



威潤 AS300

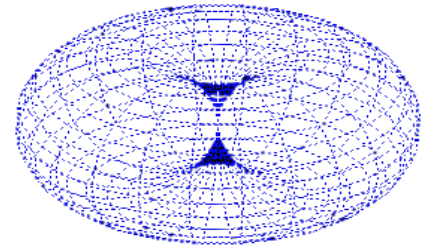
Engineer : Ting

Report date : 2024/04/03 REV.03



Executive Summary

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Revision History



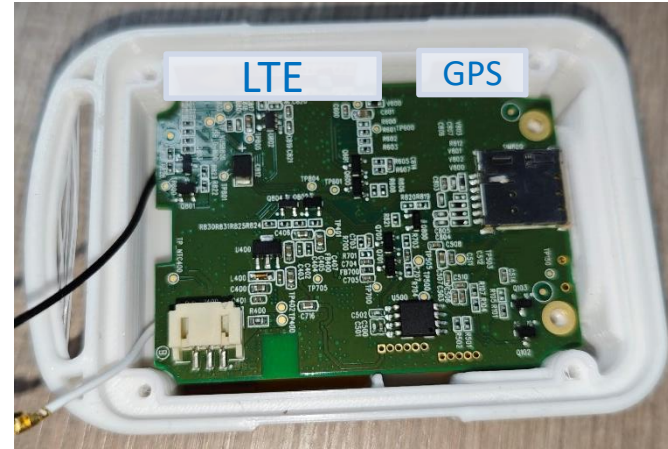
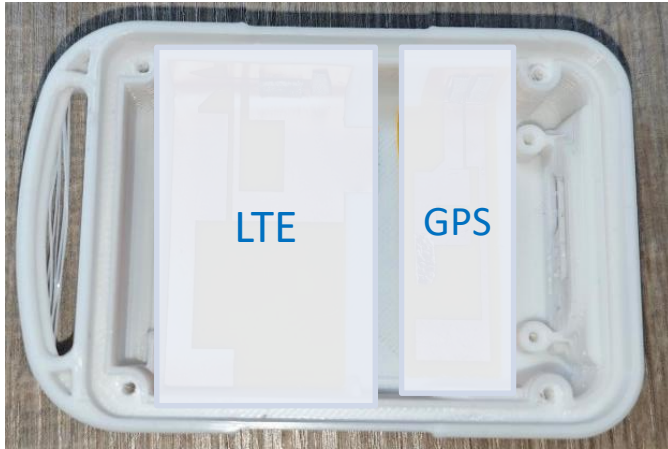
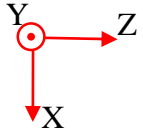
Revision	Date	Engineer	Description
01	2023/12/21	Ting	New Release
02	2024/01/04	Ting	Update Environment
03	2024/04/03	Ting	Redesign antennas for new PCBA

Antenna Specification



Item	LTE		GPS	
Operating Frequency	617-960	1710~2690	1166~1186	1565-1585
Return Loss	5 dB	6 dB	10 dB	8 dB
Peak Gain	0.4dBi(Max.)	1.05dBi(Max.)	0.18 dBi(Max.)	0.43 dBi(Max.)
Antenna Type	FPC			
V.S.W.R	3.5 : 1	3 : 1	2 : 1	2.3 : 1
Efficiency	36 %(Max.)	41 %(Max.)	41 %(Max.)	40 %(Max.)

