

Antenna

I-series 5.0 Slate 15.6 WLAN Antenna Test Report

ADVANCED-CONNECTEK INC.

Wireless Communications BU.

2024.04.08



Executive Summary

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- **Purpose**

Antenna study for I-series 5.0 Slate 15.6 . Result as following.

- **Agenda**

- Test Environment and Equipment
- Antenna Positions and Dimensions
- Antenna Test Data

Test Result : Antenna VSWR & Isolation

Test Result : Antenna Efficiency & Peak Gain

Test Result : Antenna 2D/3D Radiation Patternn

Test Environment and Equipments

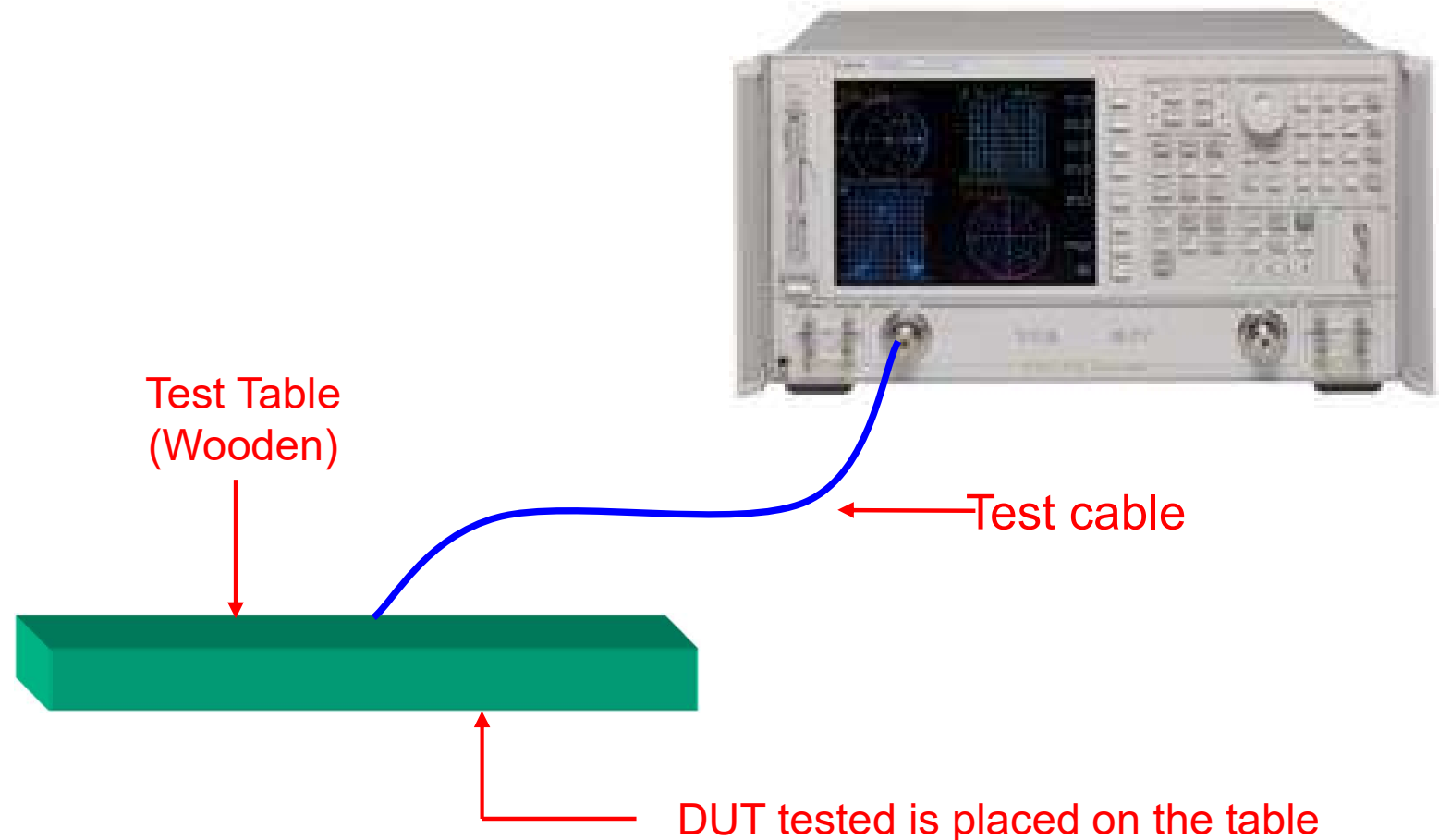
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S-Parameter test

- Network Analyzer(Agilent-E5071C)
- Testing range from 9KHz to 8.5GHz



Test Environment and Equipments

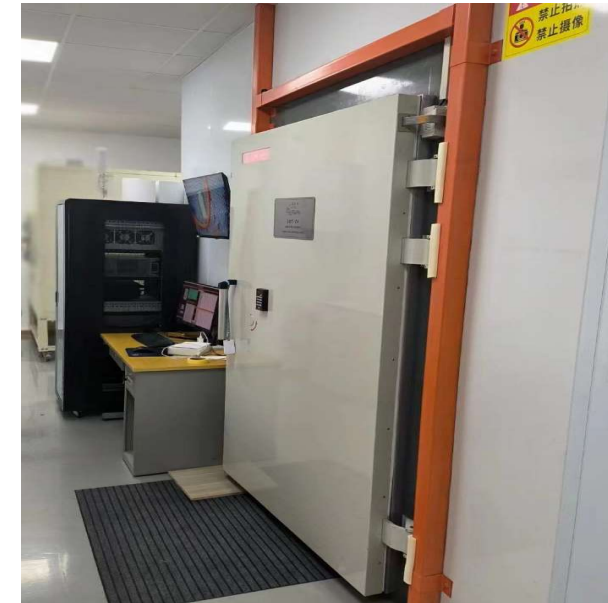
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The Gain, Efficiency, Directivity and 2D/3D Pattern

