

Antenna Specification

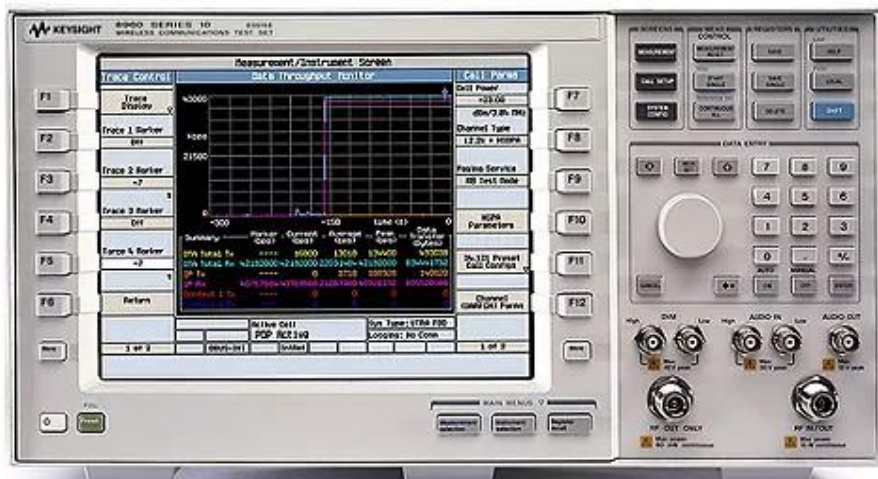
Technical Parameter	Indicator requirements
Antenna type	2.4G:Built-in antenna
Antenna size	2.4G:200*98.5*29mm(without bracket) 5G:521*120*82mm(excluding mounting bracket) 694*139.9*48.9mm (excluding mounting bracket)
Antenna polarization	Vertical polarization
Frequency range	2.4-2.5GHz 5.15-5.85GHz
VSWR	≤ -10
Isolation	≤ -20
Gain	5 $\pm$ 0.5dB
Efficiency	>60%
Manufacturer	Dongguan Senling Intelligent Technology Co., Ltd
Address	Room 402, Building 6, Modern Enterprise Accelerator, Dongguan City

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1. Test equipment

1. Network Analyzers: Keysight E5063A ENA
2. Communications Test Set: Agilent E5515C
3. OTA Test System: 743 far-field method darkroom



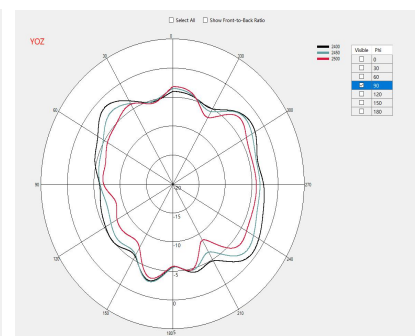
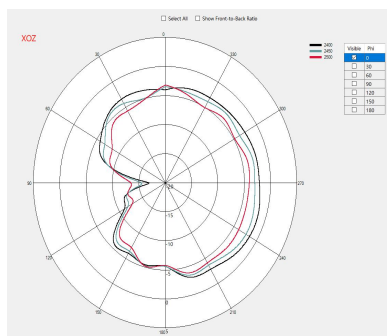
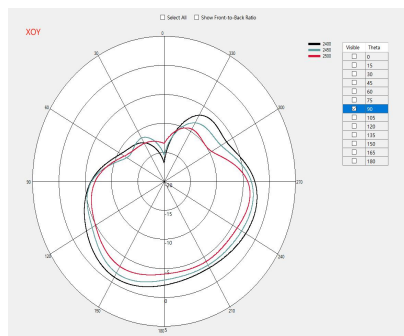
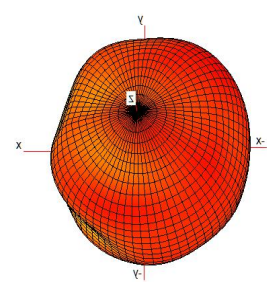
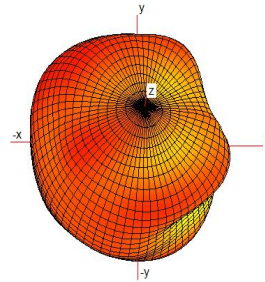
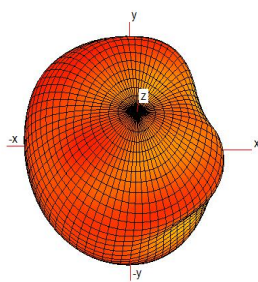
2. Test data

2.4G-1 Antenna: 2400-2500MHz

ANT1	Max	efficiency
Freq. (MHz)		
2400	-0.48	45.09
2410	-0.79	44.31
2420	-0.92	41.3
2430	-1.02	40.04
2440	-1.04	39.59
2450	-1.22	37.68
2460	-1.76	34.41
2470	-1.95	32.84
2480	-2.04	32.26
2490	-2.32	30.38
2500	-2.38	30.52