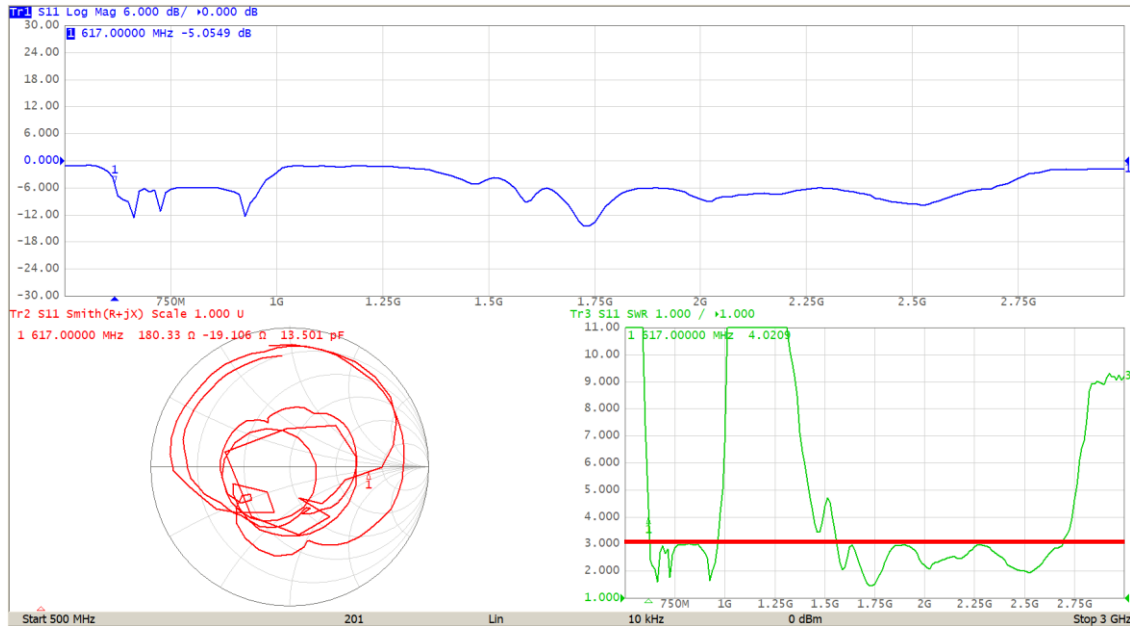
Antenna Placement



ANT	ANT Type	Size(L*W*H)
LTE	FPC	62 mm× 29 mm
GPS	FPC	56 mm× 10 mm

S-Parameter Result

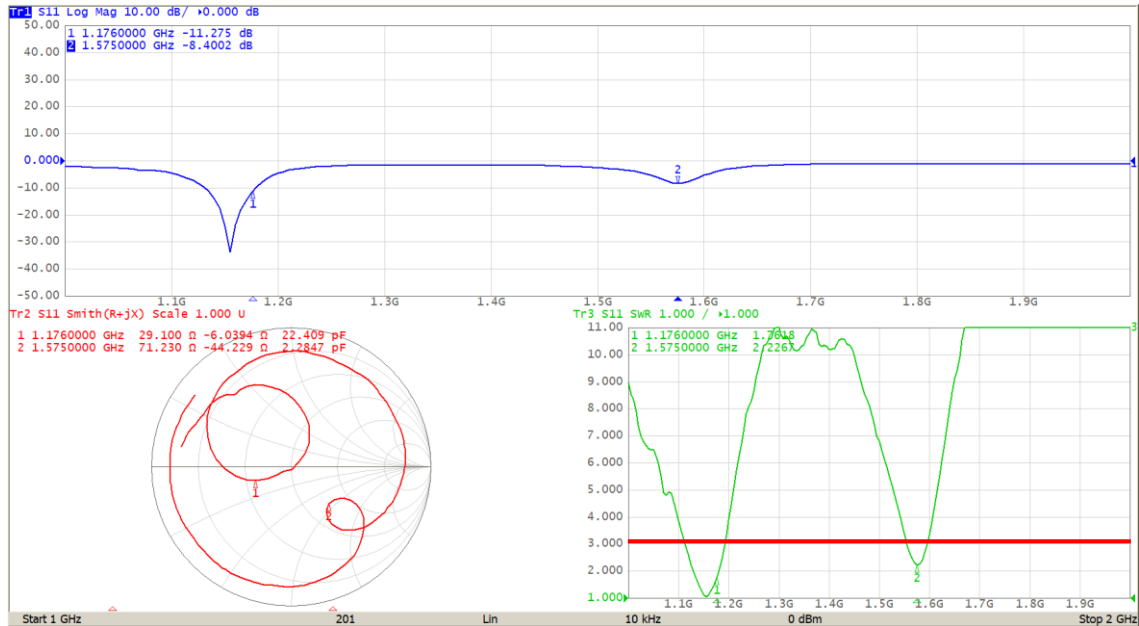
LTE



		S-Parameter(dB)			
ANT	Freq.(MHz)	617	960	1710	2690
	LTE	-5.0	-6.4	-12.9	-6.0

S-Parameter Result

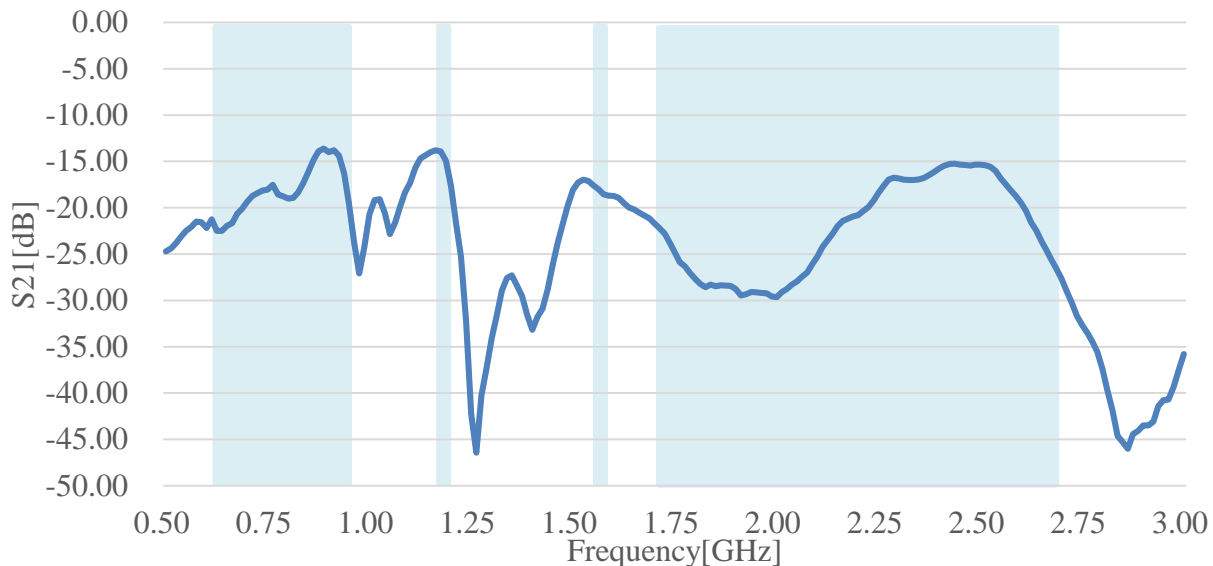
GPS



S-Parameter(dB)			
		Freq.(MHz)	
ANT		1176	1575
	LTE	-11.2	-8.4

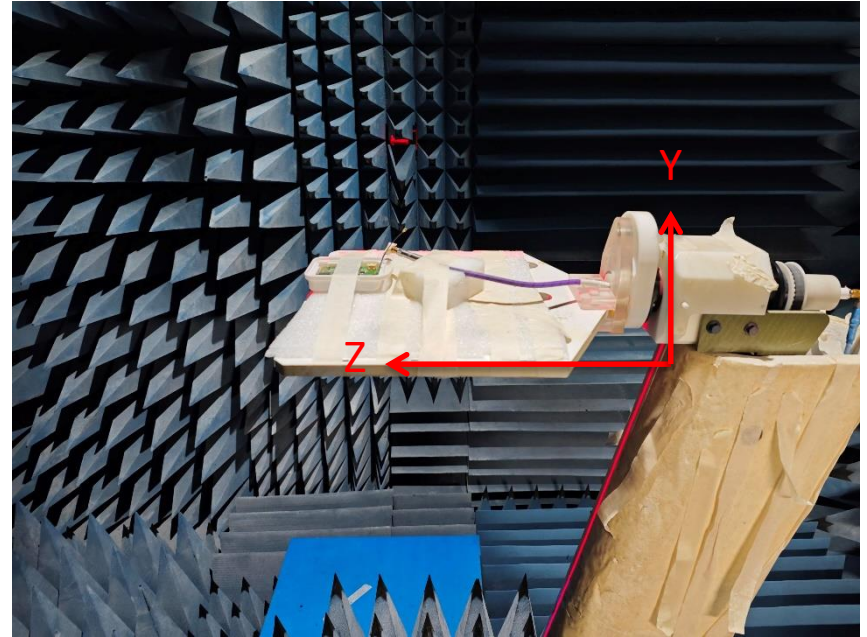
Isolation Result

LTE to GPS



		Isolation(dB)					
ANT \ Freq.(MHz)		617	960	1176	1575	1710	2690
LTE & GPS		-21.6	-22.8	-14.0	-18.5	-22.1	-26.8

Chamber Measurement Photo



Peak Gain 、 Efficiency Result

LTE