- ACON 3D Anechoic Chamber
- Chamber Room Size: $L*W*H=4*4*4$ M

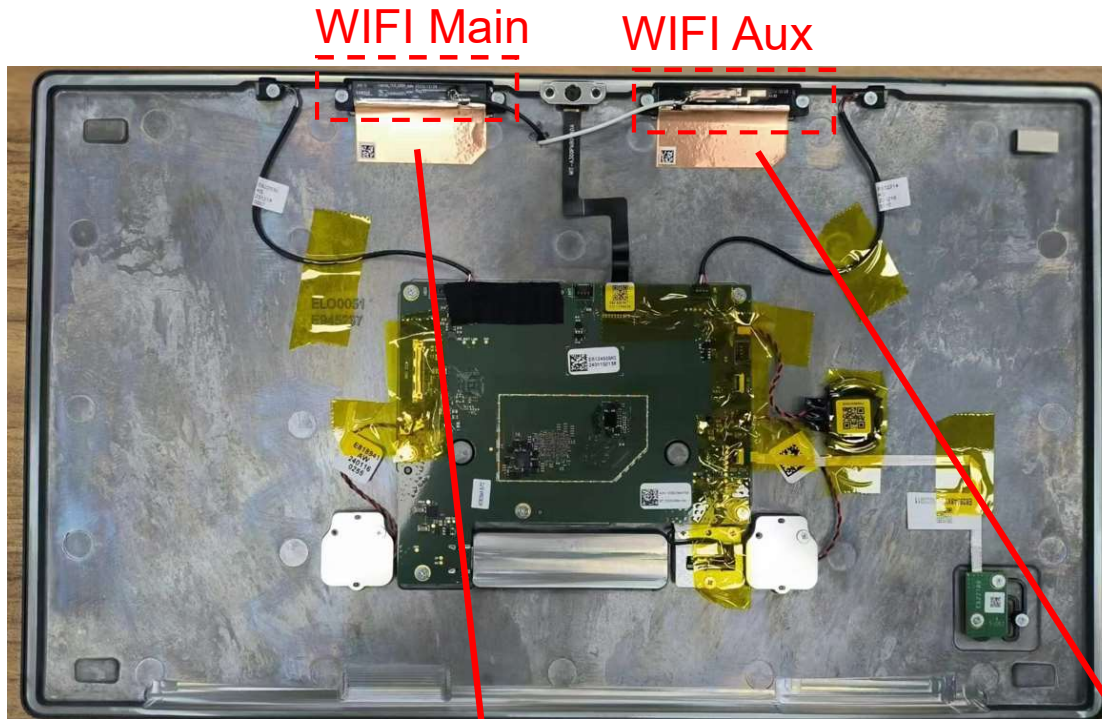


Antenna Positions and Dimensions

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WIFI Main

Antenna Size : 46mm*7.5mm*0.8mm

Cable Length : 85mm

Cable OD:1.37

銅箔尺寸：20mm*46mm

WIFI Aux

Antenna Size : 46mm*7.5mm*0.8mm

Cable Length : 92mm

Cable OD:1.37

銅箔尺寸：20mm*46mm

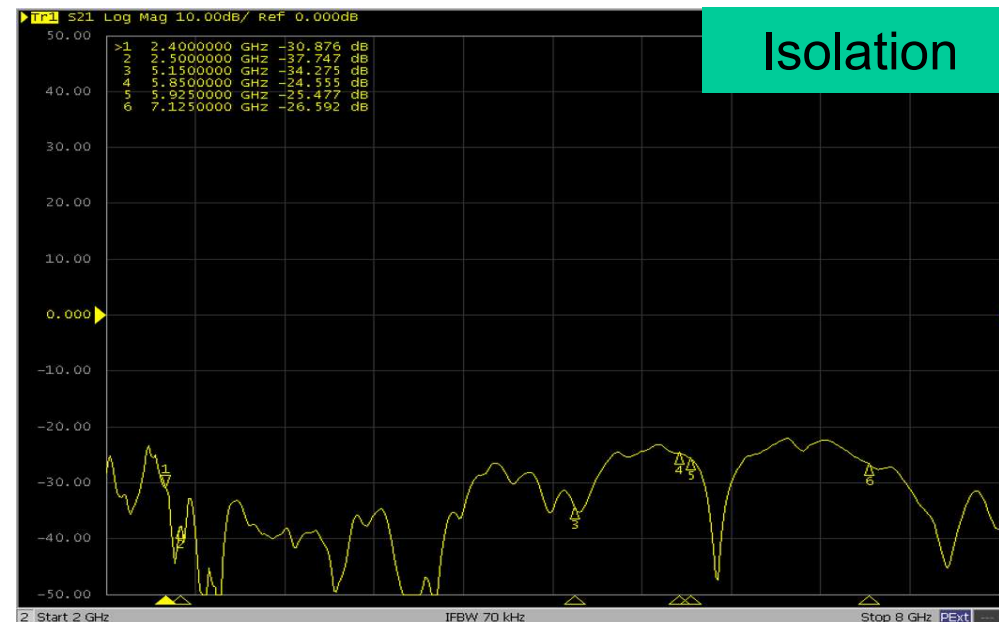
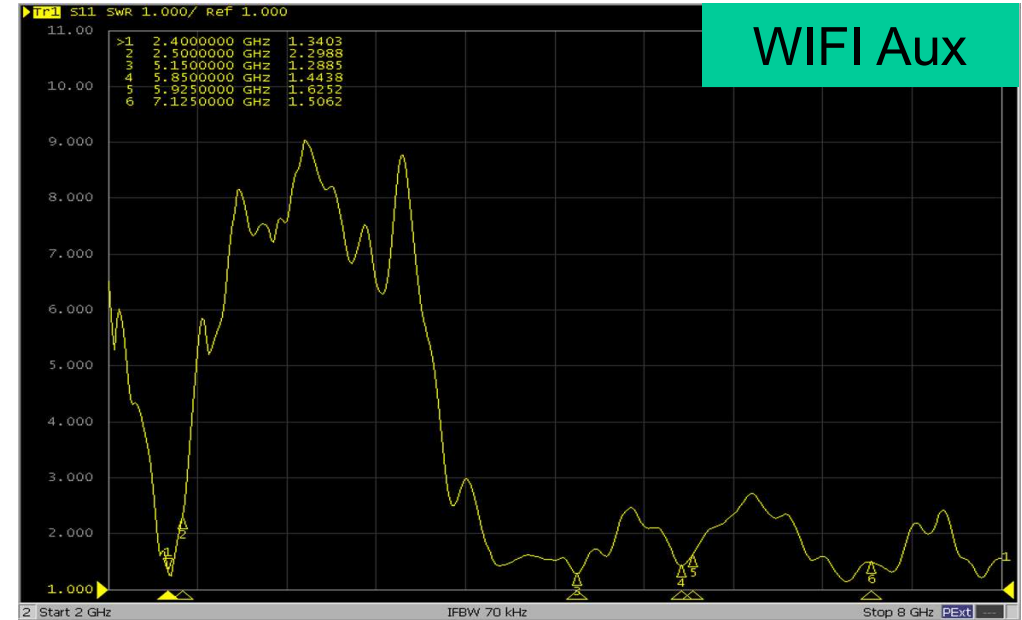