Return Loss Test

Isolation testing

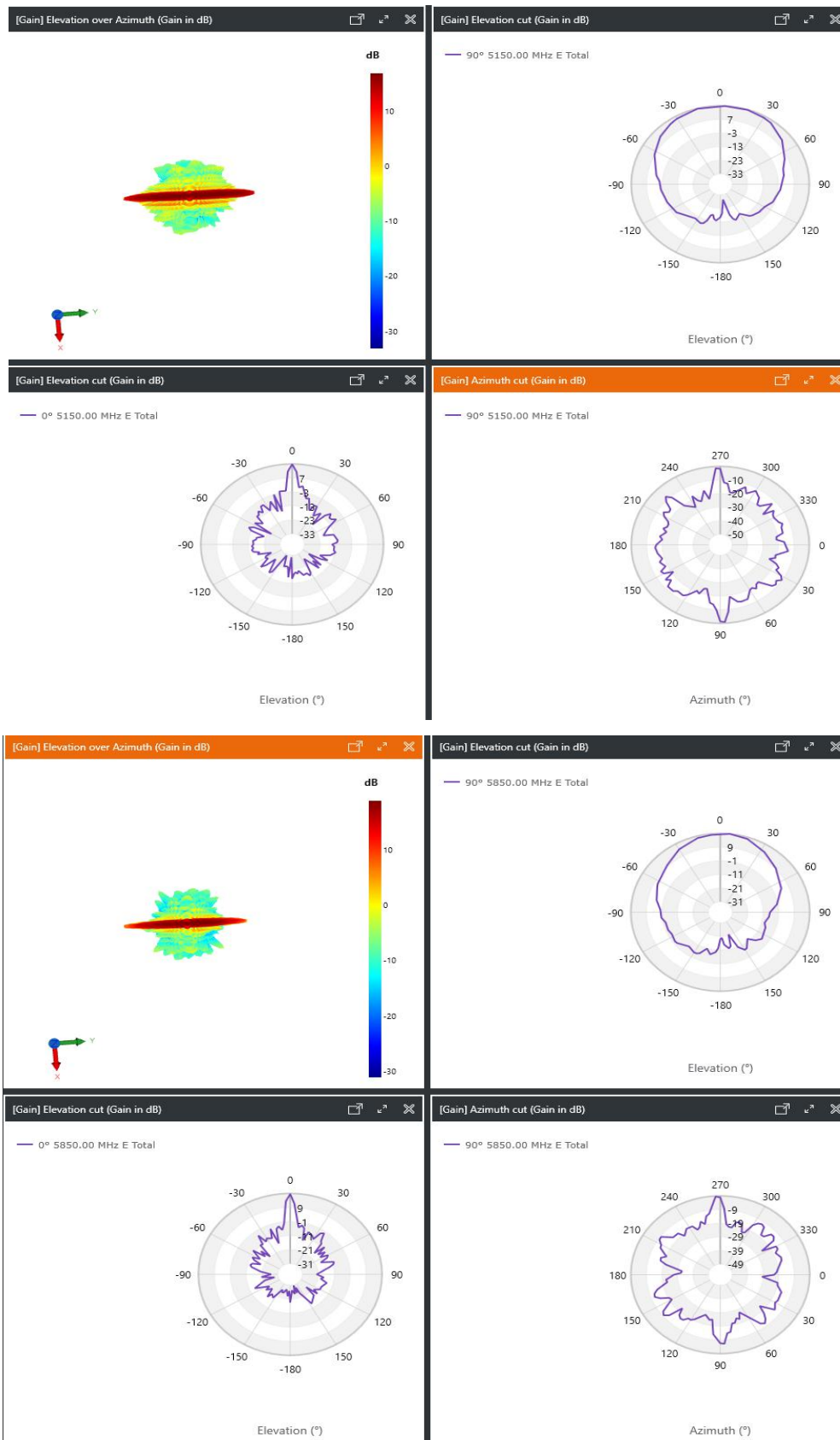


5G-1 Antenna: 5150-5850MHz (RG-ANT20S-90)

ANT1	Max	efficiency
Freq. (MHz)		
5150	16.96	55.5
5170	17.26	57.25
5190	17.45	59.02
5210	17.58	59.12
5230	17.61	59.46
5250	17.78	59.72
5270	17.89	58.54
5290	18.02	57.99
5310	18	56.57
5330	17.94	55.17
5350	17.7	52.14
5370	17.59	49.99
5390	17.61	48.49
5410	17.79	49.08
5430	18.06	50.88
5450	18.33	53.74
5470	18.6	56.58
5490	18.74	57.64
5510	18.75	56.65
5530	18.63	54.72
5550	18.42	52.07
5570	18.25	50.98
5590	18.19	50.42
5610	18.32	51.37
5630	18.47	52.76
5650	18.66	54.93
5670	18.77	55.96
5690	18.74	55.38
5710	18.62	55.88
5730	18.3	50.45
5750	18.2	47.89
5770	18.09	45.88
5790	18.22	46.1
5810	18.4	47.72
5830	18.72	50.93
5850	18.98	54.06

