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NE3-22071

Arista_O435_exnternal_2_5_6G_6port

Version: V 1.0
Released Date: 2023/12/18
Prepared By : BOBO
Reviewed By :J.H.

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Revision History



Released Date	Version	Record
2023/12/18	1.0	Optimize antenna performance.

Specification



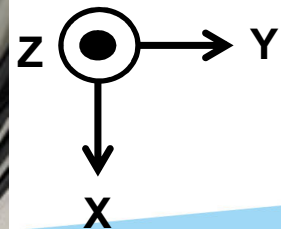
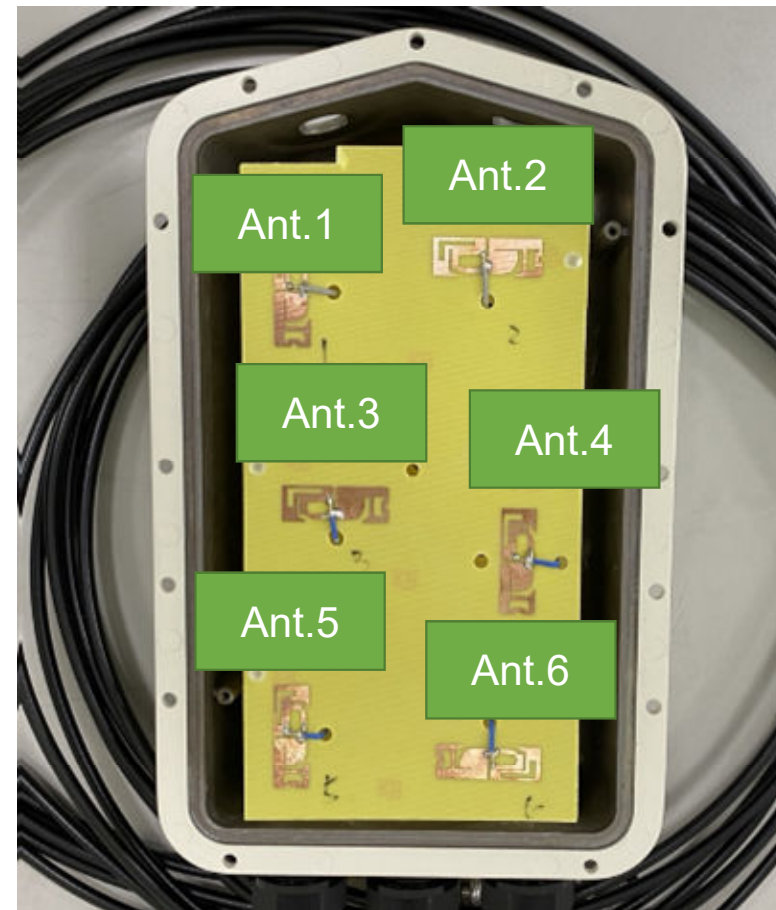
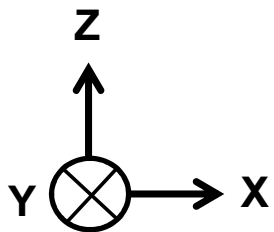
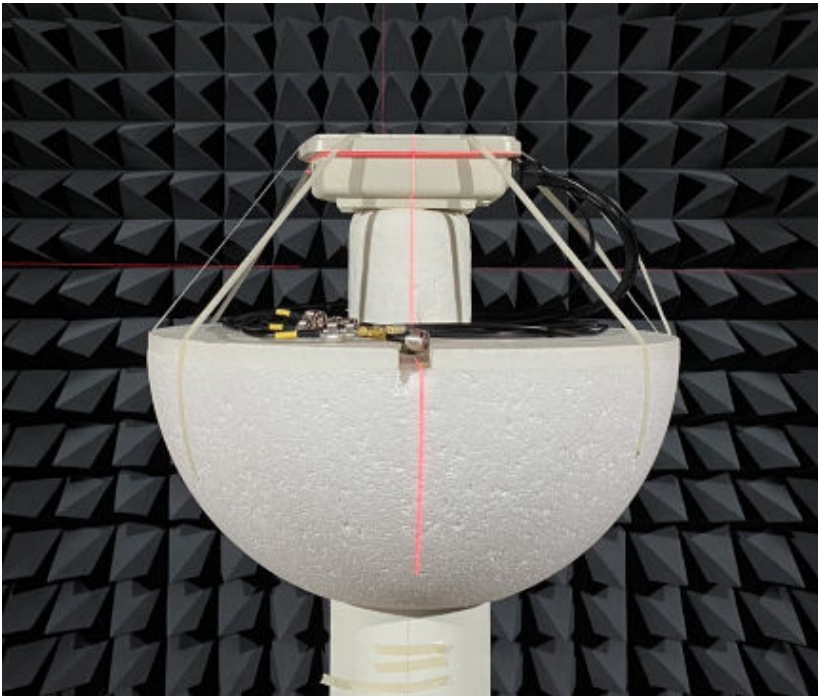
Requirements of Antenna Design

RF Function	Number of ANT	Model name (Antenna type)	Frequency Band	Remark Supplier information
TB	Ant.1~Ant.6	C393-510293-A (Panel)	2.4~2.5 / 5.15~7.125 GHz	From WHAYU, (No. 326, Sec. 2, Gongdao 5th Rd., East Dist., Hsinchu City 300 , Taiwan (R.O.C.)

Requirements of Measurement

Test Item	Specification	Remark
Polarization	Linear	
Return Loss	≥10B @ All	
Isolation	≥20dB @2G , ≥25dB@5/6G	
Peak gain	≥6dBi	Without cable loss
Efficiency	≥50%	Without cable loss
Radiation pattern	Scale: +10 ~ -40dBi	

Antenna Placement & Solution(1/2)

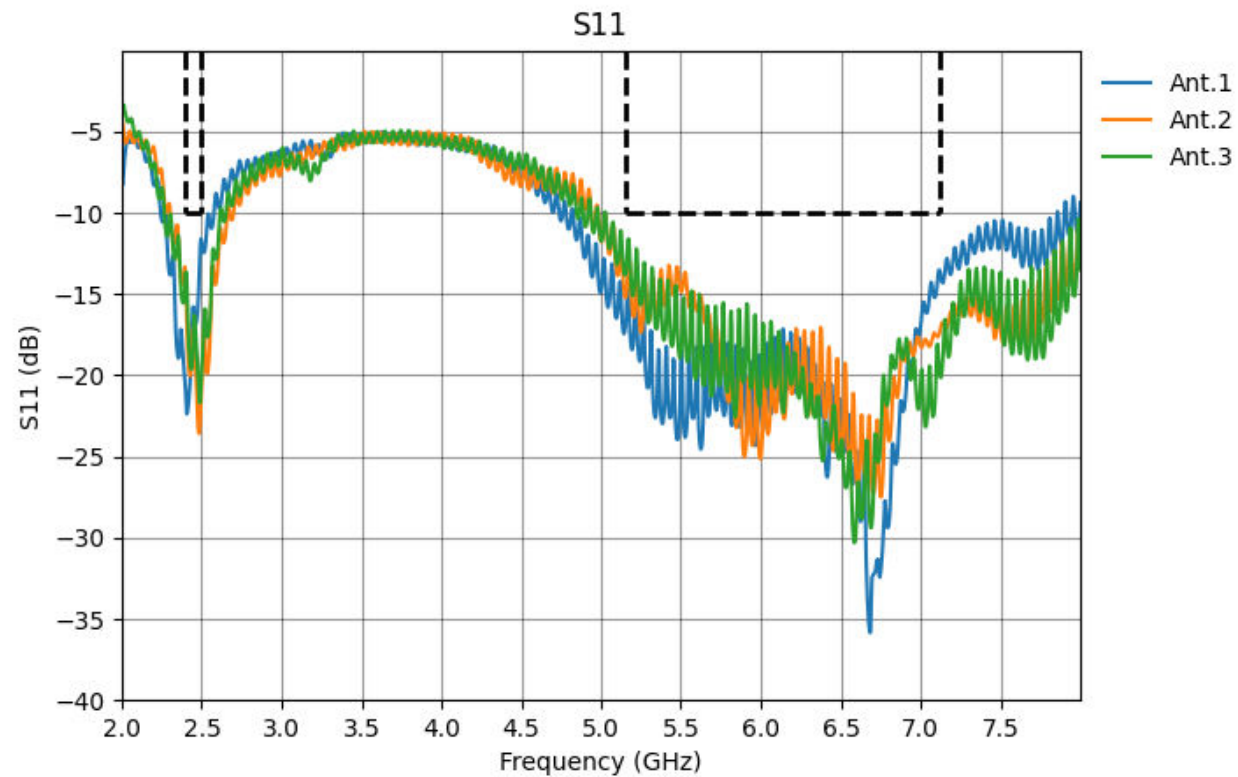


Antenna Placement & Solution(2/2)

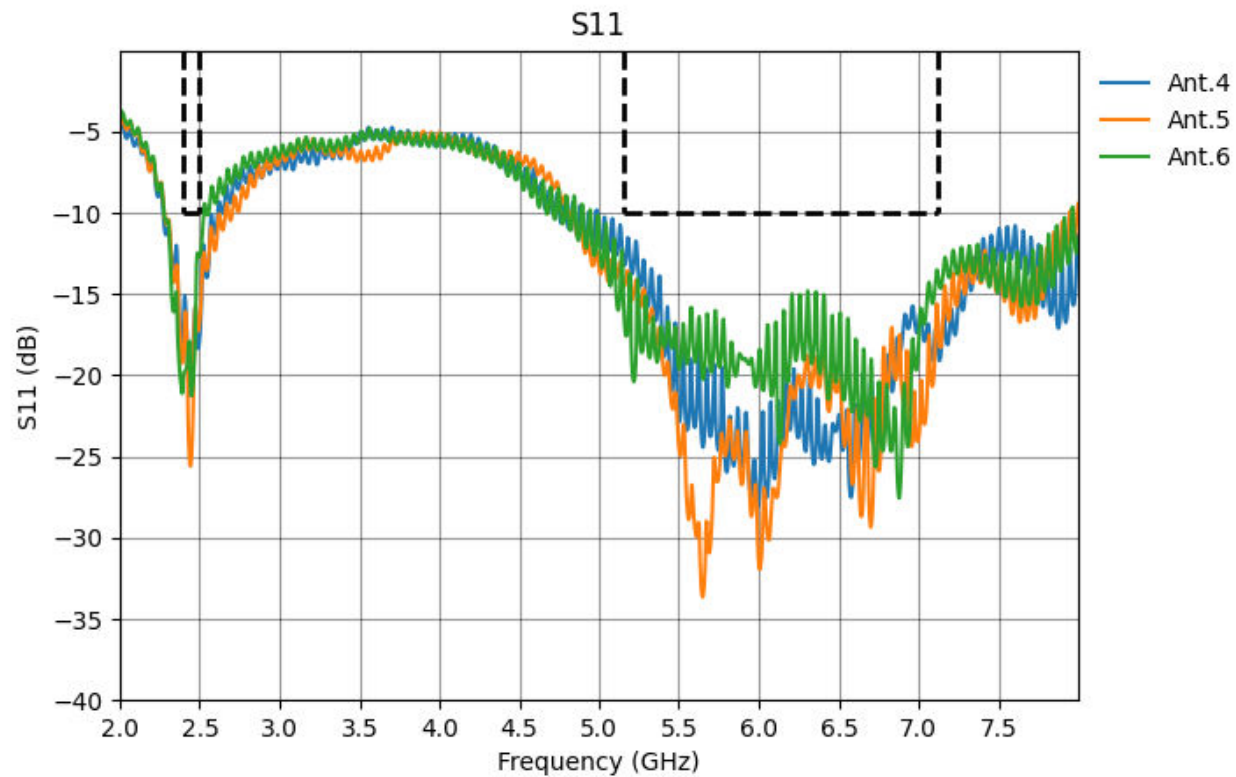


Antenna	Cable type	Cable length
Ant.1	CFD-200	2000mm
Ant.2	CFD-200	2000mm
Ant.3	CFD-200	2000mm
Ant.4	CFD-200	2000mm
Ant.5	CFD-200	2000mm
Ant.6	CFD-200	2000mm

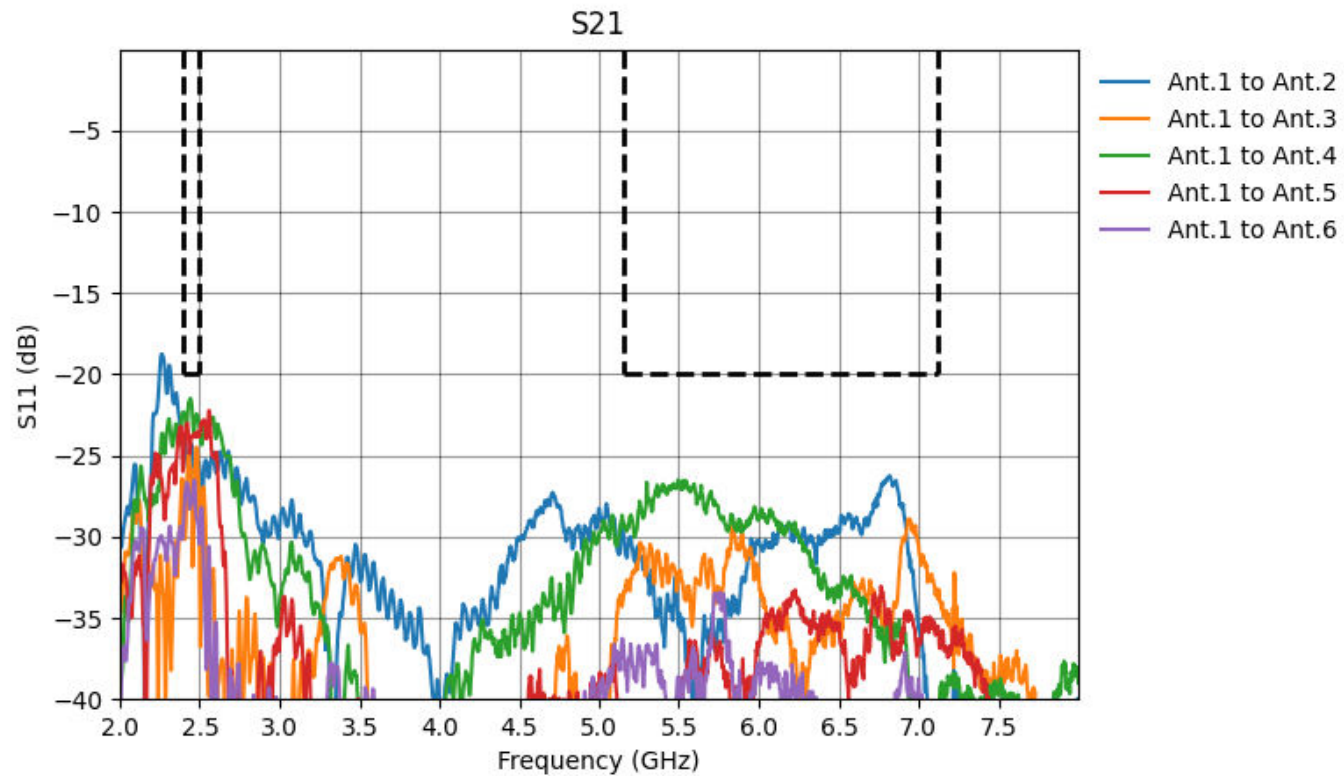
S-Parameter (Return Loss)



