

成都友恒通信技术有限公司

Chengdu Youheng Communication Technology Co., Ltd

规格承认书

SPECIFICATION FOR APPROVAL

日期
Date 2026/03/13

编号
File No 26031301

版本
Revision 1.0

客 户

CUSTOMER:

客户料号

CUSTOMER NO:

品 名

PART NAME:

4 IN 1 Antenna

供方料号

SUPPLIER NO:

YHTX81000216

送样日期Date:

送样数量Q'TY:

客户确认CUSTOMER APPROVED BY

APPROVAL

CHIEF

SUPERVISOR

供方确认 SUPPLIER SIGNATURE

APPROVAL

CHECK

DESIGN

ChenGuoqiang

ZhangLiqun

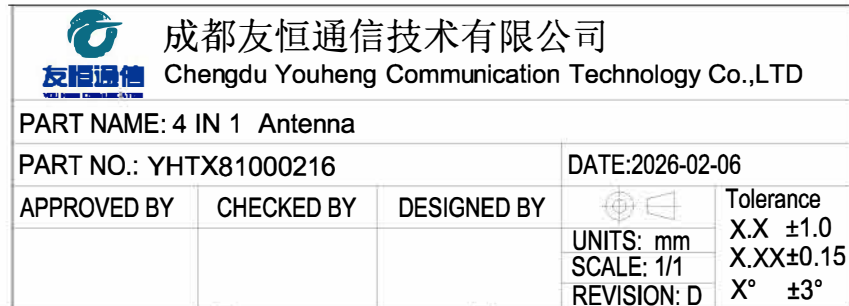
ChenJun

YJ-RD-F04-A

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CUSTOMER
PART NO



天线规格- 4G
Antenna Specification

Electrical Properties

Frequency	617-960MHz 1710-2690MHz 3300-5000MHz
Impedance	50 Ohm Nominal
V.S.W.R	≤7.0 Max@617-960MHz ≤4.0 Max@1710-2690MHz ≤4.0 Max3300-5000MHz
Gain	-2.99 dBi@617-960MHz -3.04 dBi@1710-2690MHz -2.32 dBi@3300-5000MHz
Radiation	Omni-directional
Polarization	Linear

Physical Properties

Connector	MMCX Plug
Cable Type	RG316
Cable Length	2700mm
Cable Color	Black
Operating Temp.	-40 ~ +85 °C
Storage Temp / Humidity	25±5°C / <70%

天线规格- **DIV**
Antenna Specification

Electrical Properties	
Frequency	617-960MHz 1710-2690MHz 3300-5000MHz
Impedance	50 Ohm Nominal
V.S.W.R	≤7.0 Max@617-960MHz ≤4.0 Max@1710-2690MHz ≤4.0 Max3300-5000MHz
Gain	-3.78 dBi@617-960MHz -3.43 dBi@1710-2690MHz -3.13 dBi@3300-5000MHz
Radiation	Omni-directional
Polarization	Linear
Physical Properties	
Connector	SMA Male
Cable Type	1.5DS
Cable Length	2300mm
Cable Color	Black
Operating Temp.	-40 ~ +85 °C
Storage Temp / Humidity	25±5°C / <70%

天线规格- **MAIN**
Antenna Specification

Electrical Properties

Frequency	617-960MHz 1710-2690MHz 3300-5000MHz
Impedance	50 Ohm Nominal
V.S.W.R	≤7.0 Max@617-960MHz ≤4.0 Max@1710-2690MHz ≤4.0 Max3300-5000MHz
Gain	-2.53 dBi@617-960MHz -3.69 dBi@1710-2690MHz -3.51 dBi@3300-5000MHz
Radiation	Omni-directional
Polarization	Linear

Physical Properties

Connector	SMA Male
Cable Type	1.5DS
Cable Length	2300mm
Cable Color	Black
Operating Temp.	-40 ~ +85 °C
Storage Temp / Humidity	25±5°C / <70%

天线规格- **WIFI**
Antenna Specification

Electrical Properties

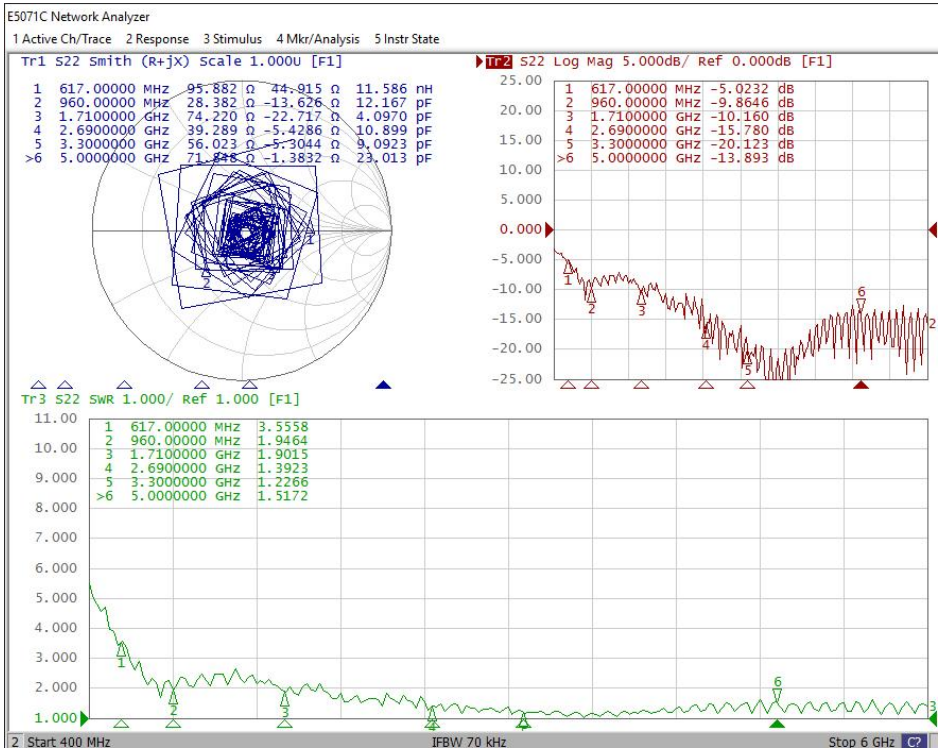
Frequency	2.4-2.5GHz 5.15-5.85GHz
Impedance	50 Ohm Nominal
V.S.W.R	≤ 3.0 Max@2.4-2.5GHz ≤ 2.0 Max@5.15-5.85GHz
Gain	0.32 dBi@2.4-2.5GHz 0.21 dBi@5.15-5.85GHz
Radiation	Omni-directional
Polarization	Linear

Physical Properties

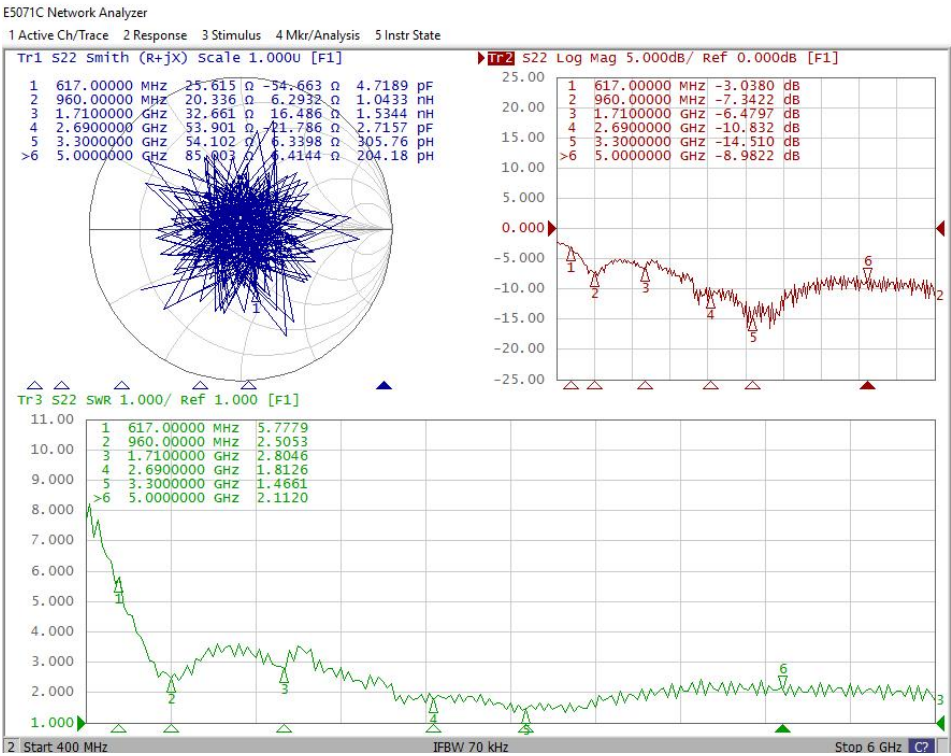
Connector	SMA Male Reverse
Cable Type	1.5DS
Cable Length	2300mm
Cable Color	Black
Operating Temp.	-40 ~ +85 °C
Storage Temp / Humidity	25 $\pm$ 5°C / <70%

Antenna Performance Test

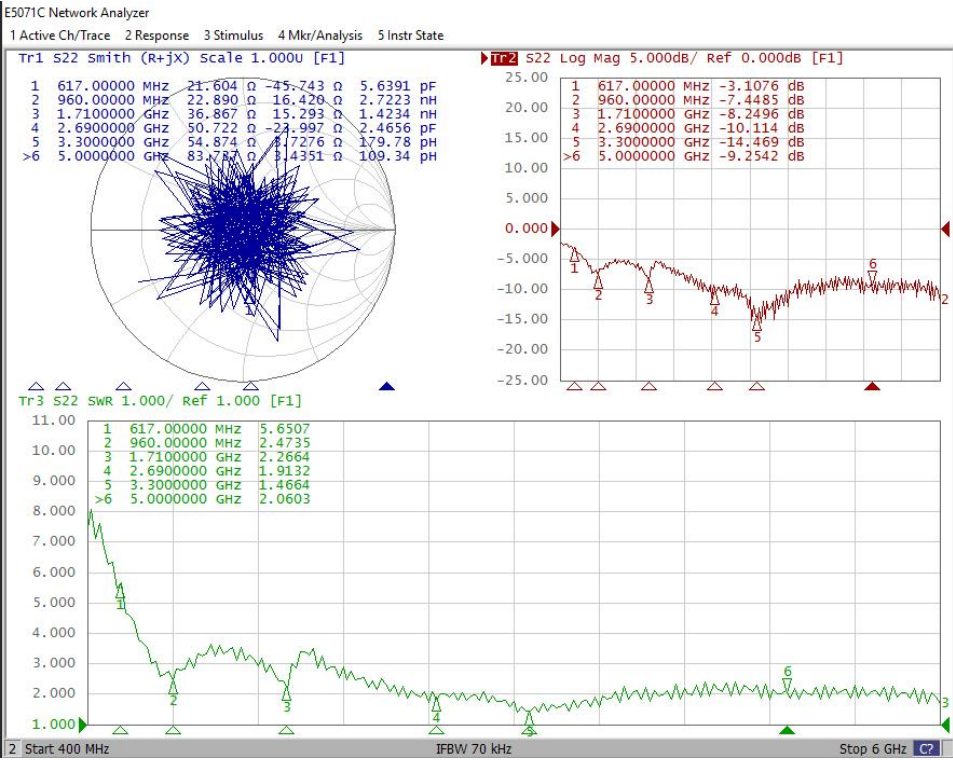
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S22
Parameter
Test //
4G
Antenna



