

勤新科技有限公司

QIN XIN technology CO.,LTD

承认书

Letter of Acknowledgment

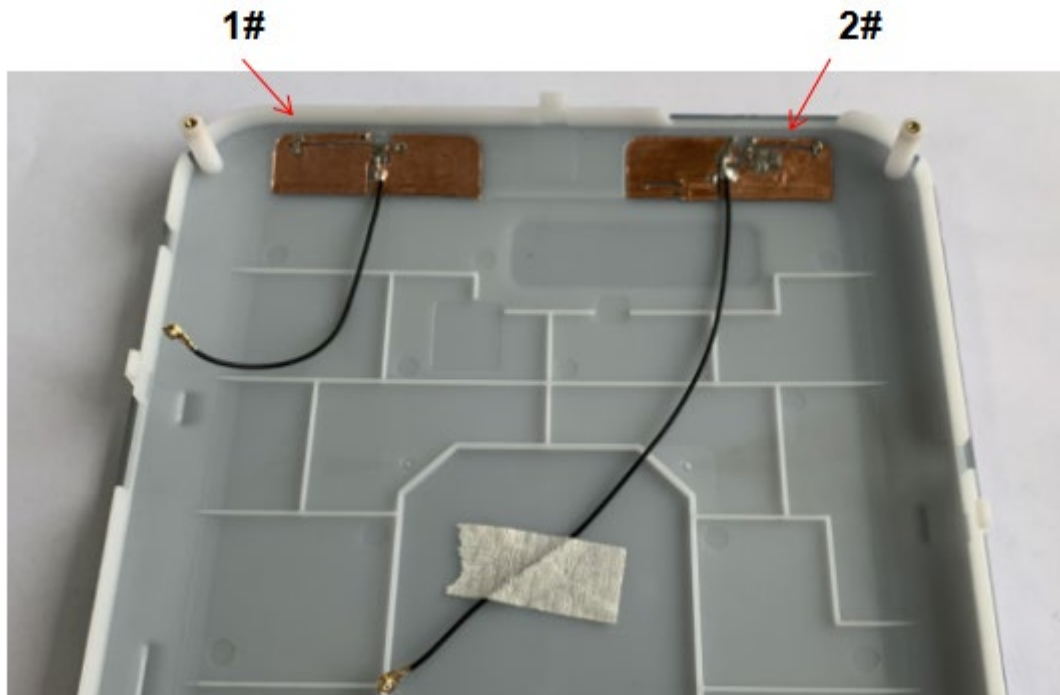
Customer Name		Project frequency band	2.4G-5G WIFI
Project Name		Date of tabulation	2023/06/19
Model number	FS230	Modification Date	
Customer Part Number		edition	1.0
射频工程师/RF		结构工程师/MD	
项目经理/PM			
Customer confirmation			

深圳市勤新科技有限公司	SHENZHEN QIN XIN INDUSTRY CO.,LTD
中国广东省深圳市南山区科技中一路赛百诺大厦 A 栋 303 电话: 0755-28404650 传真: 0755-28404639 公司邮箱: Sales@sz-qinxin.com 公司网址: www.sz-qinxin.com 邮编: 518057	Shenzhen Nanshan District Hi-tech Industrial park (Central District) Sabrina Gene Therapy Park Building A 3 rd Floor 303 , TEL: 28404650 FAX: 0755-28404639 E-Mail: Sales@sz-qinxin.com Website: www.sz-qinxin.com Post Code: 518000

— .One Antenna characteristic description

This report mainly describes the physical characteristics and electrical performance of WIFI antennas and various testing conditions.

1.1 Antenna schematic diagram



1.2 Description of Physical Characteristics

Antenna silk screen printing	WIFI-1
function	2.4G-5G WIFI antenna
Antenna appearance dimensions	37.4mm*12mm
Antenna material	FPC
Antenna color	Black
Cable type	0.81mm coaxial line, black, total length of 70mm second-generation IPEX head
Operating Temperature	-40℃-65℃
Storage temperature	-40℃-80℃

Antenna silk screen printing	WIFI-2
function	2.4G-5G WIFI antenna
Antenna appearance dimensions 37.4mm*12mm	37.4mm*12mm
Antenna material	FPC
Antenna color	Black
Cable type	0.81mm coaxial line, black, total length 115mm second-generation IPEX head
Operating Temperature	-40°C-65°C
Storage temperature	-40°C-80°C

1.3 Electrical Characteristics Description

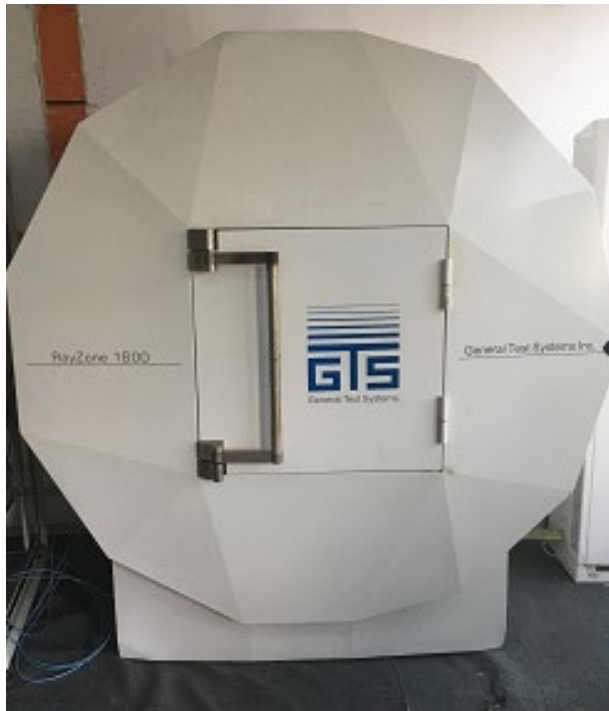
function	2.4G-5G WIFI
Frequency Range (GHZ)	2.4GHz-2.5GHz 5.15GHz-5.85GHz
Voltage Standing Wave Ratio (VSWR)	≤ 2
gain (Peak gain)	ANT 2 BT:1.13dBi ANT 1 2.4GWIFI:1.39dBi 5.2GWIFI:0.98dBi, 5.8GWIFI:1.43dBi
input impedance(Ω)	50
polarization mode	Vertical, linear
Antenna	FPC Antenna

二. Antenna testing

2.1 test equipment

Serial number	Device Name	Equipment Image	measurement metrics	Operating Environment
1	anechoic chamber		Passive performance	There is no large area around Metal objects Normal temperature and humidity
2	HP8753D Network Analyzer			

2.2 Test environment



WIFI-1#antenna

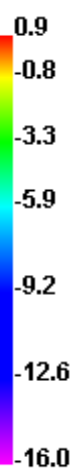
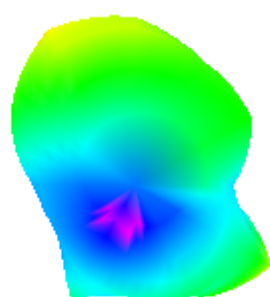
4: Passive standing wave diagram of antenna:



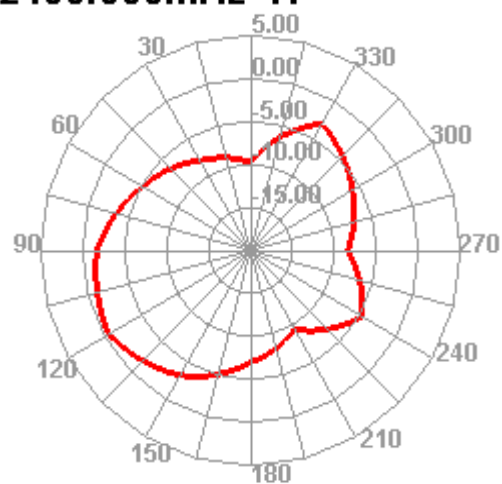
4: Passive efficiency:

Passive Test For WII2.4			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	39.14	-4.07	1.13
2410	39.04	-4.09	1.23
2420	40.48	-3.93	1.14
2430	41.33	-3.84	1.18
2440	41.59	-3.81	1.14
2450	41.96	-3.77	1.29
2460	39.37	-4.05	1.39
2470	38.15	-4.18	1.28
2480	39.74	-4.01	1.09
2490	38.27	-4.17	1.2
2500	38.52	-4.14	1.62