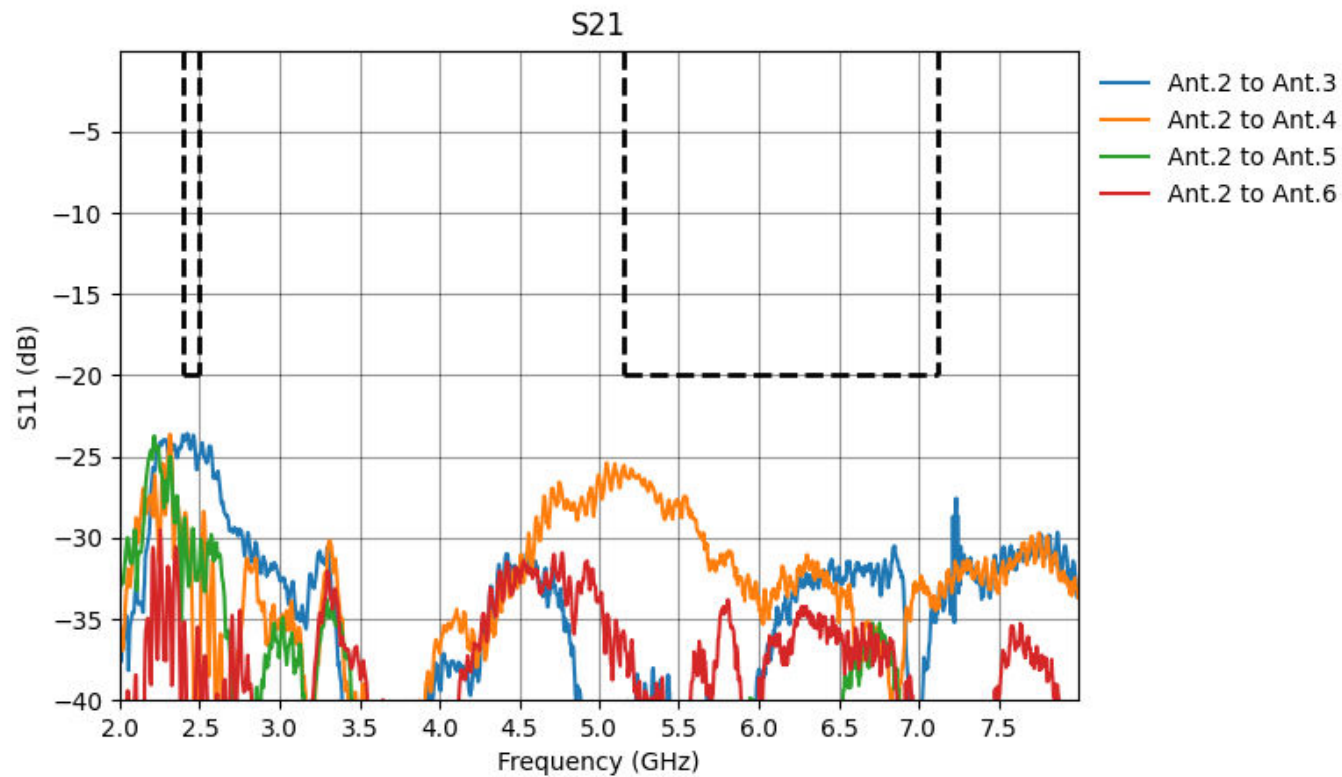
S-Parameter (Return Loss)



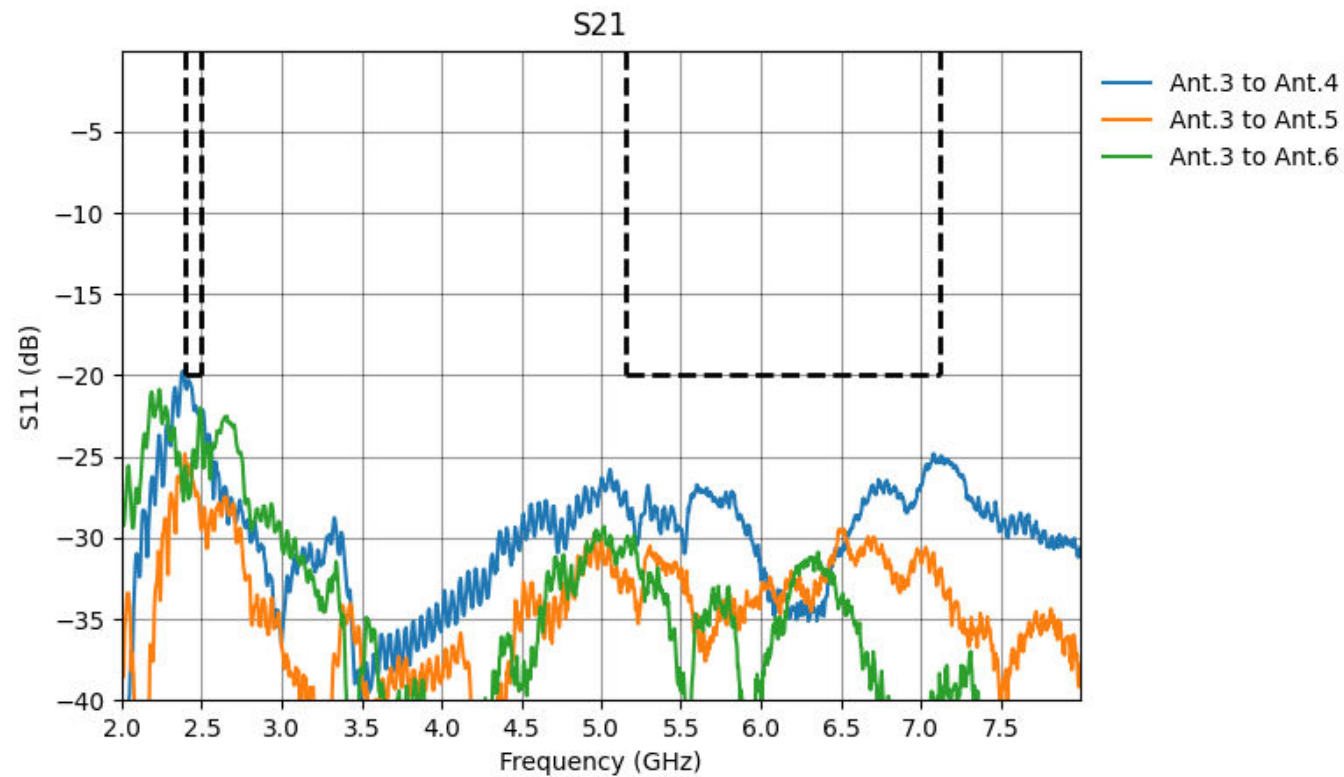
S-Parameter (Isolation)



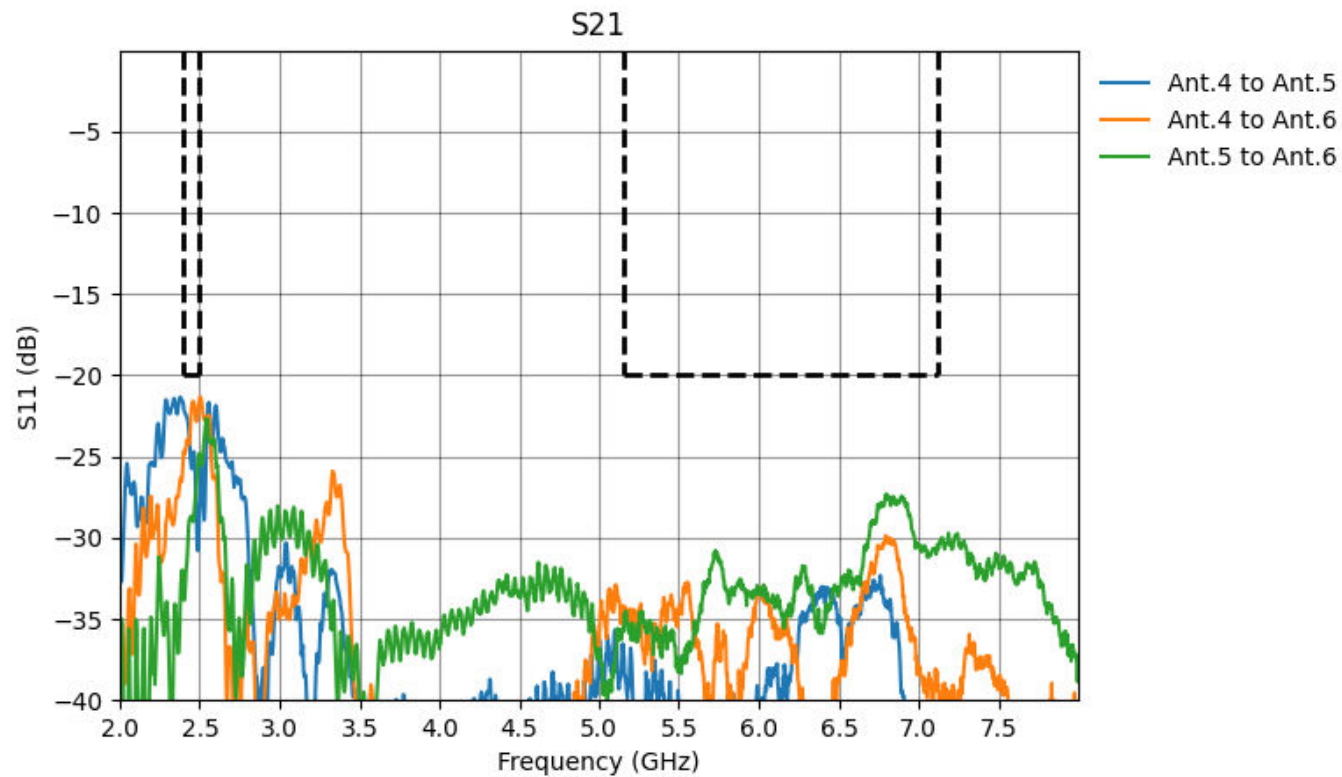
S-Parameter (Isolation)



S-Parameter (Isolation)



S-Parameter (Isolation)



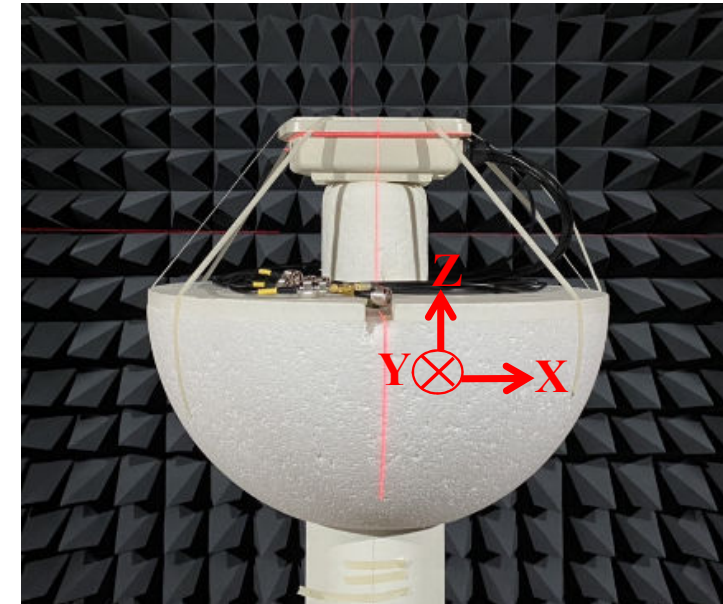
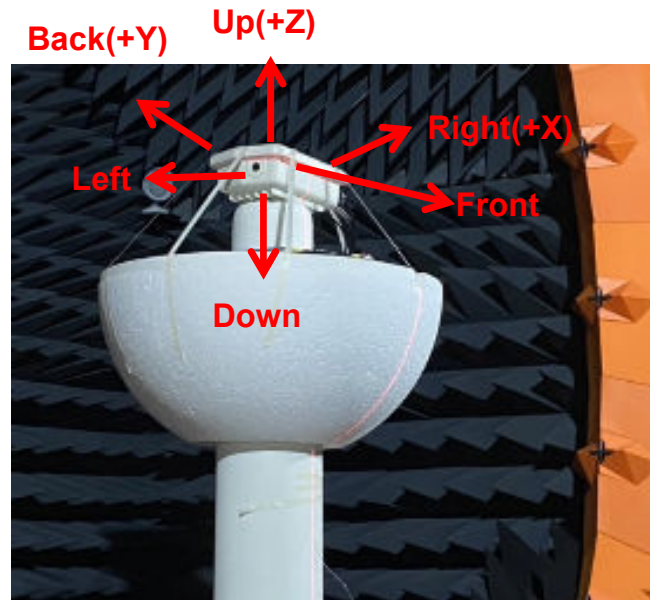
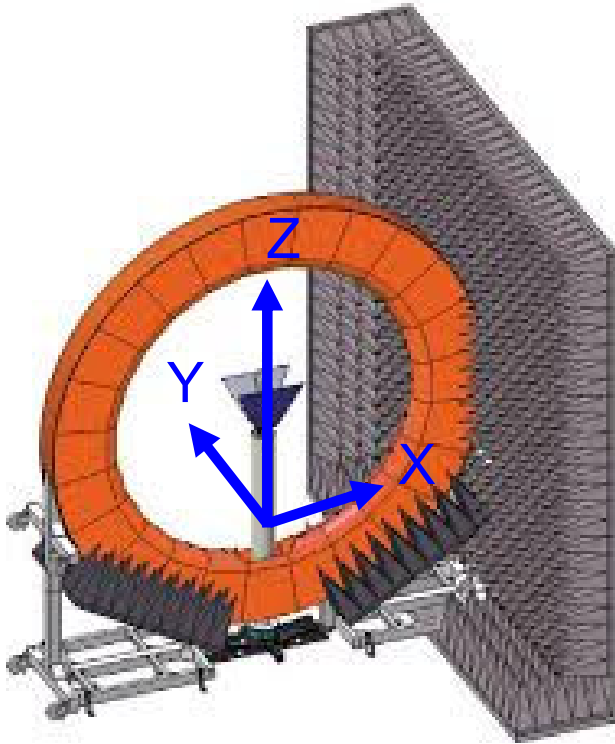
Test Setup for Radiation Pattern Measurement