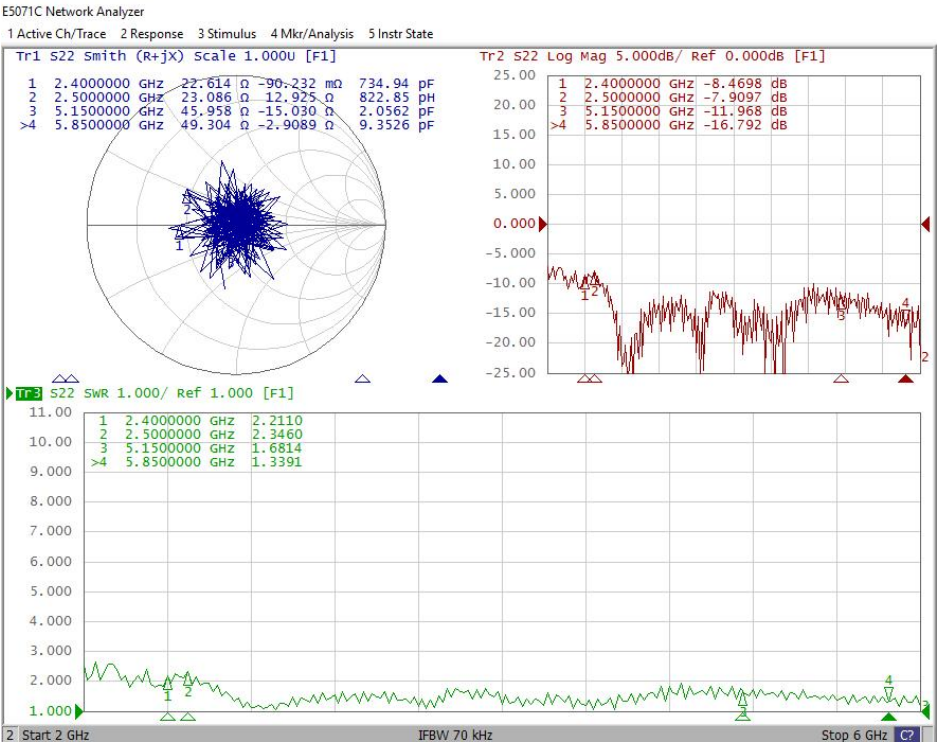
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DIV
Antenna

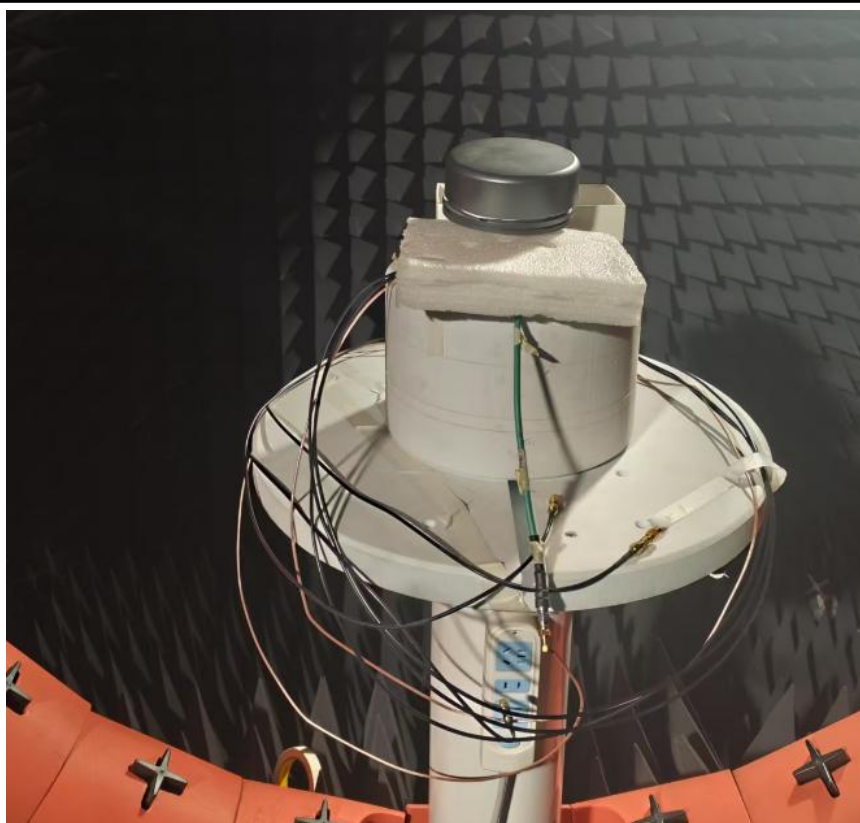


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MAIN
Antenna*

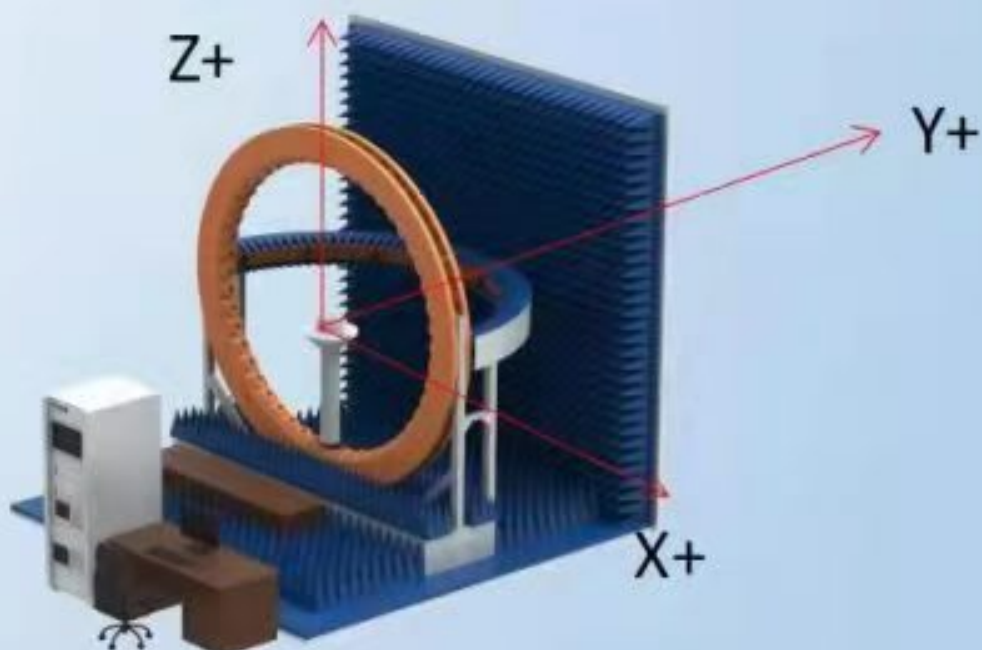


Agilent
E5071C
S22
Parameter
Test //
WiFi
Antenna





系统坐标系 System Coordinate System



Passive Test For 4G Antenna

Freq (MHz)	Effi (%)	Gain (dBi)
620	7.83	-7.42
640	8.57	-5.71
660	8.39	-5.49
680	9.1	-4.55
700	13.77	-3.35
720	14.76	-4
740	16.18	-3.58
760	18.92	-2.96
780	22.49	-2
800	24.27	-0.95
820	25.35	-1.5
840	28.77	-2.05
860	31.33	-1.79
880	33.96	-1.77
900	32.73	-2.24
920	33.34	-1.89
940	28.58	-1.8
960	29.58	-0.71
AVG	21.55	-2.99

Passive Test For 4G Antenna

Freq (MHz)	Effi (%)	Gain (dBi)
1700	21.58	-1.35
1750	23.6	-1.44
1800	25.59	-3.2
1850	14.52	-4.41
1900	10.33	-7.06
1950	18.45	-4.24
2000	20.99	-3.35
2050	22.8	-3.31
2100	29.99	-3.13
2150	24.6	-3.58
2200	24.55	-2.9
2250	23.6	-3.58
2300	26.85	-3.05
2350	22.49	-3.22
2400	23.23	-2.88
2450	20.65	-2.8
2500	21.28	-2.53
2550	19.05	-2.79
2600	19.32	-2.97
2650	22.59	-1.32
2700	24.83	-0.64
AVG	21.95	-3.04

Passive Test For 4G Antenna

Freq (MHz)	Effi (%)	Gain (dBi)
3300	27.42	-0.92
3400	26.85	-1.55
3500	27.61	-1.13
3600	24.89	-1.54
3700	26.79	-1.29
3800	22.39	-1.6
3900	23.44	-0.79
4000	22.86	-0.58
4100	18.32	-1.24
4200	17.7	-1.56
4300	16.29	-1.94
4400	14.32	-2.94
4500	10.91	-3.71
4600	12.27	-3.36
4700	12.33	-3.27
4800	9.62	-4.54
4900	10.45	-4.93
5000	10.05	-4.92
AVG	18.58	-2.32

Passive Test For DIV Antenna

Freq (MHz)	Effi (%)	Gain (dBi)
620	7.45	-6.34
640	8.45	-5.81
660	8.02	-5.69
680	9.1	-4.61
700	12.27	-3.25
720	15.45	-2.55
740	14.93	-3.46
760	15.31	-3.38
780	19.14	-2.8
800	18.41	-4.46
820	25.41	-2.57
840	26.73	-3.97
860	28.97	-3.2
880	27.67	-4.24
900	29.85	-4.31
920	32.21	-3.31
940	31.62	-2.67
960	36.81	-1.44
AVG	20.43	-3.78