Test Result: Antenna VSWR & Isolation

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Test Result:Antenna Efficiency

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Main Antenna			
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	peak gain(dB)
2400	-4.40	36.31	1.97
2450	-4.35	36.73	1.49
2500	-4.15	38.46	1.04
5150	-4.52	35.32	1.15
5250	-4.13	38.64	2.73
5350	-4.24	37.67	2.25
5470	-4.57	34.91	2.35
5600	-4.09	38.99	1.60
5725	-4.13	38.64	2.18
5750	-4.42	36.14	2.40
5785	-4.53	35.24	1.94
5800	-4.35	36.73	1.57
5850	-4.38	36.48	1.41

Main Antenna			
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	peak gain(dB)
5925	-4.16	38.37	1.7
6000	-4.05	39.36	1.49
6100	-4.97	31.84	1.26
6200	-4.64	34.36	1.23
6300	-4.84	32.81	2.07
6400	-4.01	39.72	1.88
6500	-4.24	37.67	1.77
6600	-4.21	37.93	1.62
6700	-4.30	37.15	2.36
6800	-4.97	31.84	2.43
6900	-4.94	32.06	1.78
7000	-4.05	39.36	1.30
7125	-4.30	39.15	2.24

Test Result:Antenna Efficiency

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Aux Antenna			
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	peak gain(dB)
2400	-4.12	38.73	1.82
2450	-4.19	38.11	1.62
2500	-4.05	39.36	1.33
5150	-4.34	36.81	2.11
5250	-4.20	38.02	1.15
5350	-4.18	38.19	2.54
5470	-3.92	40.55	1.94
5600	-4.27	37.41	2.40
5725	-4.40	36.31	1.80
5750	-4.37	36.56	1.71
5785	-4.31	37.07	2.34
5800	-4.45	35.89	1.70
5850	-4.40	36.31	1.55

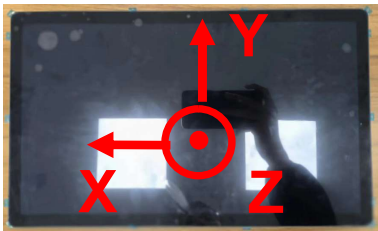
Aux Antenna			
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	peak gain(dB)
5925	-4.68	34.04	2.12
6000	-4.16	38.37	1.94
6100	-4.33	36.90	2.29
6200	-4.62	34.51	1.68
6300	-4.62	34.51	1.77
6400	-4.80	33.11	2.48
6500	-4.58	34.83	1.79
6600	-3.81	41.59	1.38
6700	-4.18	38.19	2.37
6800	-4.02	39.63	1.15
6900	-4.36	36.64	1.65
7000	-4.40	36.31	1.63
7125	-4.36	36.64	2.19

Test Result:2D/3D Radiation Pattern MAIN

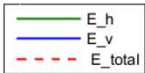
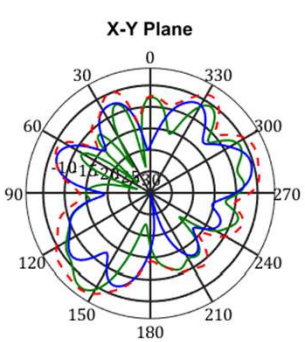
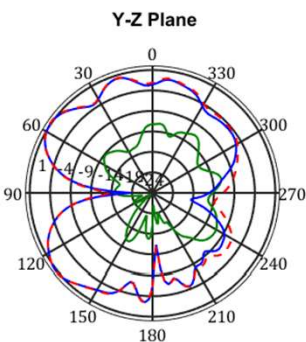
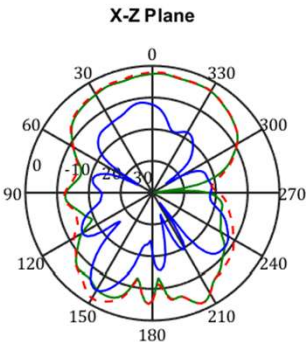
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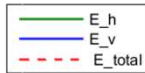
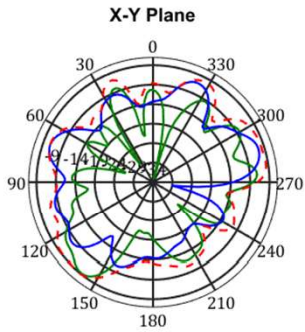
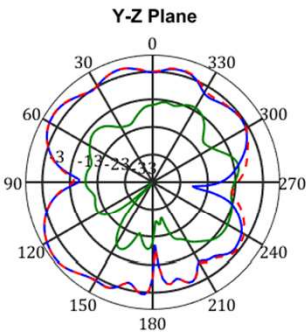
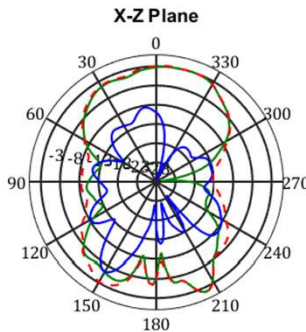
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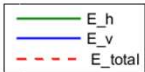
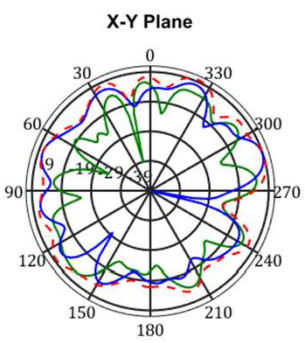
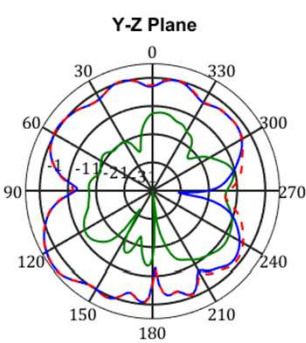
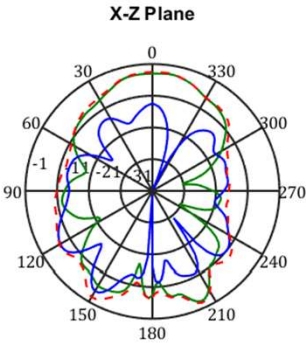
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2450MHz