Return Loss Test

Isolation testing

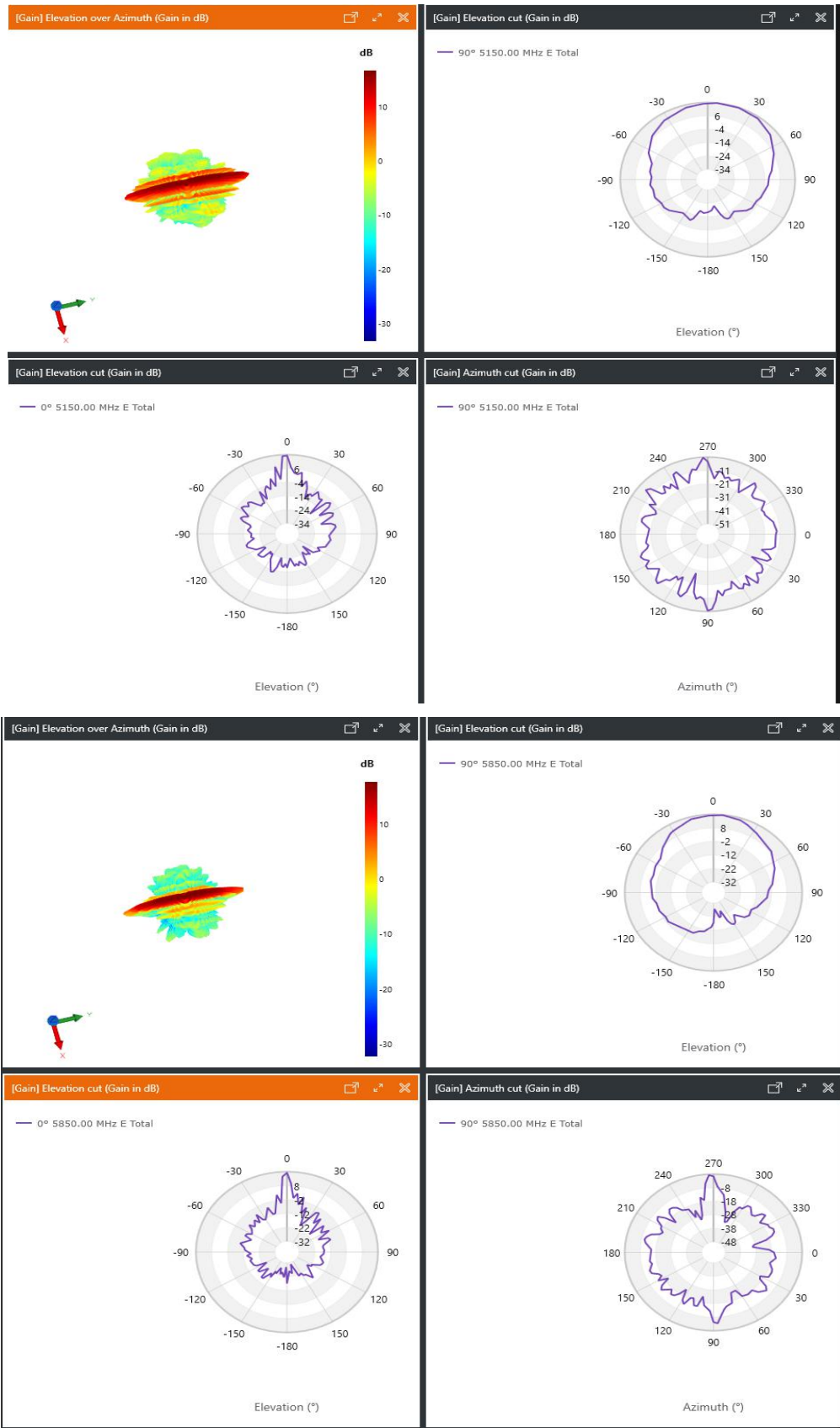


5G-2 Antenna: 5150-5850MHz (RG-ANT20S-90)

ANT2	Max	efficiency
Freq. (MHz)		
5150	16.85	57.74
5170	16.89	56.81
5190	16.91	56.79
5210	17.01	55.26
5230	17.11	55.49
5250	17.31	56.27
5270	17.46	55.81
5290	17.57	55.12
5310	17.57	52.73
5330	17.47	49.96
5350	17.24	46.68
5370	17.17	46.11
5390	17.14	45.96
5410	17.17	47.4
5430	17.27	49.54
5450	17.39	52
5470	17.51	53.06
5490	17.7	53.76
5510	17.83	54.64
5530	17.75	55.1
5550	17.77	54.87
5570	17.91	55.46
5590	18.1	55.36
5610	18.18	55.3
5630	18.25	54.64
5650	18.25	52.94
5670	18.25	50.9
5690	18.17	49.67
5710	18.2	50.24
5730	18.19	51.33
5750	18.31	53.05
5770	18.2	53.55
5790	18.16	53.07
5810	18.08	51.89
5830	17.98	4*9.5
5850	17.83	46.33