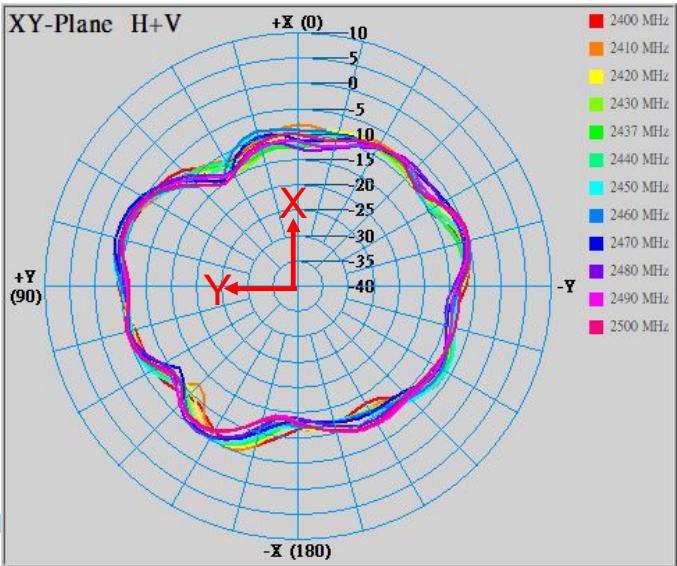
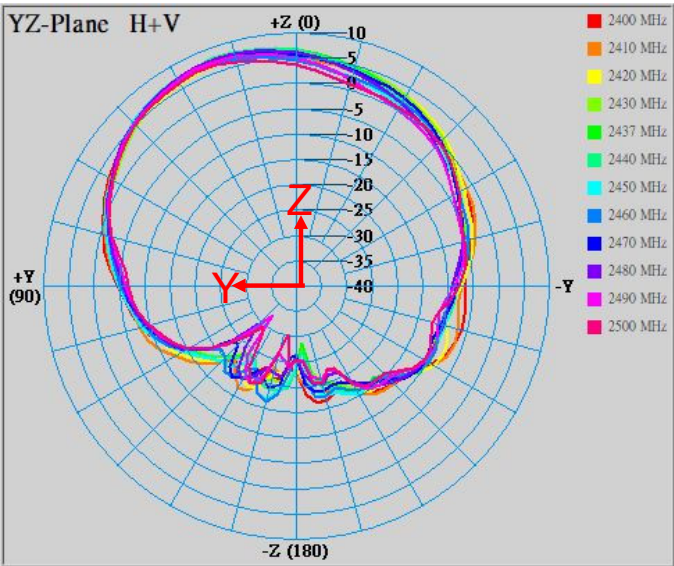
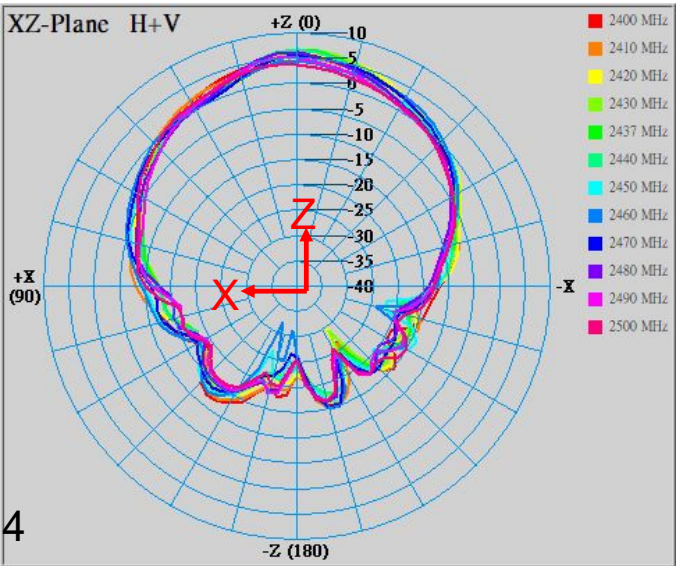
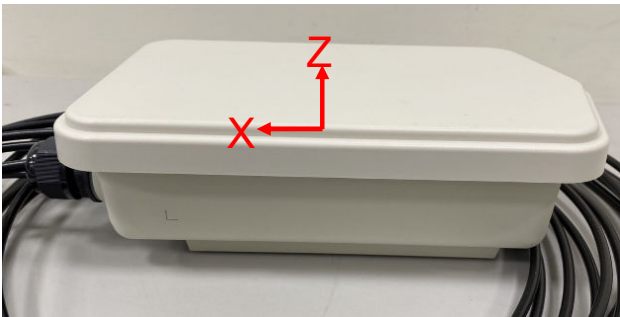
Chamber Information

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

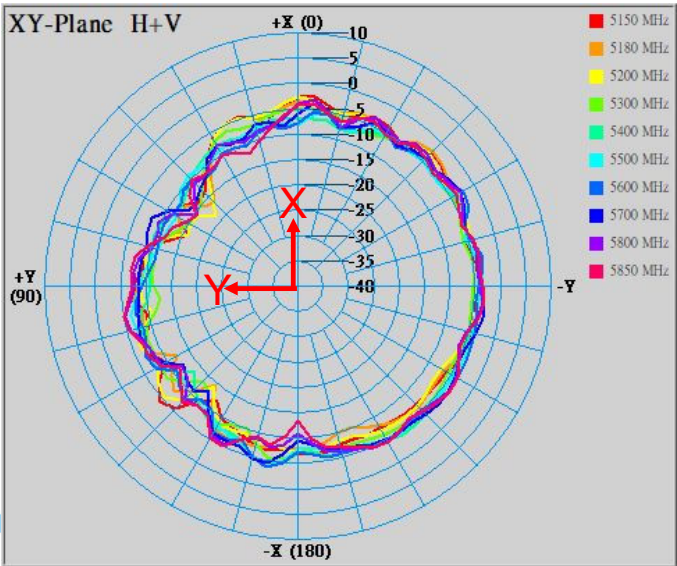
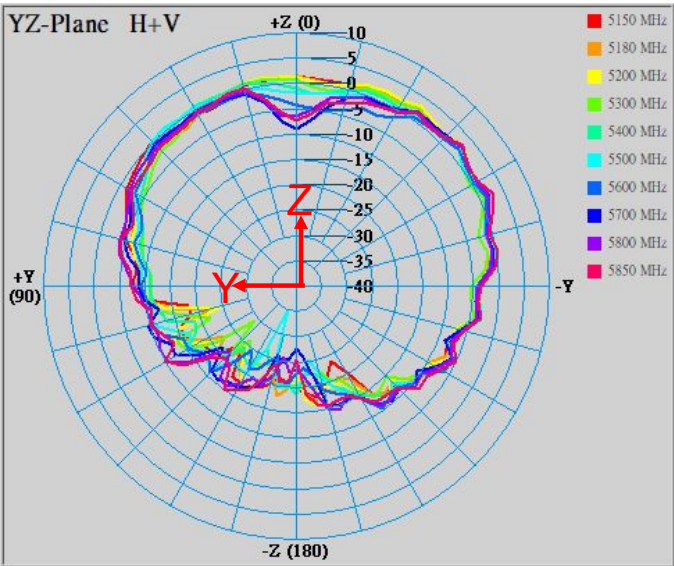
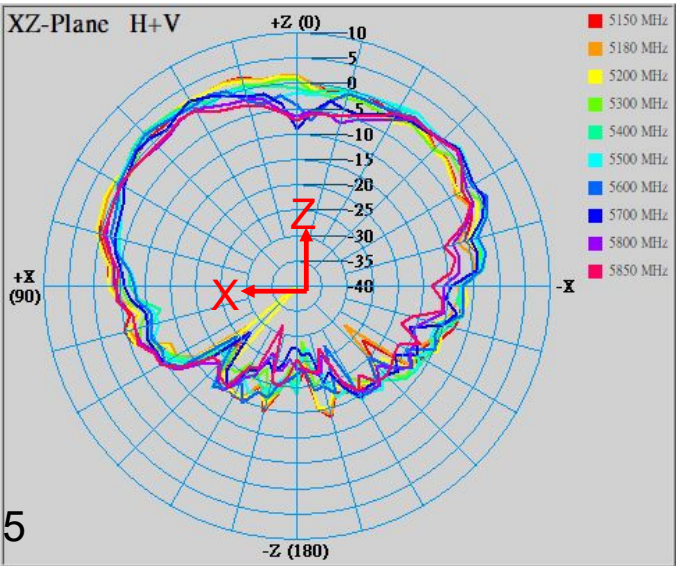
- Angle between probes: 15°
- Frequency range: 400 MHz – 9 GHz
- Chamber Room Size: 5m L x 5m W x 5m H



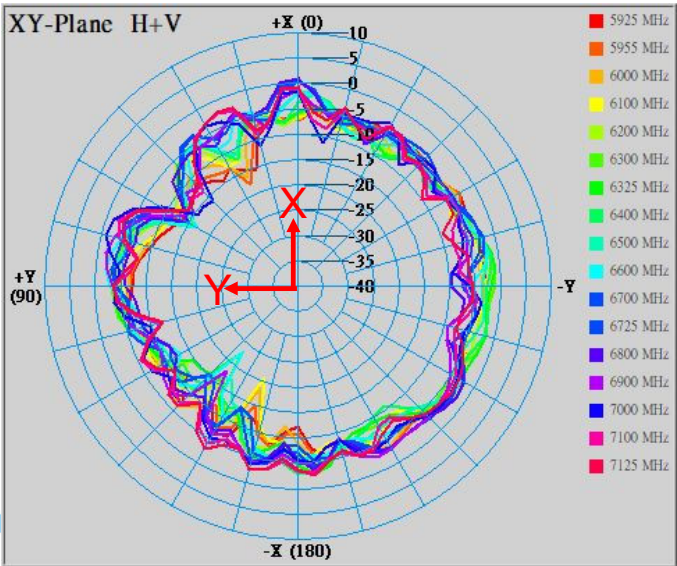
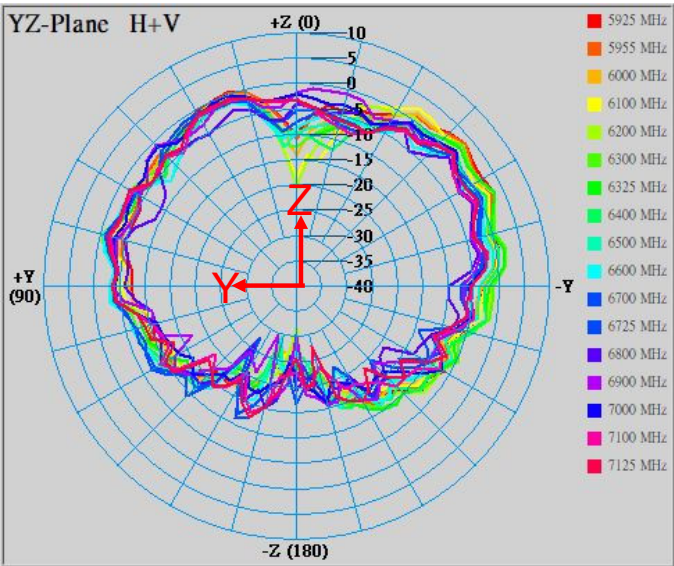
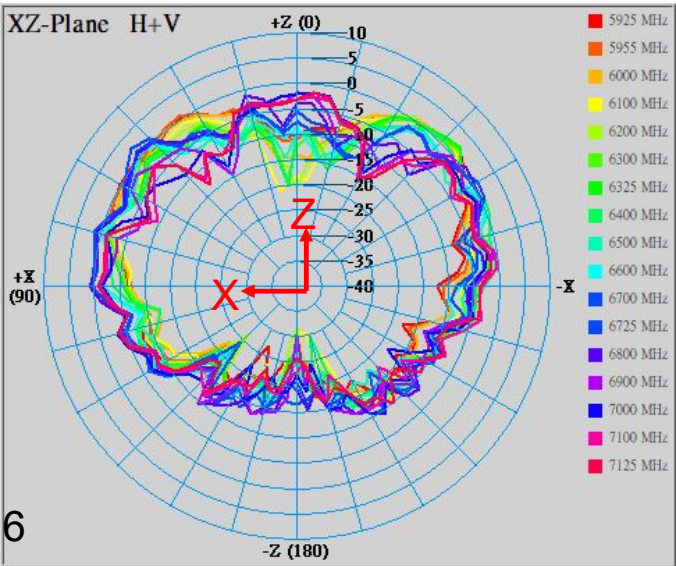
Radiation Pattern Results-Ant.1(2.4~2.5 GHz)



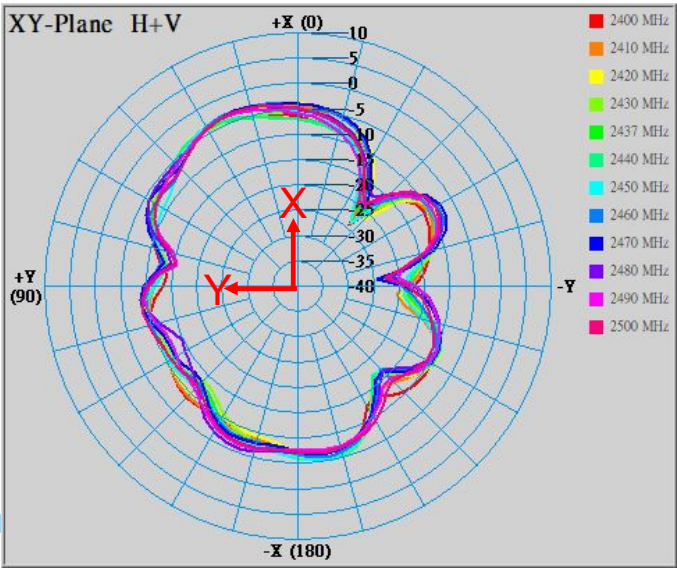
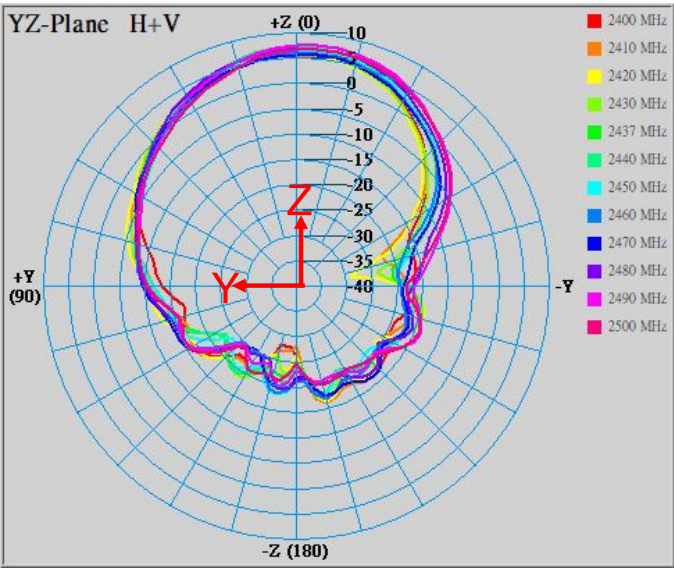
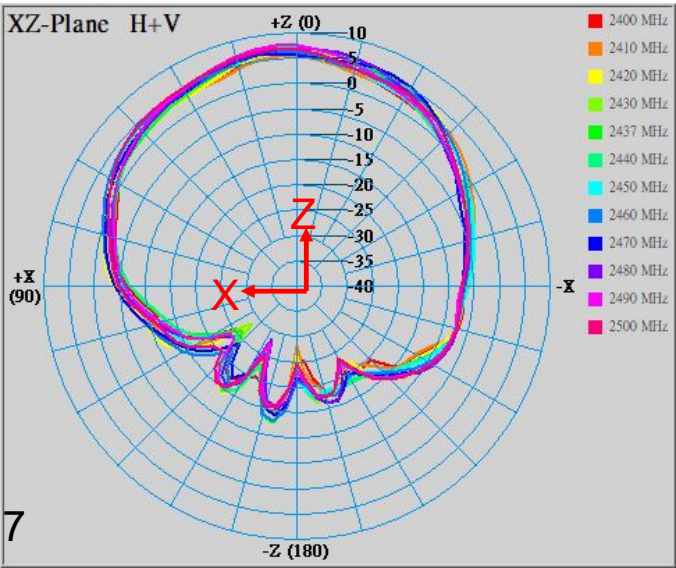
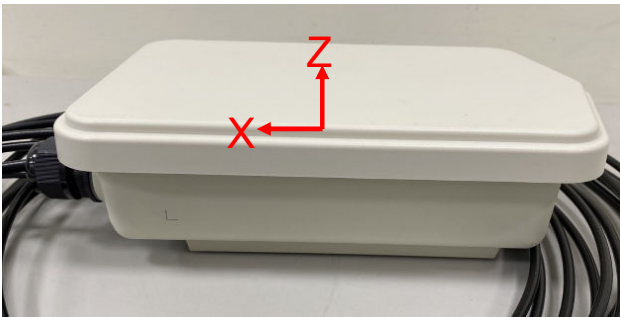
Radiation Pattern Results-Ant.1(5.15~5.85 GHz)



