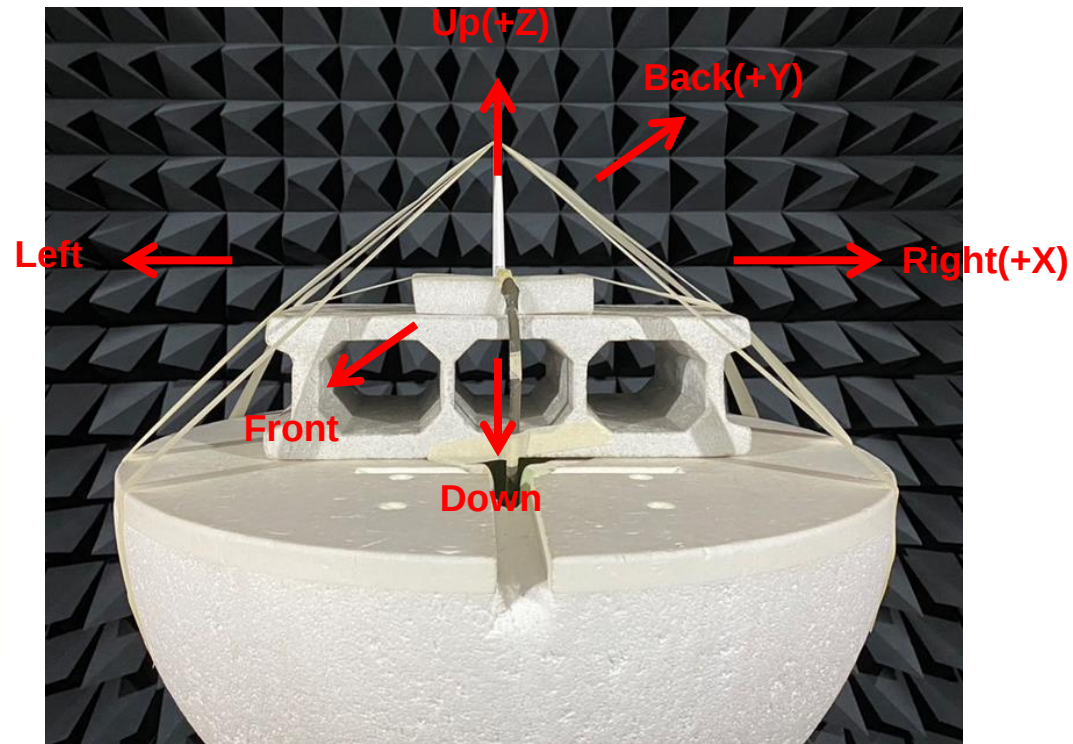
Test Setup for Radiation Pattern Measurement

Chamber Information



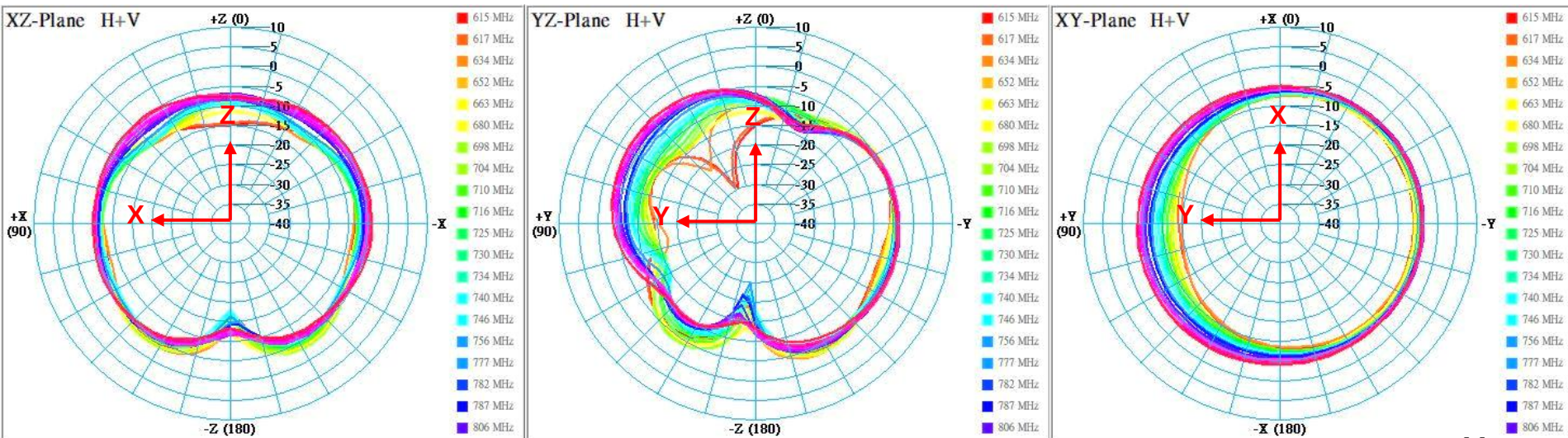
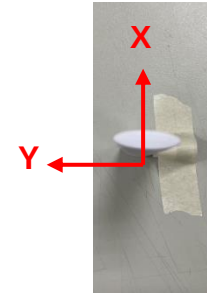
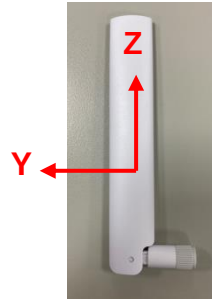
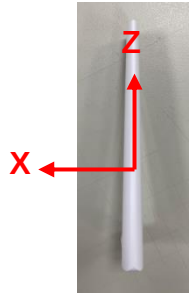
- SATIMO SG-24L Multi-Probe Antenna Measurement System