Return Loss Test

Isolation testing



5G-1 Antenna: 5150-5850MHz (RG-ANT13-360)

ANT1	gain	Out-of-roundness	3dB Vertical Beamwidth	Efficiency (%)
Freq. (MHz)				
5150	11.77	6.34	7.33	79.12%
5250	11.96	4.34	7.15	87.26%
5350	11.89	3.68	6.73	89.53%
5450	11.98	3.75	7.14	86.40%
5500	12.01	3.61	7.35	88.10%
5550	12.05	2.96	7.2	86.37%
5650	12.07	2.79	6.42	88.83%
5750	12.22	3.79	6.33	81.05%
5850	12.21	4.84	7.03	86.47%

Return Loss Test

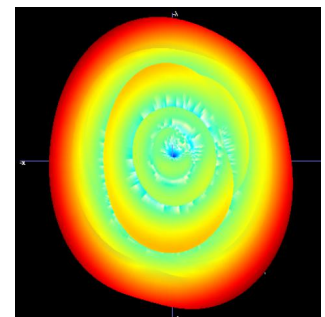
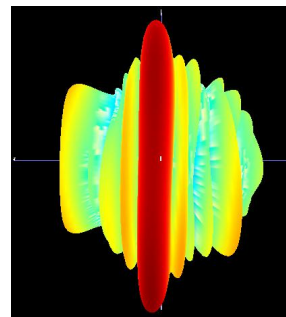
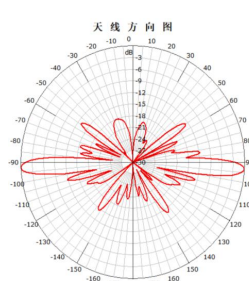
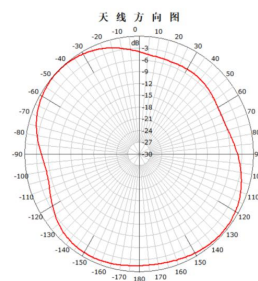
Isolation testing

Horizontal Pattern

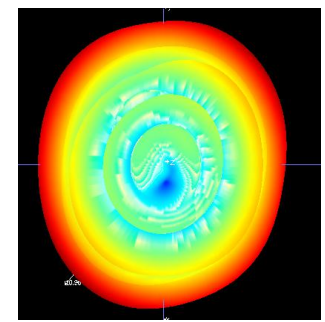
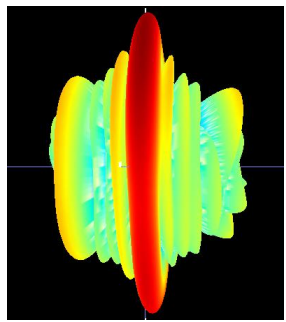
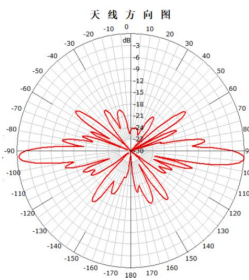
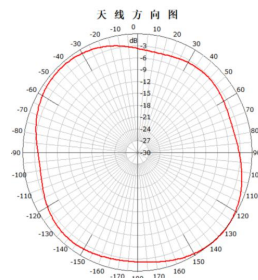
Vertical Pattern

3D Pattern

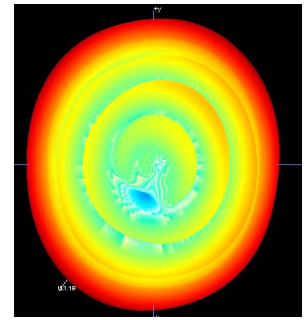
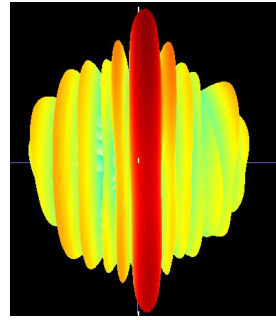
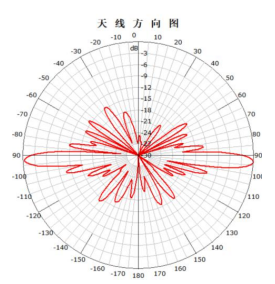
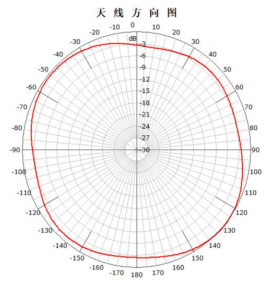
Port 1(H)