Passive Test For DIV Antenna

Freq (MHz)	Effi (%)	Gain (dBi)
1700	17.95	-3.2
1750	16.11	-4.68
1800	12.97	-7.2
1850	10.87	-8.75
1900	16.37	-5.48
1950	22.54	-3.75
2000	21.48	-3.85
2050	19.77	-3.56
2100	24.95	-3.77
2150	23.39	-3.3
2200	24.1	-2.2
2250	33.04	-1.99
2300	24.27	-3.31
2350	21.83	-3.69
2400	25.47	-2.88
2450	33.65	-1.47
2500	38.28	-0.71
2550	32.06	-1.95
2600	35.81	-1.98
2650	33.57	-1.25
2700	30.69	-2.98
AVG	24.72	-3.43

Passive Test For DIV Antenna

Freq (MHz)	Effi (%)	Gain (dBi)
3300	28.25	-2.23
3400	32.81	-2.22
3500	35.16	-0.92
3600	29.58	-1.45
3700	28.12	-2.35
3800	23.12	-1.85
3900	24.27	-0.47
4000	21.78	-0.53
4100	13.8	-1.66
4200	10.35	-1.32
4300	7.6	-3.52
4400	6.49	-5.05
4500	7.43	-4.9
4600	6.98	-6.63
4700	6.61	-5.95
4800	5.26	-7.45
4900	7.57	-4.36
5000	9.95	-3.39
AVG	16.95	-3.13

Passive Test For MAIN Antenna

Freq (MHz)	Effi (%)	Gain (dBi)
620	7.35	-7.13
640	7.05	-6.14
660	7.89	-6.22
680	12.19	-2.66
700	16.03	-1.99
720	14.49	-3.59
740	15.49	-3.36
760	15.6	-3.21
780	24.15	-1.09
800	25.59	-1.74
820	27.61	-1.15
840	33.5	-1.85
860	46.56	-0.89
880	44.98	-0.57
900	41.4	-1.54
920	32.54	-0.55
940	33.73	-0.54
960	31.05	-1.32
AVG	24.29	-2.53

Passive Test For MAIN Antenna

Freq (MHz)	Effi (%)	Gain (dBi)
1700	16.48	-4.22
1750	16.48	-4.82
1800	12.85	-6.33
1850	6.46	-8.94
1900	15.49	-5.8
1950	21.04	-4.97
2000	20.32	-4.41
2050	19.63	-3.59
2100	25.88	-3.93
2150	30.13	-1.9
2200	28.44	-0.9
2250	24.6	-2.79
2300	23.39	-3.56
2350	21.73	-3.92
2400	25.94	-3.08
2450	33.5	-1.9
2500	37.33	-1.47
2550	31.12	-2.54
2600	35.16	-2.55
2650	33.57	-2.84
2700	30.55	-3.02
AVG	24.29	-3.69

Passive Test For MAIN Antenna		
Freq (MHz)	Effi (%)	Gain (dBi)
3300	28.25	-1.96
3400	31.62	-1.48
3500	34.12	-0.62
3600	27.67	-2.74
3700	28.18	-1.93
3800	21.68	-2.03
3900	22.03	-0.88
4000	19.41	-1.65
4100	12.22	-1.93
4200	9.98	-2.49
4300	7.57	-3.99
4400	6.08	-5.79
4500	6.47	-5.84
4600	6.85	-6.17
4700	6.92	-5.45
4800	4.99	-7.31
4900	7.01	-5.84
5000	7.71	-5.03
AVG	16.04	-3.51

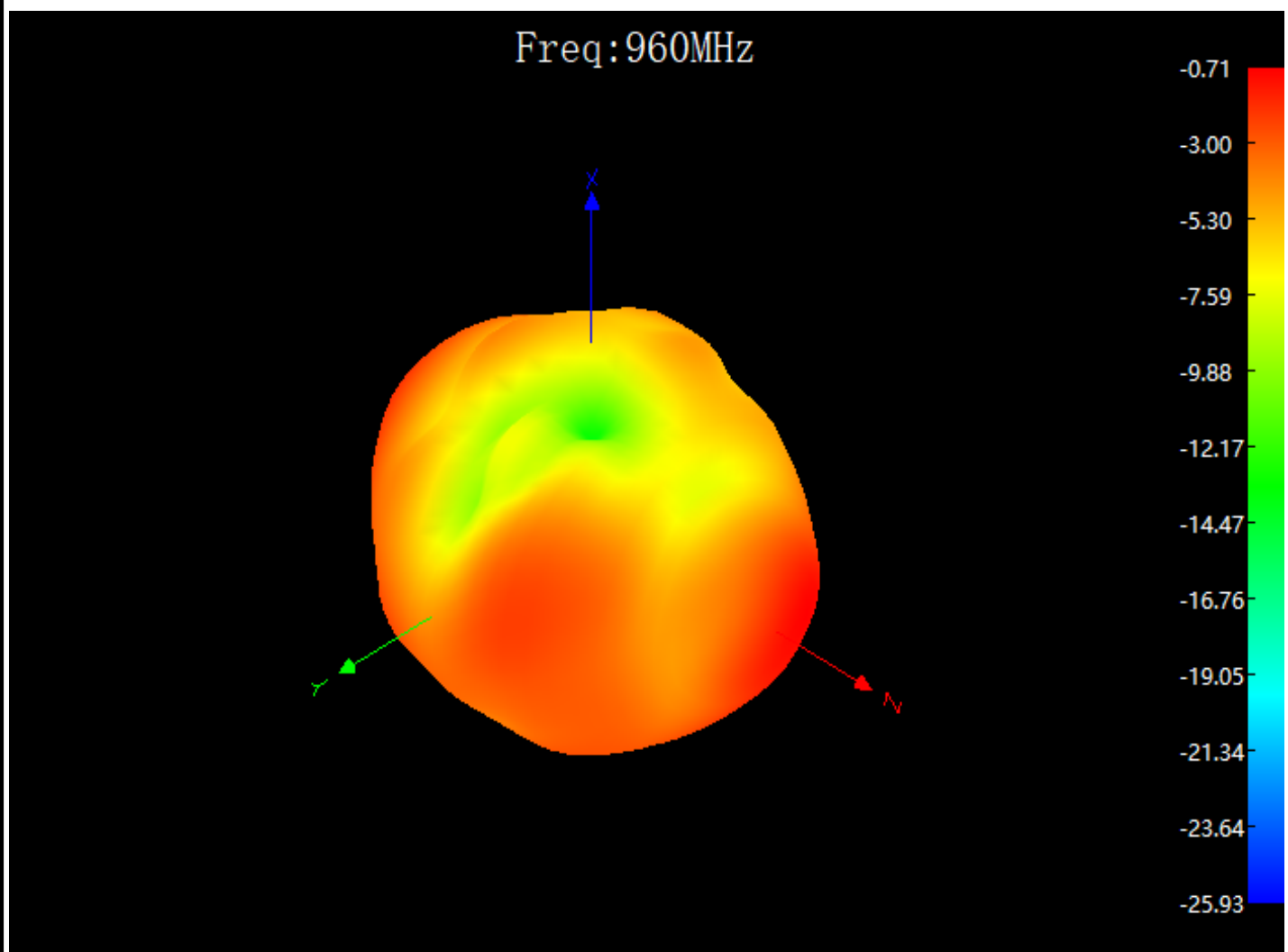
Passive Test For WIFI Antenna

Freq (MHz)	Effi (%)	Gain (dBi)
2400	26.36	-0.28
2410	25.59	-0.77
2420	26.67	-0.34
2430	26.92	0.14
2440	26.3	0.11
2450	27.1	0.57
2460	28.38	0.4
2470	29.24	0.81
2480	31.05	0.69
2490	29.11	1.13
2500	32.21	1.04
AVG	28.08	0.32

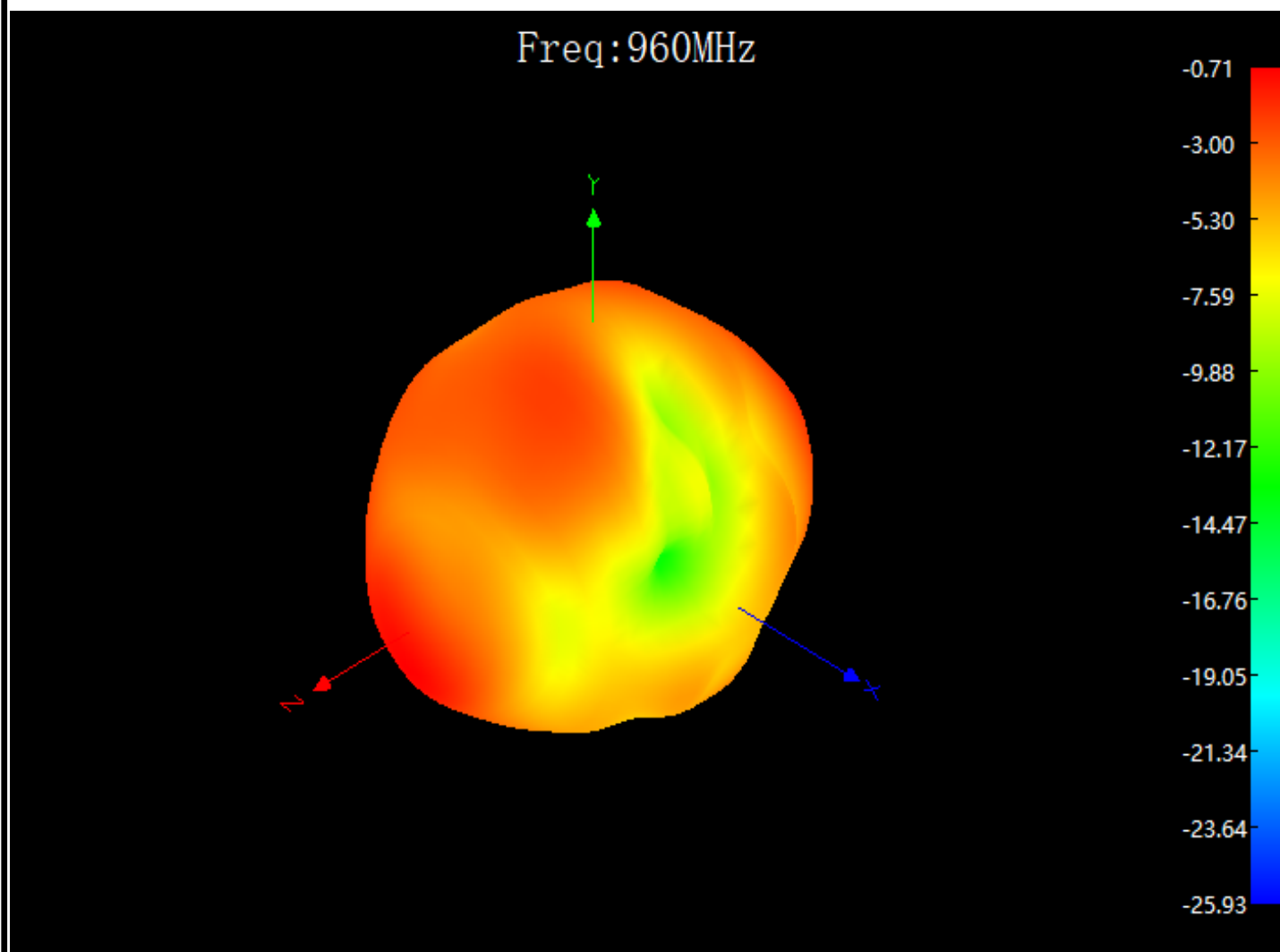
Passive Test For WIFI Antenna		
Freq (MHz)	Effi (%)	Gain (dBi)
5150	25	0.3
5200	21.78	-0.73
5250	24.89	0.03
5300	27.42	0.73
5350	29.31	1.23
5400	24.89	-0.01
5450	25.12	-0.47
5500	26.98	-0.39
5550	31.99	-0.04
5600	30.9	-0.01
5650	28.38	-0.21
5700	30.48	-0.03
5750	31.26	0.78
5800	32.58	0.71
5850	31.84	1.22
AVG	28.19	0.21