- Angle between probes: 15°
- Frequency range: 400 MHz – 9 GHz
- Chamber Room Size: 5m L x 5m W x 5m H



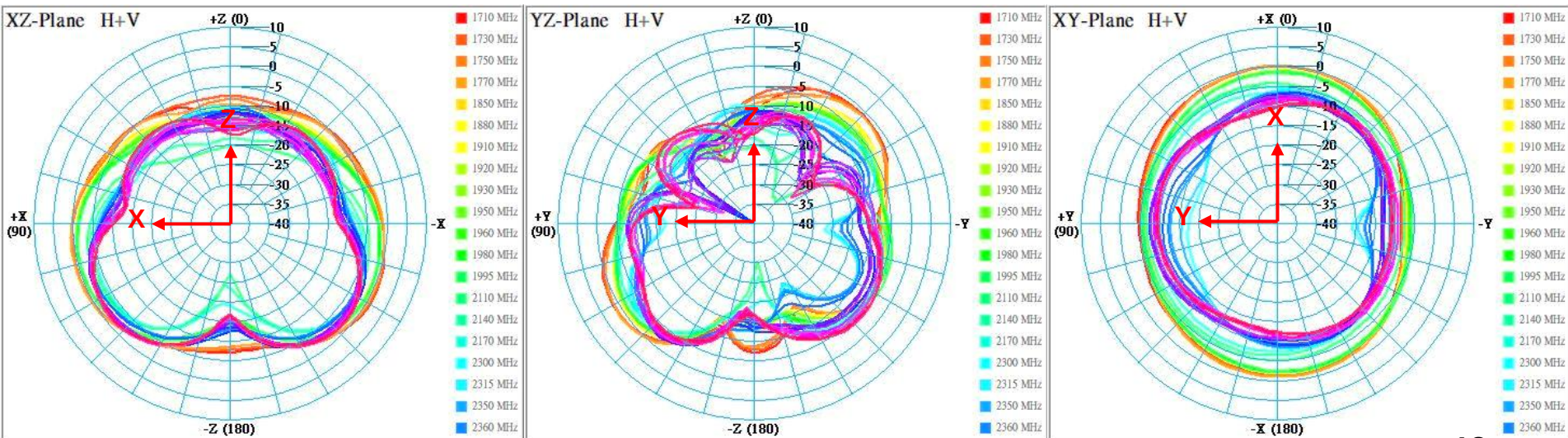
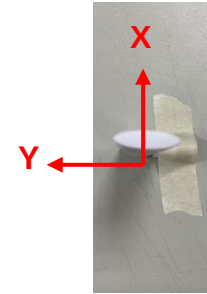
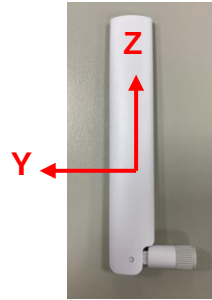
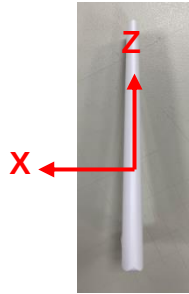
2D Radiation Pattern Results

615~894 (MHz)