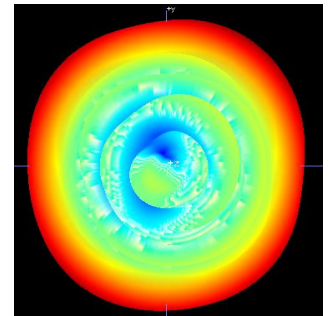
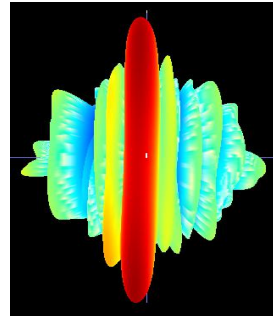
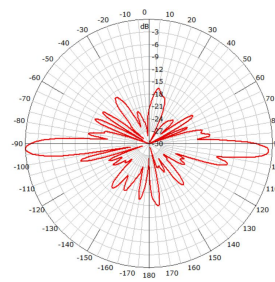
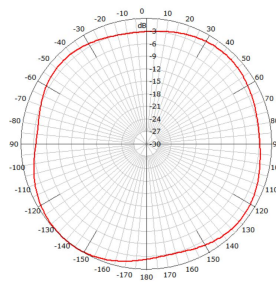
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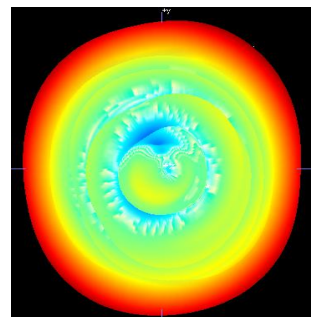
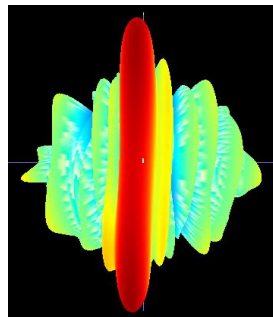
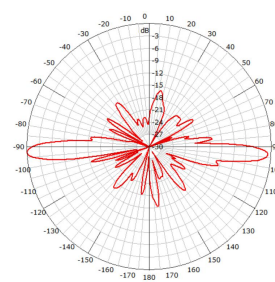
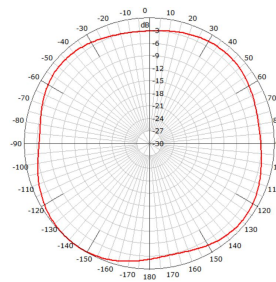
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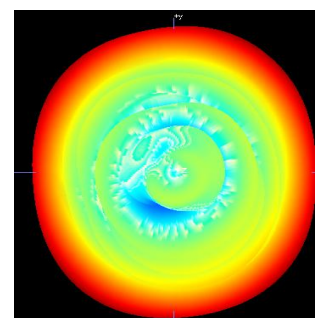
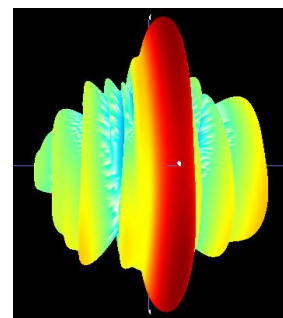
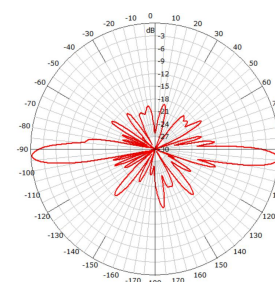
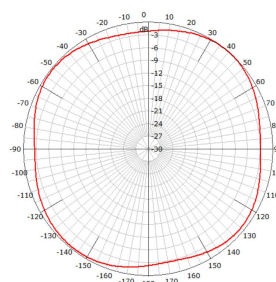
F=5350MHZ



F=5450MHZ

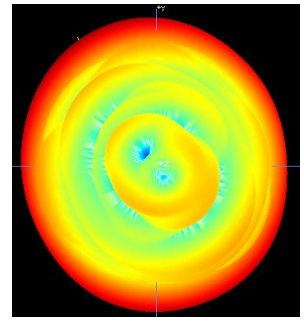
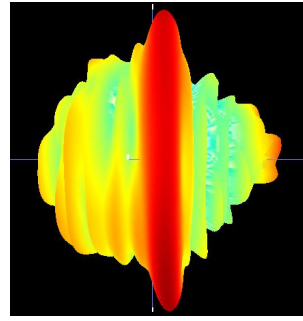
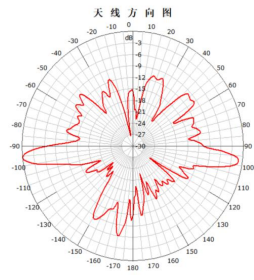
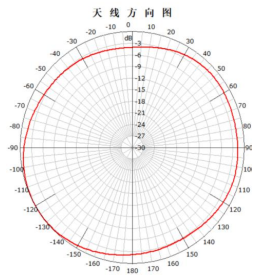