2500MHz

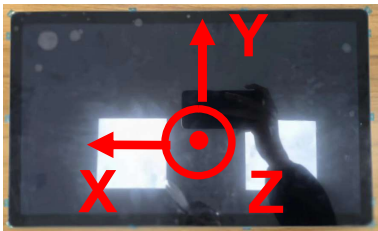


Test Result:2D/3D Radiation Pattern MAIN

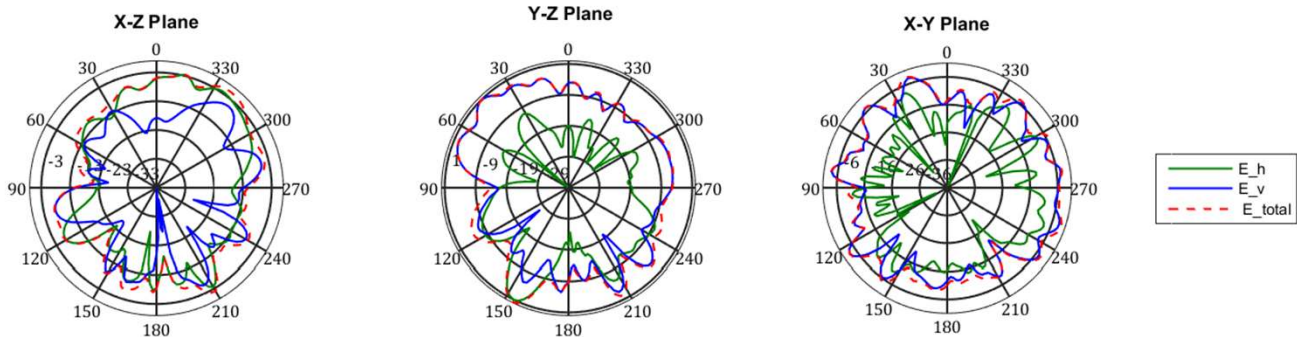
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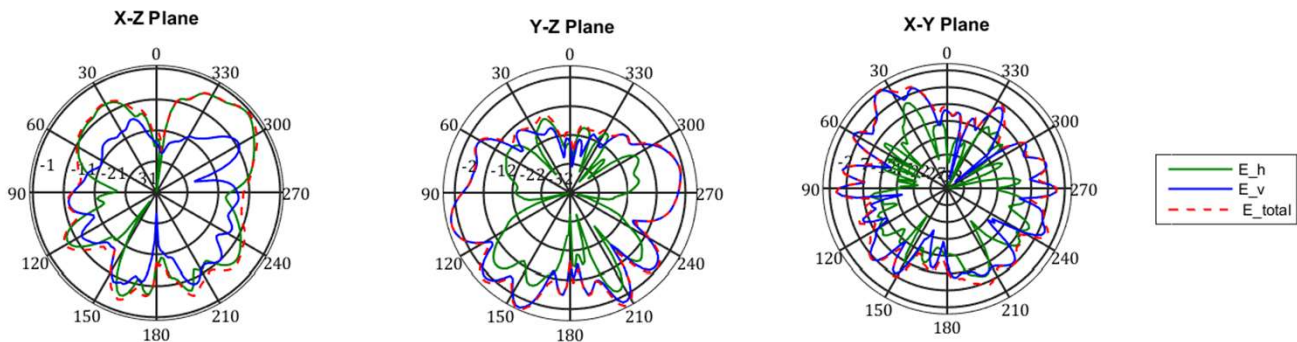
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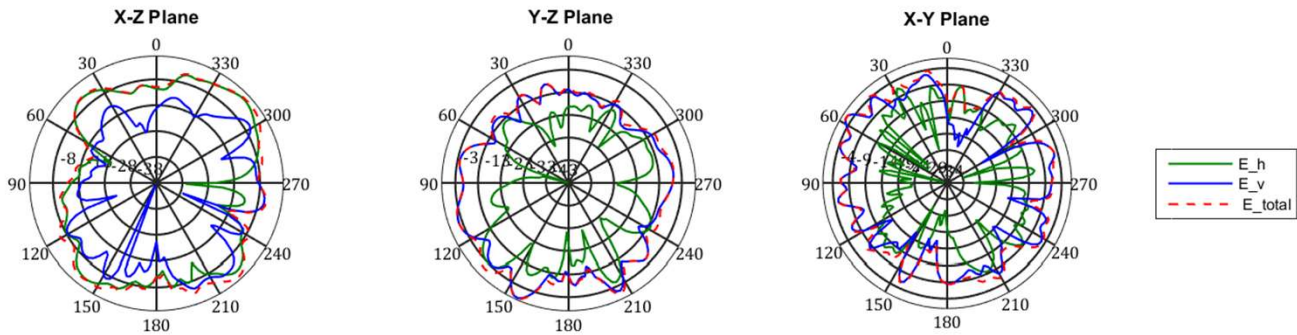
5150MHz