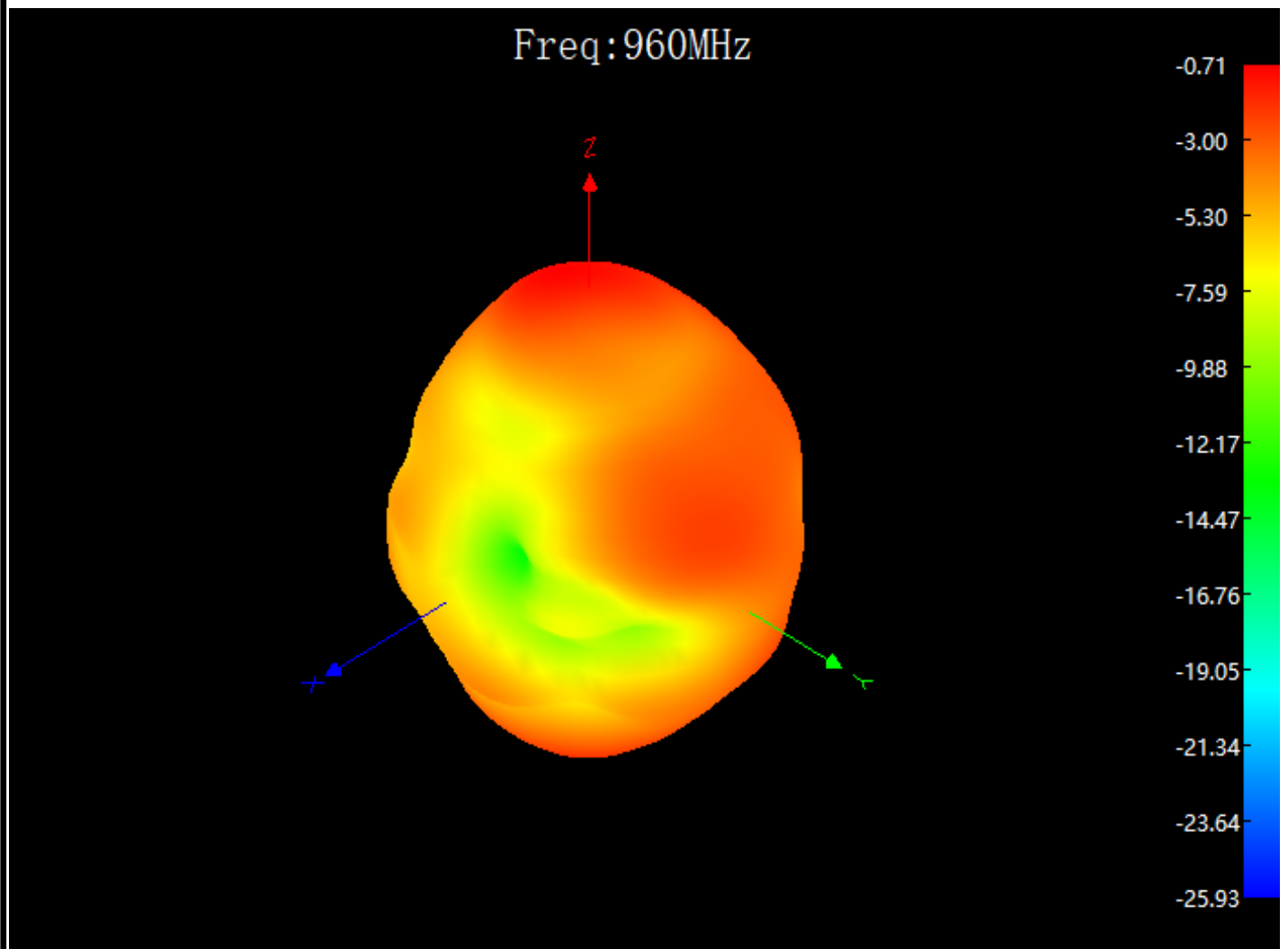
Radiation Pattern For 4G Antenna



Radiation Pattern For 4G Antenna

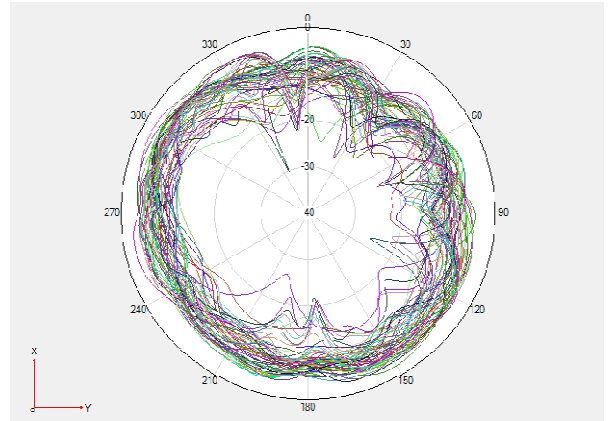


Radiation Pattern For 4G Antenna

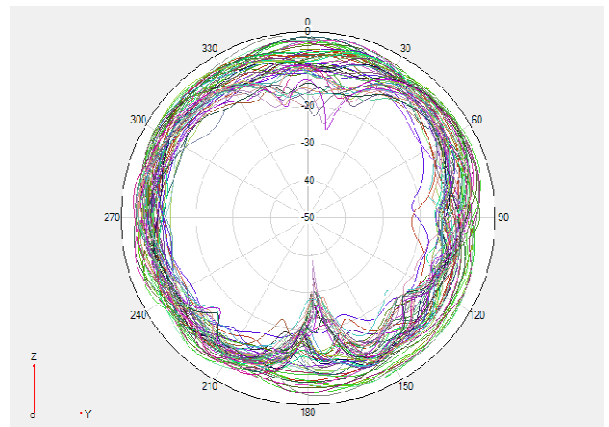


Radiation Pattern For 4G Antenna

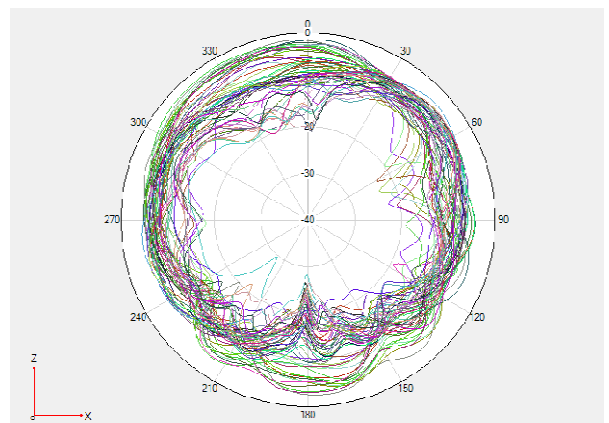