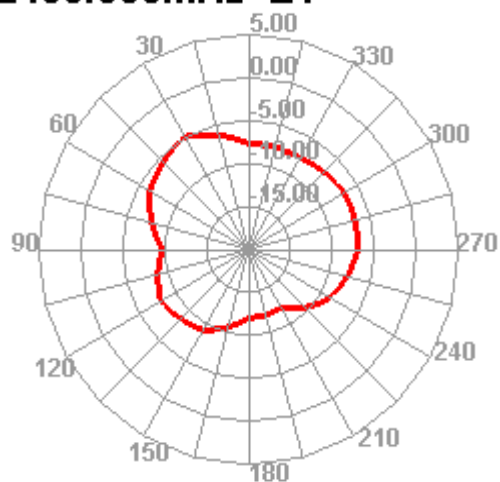
2400.000MHz



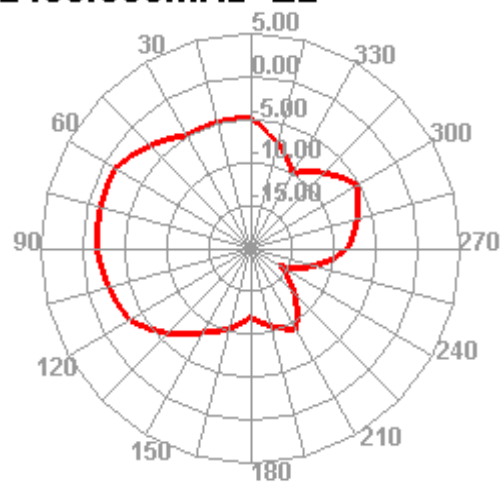
2400.000MHz H



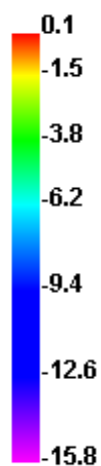
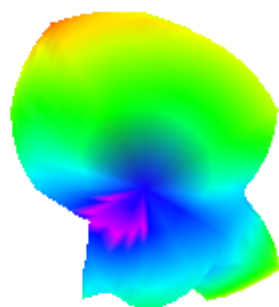
2400.000MHz E1



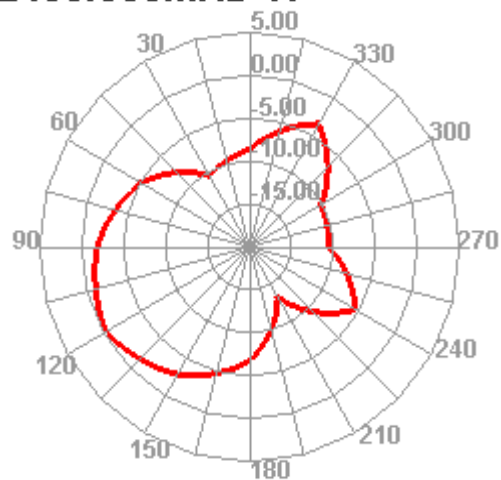
2400.000MHz E2



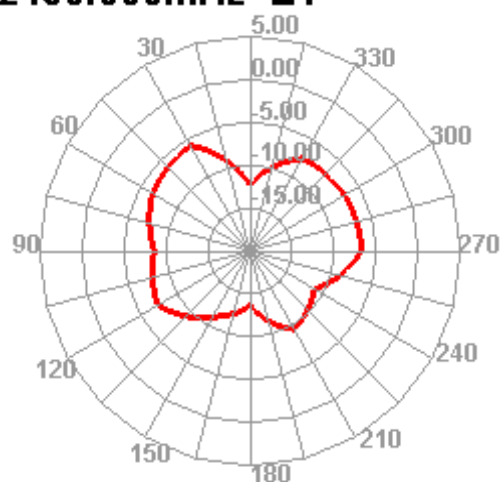
2450.000MHz



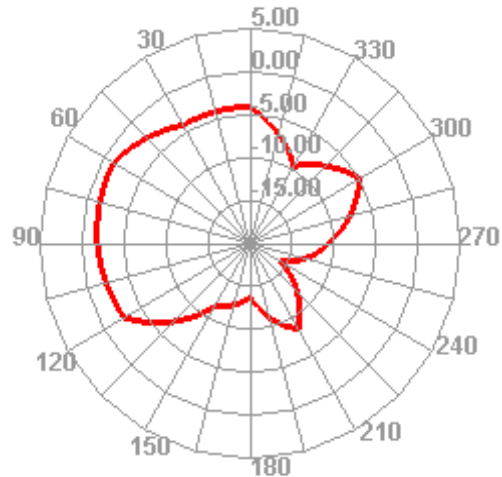
2450.000MHz H



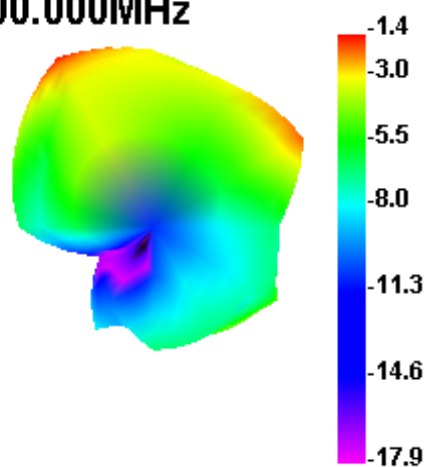
2450.000MHz E1



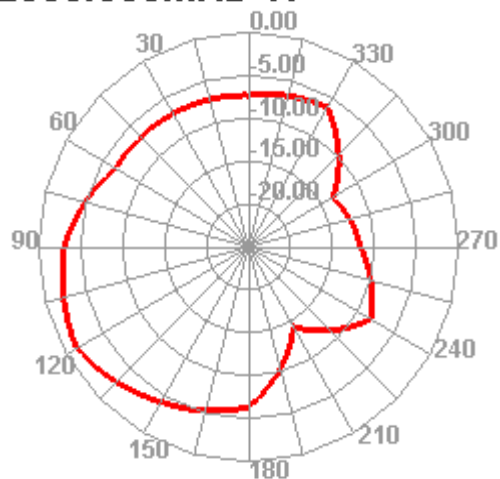
2450.000MHz E2



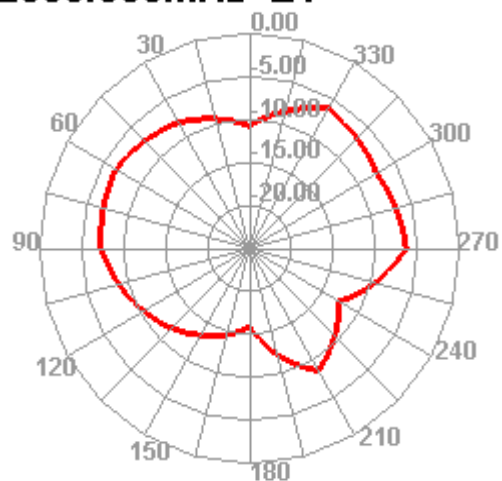
2500.000MHz



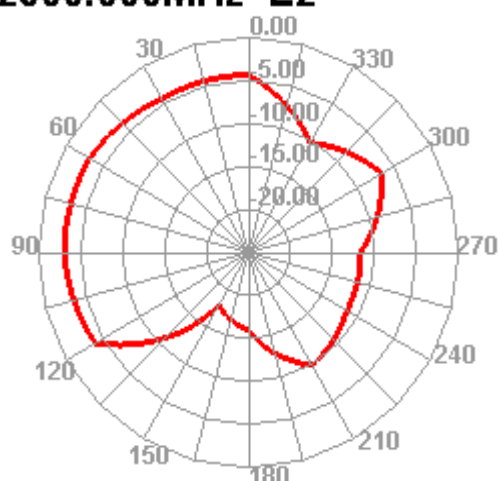
2500.000MHz H



2500.000MHz E1

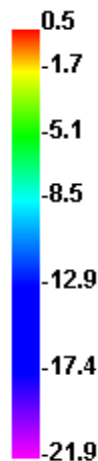
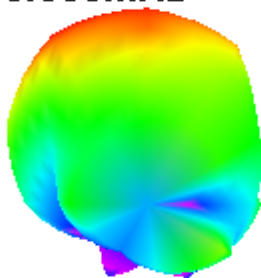