Freq.(GHz)	Peak Gain (dBi)	Efficiency (%)
0.617	0.12	31
0.652	1.2	37
0.698	-0.87	34
0.707	-0.03	36
0.746	0.53	37
0.787	0.37	30
0.824	0.08	30
0.849	0.19	31
0.9	-0.71	31
0.925	0.02	34
0.96	0.33	35

Freq.(GHz)	Peak Gain (dBi)	Efficiency (%)
1.71	1.46	43
1.785	0.63	37
1.84	0.85	35
1.95	-0.38	34
1.98	-0.31	36
2.01	0.16	42
2.17	-0.2	36
2.35	0.91	38
2.4	1.11	41
2.484	0.07	39
2.5	0.9	43

Freq.(GHz)	Peak Gain (dBi)	Efficiency (%)
2.55	0.65	38
2.57	0.66	38
2.6	0.8	38
2.65	1.1	39
2.675	0.75	35
2.69	0.7	34

Peak Gain 、 Efficiency Result

GPS

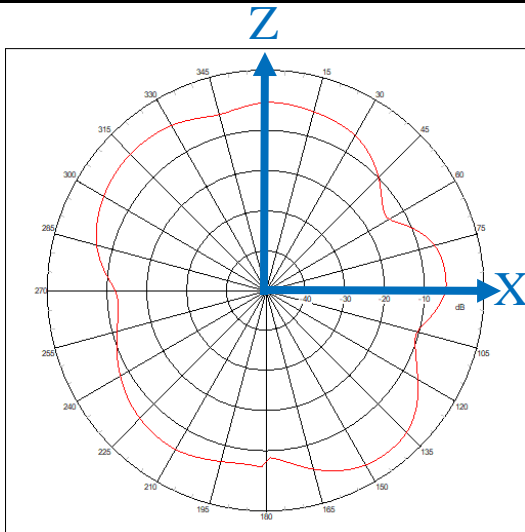
Freq.(GHz)	Peak Gain (dBi)	Efficiency (%)
1.166	0.1	39
1.176	0.18	41
1.186	-0.19	34
1.565	-0.06	37
1.575	0.43	40
1.585	0.23	36