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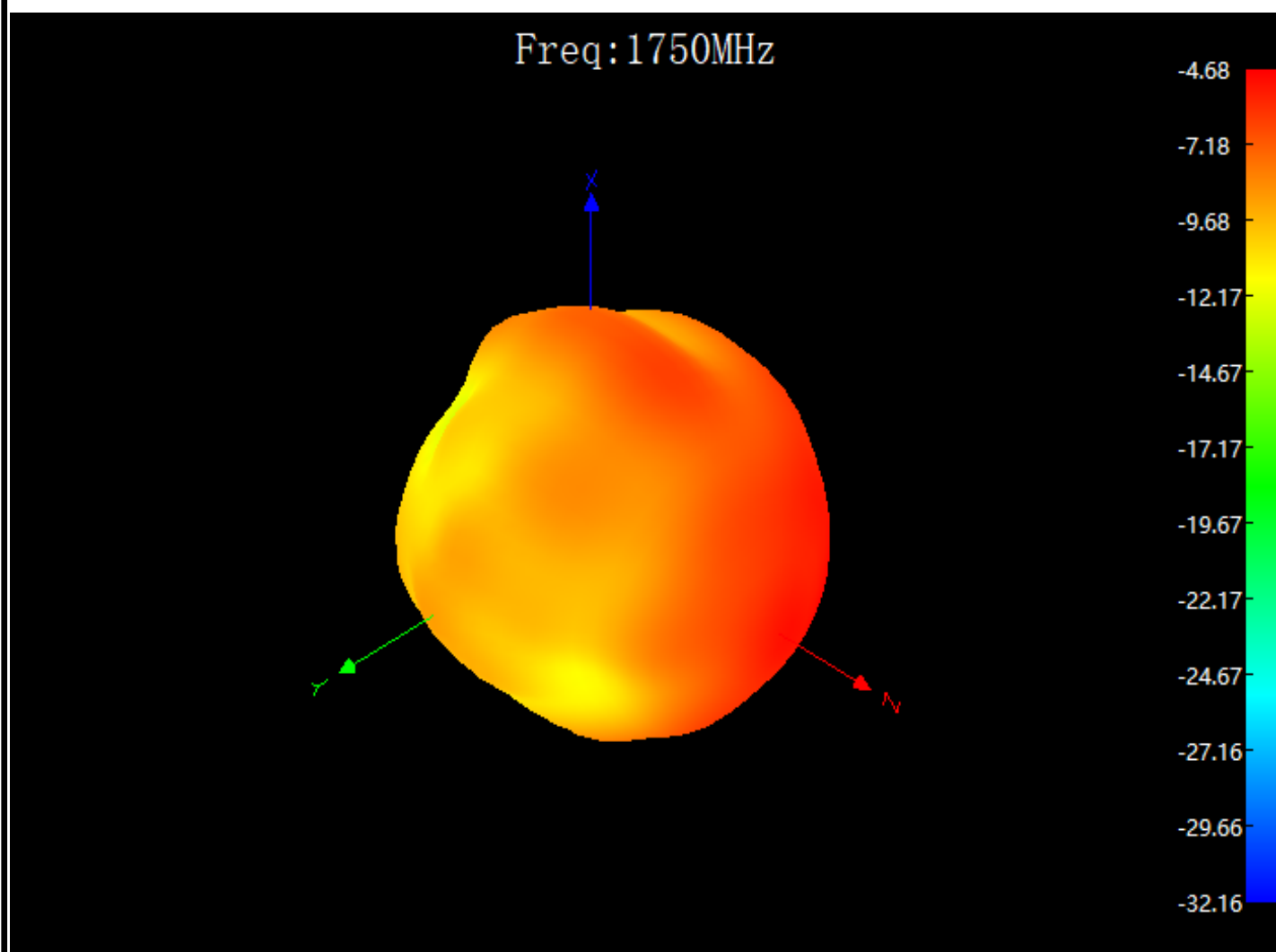
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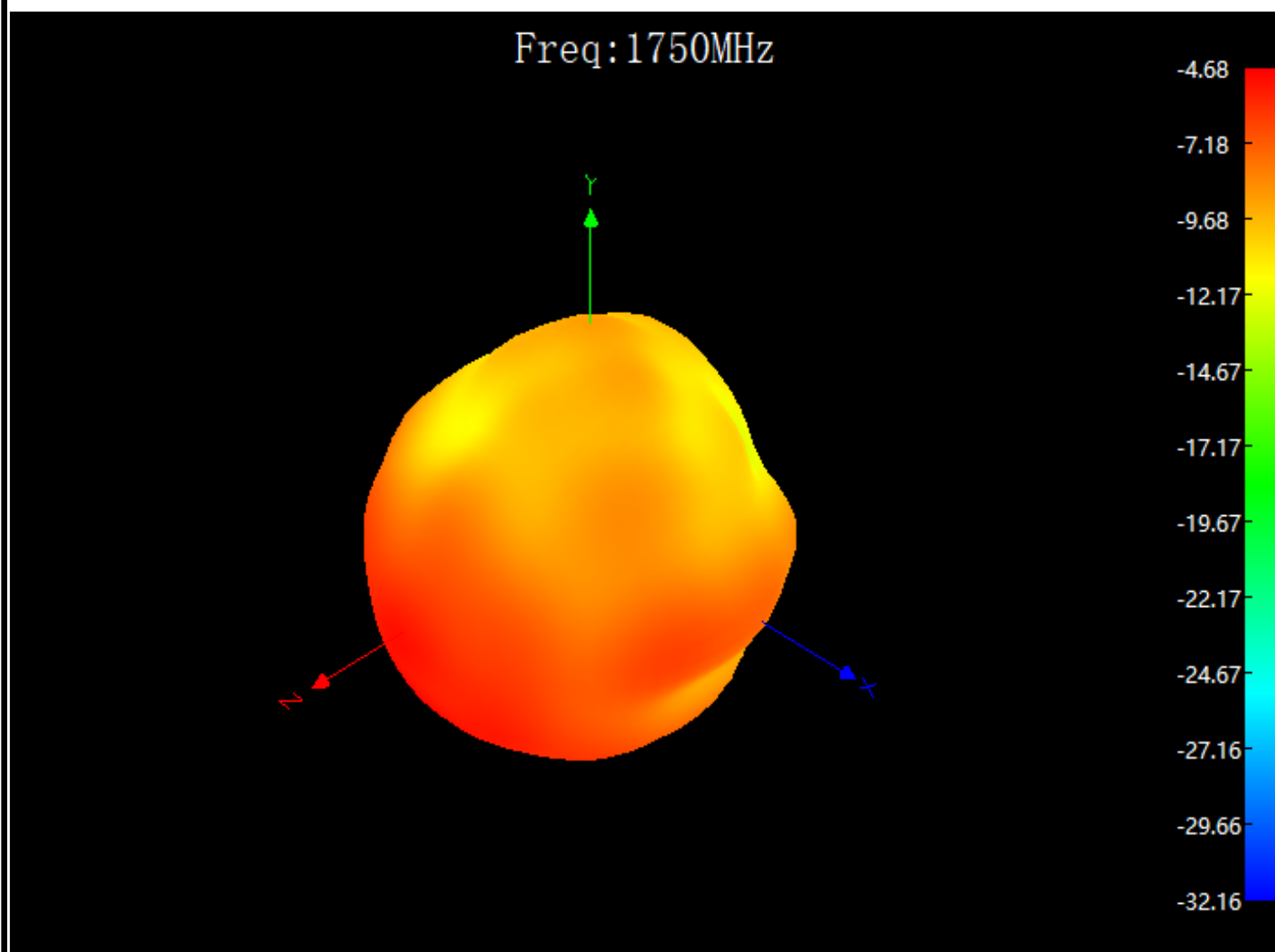
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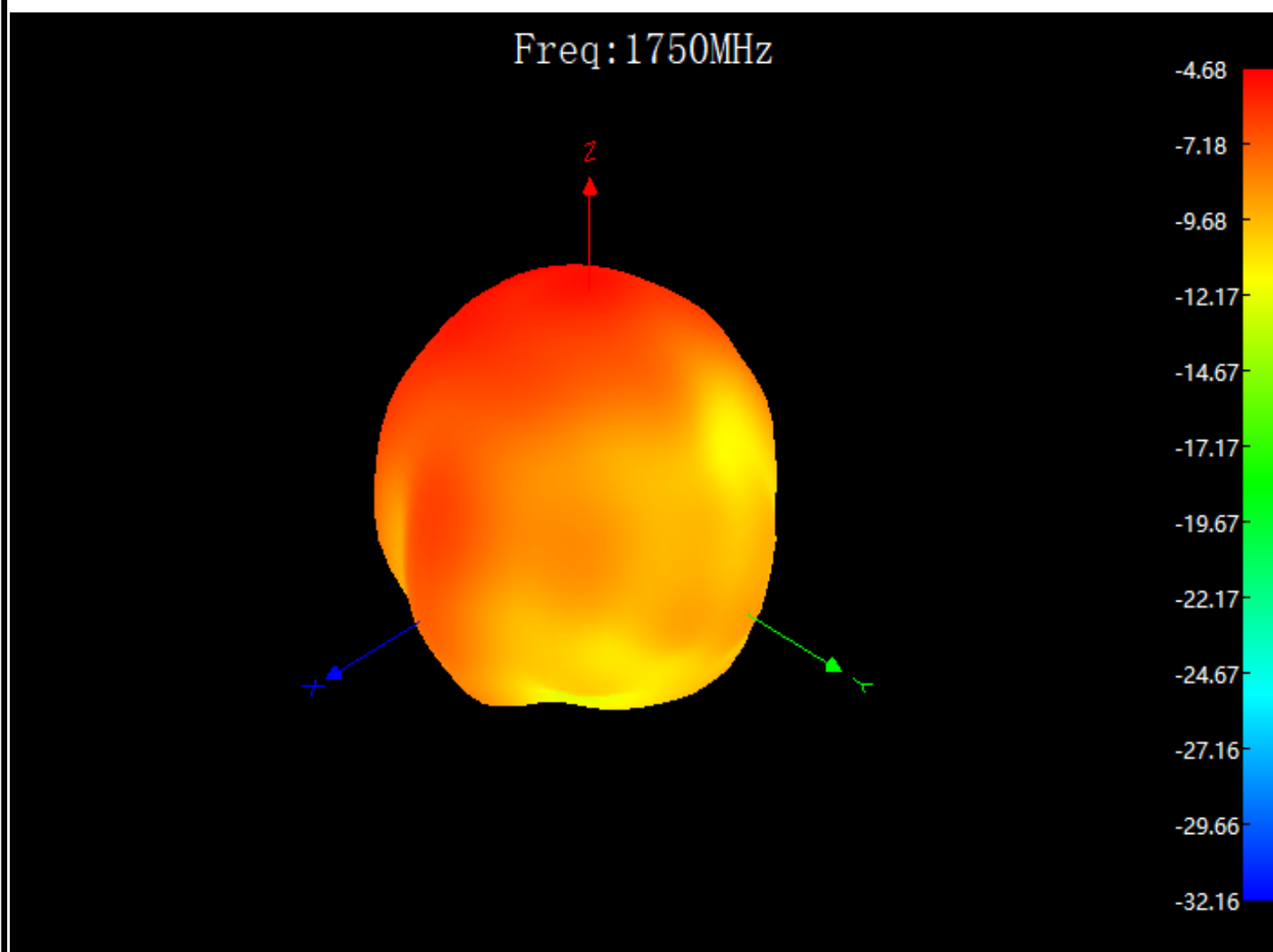
Radiation Pattern For DIV Antenna