2500.000MHz E2

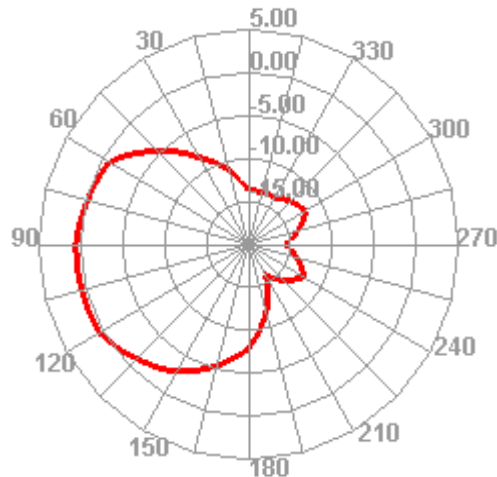


5G WiFiAntenna efficiency											
Freq	Effi	Effi	Gain	Freq	Effi	Effi	Gain	Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)	(MHz)	(%)	(dB)	(dBi)	(MHz)	(%)	(dB)	(dBi)
5150	28.08	-5.52	-0.61	5390	38.31	-4.17	1.56	5630	36.82	-4.34	1.91
5160	23.46	-6.3	-0.36	5400	40.31	-3.95	1.65	5640	32.36	-4.9	1.09
5170	26.25	-5.81	-0.08	5410	40.61	-3.91	1.55	5650	39.71	-4.01	1.42
5180	28.88	-5.39	0.05	5420	39.52	-4.03	1.69	5660	39.39	-4.05	1.48
5190	28.6	-5.44	0.26	5430	40.41	-3.93	1.88	5670	35.8	-4.46	1.11
5200	25.77	-5.89	0.62	5440	43.63	-3.6	1.26	5680	34.16	-4.67	1.88
5210	26.94	-5.7	0.98	5450	40.2	-3.96	1.95	5690	33.39	-4.76	1.6
5220	24.47	-6.11	-0.63	5460	41.62	-3.81	1.19	5700	33.13	-4.8	1.78
5230	30.78	-5.12	-0.84	5470	42.65	-3.7	1.34	5710	36.34	-4.4	1.1
5240	30.7	-5.13	-0.8	5480	45.97	-3.38	1.64	5720	35.41	-4.51	1.56
5250	29.14	-5.36	-0.45	5490	44.26	-3.54	1.51	5730	33.4	-4.76	1.45
5260	29.97	-5.23	-0.28	5500	42.7	-3.69	1.28	5740	33.99	-4.69	1.43
5270	29.12	-5.36	-0.63	5510	42.11	-3.76	1.28	5750	33.59	-4.74	1.33
5280	25.31	-5.97	-0.84	5520	41.56	-3.81	1.21	5760	31.22	-5.06	1.36
5290	32.17	-4.92	-0.8	5530	46.58	-3.23	1.89	5770	36.14	-4.42	1.32
5300	31.42	-5.03	-0.45	5540	46.6	-3.3	1.82	5780	37.15	-4.3	1.14
5310	29.28	-5.33	-0.28	5550	45	-3.47	1.54	5790	30.62	-5.14	0.92
5320	30.22	-5.2	0.48	5560	42.83	-3.68	1.35	5800	34.13	-4.67	0.57
5330	30.12	-5.21	0.58	5570	41.39	-3.83	1.19	5810	33.69	-4.73	0.78
5340	28.07	-5.52	0.19	5580	45.51	-3.42	1.56	5820	32.48	-4.88	1.24
5350	33.53	-4.75	0.11	5590	44.49	-3.14	1.66	5830	34.75	-4.59	1.4
5360	32.31	-4.91	1.05	5600	44.63	-3.22	1.77	5840	32.5	-4.88	0.71
5370	33.17	-4.79	1.17	5610	44.93	-3.47	1.42	5850	32.39	-4.9	1.12
5380	29.8	-5.26	1.3	5620	42.91	-3.67	1.2				

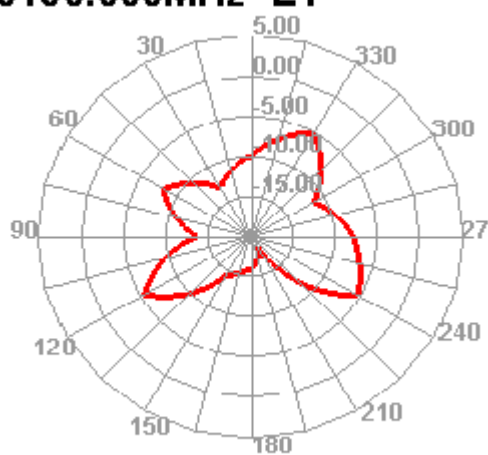
5150.000MHz



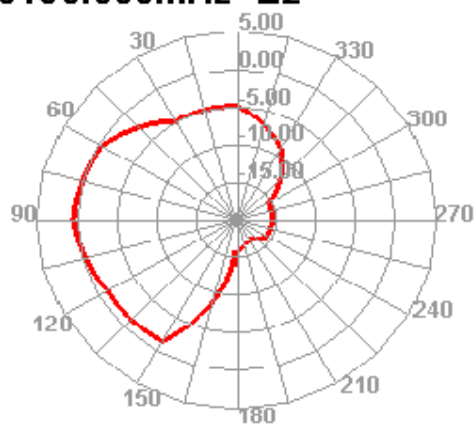
5150.000MHz H



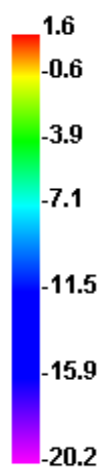
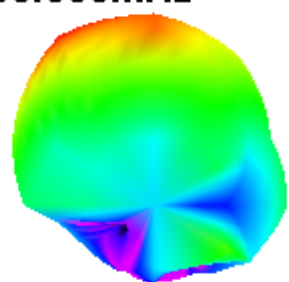
5150.000MHz E1



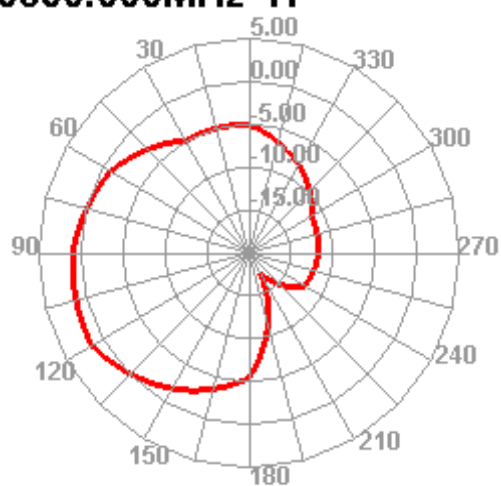
5150.000MHz E2



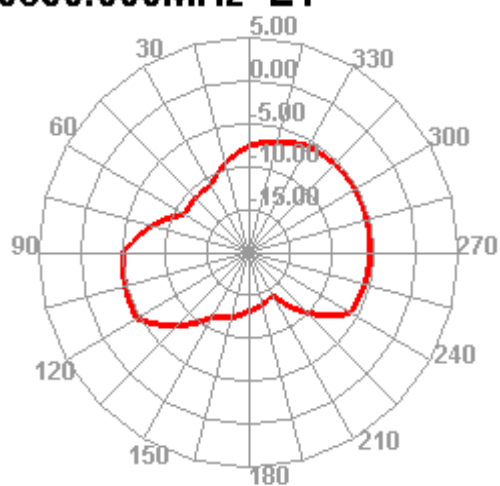
5350.000MHz



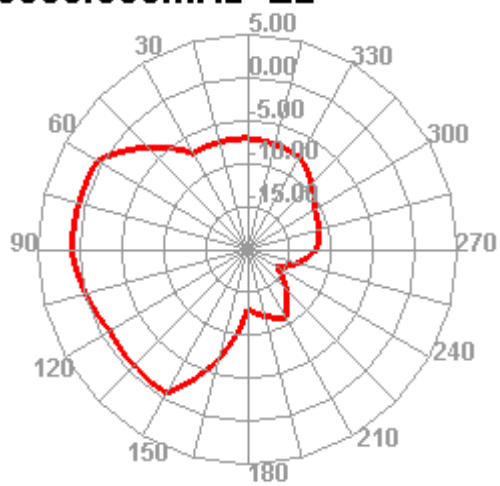
5350.000MHz H



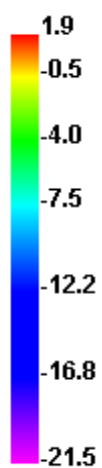
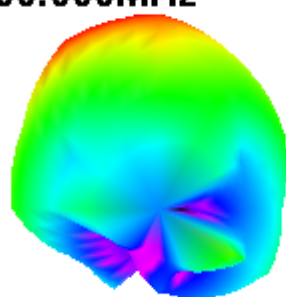
5350.000MHz E1