5470MHz



5850MHz

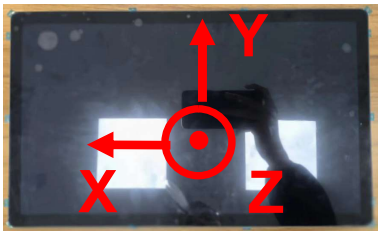


Test Result:2D/3D Radiation Pattern MAIN

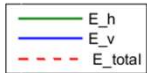
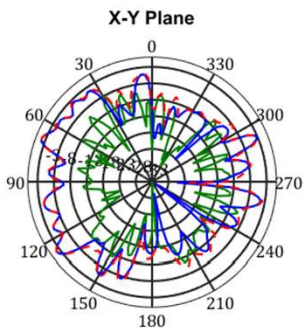
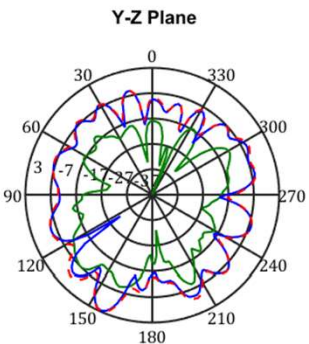
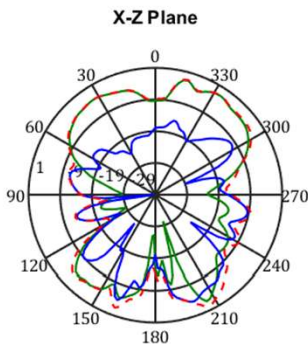
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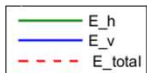
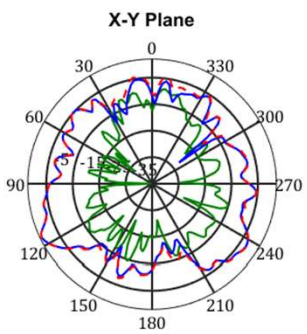
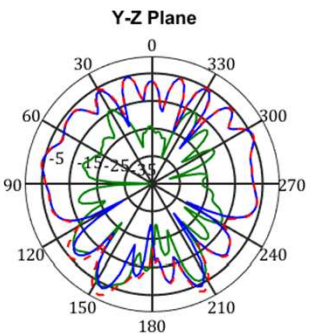
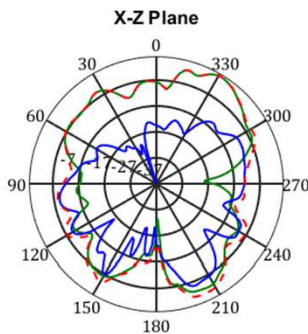
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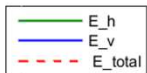
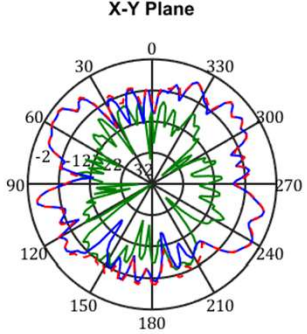
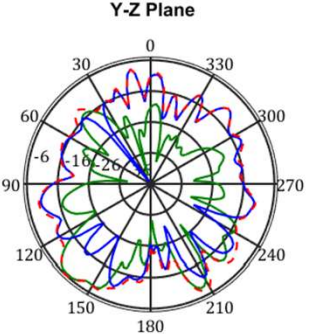
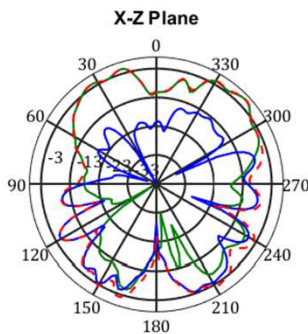
6100MHz



6500MHz



7125MHz

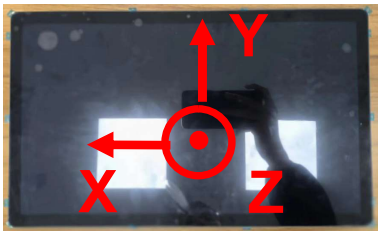


Test Result:2D/3D Radiation Pattern AUX

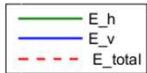
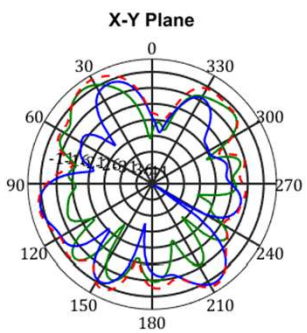
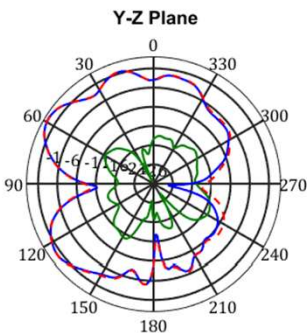
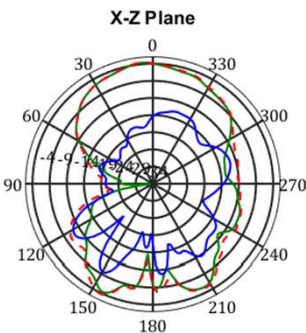
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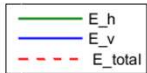
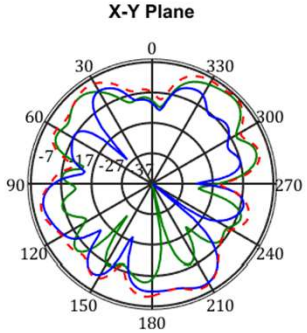
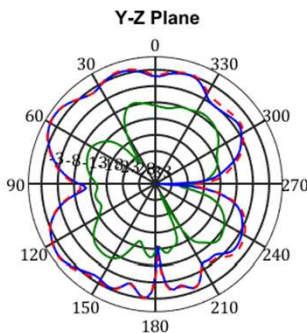
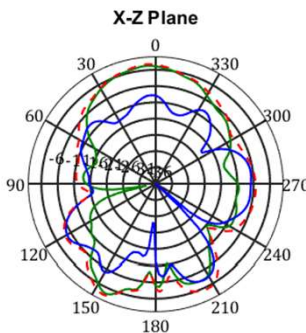
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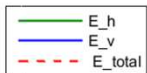
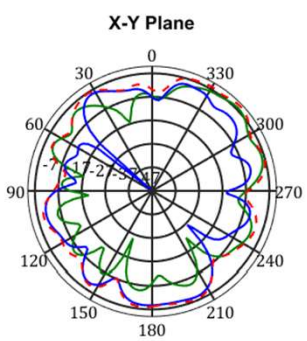
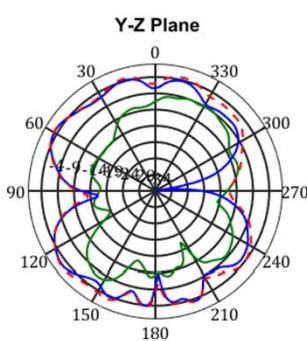
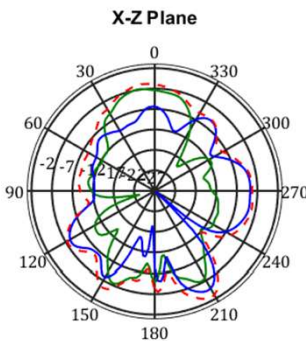
2400MHz