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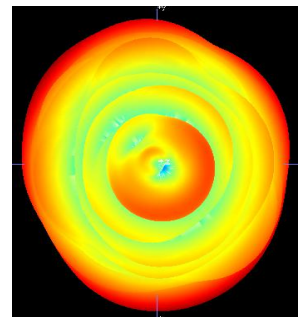
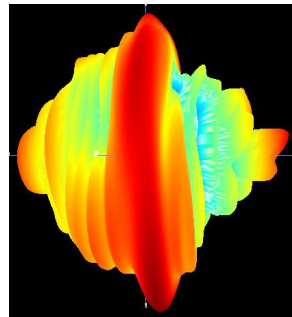
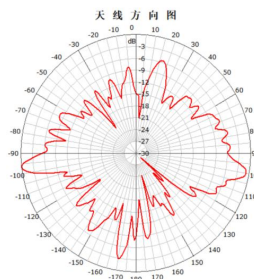
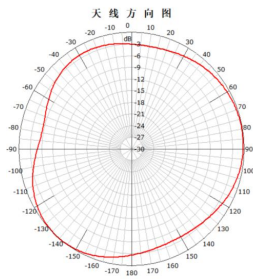


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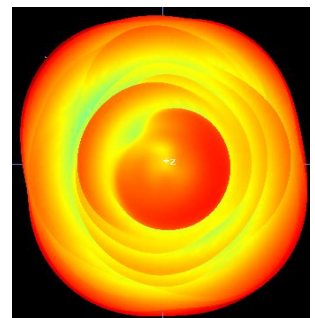
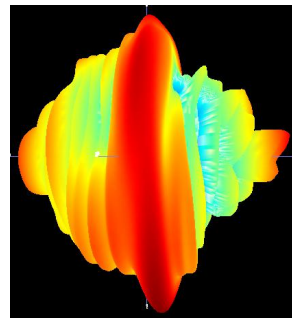
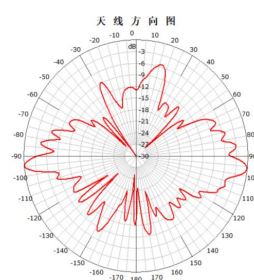
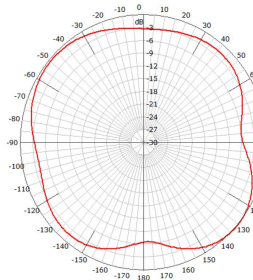
Port 1(V)



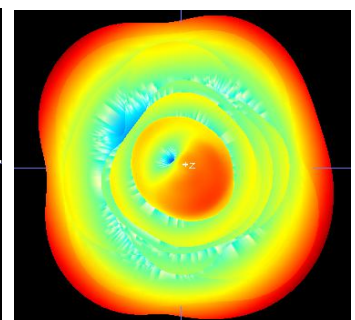
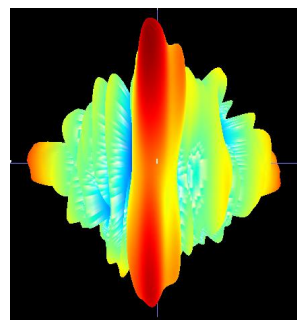
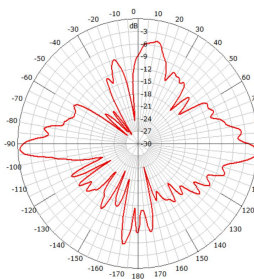
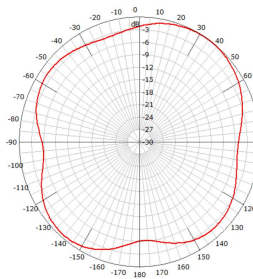
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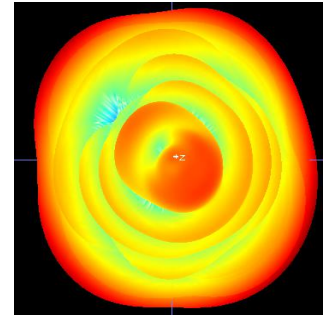
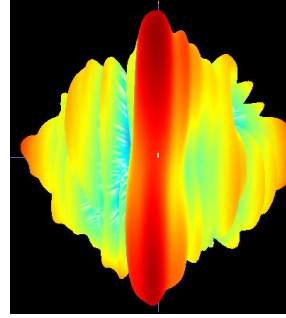
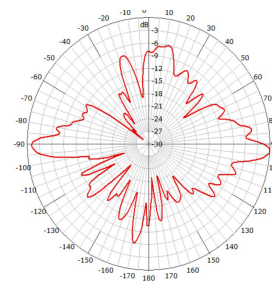
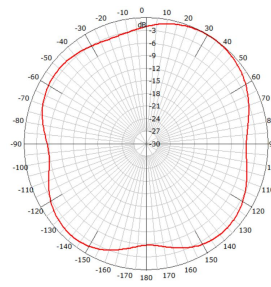
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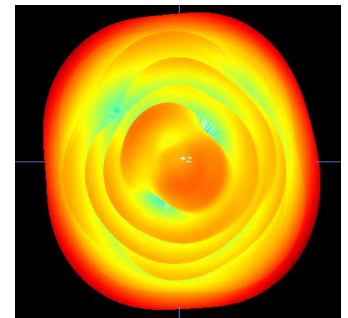
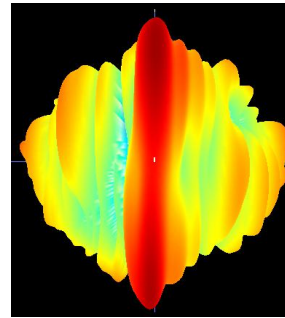
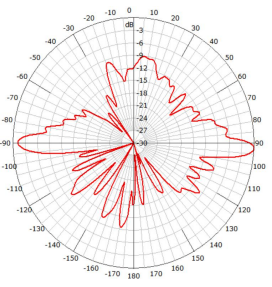
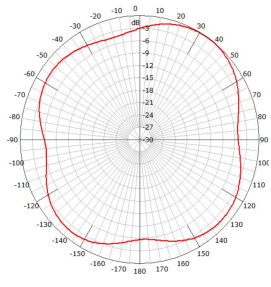
F=5350MHZ