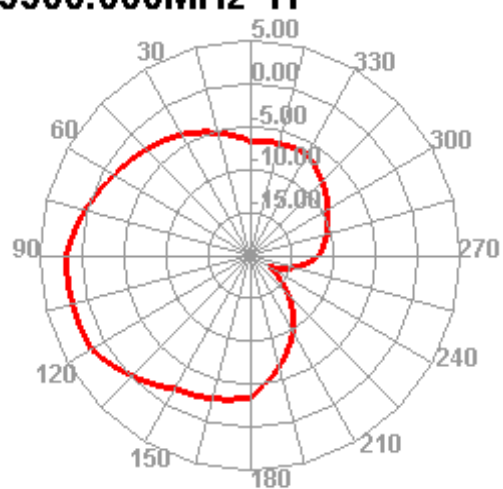
5350.000MHz E2



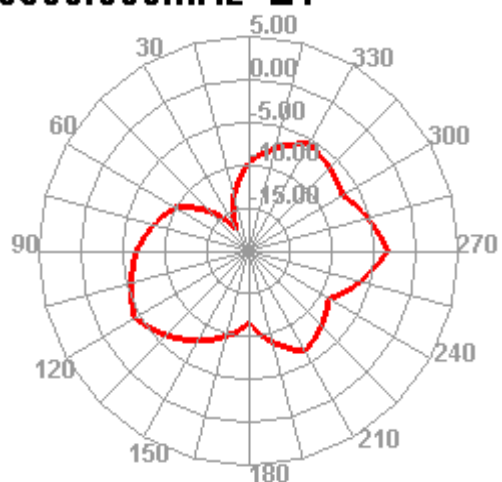
5500.000MHz



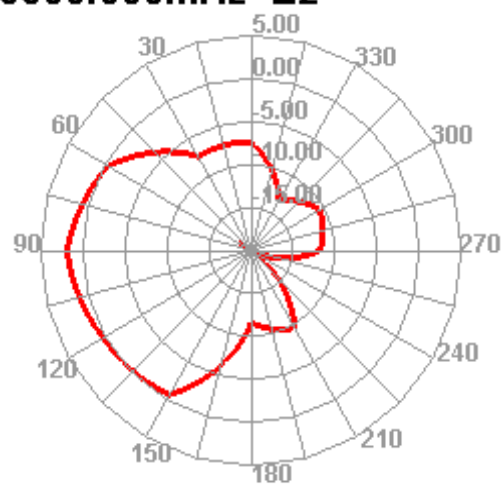
5500.000MHz H



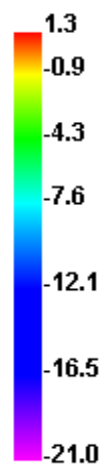
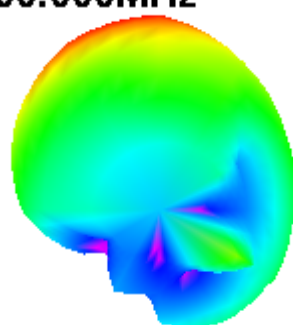
5500.000MHz E1



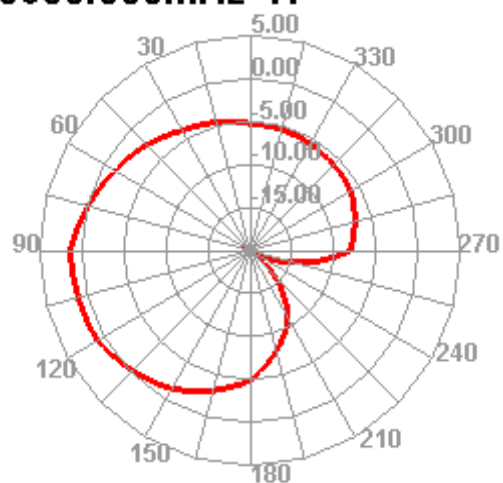
5500.000MHz E2



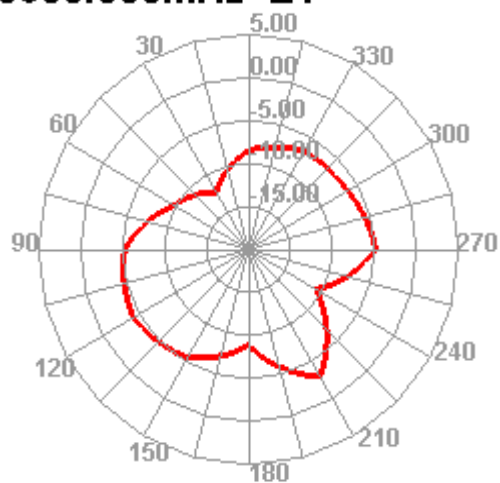
5650.000MHz



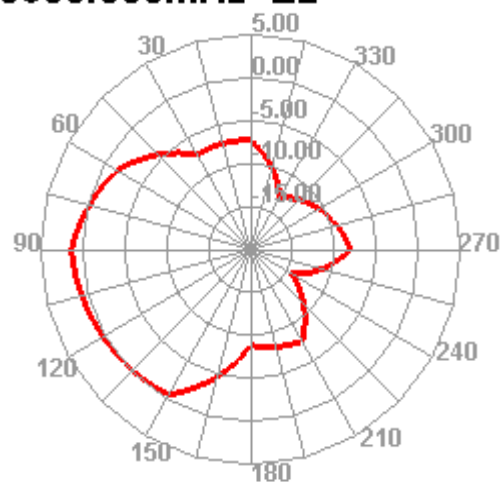
5650.000MHz H



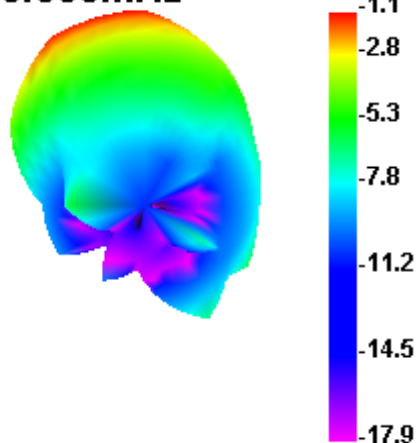
5650.000MHz E1



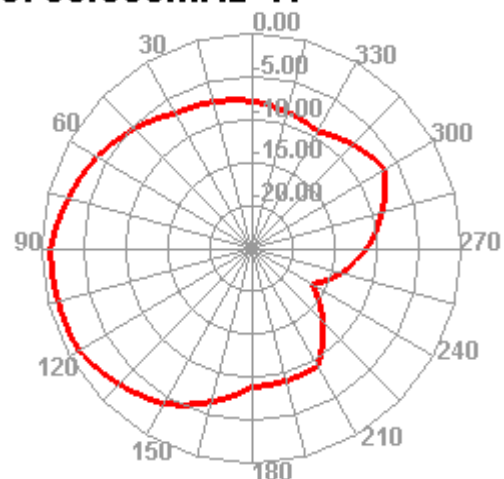
5650.000MHz E2



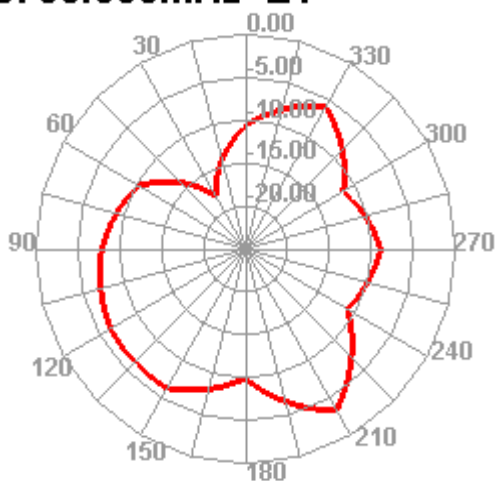
5750.000MHz



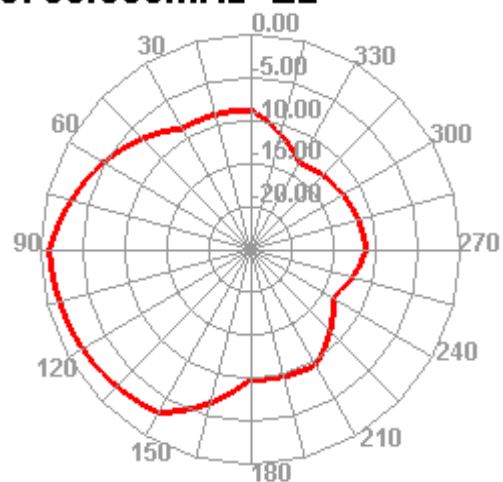
5750.000MHz H



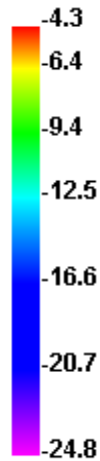
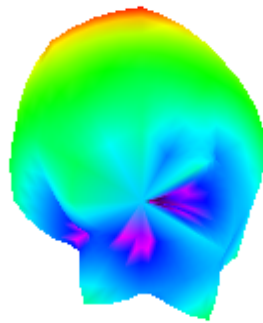
5750.000MHz E1