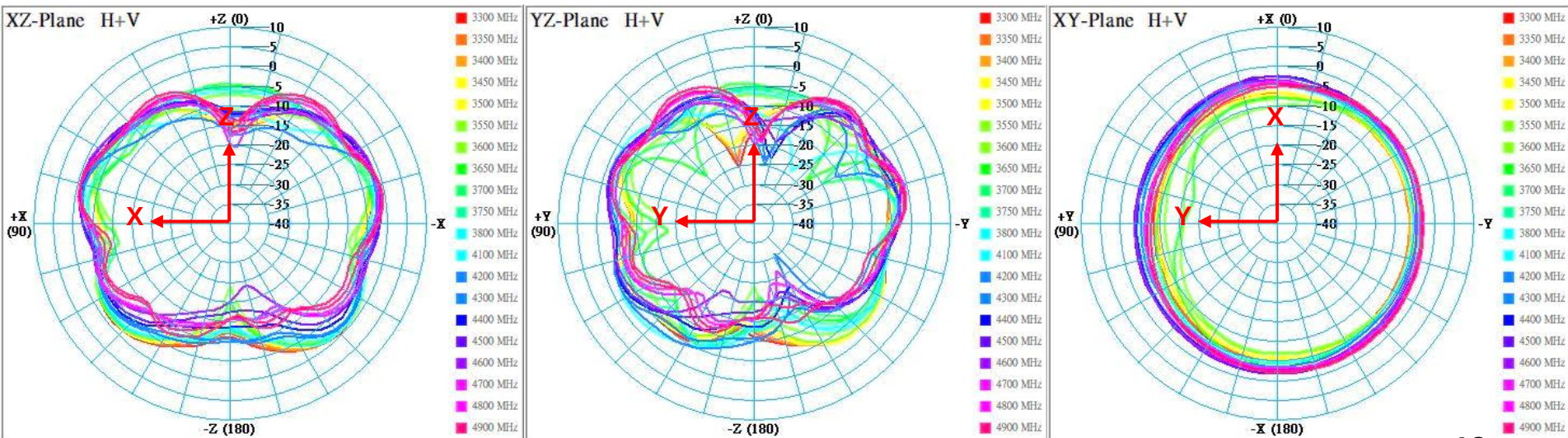
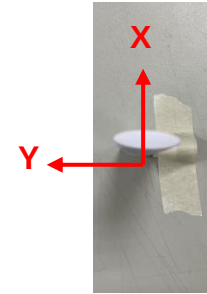
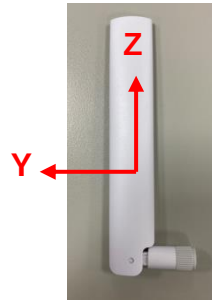
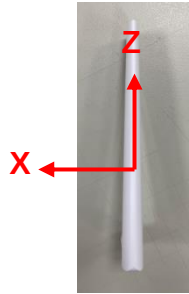
2D Radiation Pattern Results

1710~2690 (MHz)



2D Radiation Pattern Results

3300~5000 (MHz)



Results Summary

Return Loss (Criterion: >6dB)

Frequency (MHz)	ANT (dB)
617	8
798	12
960	11
1427	7
1575	15
1610	18
2690	12

Frequency (MHz)	ANT (dB)
3300	20
3800	11
4200	11
5000	10
5150	8
5850	7

Results Summary

Peak gain & Efficiency –ANT

Frequency (MHz)	Peak Gain (dBi)
615	-4.42
617	-3.78
634	-2.95
652	-2.96
663	-2.91
680	-3.05
698	-2.93
704	-2.96
710	-4.05
716	-4.15
725	-3.93
730	-4.10
734	-3.76

Frequency (MHz)	Peak Gain (dBi)
740	-4.13
746	-4.15
756	-4.21
777	-4.08
782	-3.79
787	-3.91
806	-3.30
821	-3.28
824	-3.37
836	-3.59
849	-3.29
869	-2.58
880	-2.34

Results Summary

Peak gain & Efficiency –ANT

Frequency (MHz)	Peak Gain (dBi)
894	-2.31
1710	1.65
1730	1.75
1750	1.61
1770	1.76
1850	0.14
1880	-0.08
1910	-0.23
1920	-0.17
1930	-0.14
1950	-0.14
1960	-0.15
1980	-0.29

Frequency (MHz)	Peak Gain (dBi)
1995	-0.14
2110	-2.37
2140	-2.49
2170	-2.33
2300	-2.35
2315	-2.31
2350	-2.34
2360	-2.22
2400	-2.26
2500	-1.25
2515	-1.38
2535	-1.46
2555	-1.35

Results Summary

Peak gain & Efficiency –ANT

Frequency (MHz)	Peak Gain (dBi)
2570	-1.25
2595	-1.36
2620	-1.29
2630	-1.44
2655	-1.25
2680	-1.30
2690	-1.51
3300	-0.47
3350	-0.53
3400	-0.62
3450	-0.62
3500	-0.63
3550	-0.65

Frequency (MHz)	Peak Gain (dBi)
3600	-0.62
3650	-0.62
3700	-0.58
3750	-0.54
3800	-0.50
4100	-0.65
4200	-0.61
4300	-0.43
4400	-0.46
4500	-0.38
4600	-0.42
4700	-0.43
4800	-0.36

Results Summary

Peak gain & Efficiency –ANT

Frequency (MHz)	Peak Gain (dBi)
4900	-0.36
5000	-0.57