2450MHz



2500MHz

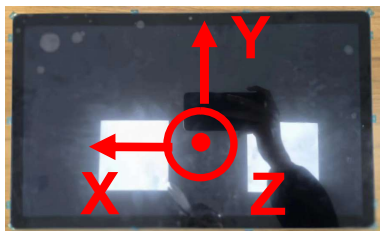


Test Result:2D/3D Radiation Pattern AUX

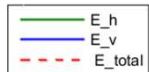
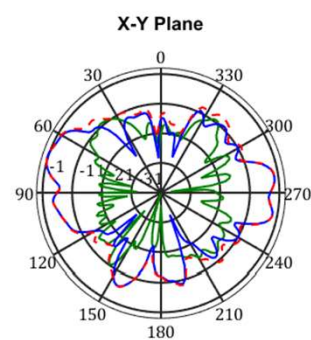
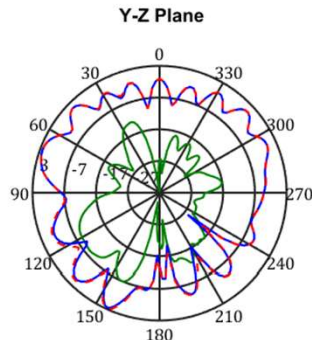
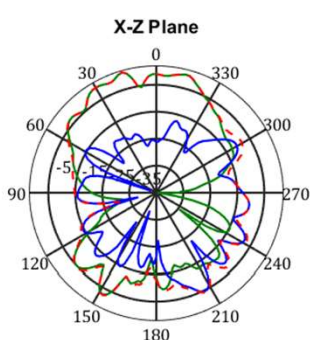
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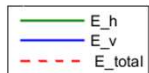
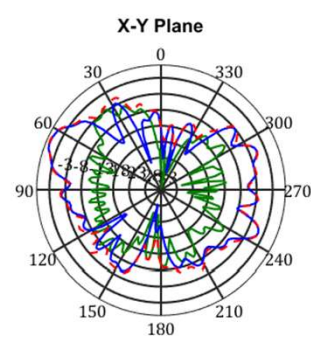
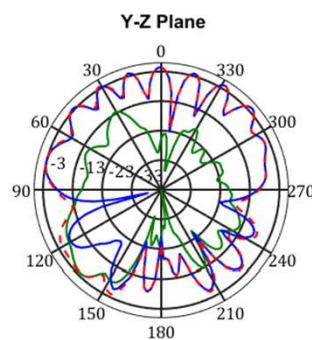
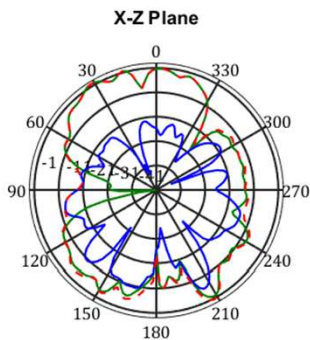
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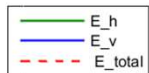
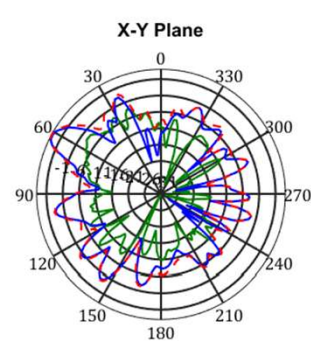
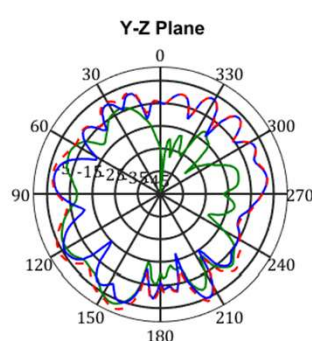
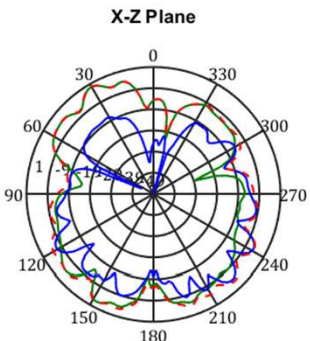
5150MHz



5470MHz



5850MHz

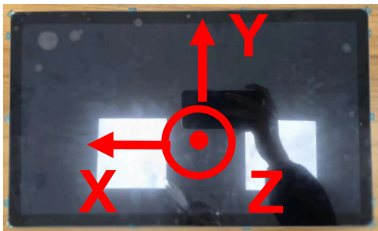


Test Result:2D/3D Radiation Pattern AUX

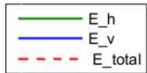
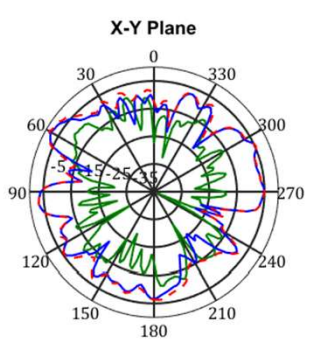
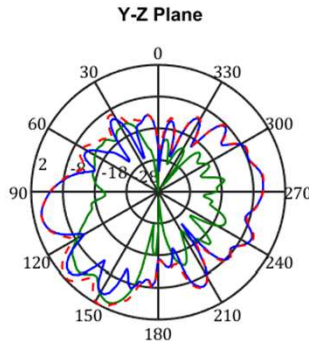
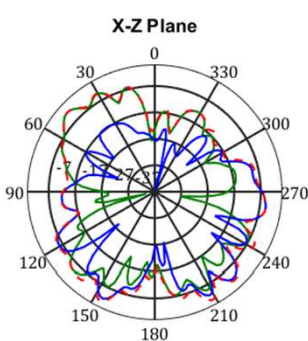
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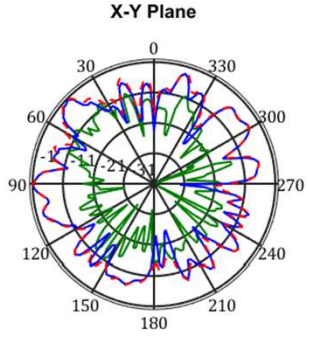
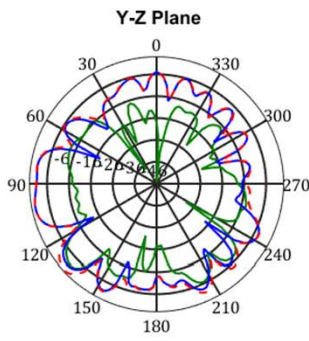
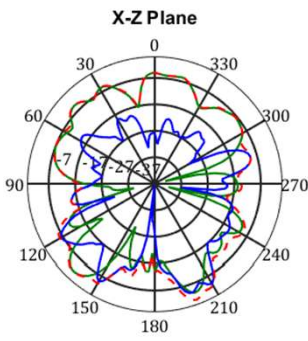
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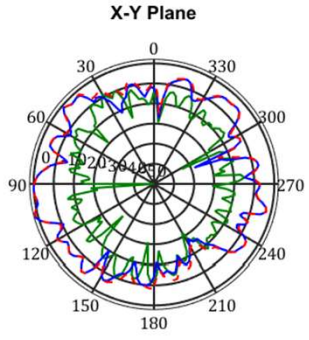
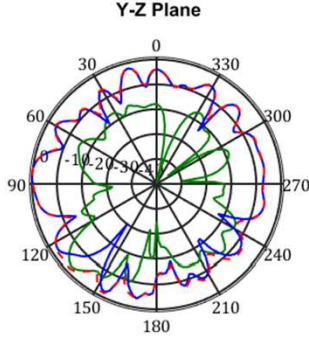
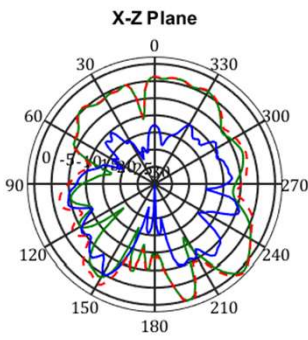
6100MHz