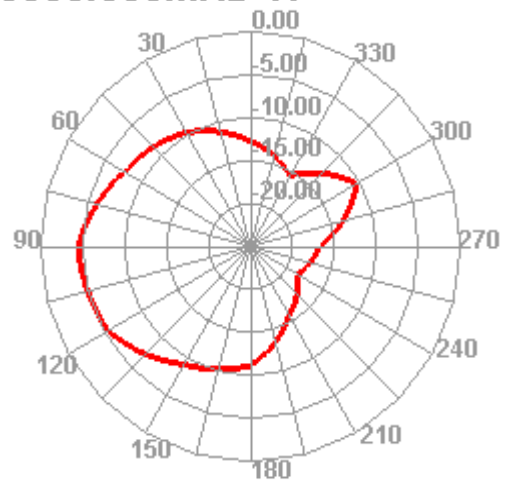
5750.000MHz E2



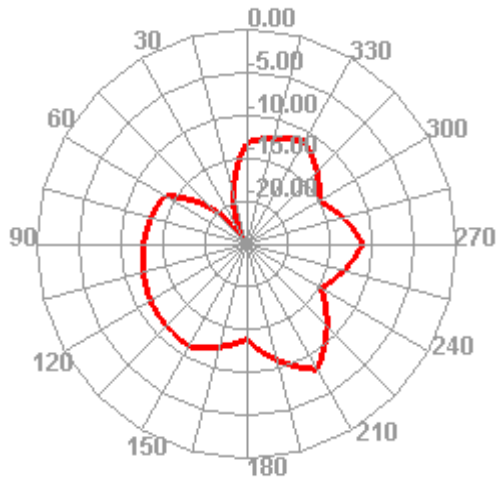
5850.000MHz



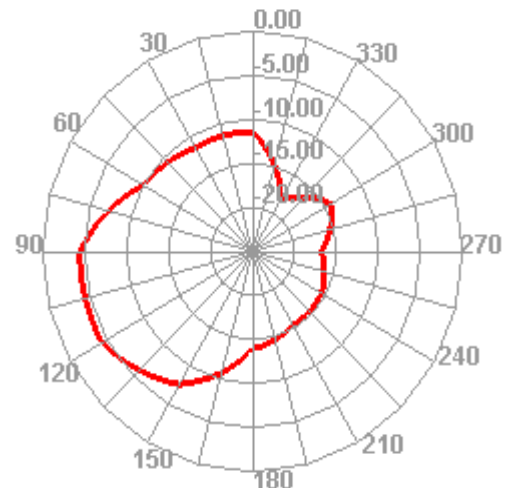
5850.000MHz H



5850.000MHz E1



5850.000MHz E2



WIFI-2#antenna

5: Passive standing wave diagram of antenna:

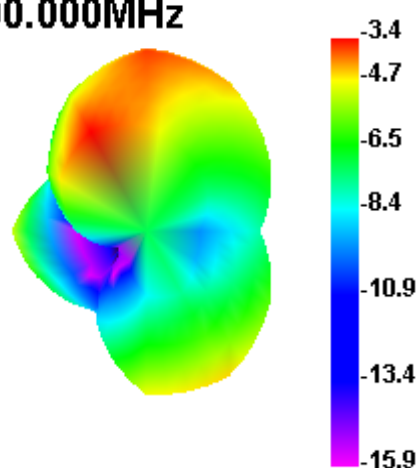




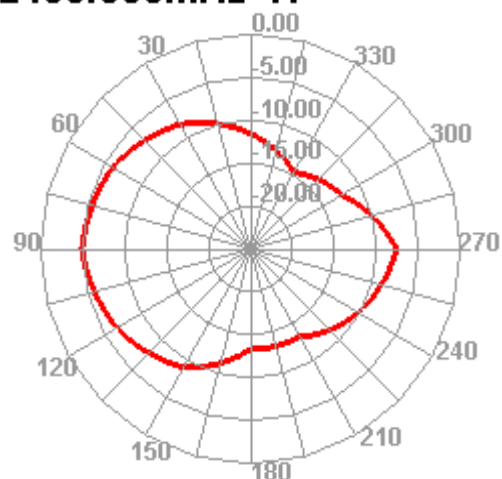
6: Passive efficiency:

Passive Test For WII2.4			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	35.14	-4.54	0.28
2410	35.1	-4.55	0.25
2420	36.66	-4.36	0.58
2430	35.24	-4.53	1.07
2440	35.92	-4.45	0.87
2450	37.52	-4.26	0.75
2460	35.39	-4.51	0.77
2470	35.67	-4.48	0.61
2480	35.33	-4.52	1.13
2490	34.03	-4.68	1.23
2500	36.27	-4.41	1.14