F=5450MHZ



F=5500MHZ



F=5550MHZ

5G-2 Antenna: 5150-5850MHz (RG-ANT13-360)

ANT2	gain	Out-of-roundness	3dB Vertical Beamwidth	Efficiency (%)
Freq. (MHz)				
5150	10.44	4.16	7.59	60.41%
5250	10.42	5.76	8.26	65.73%
5350	10.39	6.65	7.86	68.84%
5450	10.73	6.35	8.32	70.94%
5500	10.64	5.97	7.89	65.73%
5550	10.79	6.4	7.96	63.28%
5650	10.77	7.04	6.91	69.00%
5750	10.83	7.49	6.2	66.15%
5850	10.89	8.65	6.08	68.01%

Return Loss Test

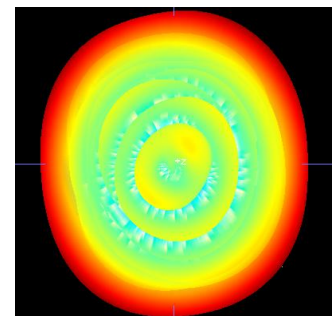
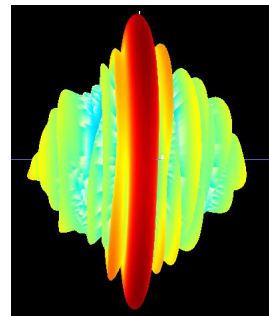
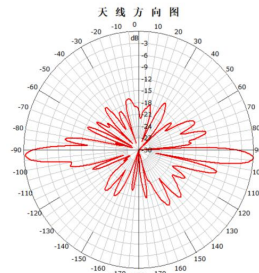
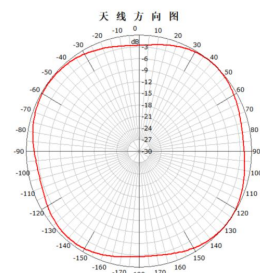
Isolation testing

Horizontal Pattern

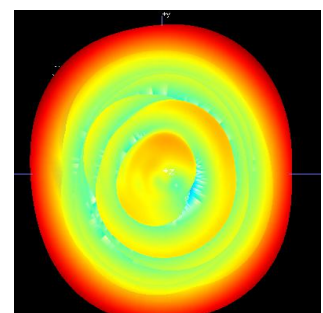
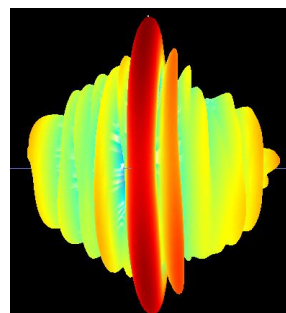
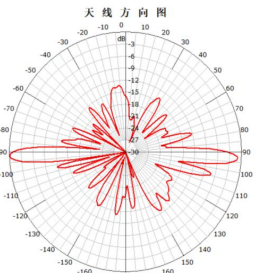
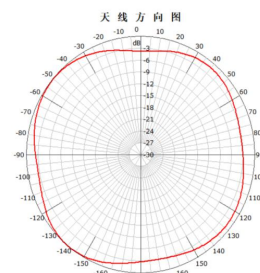
Vertical Pattern