6500MHz



7125MHz

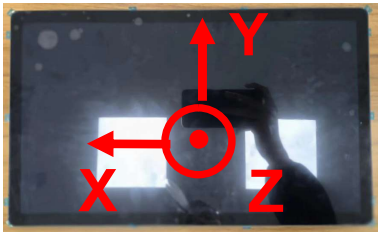


Test Result:2D/3D Radiation Pattern MAIN

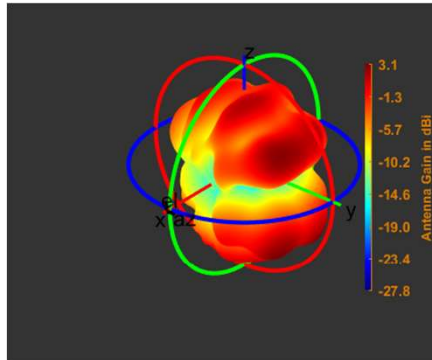
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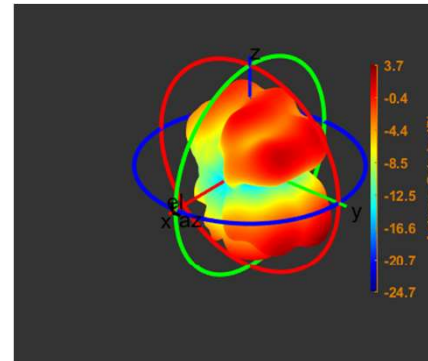
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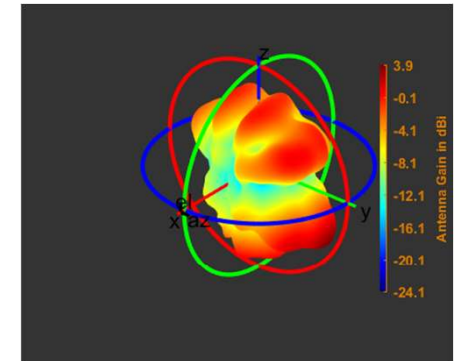
2400MHz