2D Antenna Pattern

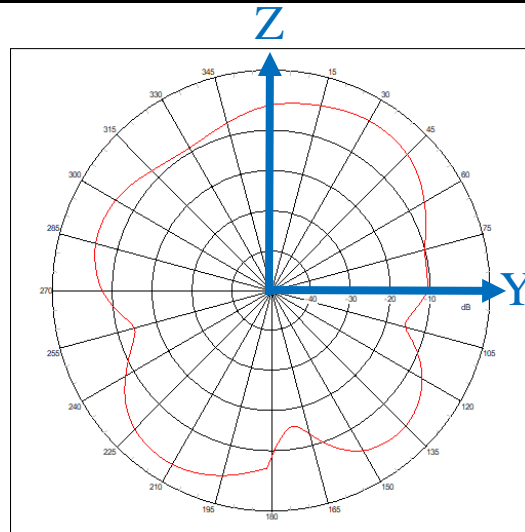
LTE

Frequency : 617MHz

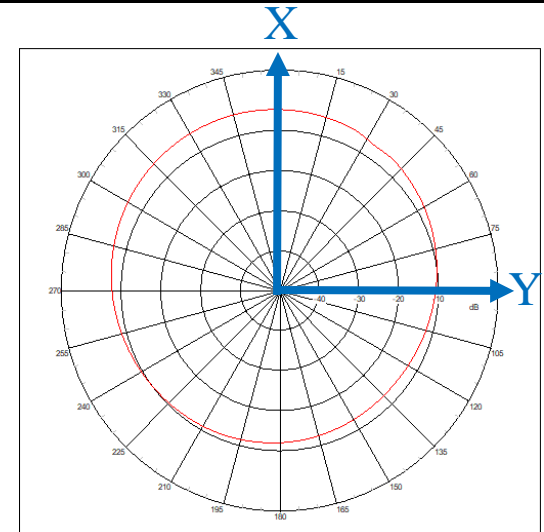
XZ-plane



YZ-plane



XY-plane



Far-field amplitude limits:

Max: 5dB

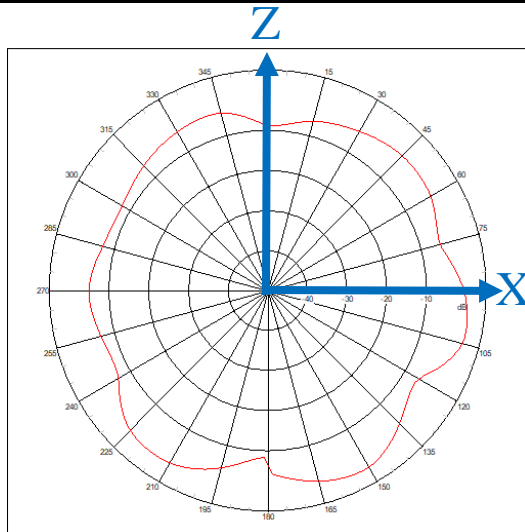
min: -50dB

2D Antenna Pattern

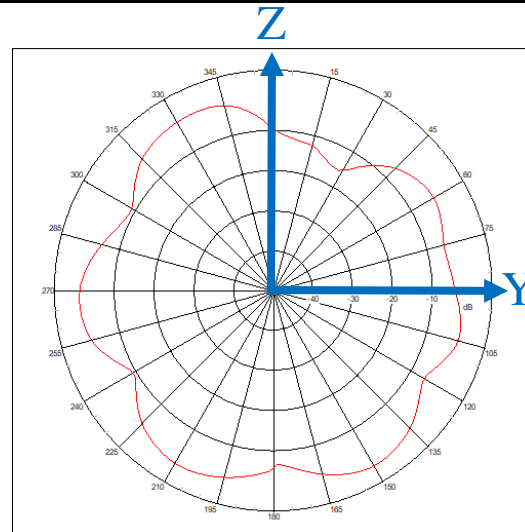
LTE

Frequency : 707MHz

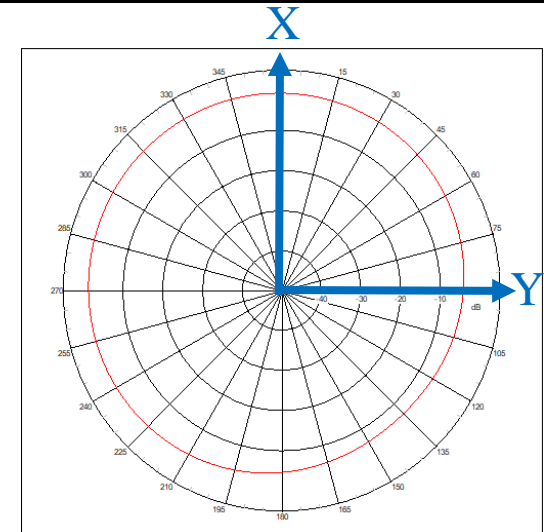
XZ-plane



YZ-plane



XY-plane



Far-field amplitude limits:

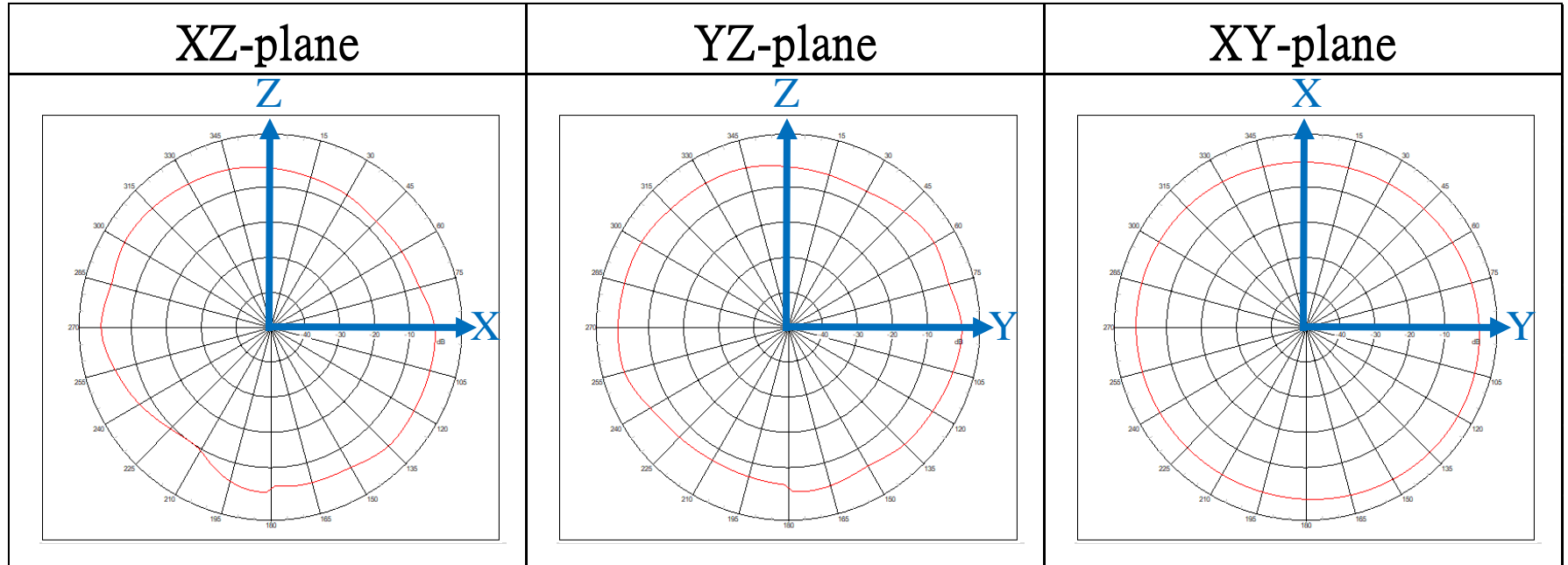
Max: 5dB

min: -50dB

2D Antenna Pattern

LTE

Frequency : 960 MHz



Far-field amplitude limits:

Max: 5dB

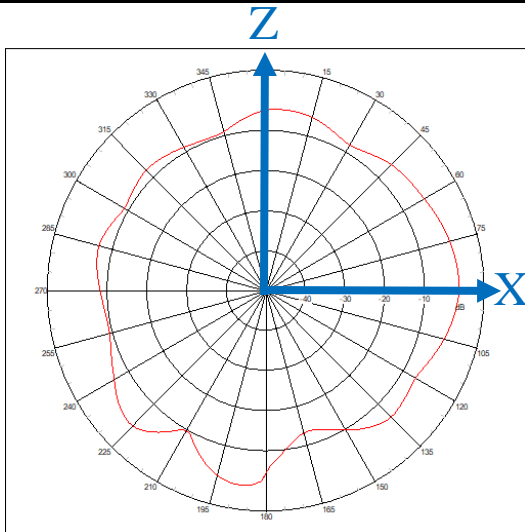
min: -50dB

2D Antenna Pattern

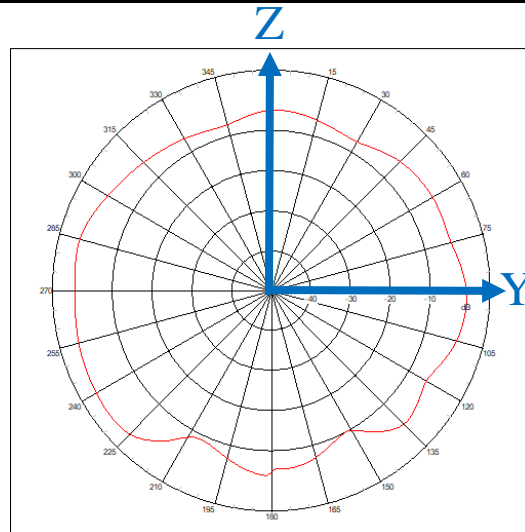
LTE

Frequency : 1710 MHz

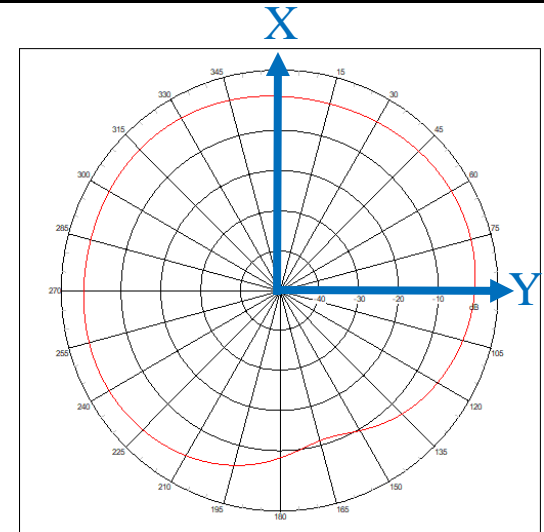
XZ-plane



YZ-plane



XY-plane



Far-field amplitude limits:

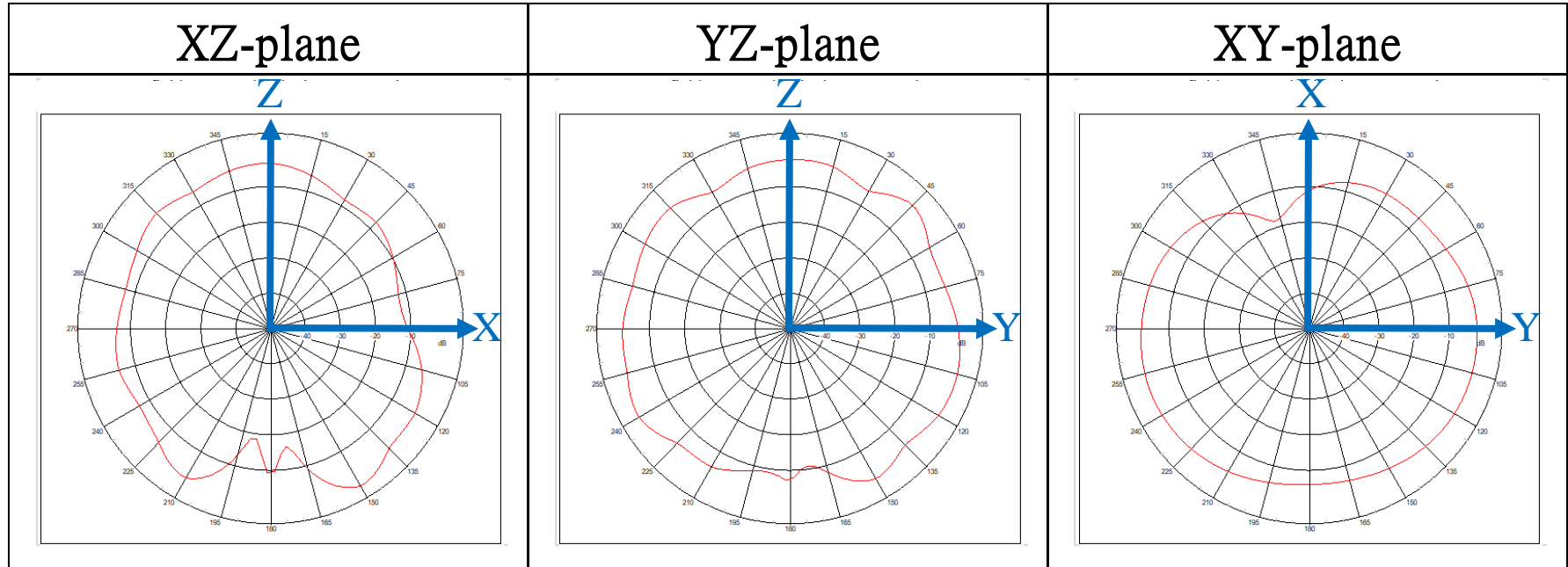
Max: 5dB

min: -50dB

2D Antenna Pattern

LTE

Frequency : 2400 MHz



Far-field amplitude limits:

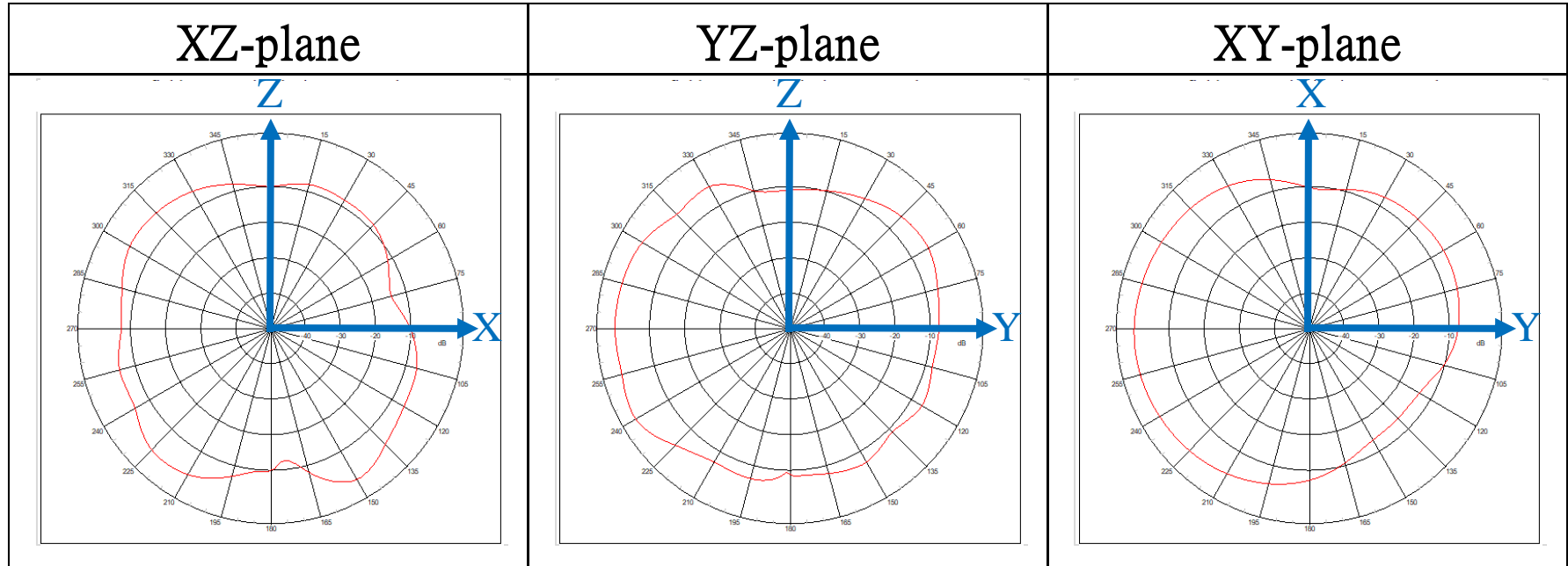
Max: 5dB

min: -50dB

2D Antenna Pattern

LTE

Frequency : 2690 MHz



Far-field amplitude limits:

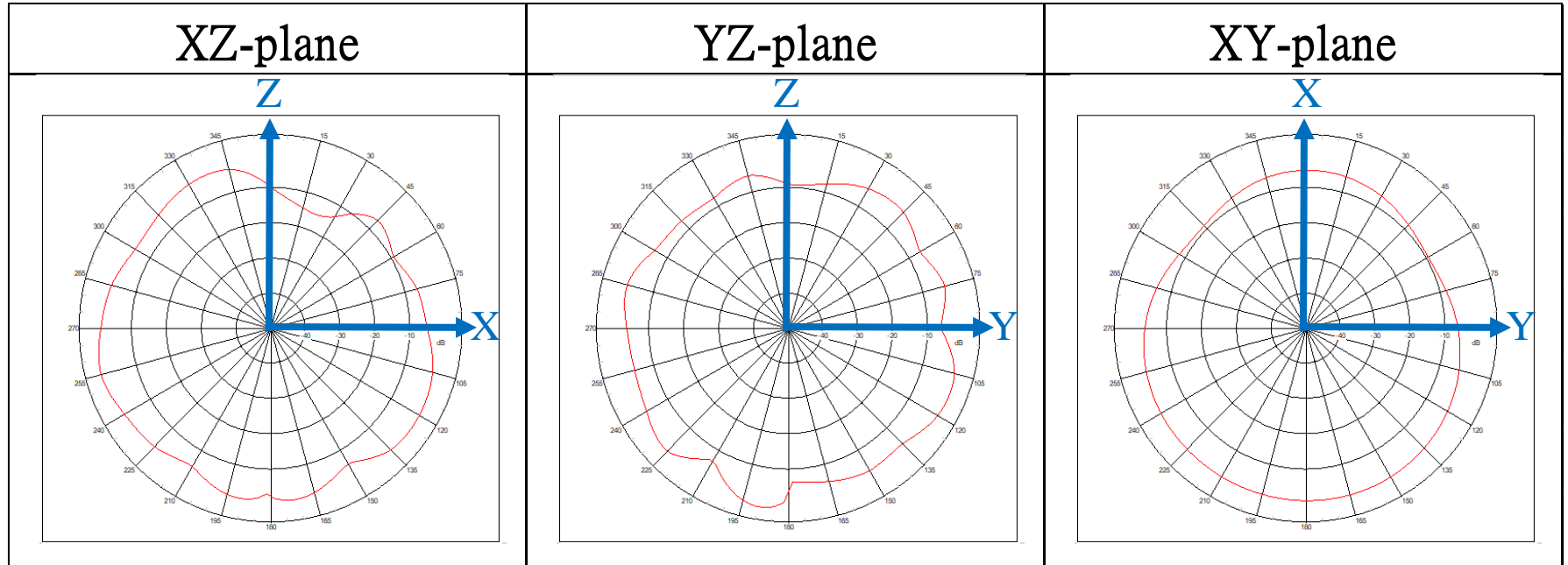
Max: 5dB

min: -50dB

2D Antenna Pattern

GPS

Frequency : 1176 MHz



Far-field amplitude limits:

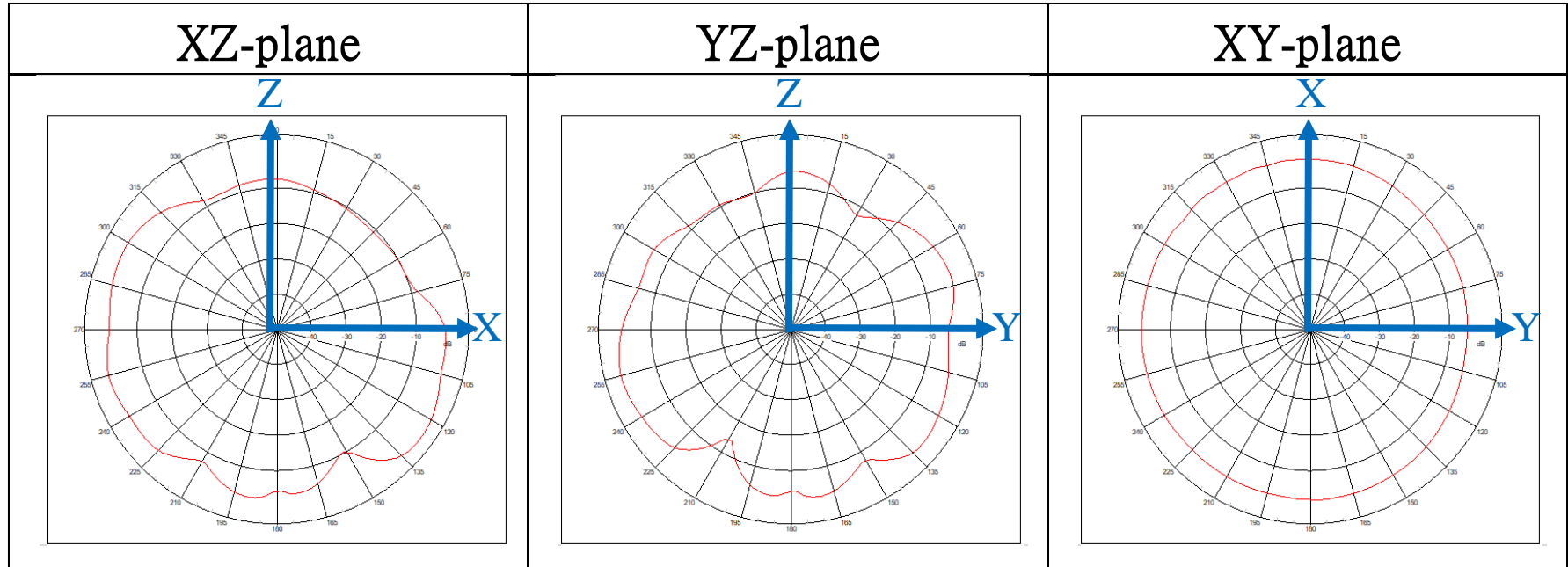
Max: 5dB

min: -50dB

2D Antenna Pattern

GPS

Frequency : 1575 MHz



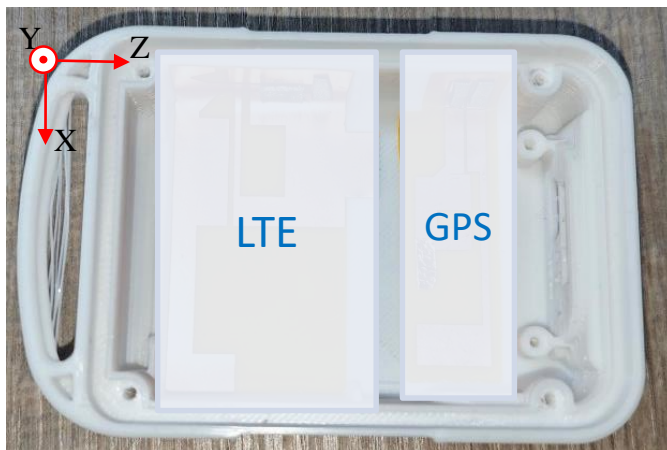
Far-field amplitude limits:

Max: 5dB

min: -50dB

Conclusion & Recommendations

- 1.主板上彈片無法觸碰版邊天線，故此次模擬使用導電泡棉增加厚度。





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