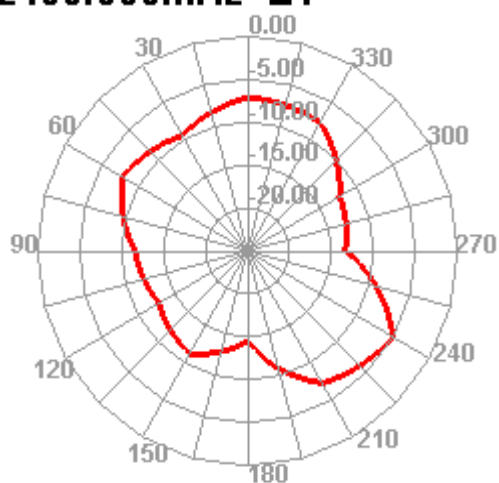
2400.000MHz



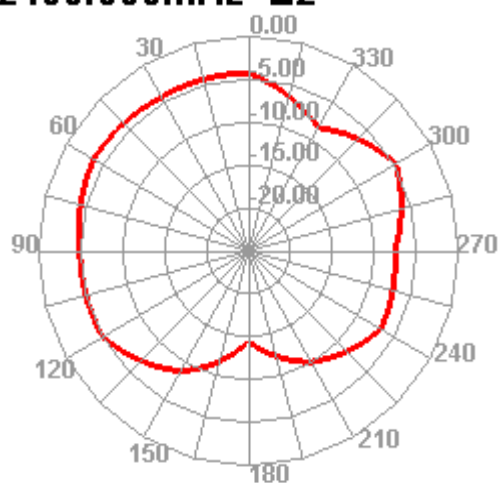
2400.000MHz H



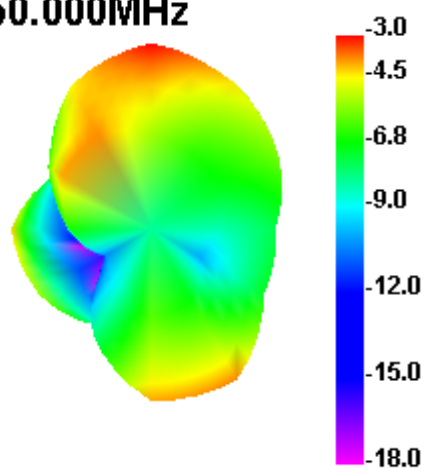
2400.000MHz E1



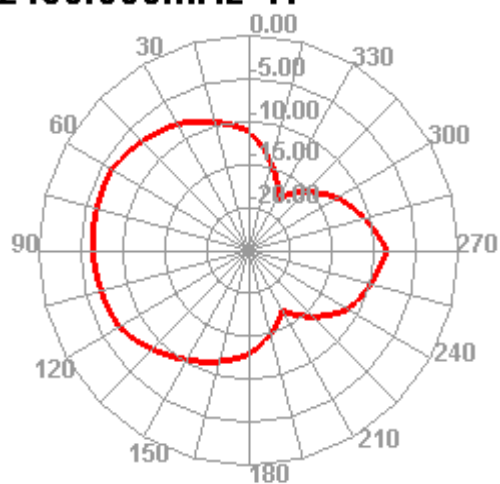
2400.000MHz E2



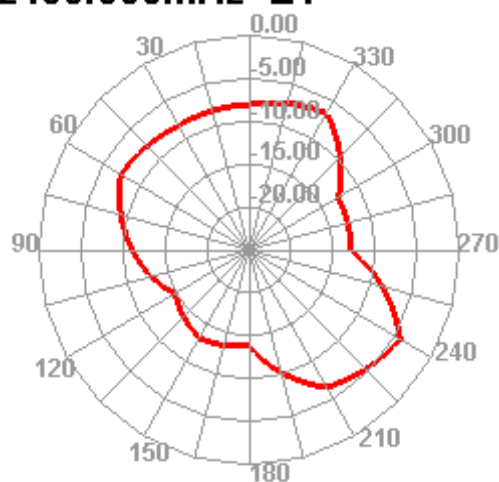
2450.000MHz



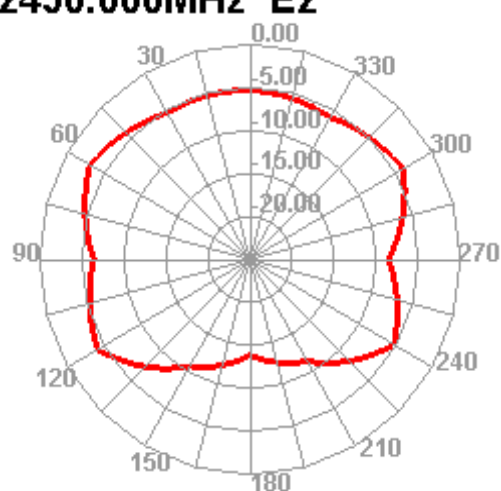
2450.000MHz H



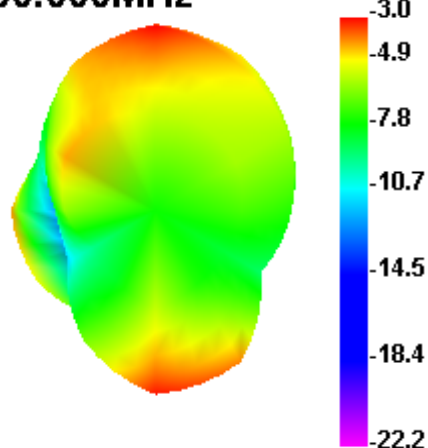
2450.000MHz E1



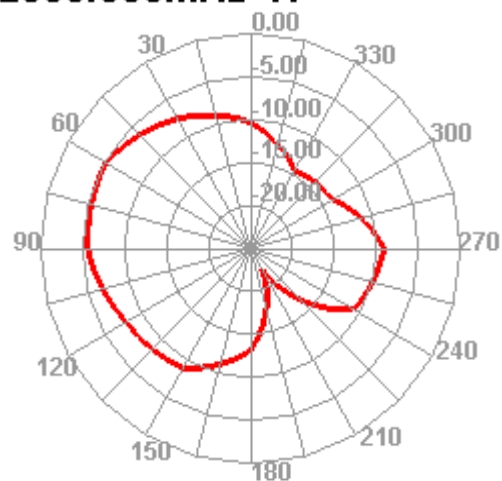
2450.000MHz E2



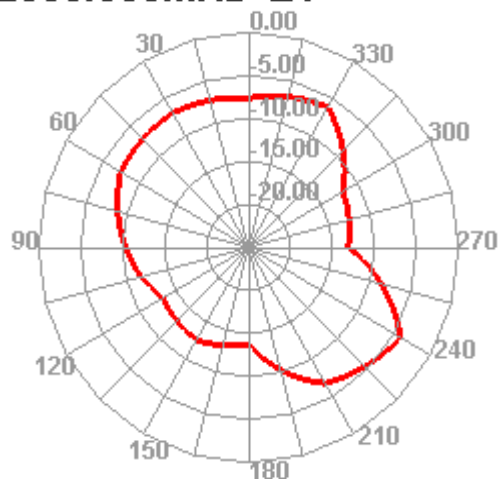
2500.000MHz



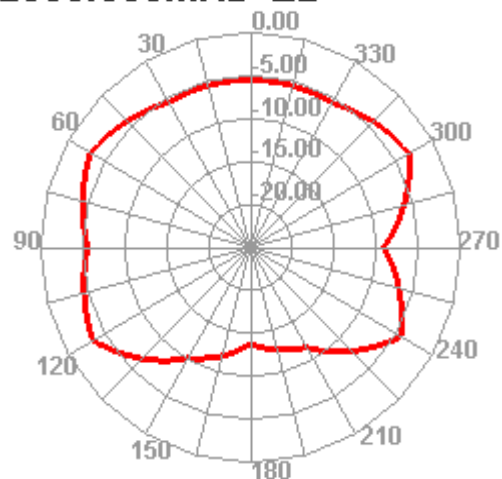
2500.000MHz H



2500.000MHz E1

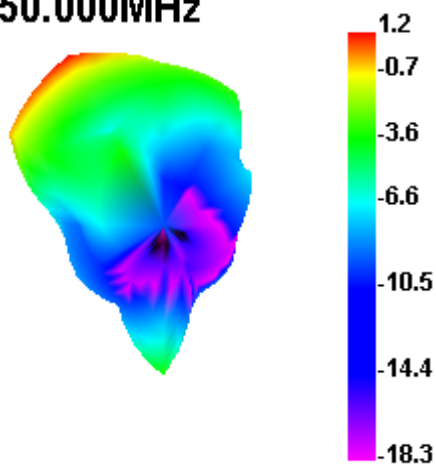


2500.000MHz E2

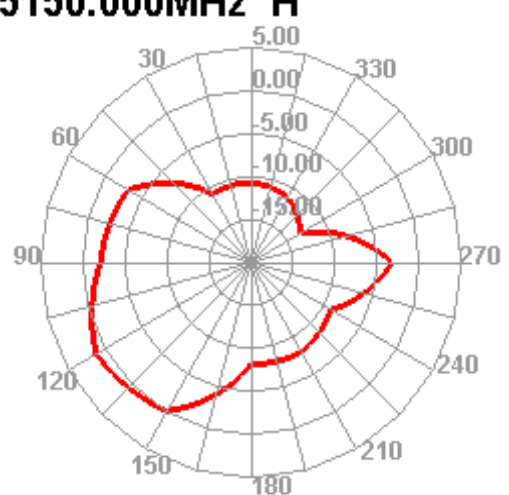


5G WiFiAntenna efficiency											
Freq	Effi	Effi	Gain	Freq	Effi	Effi	Gain	Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)	(MHz)	(%)	(dB)	(dBi)	(MHz)	(%)	(dB)	(dBi)
5150	24.81	-6.05	1.24	5390	33.33	-4.77	2.58	5630	40.01	-3.28	2.16
5160	24	-6.2	0.86	5400	37.04	-4.31	1.46	5640	39.68	-4.01	1.39
5170	23.45	-6.3	0.65	5410	33.85	-4.7	0.77	5650	41.2	-3.35	2.66
5180	28.2	-5.5	1.31	5420	37.32	-4.28	2.72	5660	43.7	-3.6	1.59
5190	23.45	-6.3	0.48	5430	34.22	-4.66	0.48	5670	46.76	-3.3	3.56
5200	18.35	-7.36	-0.6	5440	32.34	-4.9	0.65	5680	45.2	-3.45	1.86
5210	24.02	-6.19	0.4	5450	38.36	-4.16	2.24	5690	40.24	-3.64	2
5220	23.73	-6.25	0.31	5460	34.63	-4.61	0.97	5700	40.59	-3.92	1.97
5230	28.38	-5.47	0.96	5470	32.68	-4.86	1.2	5710	36.01	-4.32	1.34
5240	27.5	-5.61	0.87	5480	36.56	-4.37	2.05	5720	36.04	-4.31	1.49
5250	22.98	-6.39	0.04	5490	35.37	-4.51	1.29	5730	35.45	-4.5	1.34
5260	22.27	-6.52	0.03	5500	36.31	-4.4	1.75	5740	32.44	-4.89	0.91
5270	25.26	-5.98	0.53	5510	37.34	-4.28	2.34	5750	41.71	-3.4	3.82
5280	25.39	-5.95	0.52	5520	41.61	-3.81	3.13	5760	40.29	-3.64	2.59
5290	29.75	-5.27	1.03	5530	40.67	-3.91	0.51	5770	39.69	-3.8	1.25
5300	28.17	-5.5	0.88	5540	42.05	-3.76	2.13	5780	39.52	-3.71	4.46
5310	25.52	-5.93	0.43	5550	40.95	-3.88	1.38	5790	39	-4.09	1.17
5320	24.23	-6.16	0.14	5560	41.7	-3.8	2.51	5800	36.97	-4.32	1.41
5330	31.51	-5.01	1.19	5570	42.61	-3.7	1.39	5810	29.88	-5.25	1.34
5340	33.76	-4.72	1.46	5580	39.97	-3.98	2.64	5820	30.98	-5.09	1.49
5350	34.62	-4.61	1.43	5590	40.85	-3.89	1.74	5830	34.49	-4.62	1.34
5360	34.37	-4.64	1.41	5600	43.31	-3.63	1.47	5840	32.97	-4.82	0.91
5370	33.42	-4.76	1.26	5610	40.08	-3.97	1.89	5850	32.52	-4.88	0.58
5380	31.6	-5	1.1	5620	41.26	-3.84	2.84				