Radiation Pattern For DIV Antenna

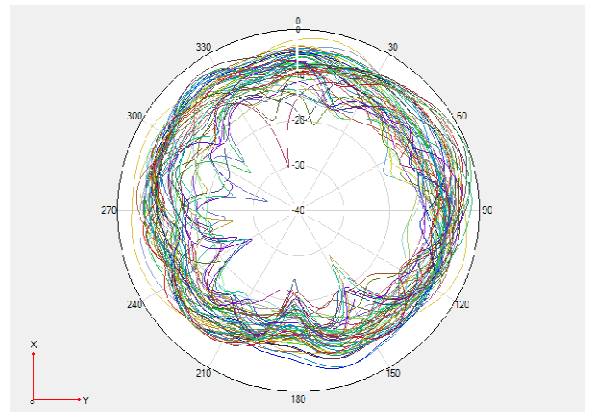


Radiation Pattern For DIV Antenna

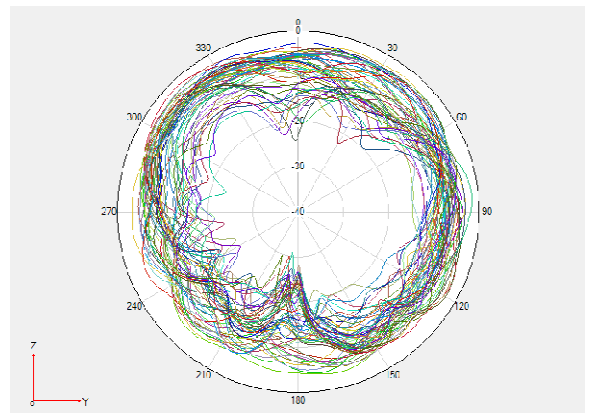


Radiation Pattern For DIV Antenna

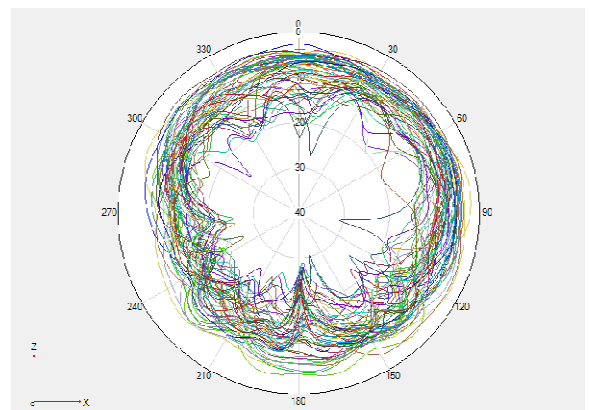
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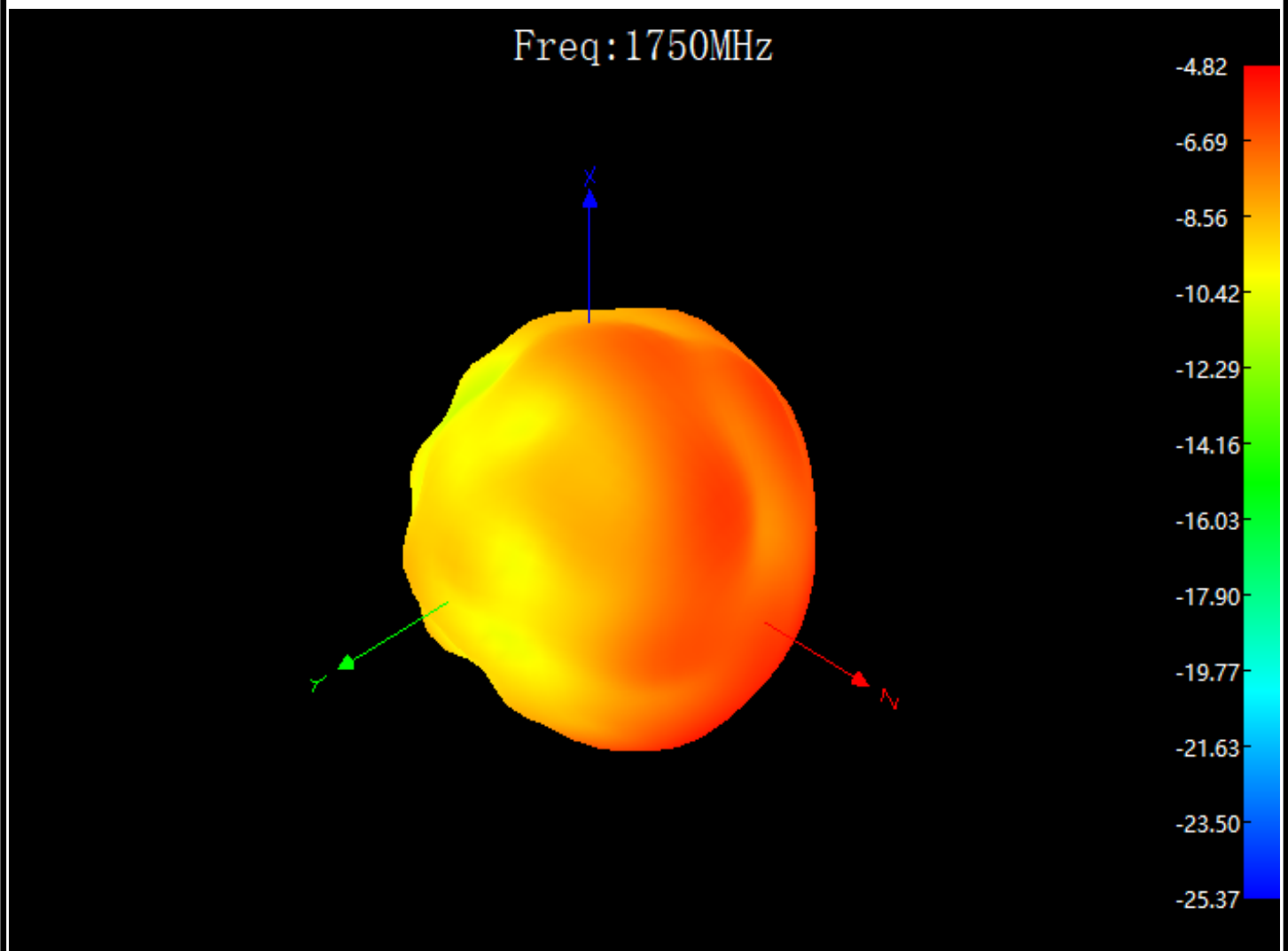
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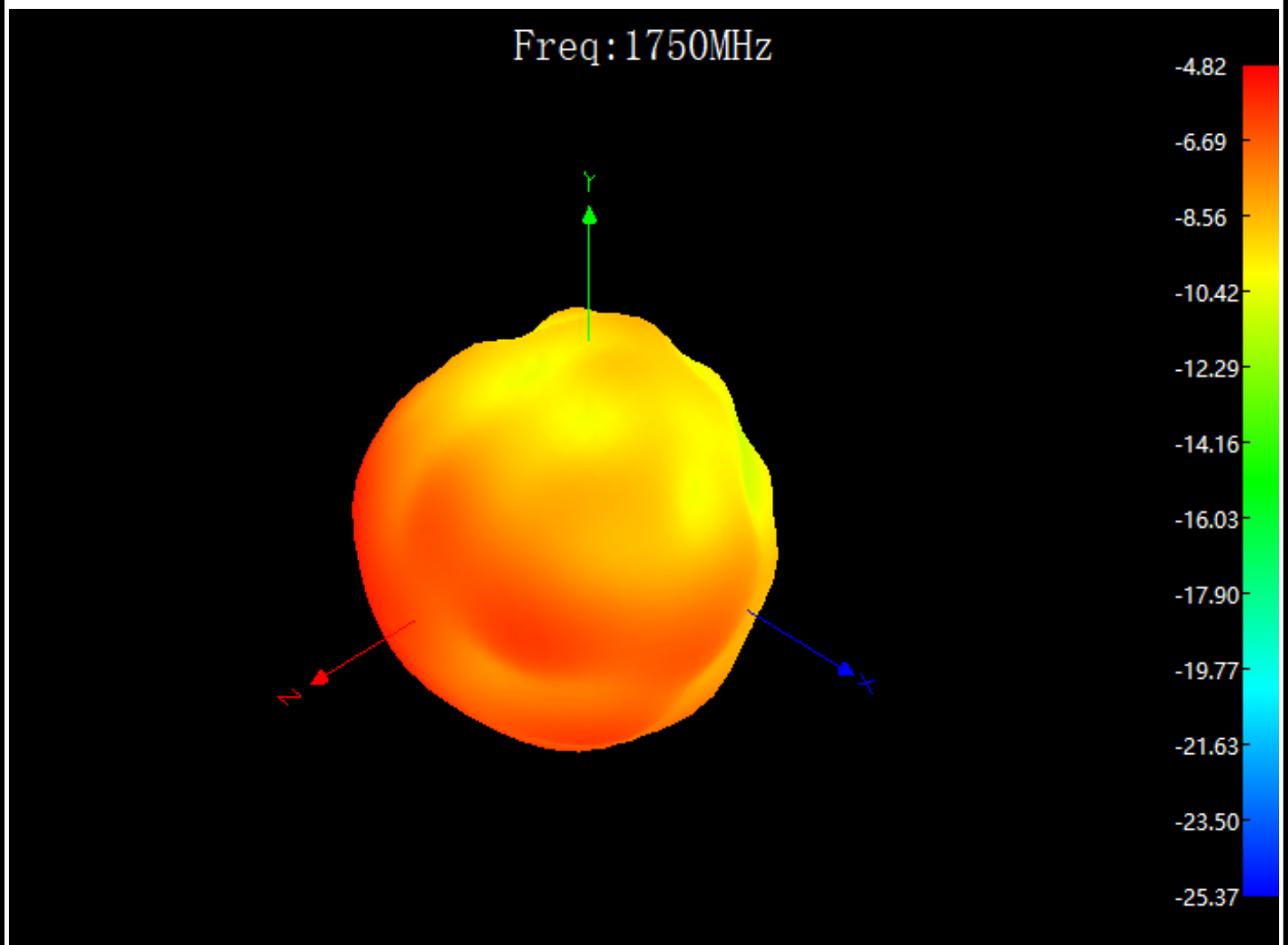
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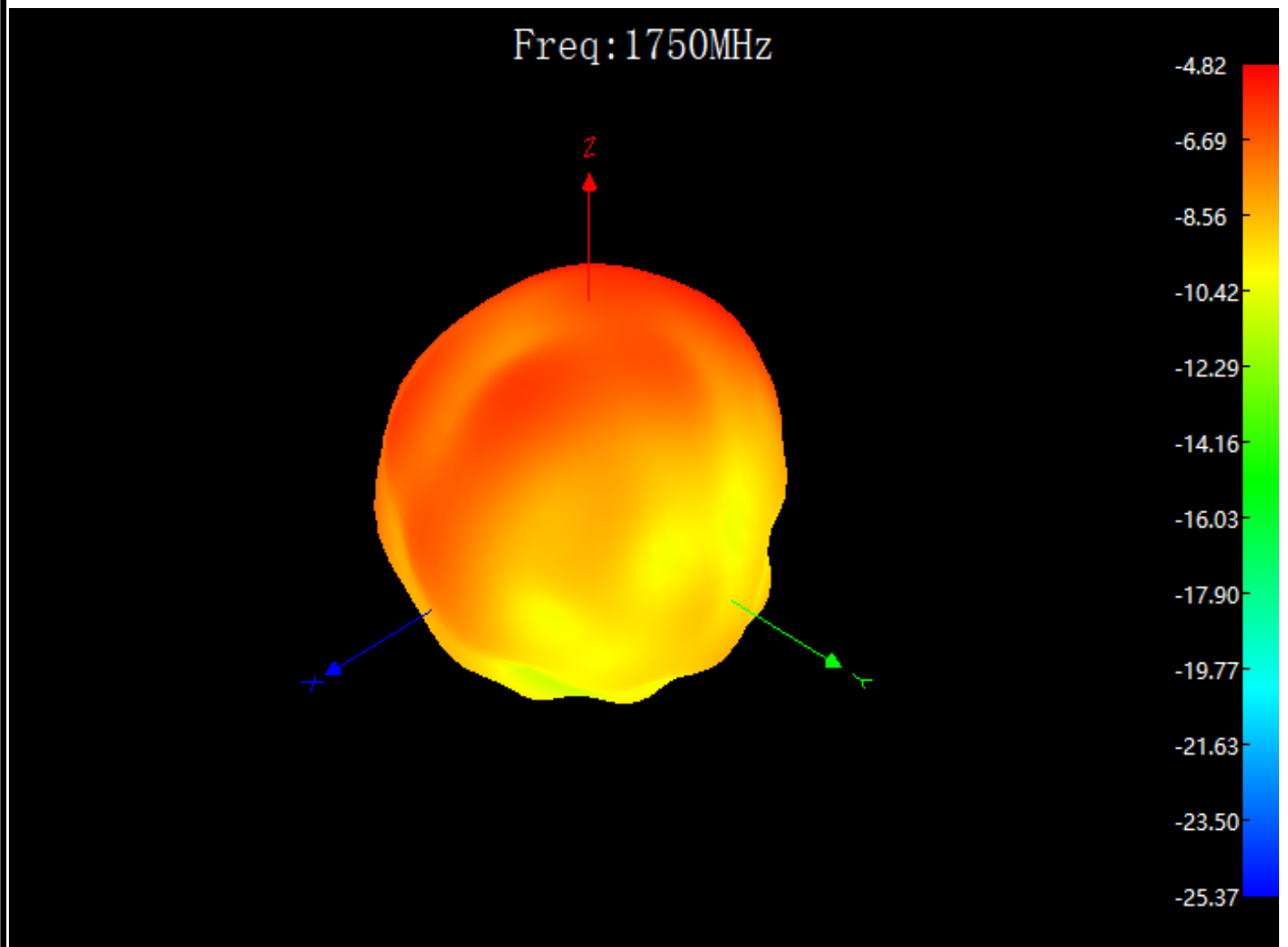
Radiation Pattern For MAIN Antenna