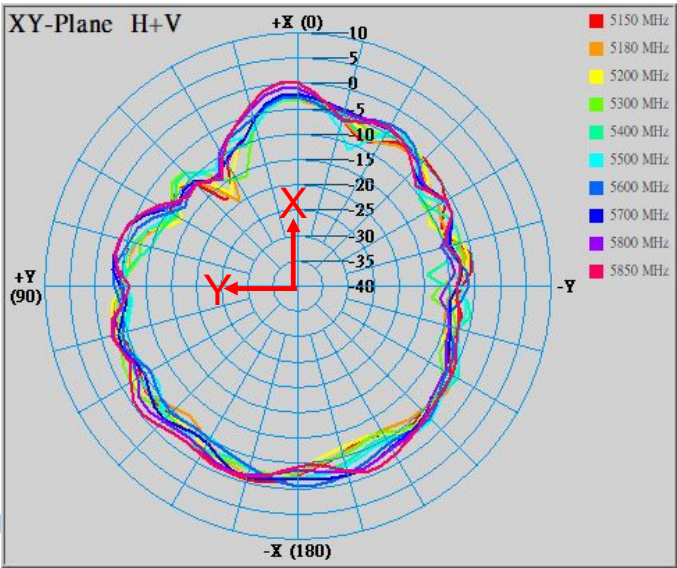
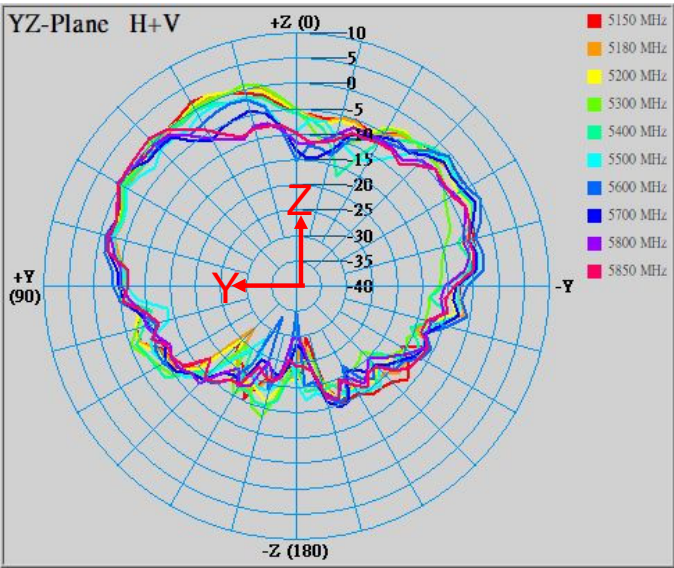
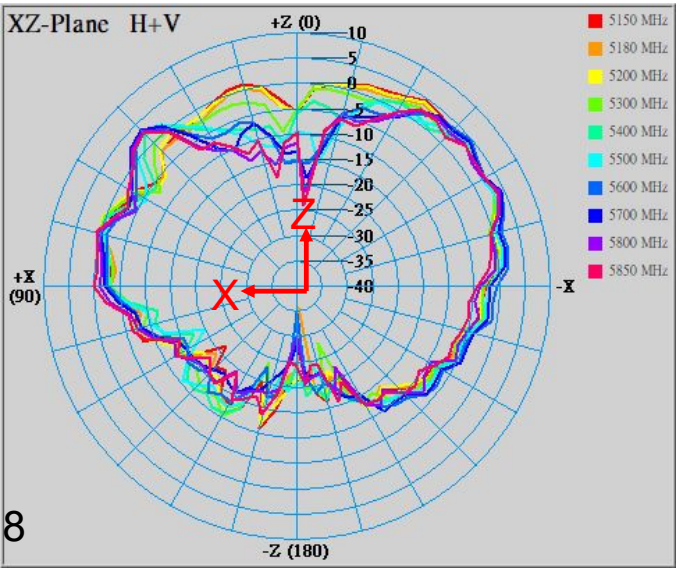
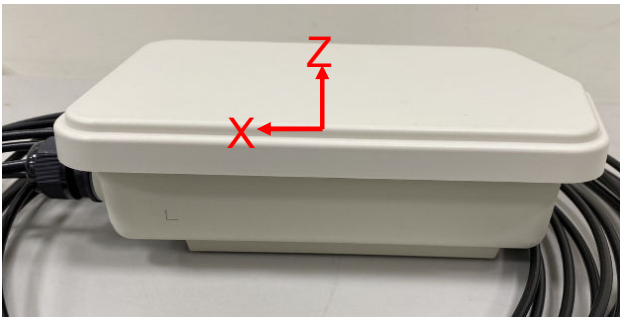
Radiation Pattern Results-Ant.1(5.925~7.125 GHz)



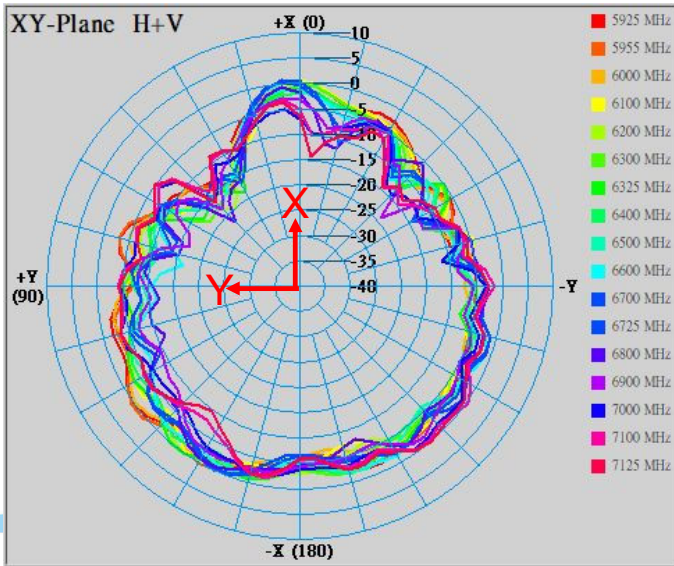
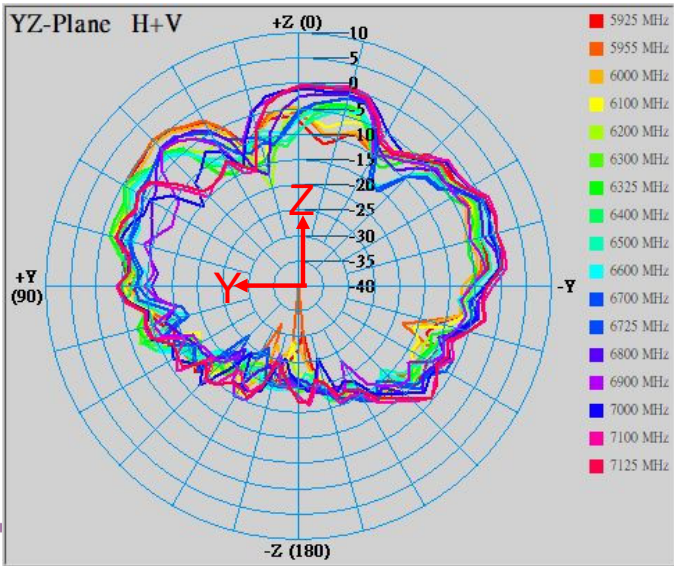
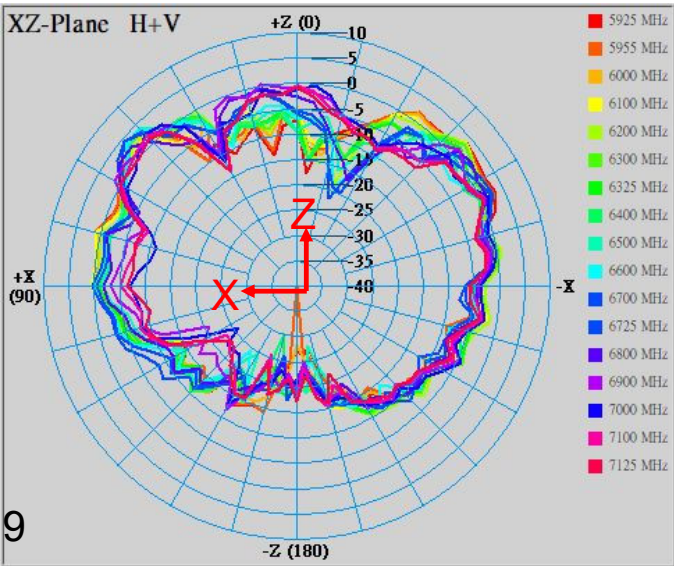
Radiation Pattern Results-Ant.2(2.4~2.5 GHz)



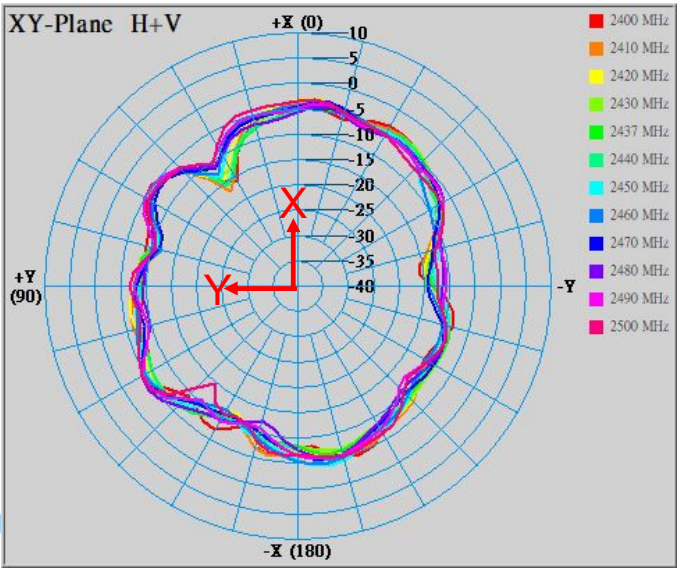
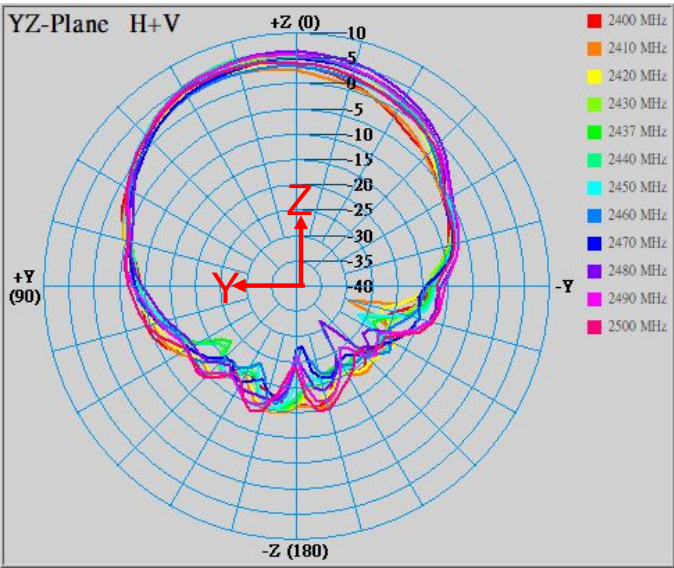
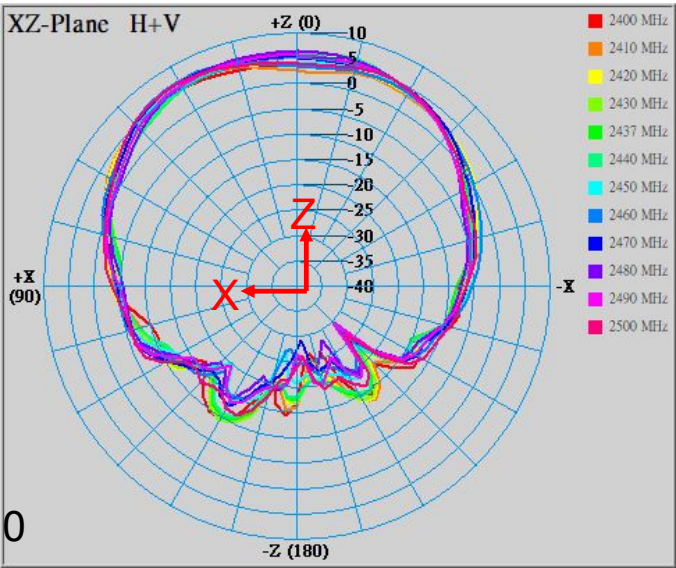
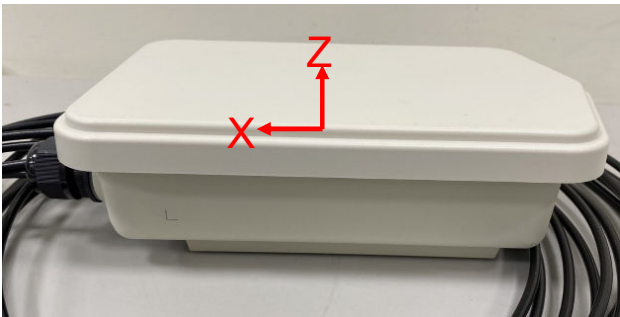
Radiation Pattern Results-Ant.2(5.15~5.85 GHz)