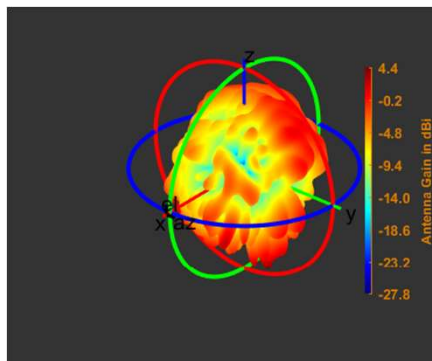
24500MHz



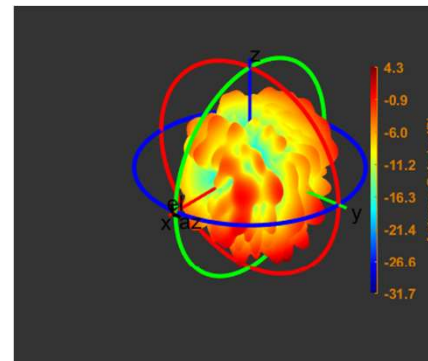
2500MHz



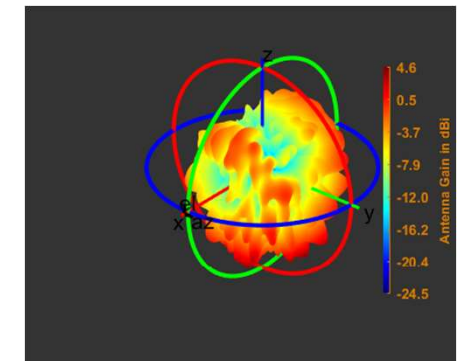
5150MHz



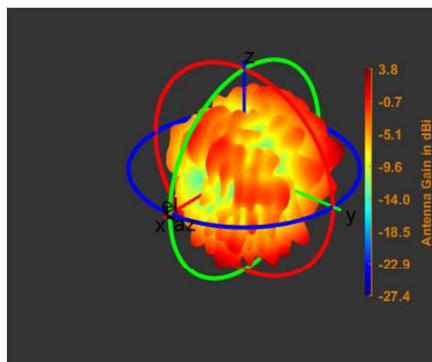
5470MHz



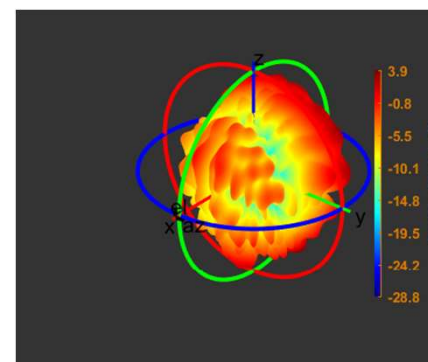
5850MHz



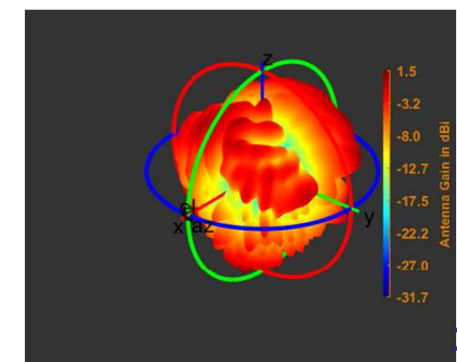
6100MHz



6500MHz



7125MHz

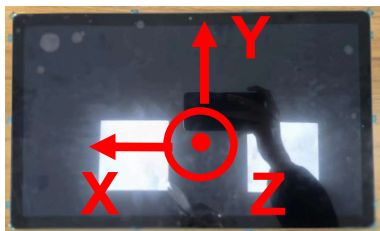


Test Result:2D/3D Radiation Pattern AUX

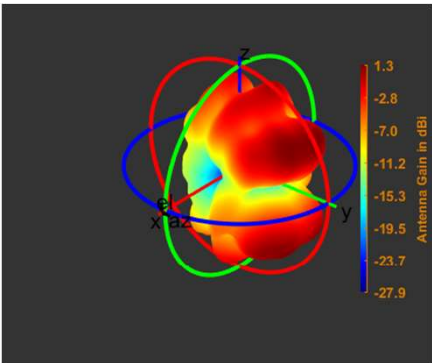
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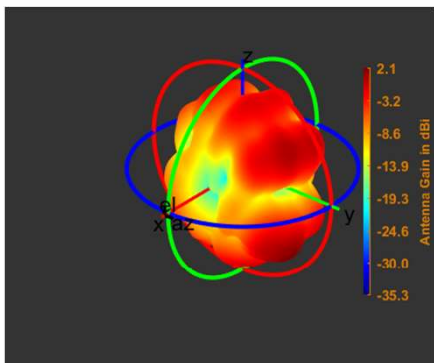
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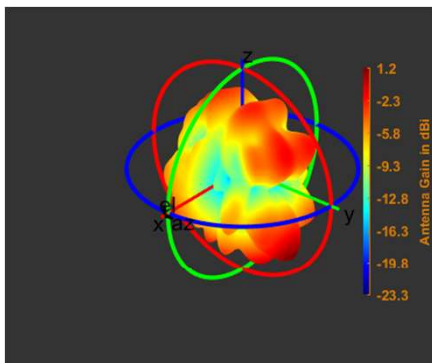
2400MHz



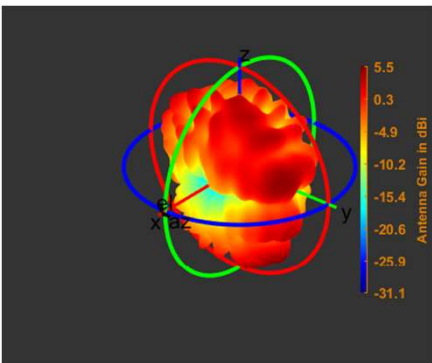
24500MHz



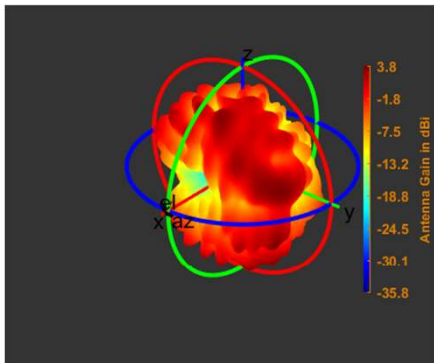
2500MHz



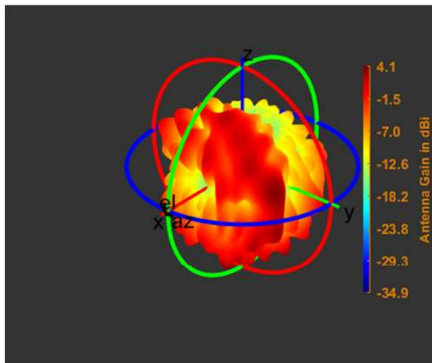
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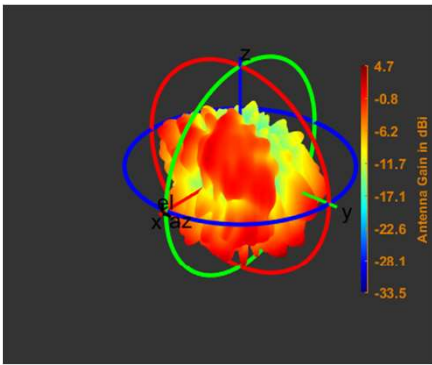
5470MHz



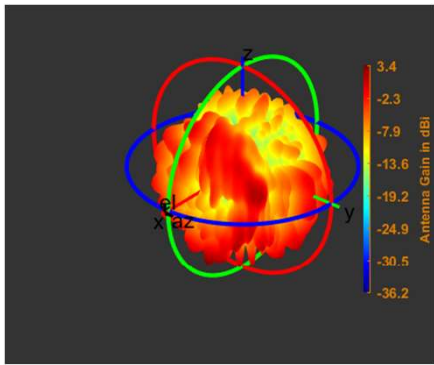
5850MHz



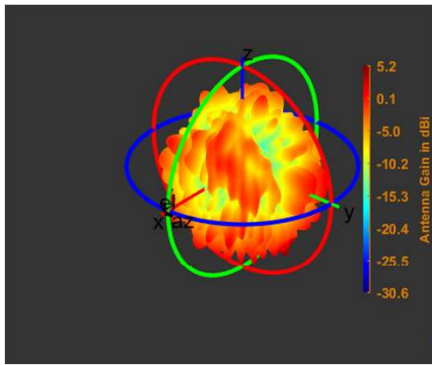
6100MHz



6500MHz



7125MHz



Test Result:Antenna Efficiency

For BT / BLE:

2400- 2483.5 MHz=>ANTB: 1.97dBi

For WLAN:

2400-2483.5 MHz=>ANT A:1.97dBi, ANT B:1.82dBi

5150-5250 MHz=>ANT A:2.73dBi, ANT B:2.11dBi

5250-5350 MHz=>ANT A:2.73dBi, ANT B:2.54dBi

5470-5725 MHz=>ANT A:2.35dBi, ANT B:2.4dBi

5725-5850 MHz=>ANT A:2.4dBi, ANT B:2.34dBi

5925-6425 MHz=>ANT A:2.07dBi, ANT B:2.48dBi

6425-6525 MHz=>ANT A:1.88dBi, ANT B:2.48dBi

6525-6875 MHz=>ANT A:2.43dBi, ANT B:2.37dBi

6875-7125 MHz=>ANT A:2.43dBi, ANT B:2.19dBi

Thank you!