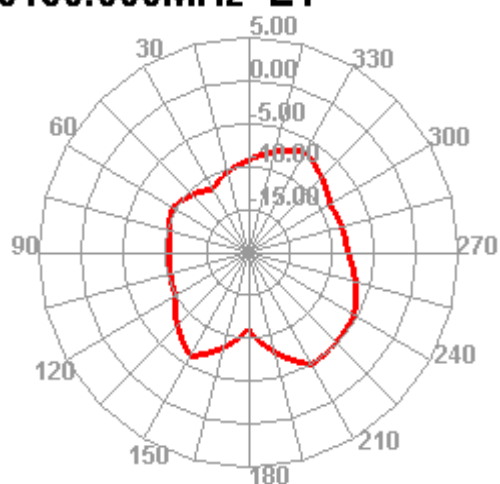
5150.000MHz



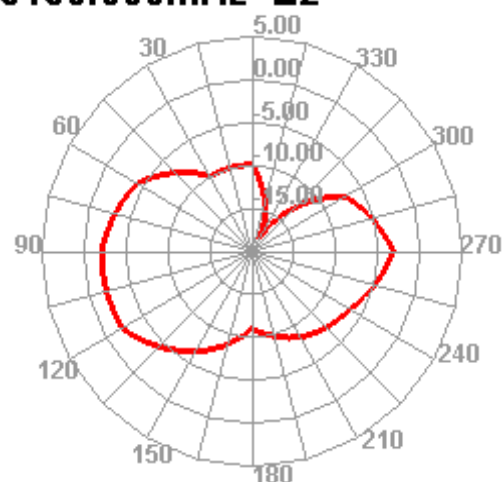
5150.000MHz H



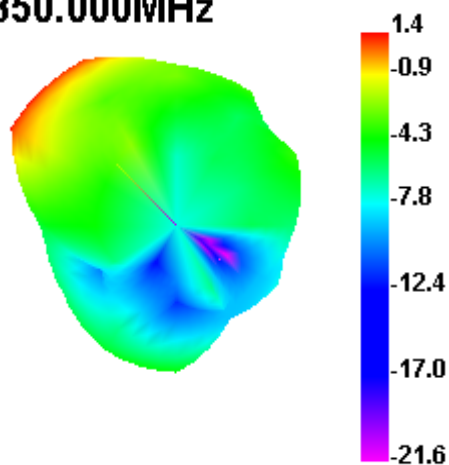
5150.000MHz E1



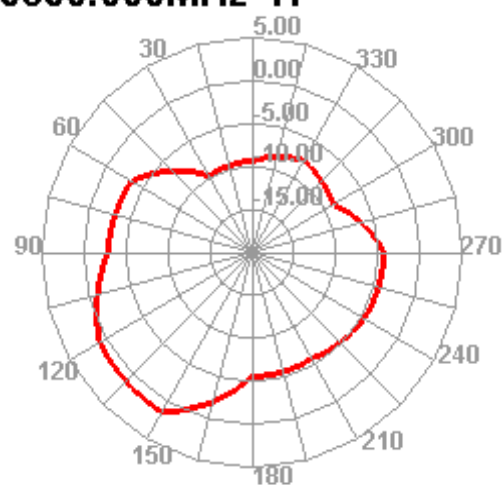
5150.000MHz E2



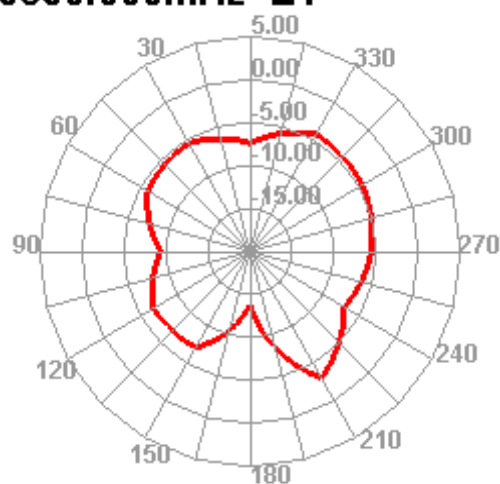
5350.000MHz



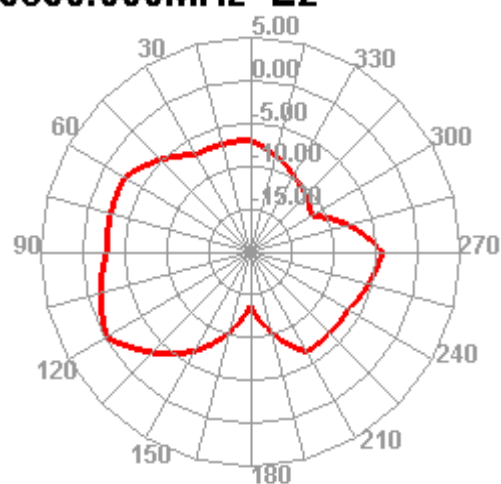
5350.000MHz H



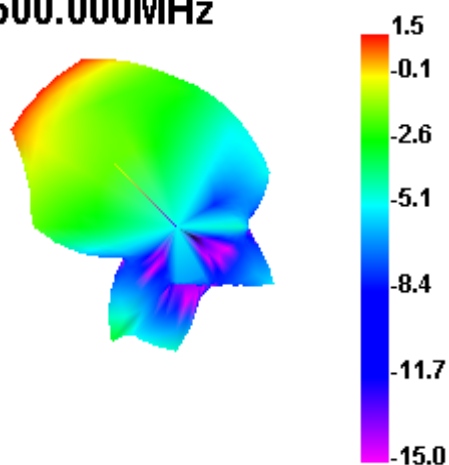
5350.000MHz E1



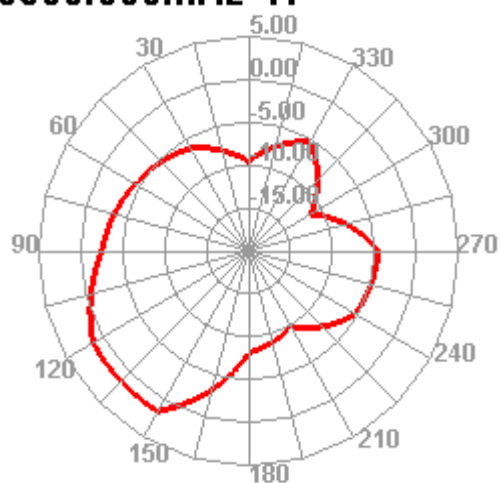
5350.000MHz E2



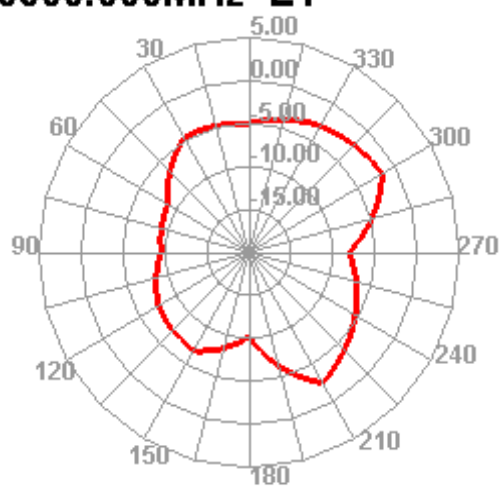
5500.000MHz



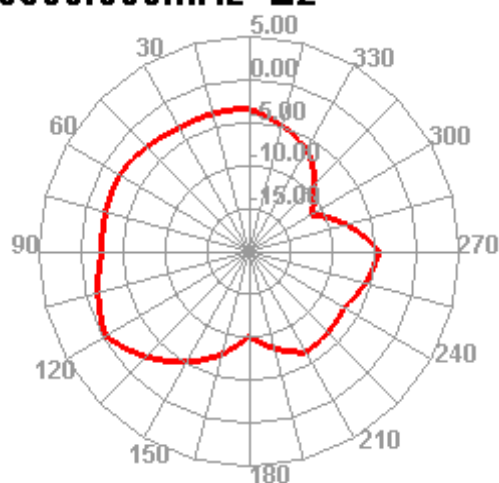
5500.000MHz H



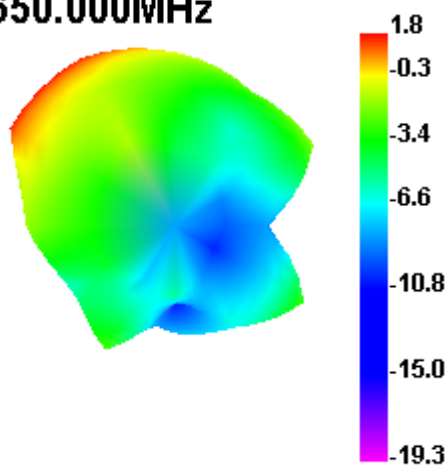
5500.000MHz E1



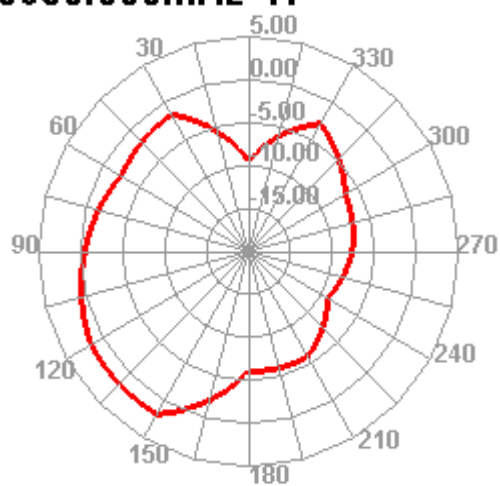
5500.000MHz E2



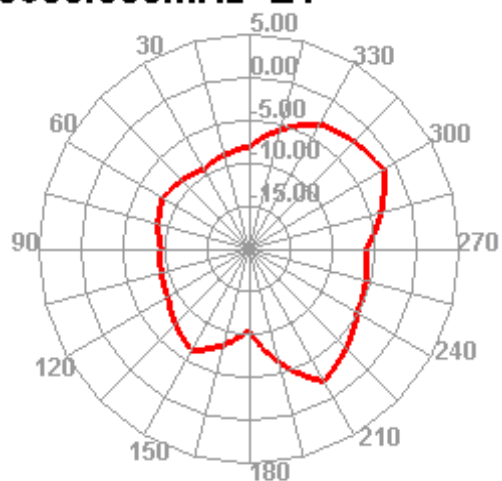
5650.000MHz



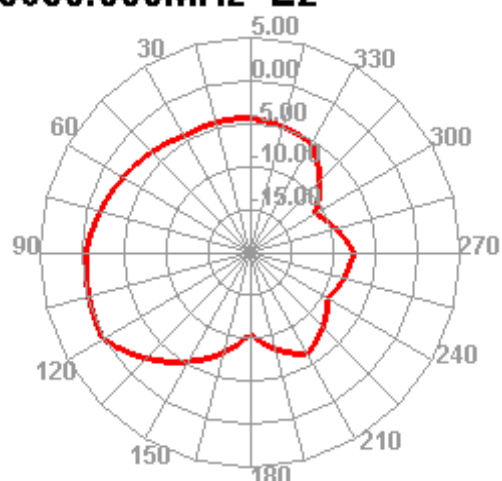
5650.000MHz H



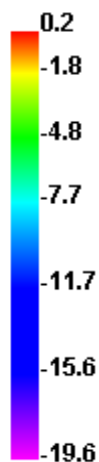
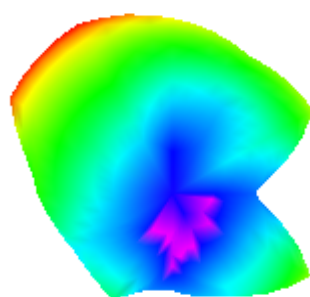
5650.000MHz E1