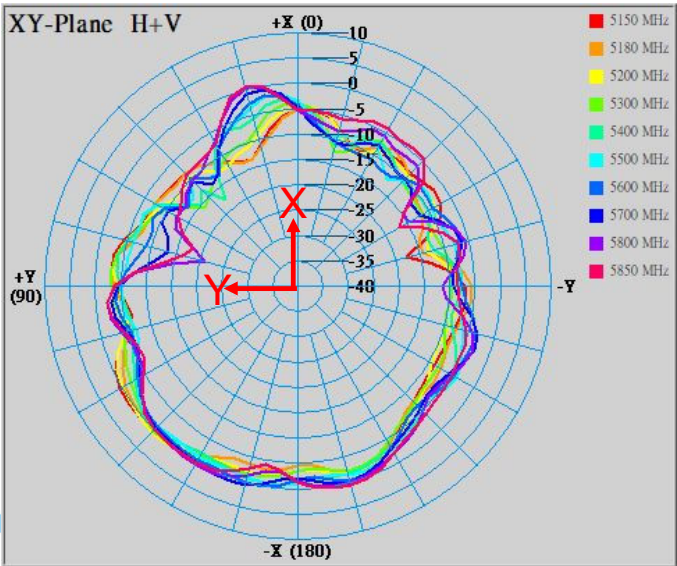
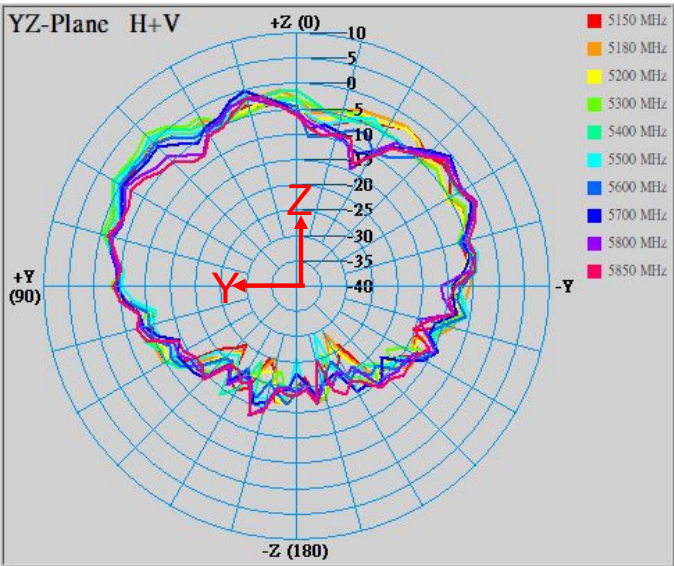
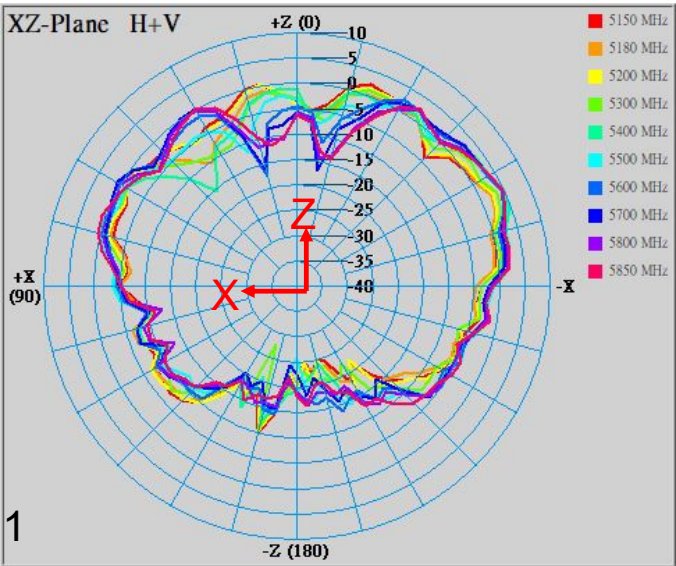
Radiation Pattern Results-Ant.2(5.925~7.125 GHz)



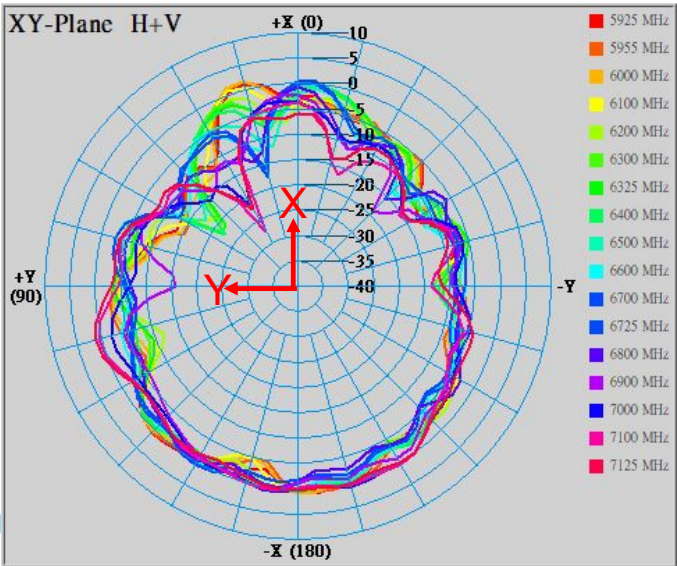
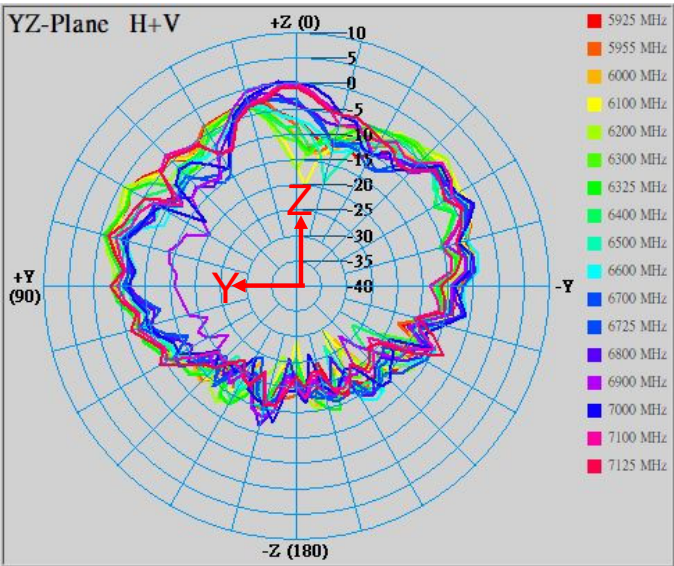
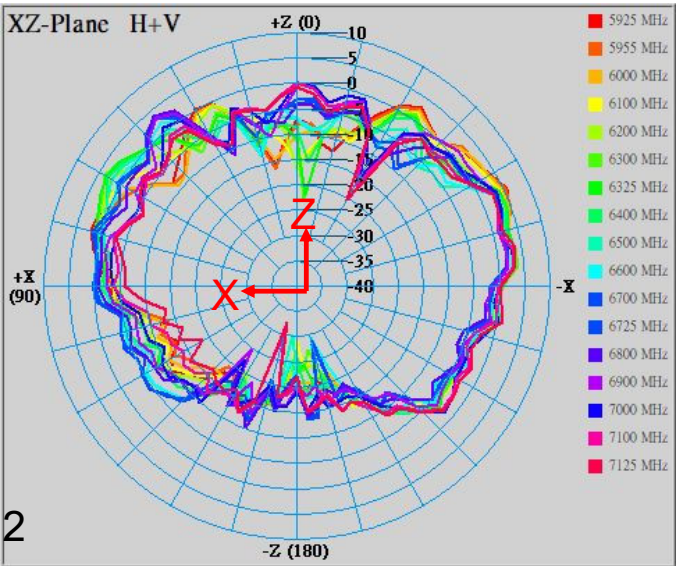
Radiation Pattern Results-Ant.3(2.4~2.5 GHz)



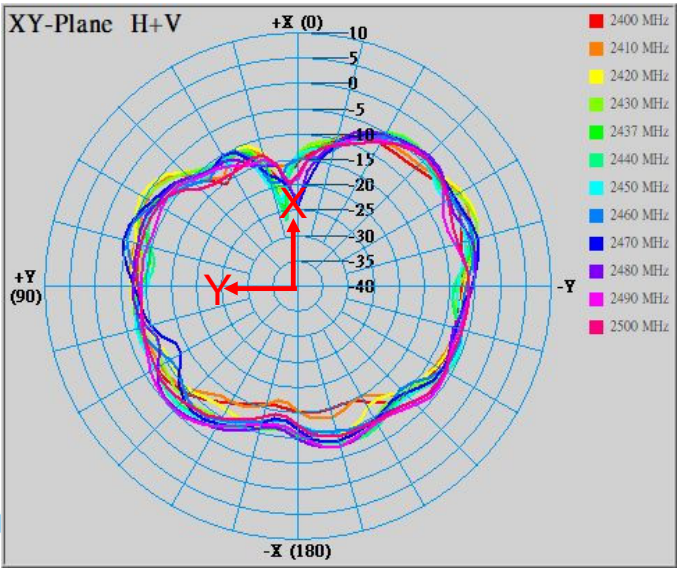
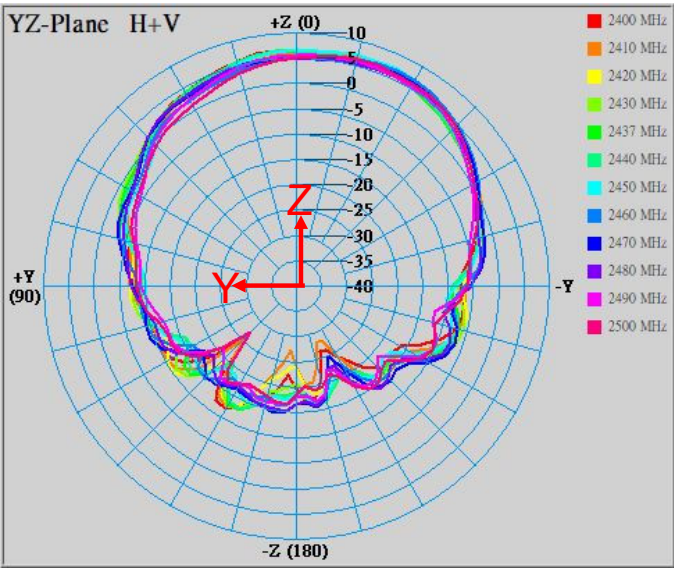
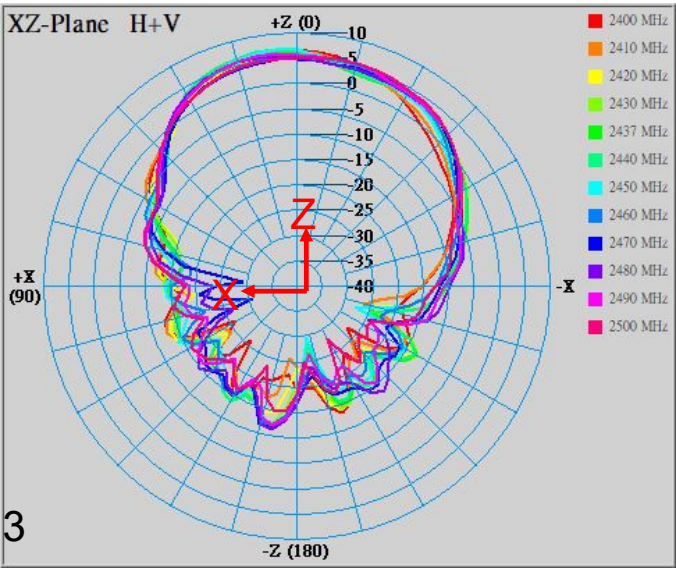
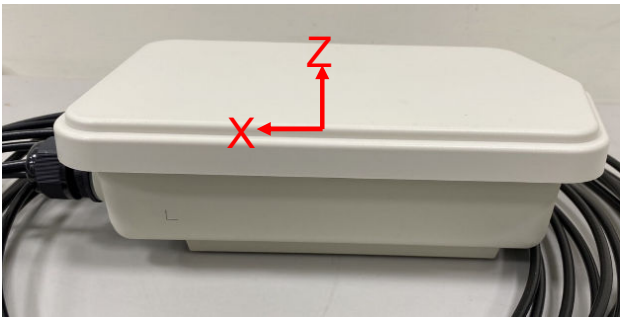
Radiation Pattern Results-Ant.3(5.15~5.85 GHz)



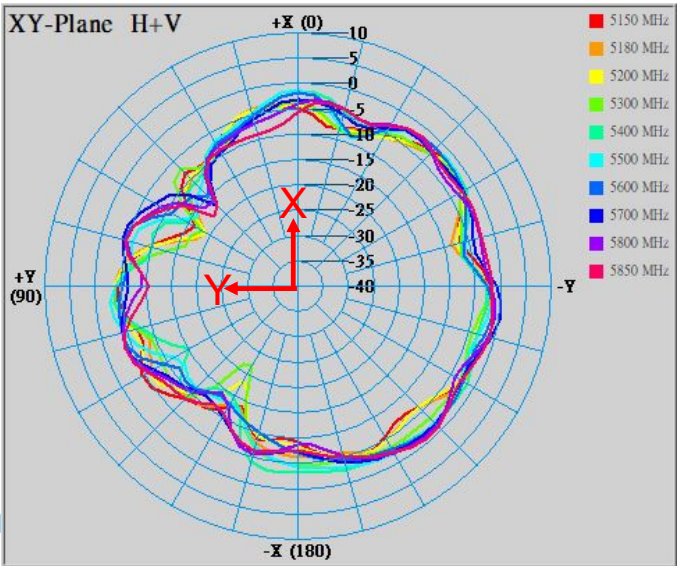
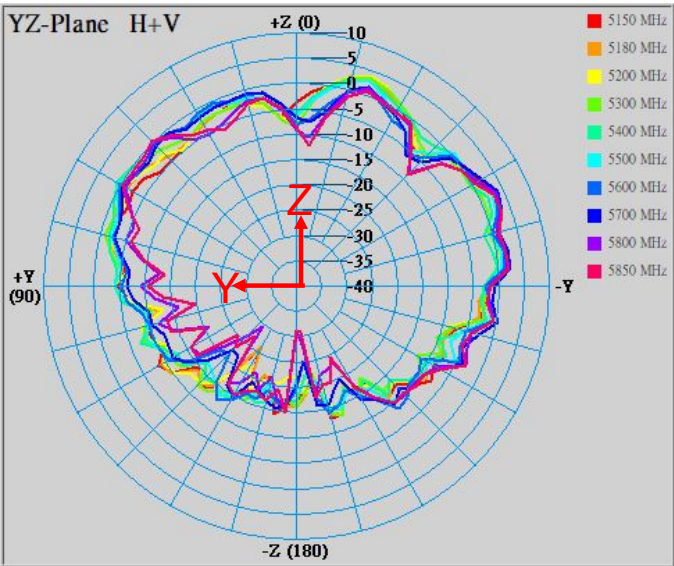
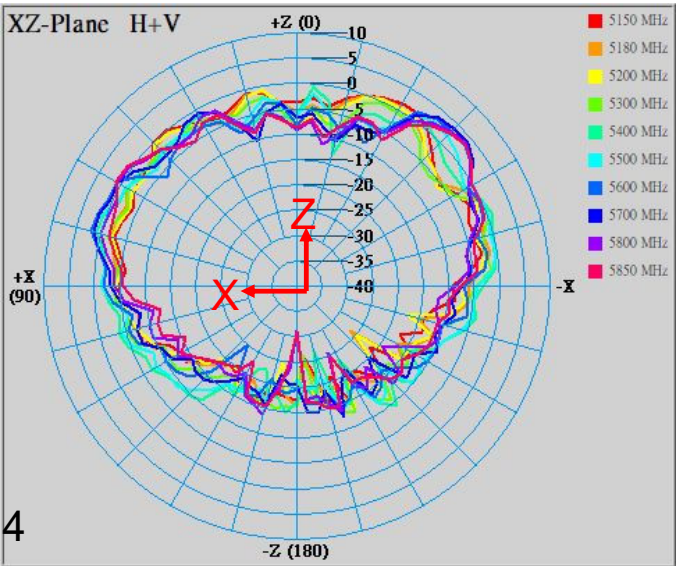
Radiation Pattern Results-Ant.3(5.925~7.125 GHz)