Radiation Pattern For MAIN Antenna

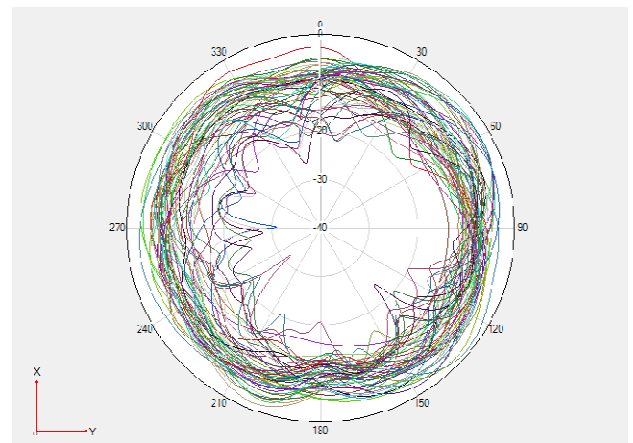


Radiation Pattern For MAIN Antenna

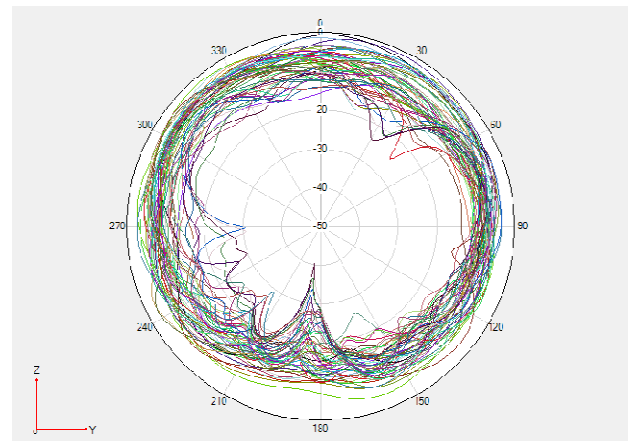


Radiation Pattern For MAIN Antenna

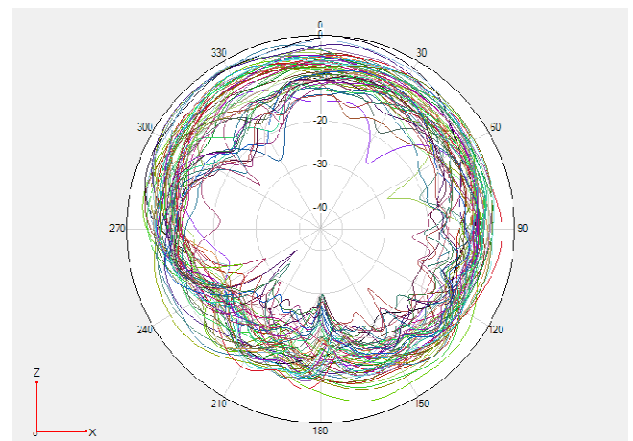
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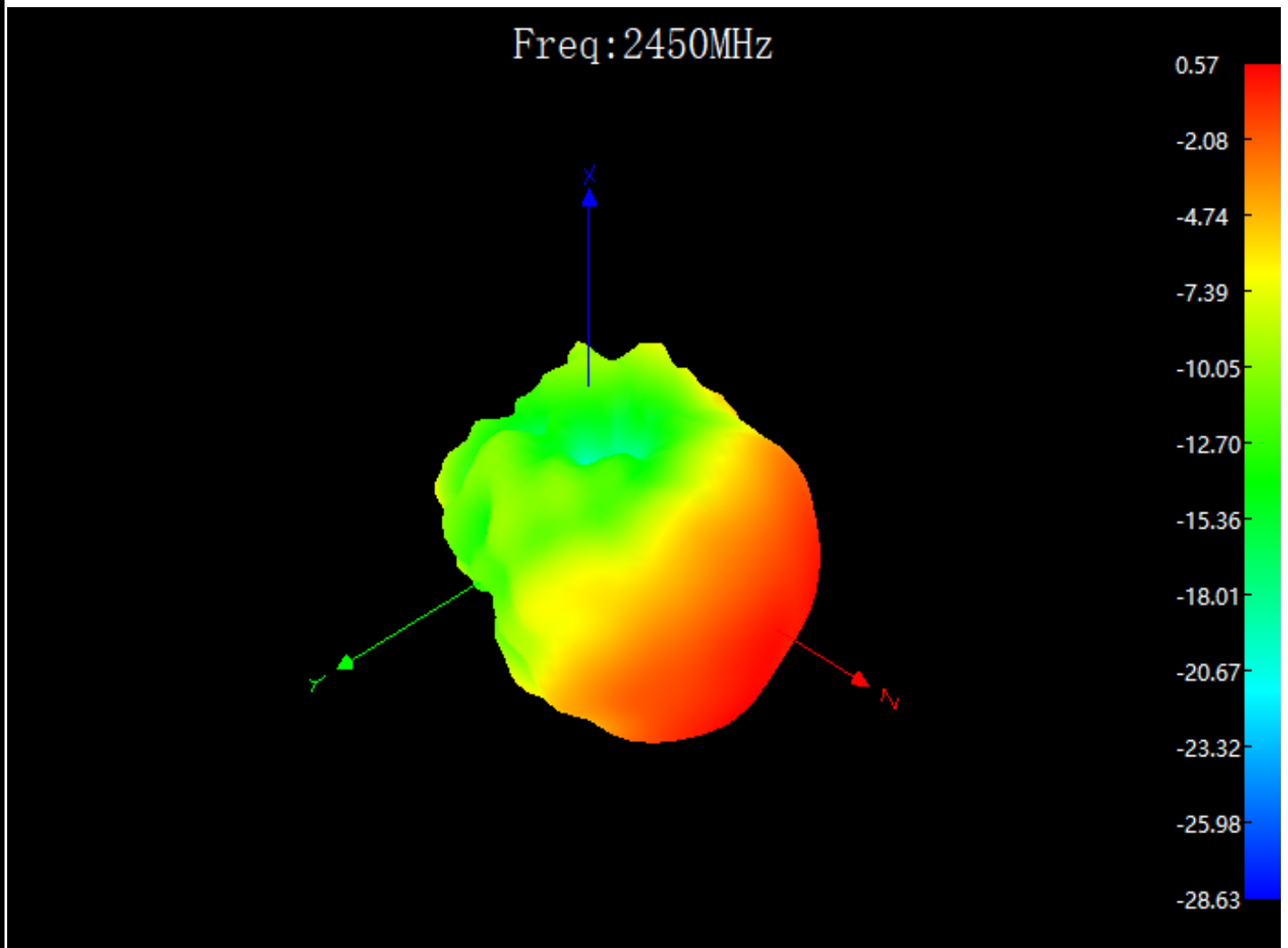
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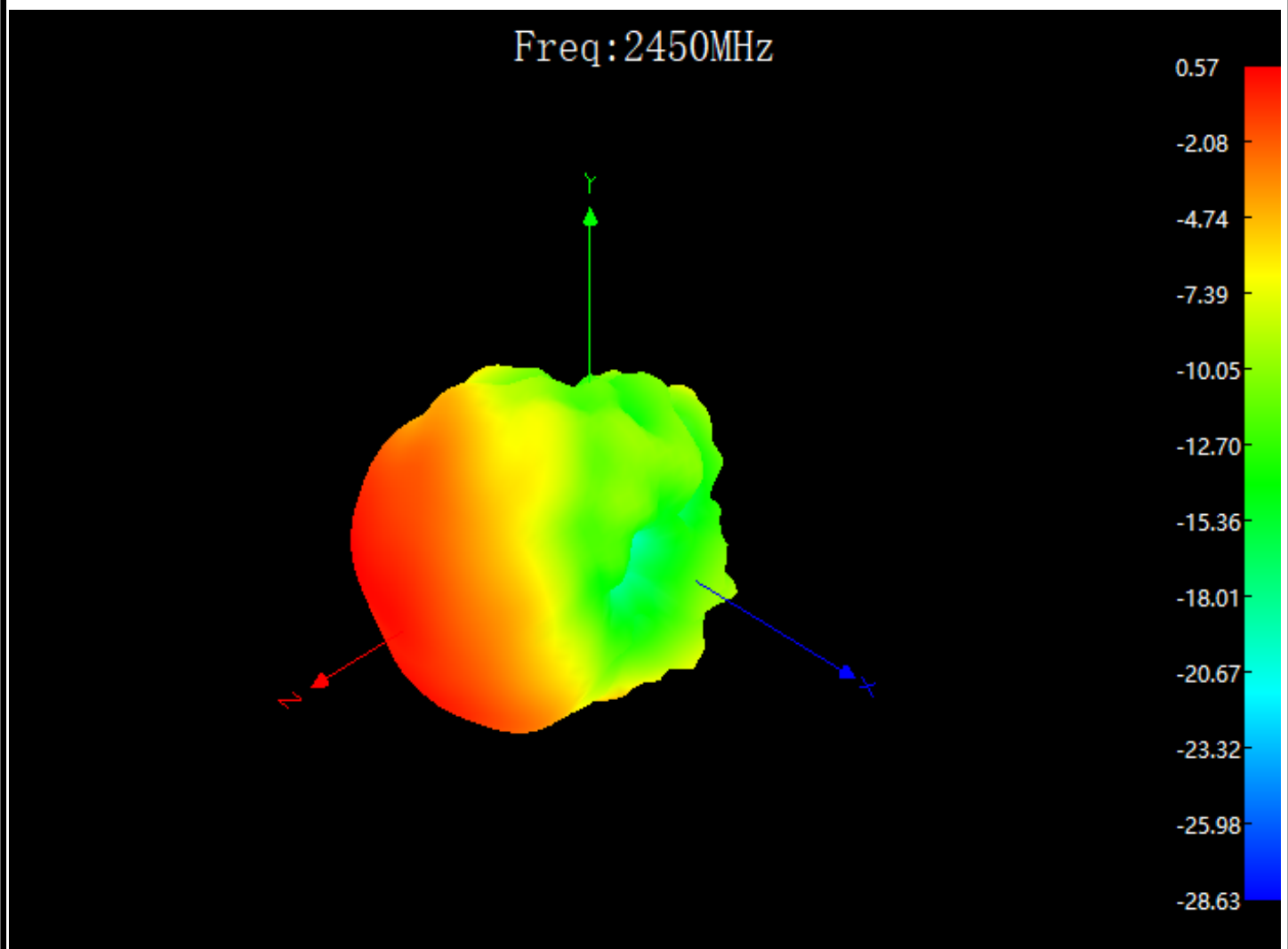
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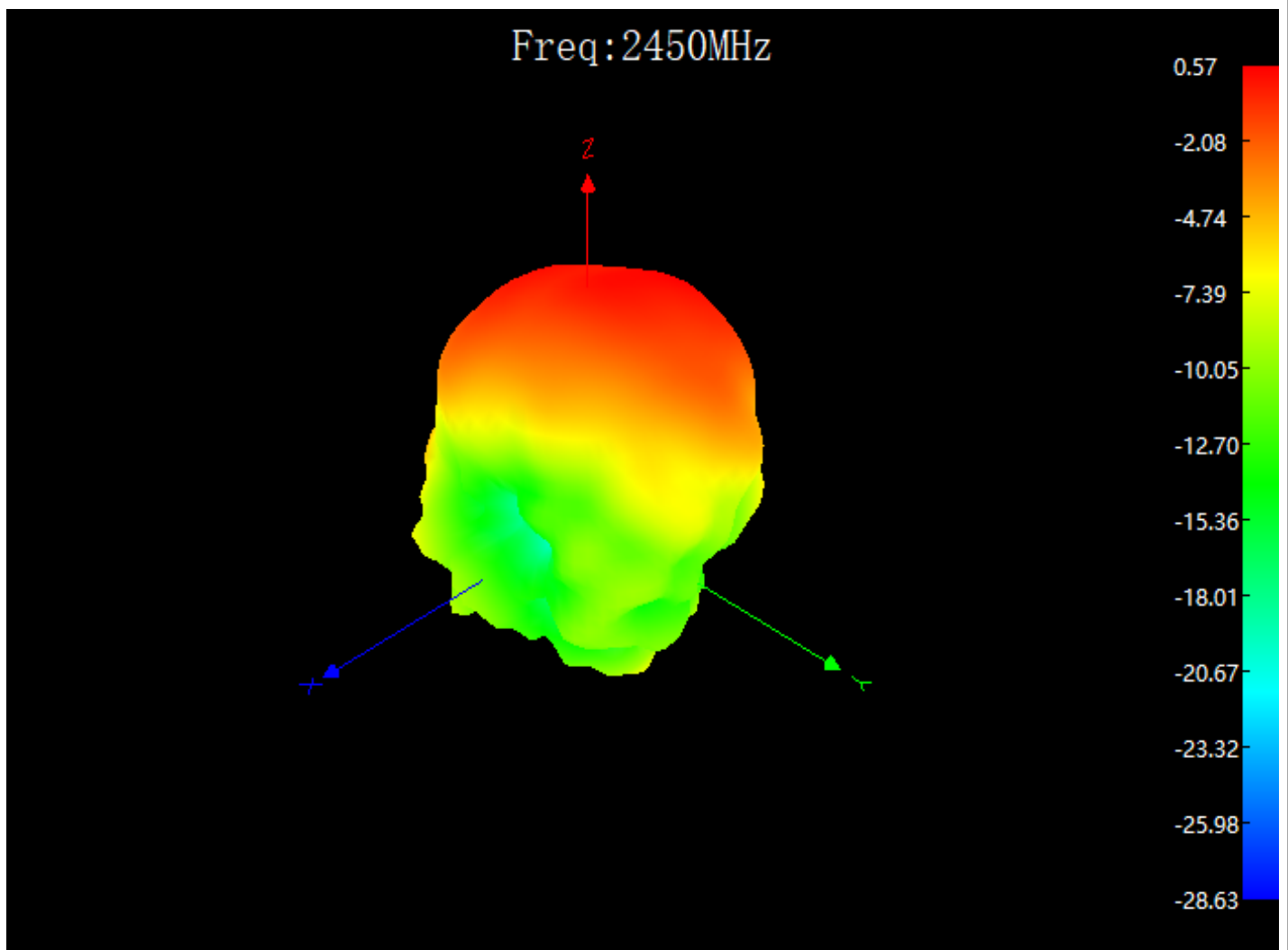
Radiation Pattern For WIFI Antenna