3D Pattern

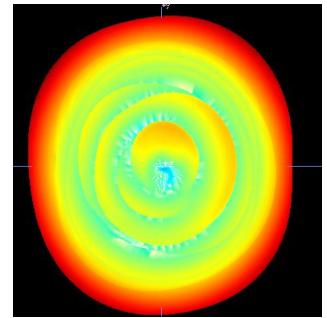
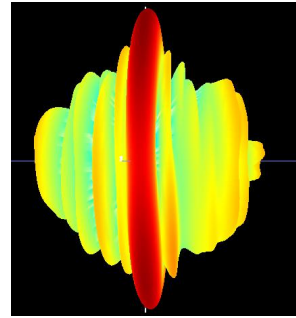
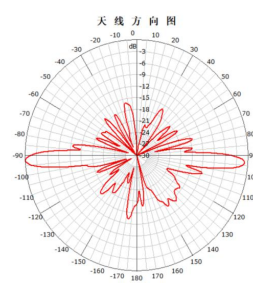
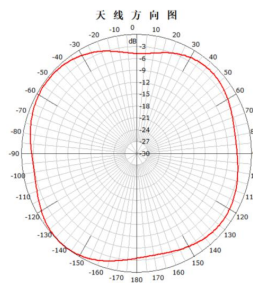
Port 1(H)



F=5650MHZ

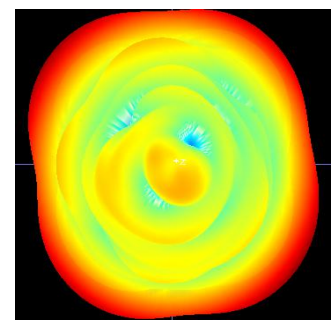
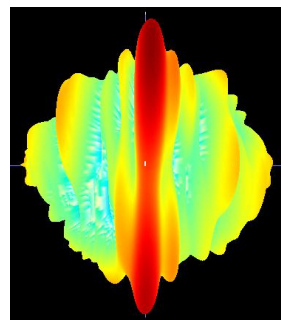
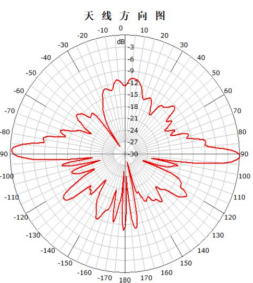
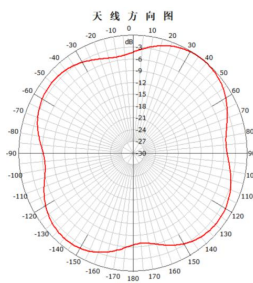


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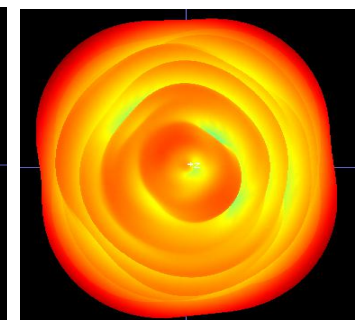
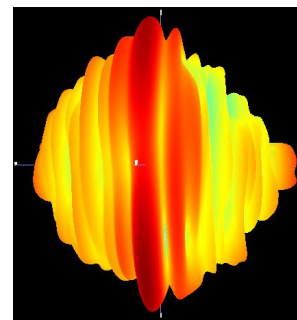
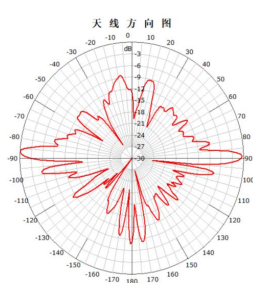
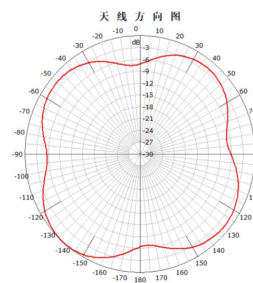


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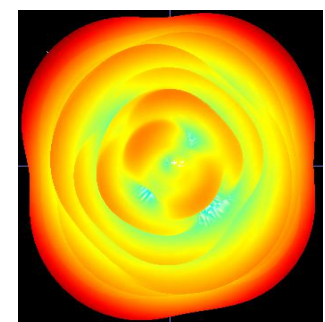
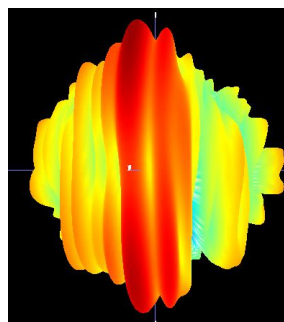
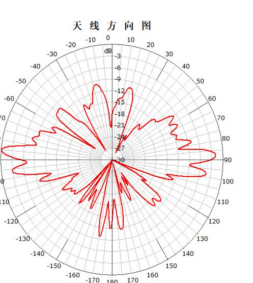
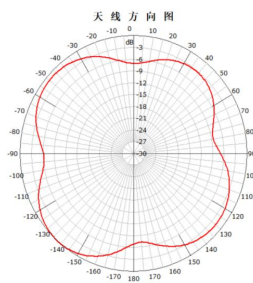
Port 2(V)



F=5650MHZ



F=5750MHZ



F=5850MHZ

--- The End ---