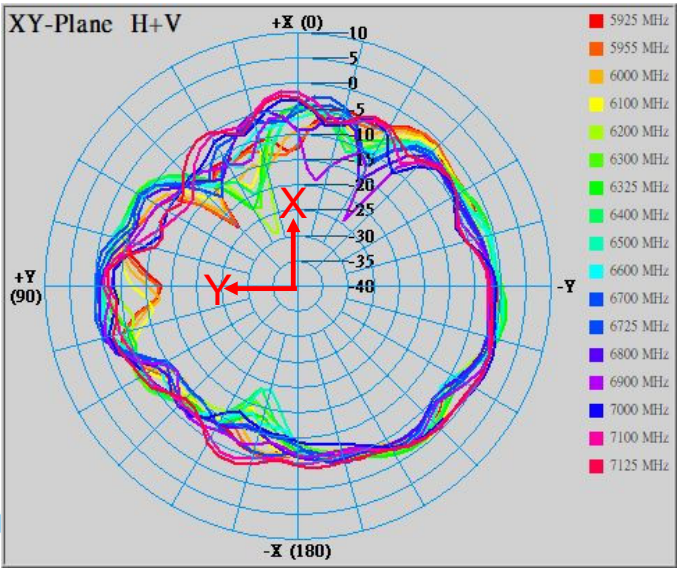
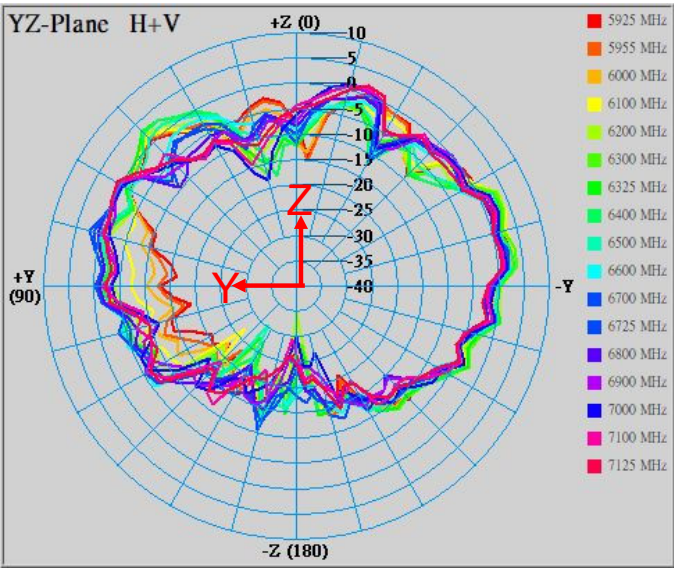
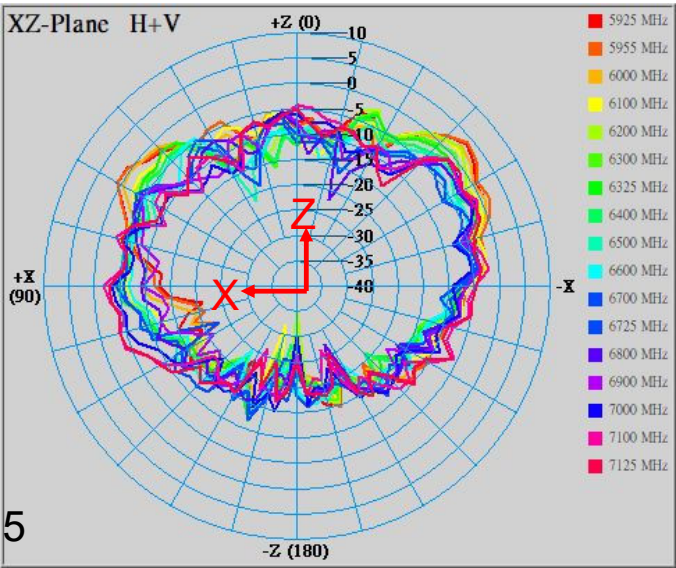
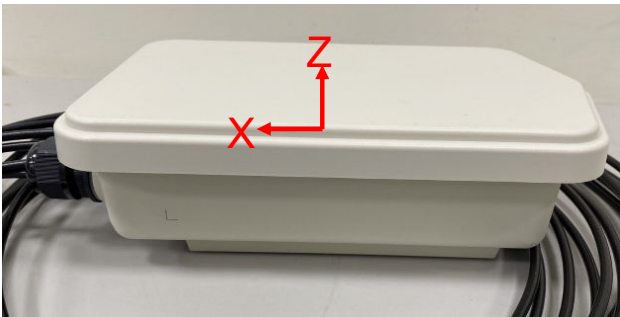
Radiation Pattern Results-Ant.4(2.4~2.5 GHz)



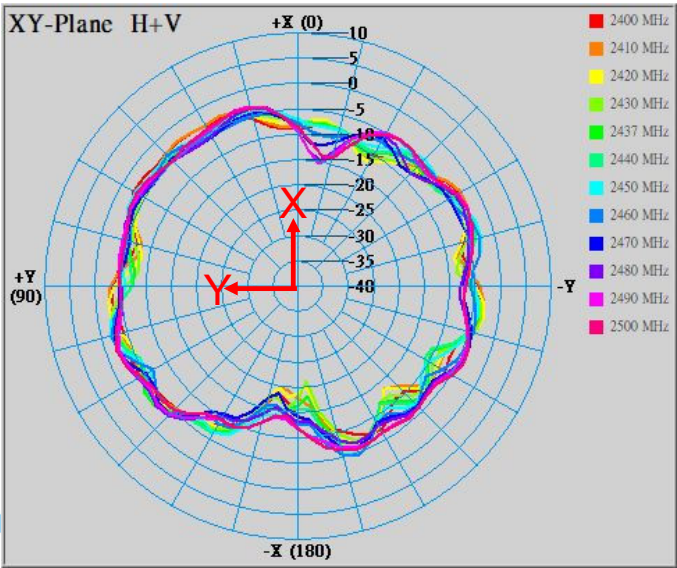
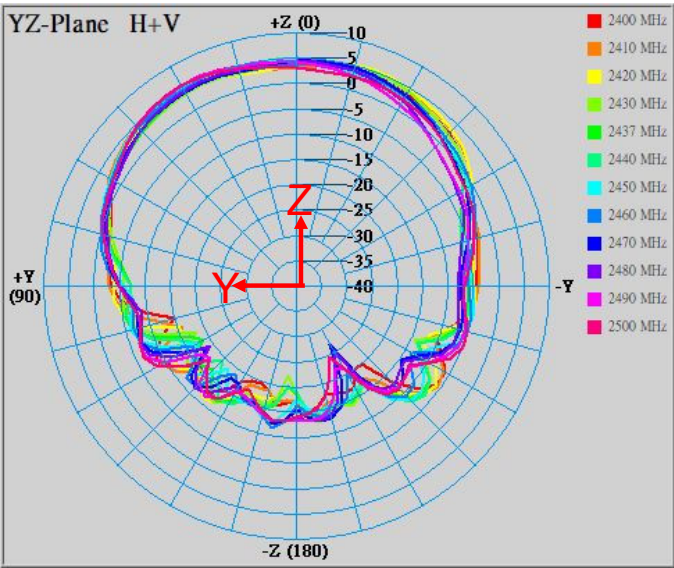
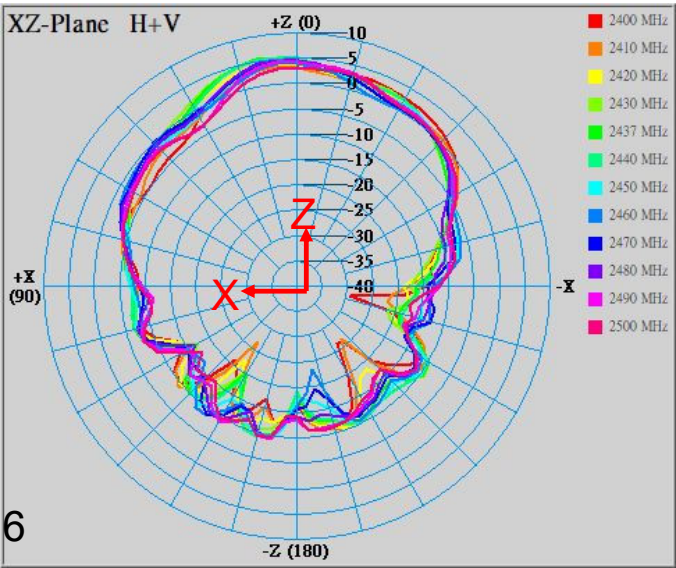
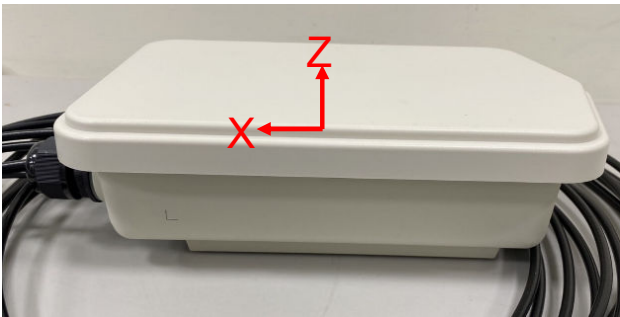
Radiation Pattern Results-Ant.4(5.15~5.85 GHz)



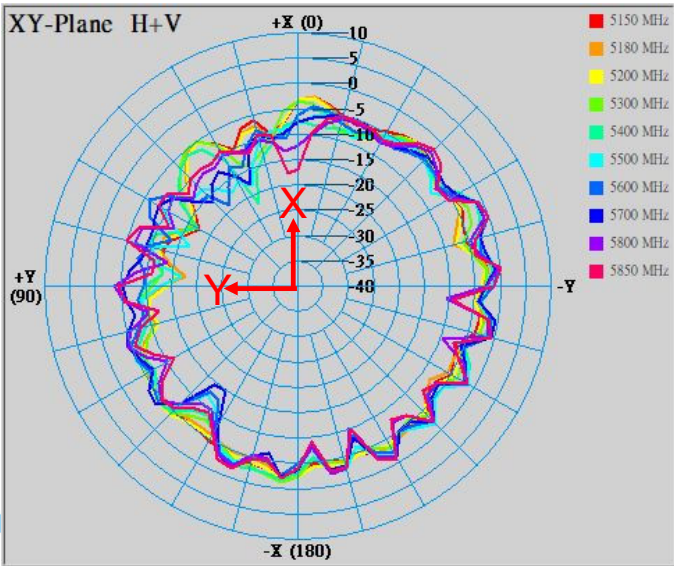
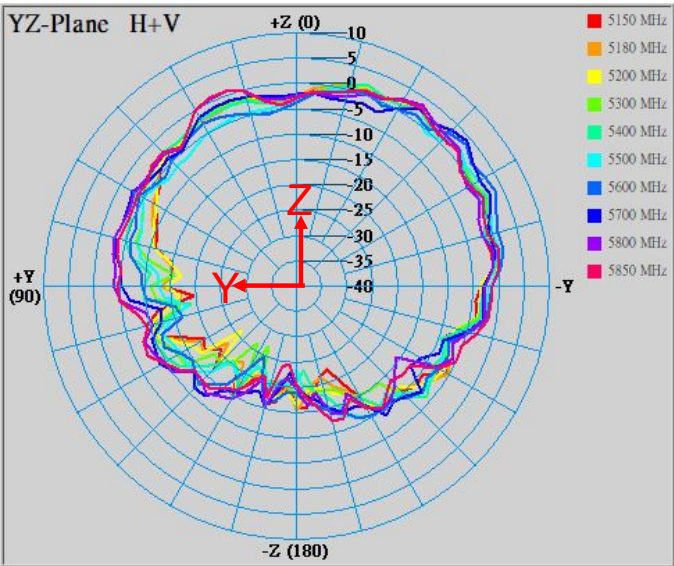
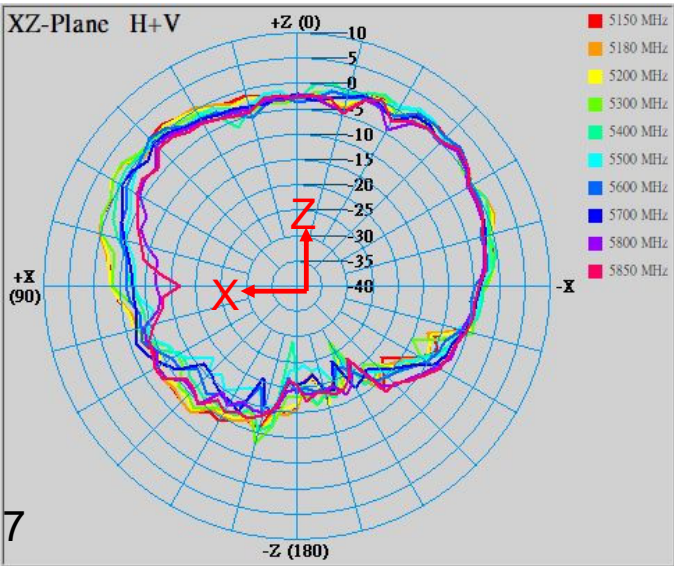
Radiation Pattern Results-Ant.4(5.925~7.125 GHz)