Radiation Pattern For WIFI Antenna

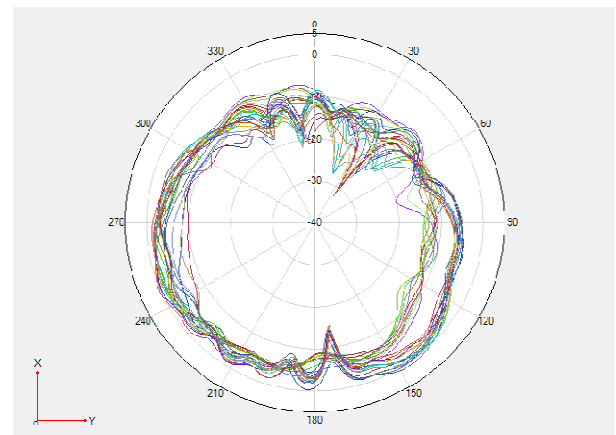


Radiation Pattern For WIFI Antenna

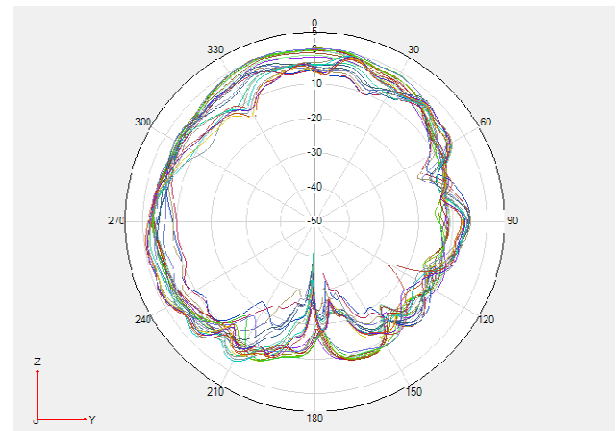


Radiation Pattern For WIFI Antenna

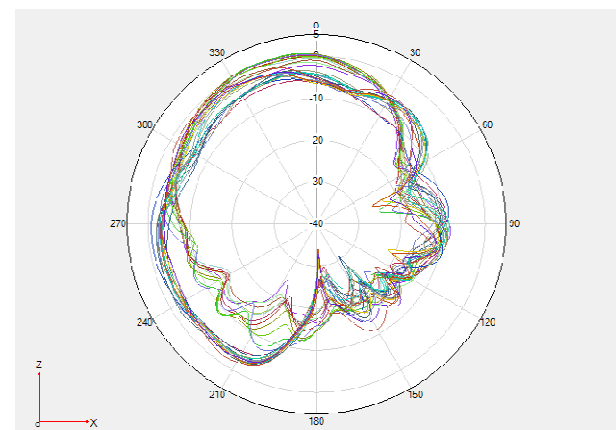
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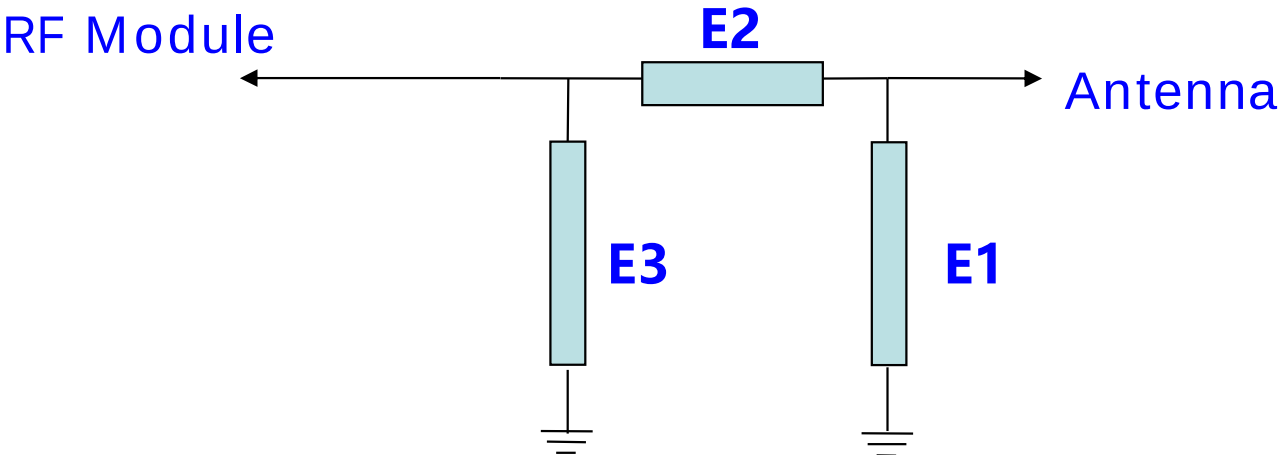
Phi 90°



Theta 90°



Matching Circuit



Component	Value
E1(0402)	NC
E2(0402)	0Ω
E3(0402)	NC

4 IN 1 Antenna