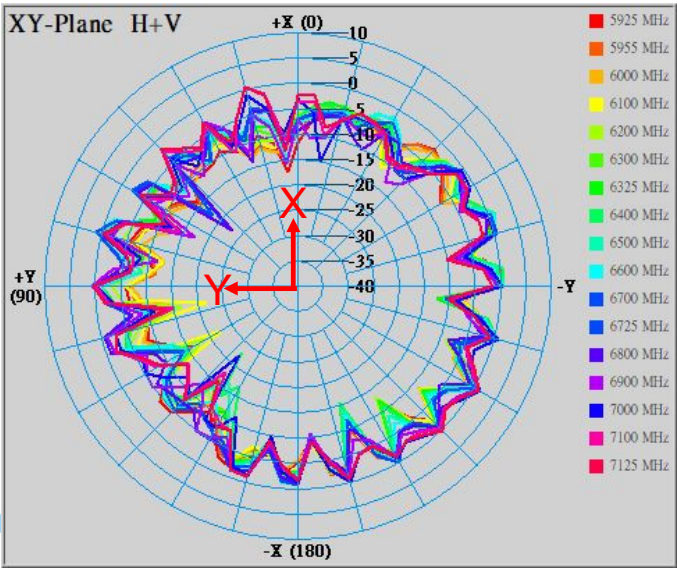
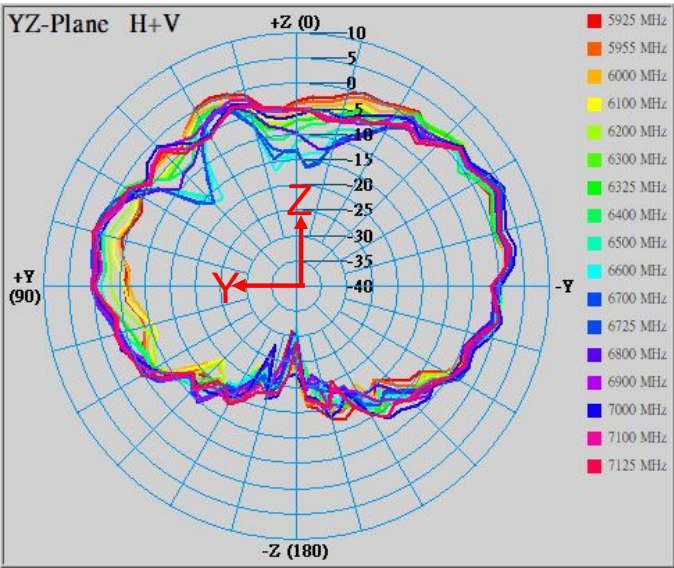
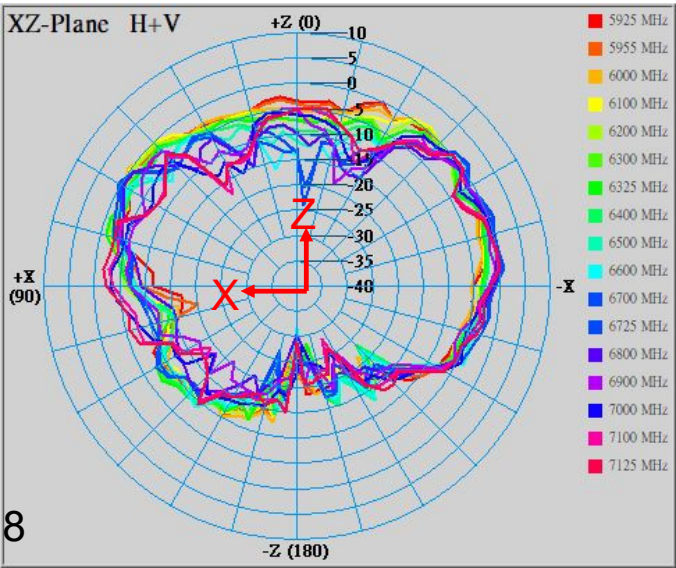
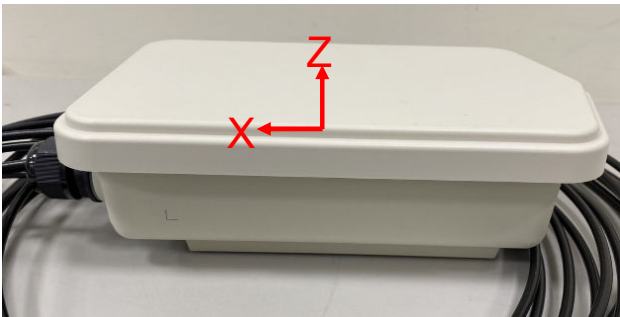
Radiation Pattern Results-Ant.5(2.4~2.5 GHz)



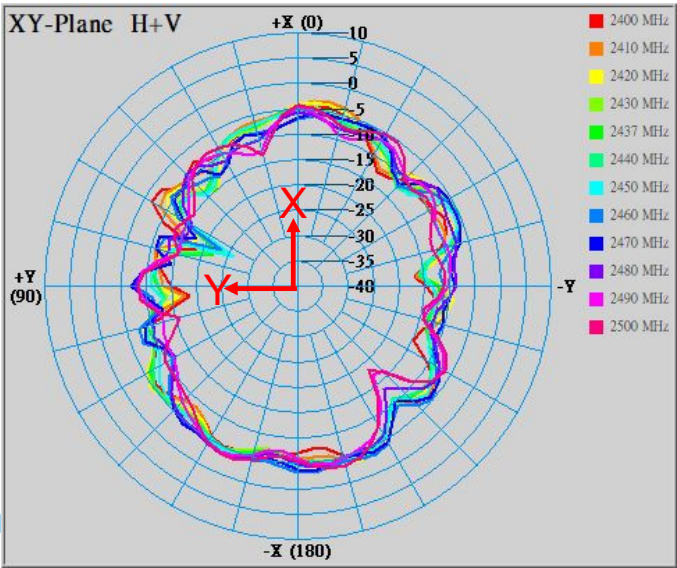
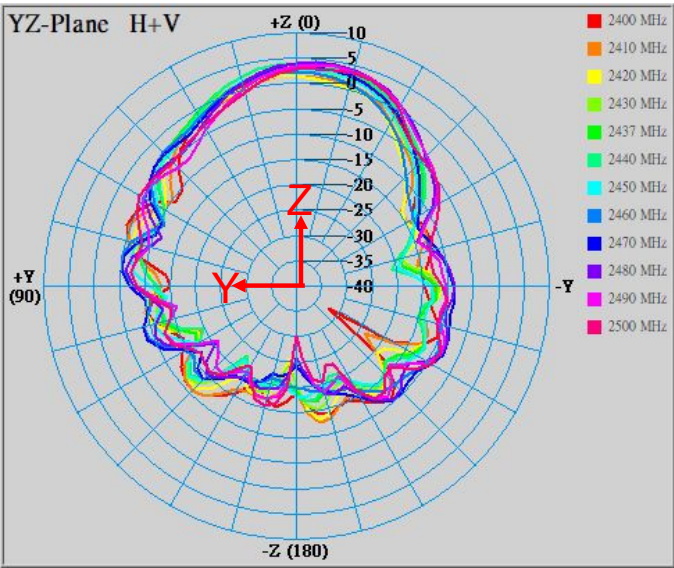
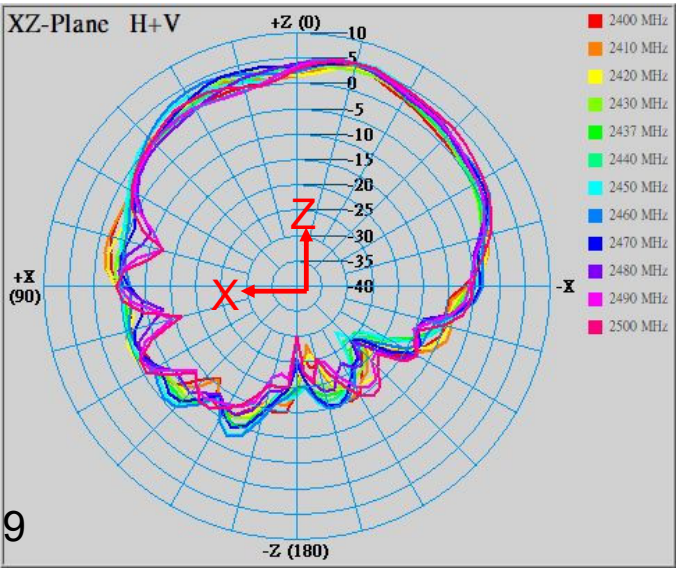
Radiation Pattern Results-Ant.5(5.15~5.85 GHz)



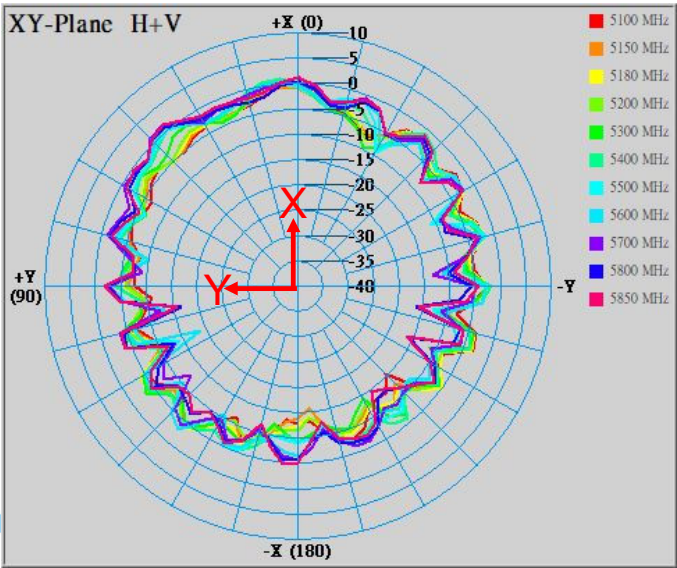
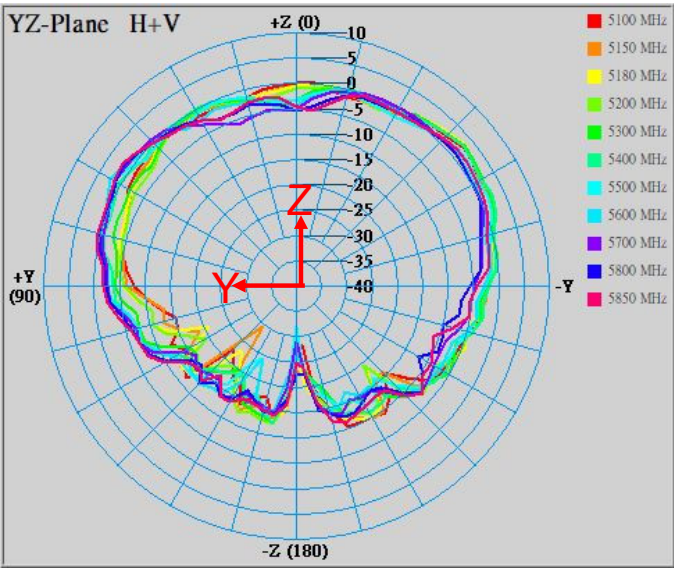
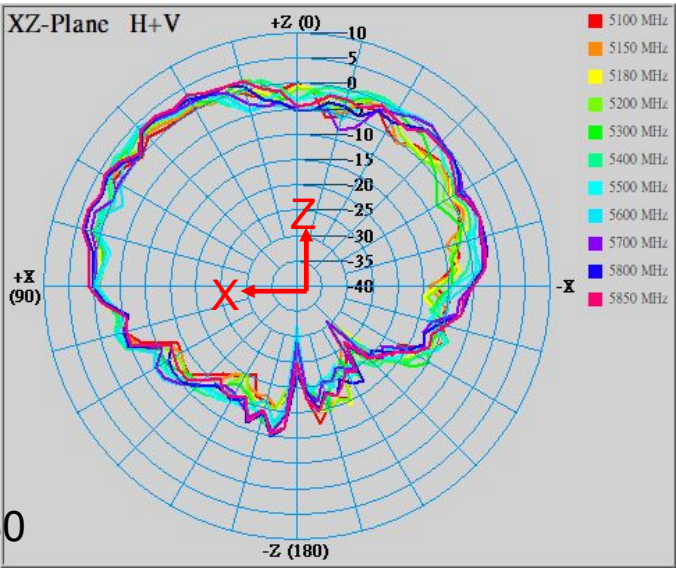
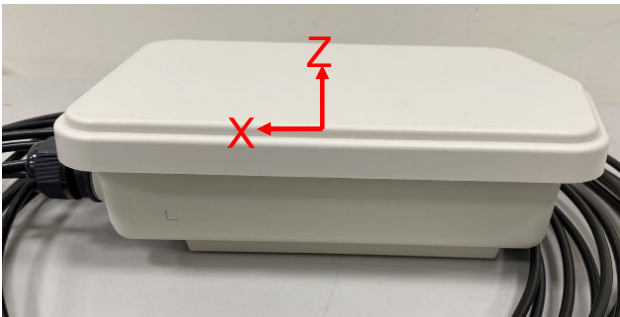
Radiation Pattern Results-Ant.5(5.925~7.125 GHz)



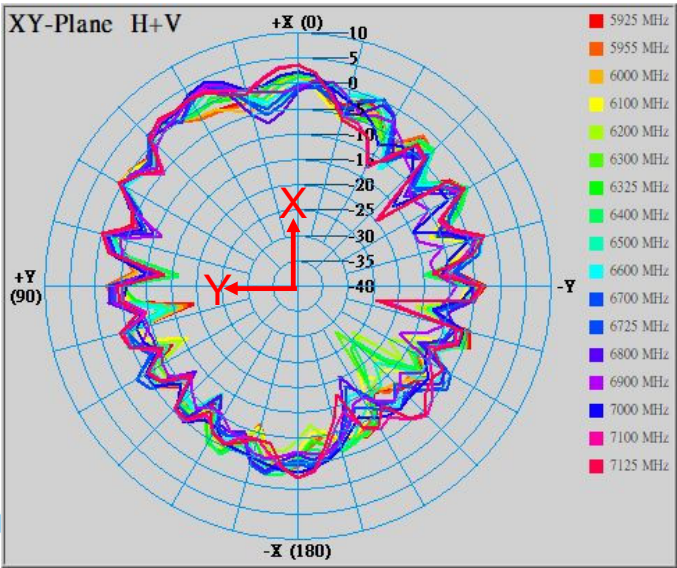
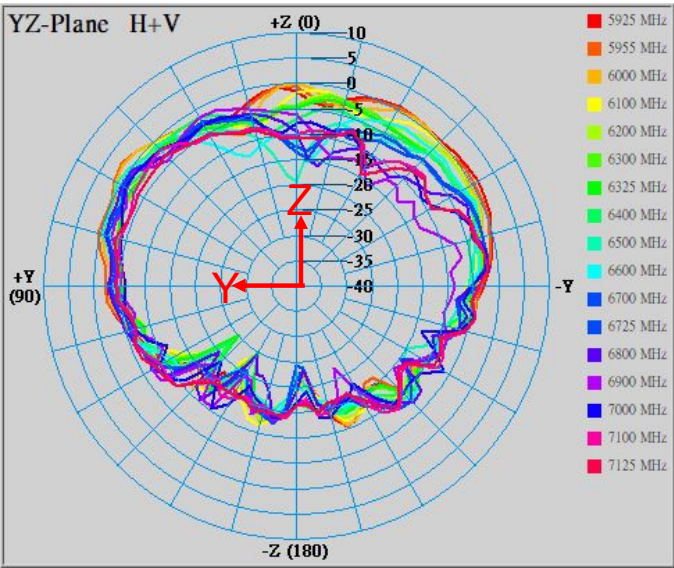
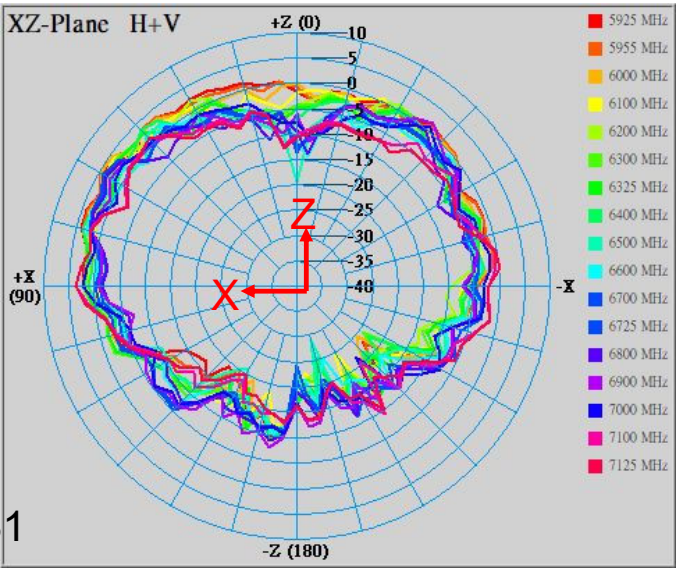
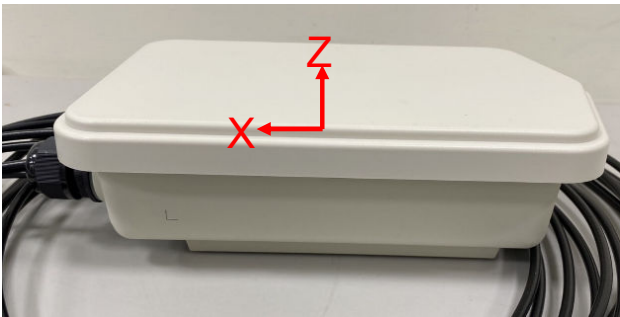
Radiation Pattern Results-Ant.6(2.4~2.5 GHz)



Radiation Pattern Results-Ant.6(5.15~5.85 GHz)



Radiation Pattern Results-Ant.6(5.925~7.125 GHz)



Gain Results-With cable loss

Frequency(GHz)	Ant.1	Ant.2	Ant.3	Ant.4	Ant.5	Ant.6
2.4	6.79	5.8	5.67	7.08	5.96	5.16
2.41	6	5.58	6.64	6.91	6	5.43
2.42	6.19	6.23	6.6	6.4	5.83	5.33
2.43	6.83	6.37	5.68	6.06	5.82	4.8
2.437	7.15	6.97	6.38	6.83	6.23	5.74
2.44	7.18	7.19	6.48	7.08	6.39	6.25
2.45	6.64	6.87	6.24	7.22	6.04	6.66
2.46	6.04	6.46	6.81	6.98	6.23	6.43
2.47	6.57	6.36	6.55	6.37	6.07	5.96
2.48	6.85	7	6.51	6.24	6.2	5.74
2.49	6.25	7.03	6.25	6.38	6.55	6.11
2.5	5.69	7.33	6.82	6.48	6.03	6.39
5.15	5.01	5.04	5.41	4.48	4.22	4.1
5.18	5.52	4.81	5.54	4.21	4.74	4.79
5.2	5.01	5.36	5.79	4.63	4.5	4.11
5.3	4.85	4.42	4.86	4.62	4.75	4.45
5.4	5.82	4.83	5.39	5.05	5.22	5.27
5.5	5.19	4.74	5.21	4.62	4.78	5.01
5.6	4.46	5.45	5.33	4.7	5.31	4.86
5.7	4.88	4.99	5.61	5.1	4.62	5.32
5.8	4.71	5.18	5.53	4.4	4.18	4.98
5.85	4.93	4.93	5.35	4.48	4.52	5.16

Frequency(GHz)	Ant.1	Ant.2	Ant.3	Ant.4	Ant.5	Ant.6
5.925	5.39	5.07	5.95	4.67	5.1	5.42
5.955	5.03	5.37	5.94	4.87	5.34	5.25
6	4.93	5.5	5.14	4.26	4.98	5.18
6.1	4.81	5.65	4.57	4.55	5.16	4.99
6.2	4.45	5.91	4.16	4.41	4.63	4.4
6.3	4.64	5.98	4.36	4.99	4.92	5.45
6.325	4.92	5.54	4.16	4.86	4.62	5.01
6.4	4.15	4.83	4.19	4.51	4.96	5.57
6.5	3.98	4.5	3.51	3.7	5.09	5.43
6.6	4.27	4.25	3.96	4	5.28	4.96
6.7	4.1	4.88	4.21	4.09	5.9	5.22
6.725	3.9	5.14	4.58	3.8	5.94	5.3
6.8	4.51	4.53	4.23	4.07	4.82	5.5
6.9	4.45	5.61	4.24	4.04	5.33	5.33
7	4.47	5.76	4.44	3.8	5.63	5.14
7.1	3.39	4.67	4.69	3.89	5.03	4.64
7.125	4.04	4.8	4.71	4	4.92	4.65

Efficiency Results-With cable loss

Frequency(GHz)	Ant.1	Ant.2	Ant.3	Ant.4	Ant.5	Ant.6
2.4	63.83	47.97	57.28	58.48	61.24	56.23
2.41	64.12	50.93	57.68	58.48	60.26	62.81
2.42	64.12	55.85	59.84	59.70	59.98	51.40
2.43	61.80	55.08	59.84	59.98	60.95	60.81
2.437	61.09	53.83	58.88	59.57	61.09	62.23
2.44	61.66	54.08	59.57	60.26	61.66	63.68
2.45	61.38	54.45	60.39	60.67	62.52	63.68
2.46	61.52	55.21	59.98	59.43	61.24	59.84
2.47	62.95	57.15	61.94	59.02	60.81	56.89
2.48	59.43	58.48	61.80	59.02	61.24	63.53
2.49	54.70	58.21	60.53	58.34	60.26	61.80
2.5	53.21	57.94	60.39	58.34	59.84	56.10
5.15	47.64	44.87	43.65	41.11	46.45	45.60
5.18	47.53	41.59	41.30	39.90	45.81	50.47
5.2	46.88	44.67	43.75	41.11	46.03	45.81
5.3	43.95	42.56	41.21	42.76	45.81	47.21
5.4	49.66	44.06	44.98	49.55	51.88	54.95
5.5	48.19	41.40	45.19	48.19	50.47	52.24
5.6	48.31	43.95	46.45	49.55	51.40	52.36
5.7	48.08	44.16	46.03	48.87	50.23	52.00
5.8	45.39	42.66	43.95	46.34	47.75	49.20
5.85	44.87	44.06	44.67	46.99	48.42	50.12

Frequency(GHz)	Ant.1	Ant.2	Ant.3	Ant.4	Ant.5	Ant.6
5.925	45.50	45.39	45.50	47.75	49.20	51.52
5.955	45.08	46.13	43.95	47.21	48.53	50.47
6	40.83	41.88	40.55	43.45	44.67	46.67
6.1	36.64	38.99	38.99	40.55	41.98	43.35
6.2	34.99	39.26	38.82	39.17	40.27	41.98
6.3	35.81	41.69	40.18	40.46	41.40	43.85
6.325	36.48	40.36	39.45	40.55	41.11	42.46
6.4	33.73	39.17	38.28	38.37	39.08	43.05
6.5	30.62	36.81	34.99	35.56	36.81	40.46
6.6	32.36	38.55	34.83	34.12	38.37	40.55
6.7	34.20	39.08	35.24	33.88	39.90	41.40
6.725	34.83	39.63	35.08	33.50	39.45	42.07
6.8	30.83	34.28	31.48	30.34	35.73	36.90
6.9	30.76	33.19	31.05	28.58	35.73	36.31
7	30.20	36.31	35.08	30.48	39.36	36.98
7.1	27.16	35.32	33.65	30.62	35.40	32.73
7.125	28.64	33.04	34.12	31.55	36.90	31.70

Gain Results-W/O cable loss

Frequency(GHz)	Ant.1	Ant.2	Ant.3	Ant.4	Ant.5	Ant.6
2.4	7.73	6.74	6.61	8.02	6.90	6.10
2.41	6.94	6.52	7.58	7.85	6.94	6.37
2.42	7.13	7.17	7.54	7.34	6.77	6.27
2.43	7.77	7.31	6.62	7	6.76	5.74
2.437	8.09	7.91	7.32	7.77	7.17	6.68
2.44	8.13	8.14	7.43	8.03	7.34	7.20
2.45	7.59	7.82	7.19	8.17	6.99	7.61
2.46	6.99	7.41	7.76	7.93	7.18	7.38
2.47	7.52	7.31	7.50	7.32	7.02	6.91
2.48	7.8	7.95	7.46	7.19	7.15	6.69
2.49	7.2	7.98	7.20	7.33	7.50	7.06
2.5	6.64	8.28	7.77	7.43	6.98	7.34
5.15	6.38	6.41	6.78	5.85	5.59	5.47
5.18	6.92	6.21	6.94	5.61	6.14	6.19
5.2	6.42	6.77	7.20	6.04	5.91	5.52
5.3	6.27	5.84	6.28	6.04	6.17	5.87
5.4	7.25	6.26	6.82	6.48	6.65	6.70
5.5	6.62	6.17	6.64	6.05	6.21	6.44
5.6	5.9	6.89	6.77	6.14	6.75	6.30
5.7	6.32	6.43	7.05	6.54	6.06	6.76
5.8	6.16	6.63	6.98	5.85	5.63	6.43
5.85	6.38	6.38	6.80	5.93	5.97	6.61

Frequency(GHz)	Ant.1	Ant.2	Ant.3	Ant.4	Ant.5	Ant.6
5.925	6.84	6.52	7.40	6.12	6.55	6.87
5.955	6.49	6.83	7.40	6.33	6.80	6.71
6	6.39	6.96	6.60	5.72	6.44	6.64
6.1	6.27	7.11	6.03	6.01	6.62	6.45
6.2	5.91	7.37	5.62	5.87	6.09	5.86
6.3	6.1	7.44	5.82	6.45	6.38	6.91
6.325	6.39	7.01	5.63	6.33	6.09	6.48
6.4	5.62	6.30	5.66	5.98	6.43	7.04
6.5	5.48	6.00	5.01	5.2	6.59	6.93
6.6	5.87	5.85	5.56	5.6	6.88	6.56
6.7	5.8	6.58	5.91	5.79	7.60	6.92
6.725	5.7	6.94	6.38	5.6	7.74	7.10
6.8	6.41	6.43	6.13	5.97	6.72	7.40
6.9	6.45	7.61	6.24	6.04	7.33	7.33
7	6.57	7.86	6.54	5.9	7.73	7.24
7.1	5.59	6.87	6.89	6.09	7.23	6.84
7.125	6.34	7.10	7.01	6.3	7.22	6.95

Efficiency Results-W/O cable loss

Frequency(GHz)	Ant.1	Ant.2	Ant.3	Ant.4	Ant.5	Ant.6
2.4	79.25	59.57	71.12	72.61	76.03	69.82
2.41	79.63	63.26	71.63	72.63	74.83	78.00
2.42	79.65	69.37	74.34	74.17	74.51	63.86
2.43	76.79	68.44	74.35	74.52	75.74	75.56
2.437	75.93	66.90	73.18	74.03	75.93	77.34
2.44	76.65	67.22	74.05	74.90	76.65	79.16
2.45	76.31	67.70	75.09	75.44	77.73	79.18
2.46	76.51	68.66	74.59	73.91	76.16	74.42
2.47	78.31	71.09	77.05	73.42	75.65	70.76
2.48	73.94	72.76	76.90	73.43	76.19	79.05
2.49	68.08	72.44	75.34	72.61	74.99	76.91
2.5	66.22	72.11	75.16	72.61	74.47	69.82
5.15	65.31	61.52	59.84	56.36	63.68	62.52
5.18	65.61	57.41	57.02	55.08	63.24	69.66
5.2	64.86	61.80	60.53	56.89	63.68	63.39
5.3	60.95	59.02	57.15	59.29	63.53	65.46
5.4	68.95	61.17	62.45	68.79	72.03	76.30
5.5	66.99	57.54	62.81	66.99	70.15	72.61
5.6	67.30	61.24	64.71	69.02	71.61	72.95
5.7	67.00	61.53	64.14	68.09	70.00	72.46
5.8	63.39	59.57	61.38	64.71	66.68	68.71
5.85	62.69	61.55	62.40	65.64	67.64	70.02

Frequency(GHz)	Ant.1	Ant.2	Ant.3	Ant.4	Ant.5	Ant.6
5.925	63.59	63.45	63.59	66.74	68.77	72.01
5.955	63.04	64.51	61.46	66.01	67.86	70.57
6	57.12	58.59	56.73	60.79	62.49	65.28
6.1	51.29	54.58	54.58	56.75	58.75	60.67
6.2	49.00	54.98	54.35	54.85	56.39	58.78
6.3	50.16	58.40	56.29	56.68	58.00	61.43
6.325	51.12	56.57	55.28	56.83	57.62	59.51
6.4	47.29	54.93	53.68	53.80	54.80	60.37
6.5	43.25	52.00	49.43	50.23	52.00	57.15
6.6	46.77	55.72	50.35	49.32	55.46	58.61
6.7	50.58	57.81	52.12	50.12	59.02	61.24
6.725	52.72	59.98	53.09	50.70	59.70	63.68
6.8	47.75	53.09	48.75	46.99	55.34	57.15
6.9	48.75	52.60	49.20	45.29	56.62	57.54
7	48.98	58.88	56.89	49.43	63.83	59.98
7.1	45.08	58.61	55.85	50.82	58.75	54.33
7.125	48.64	56.10	57.94	53.58	62.66	53.83



Thank You

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