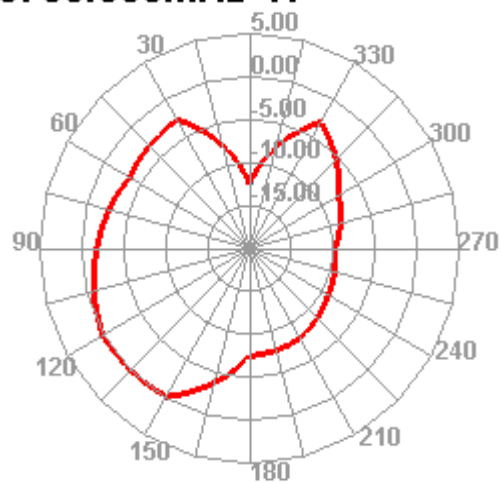
5650.000MHz E2



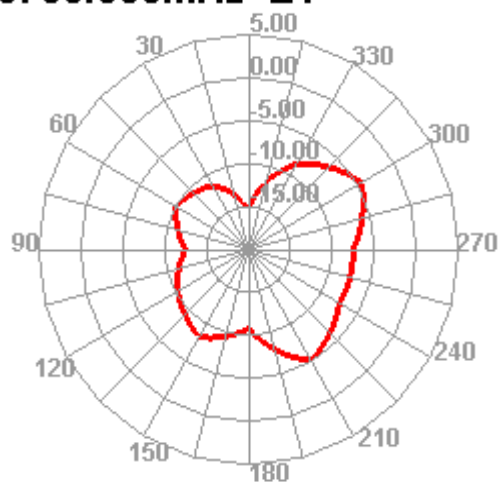
5750.000MHz



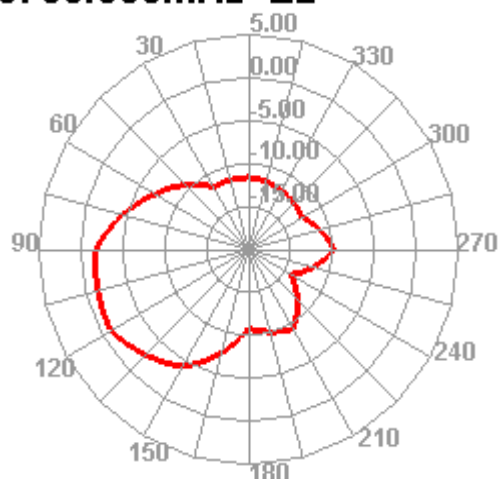
5750.000MHz H



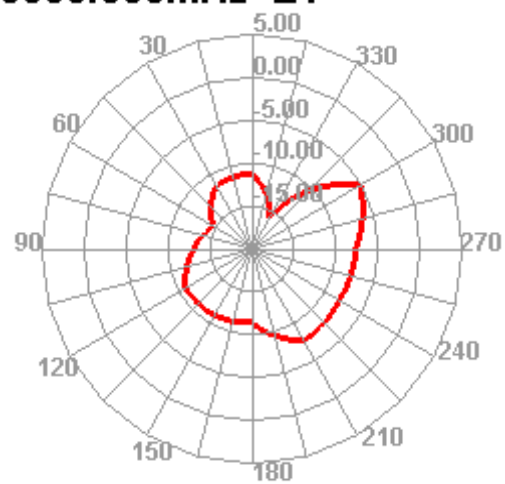
5750.000MHz E1



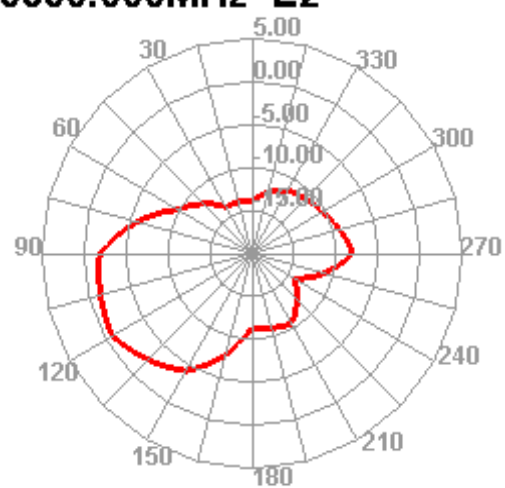
5750.000MHz E2



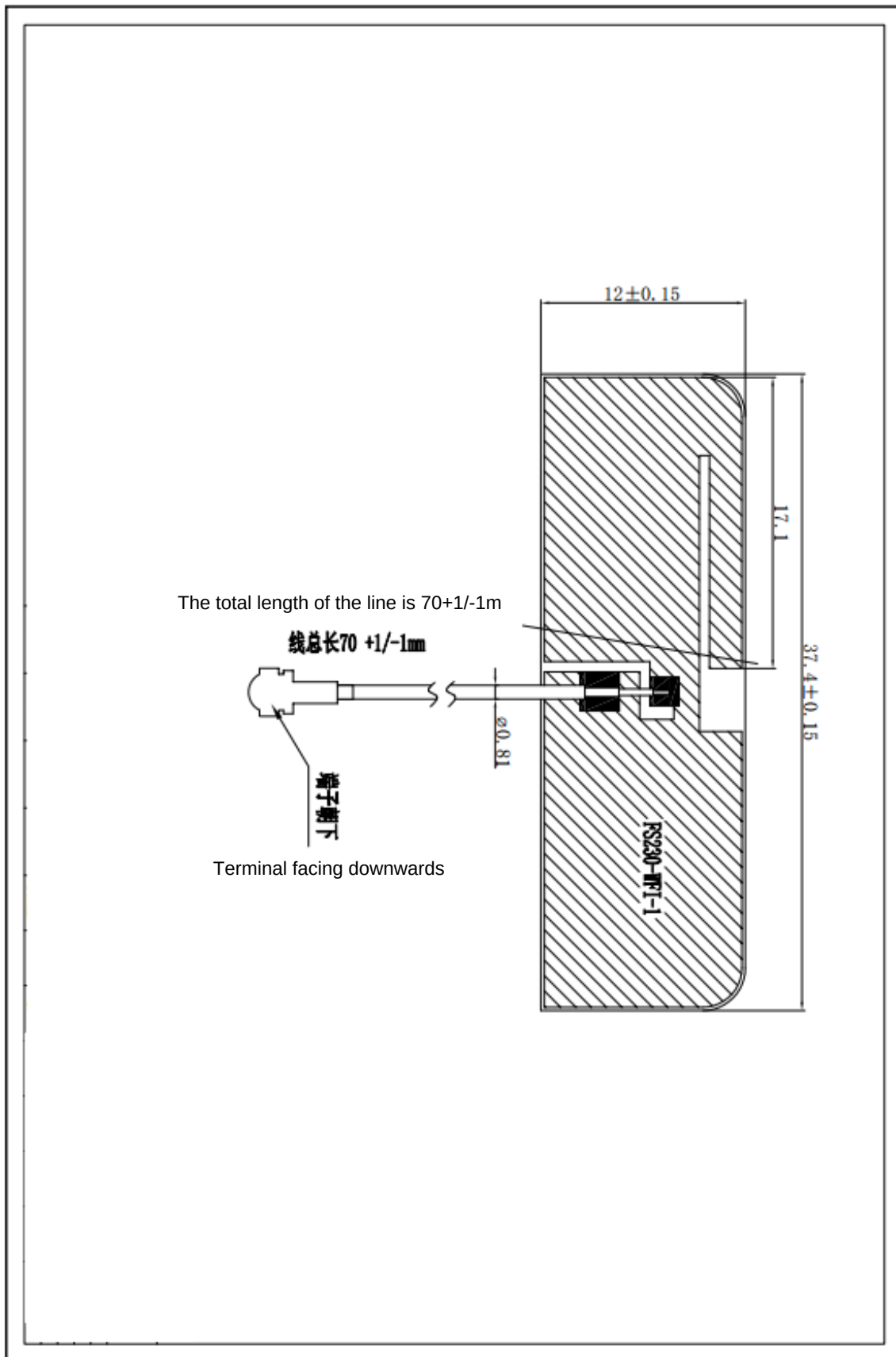
5850.000MHz E1



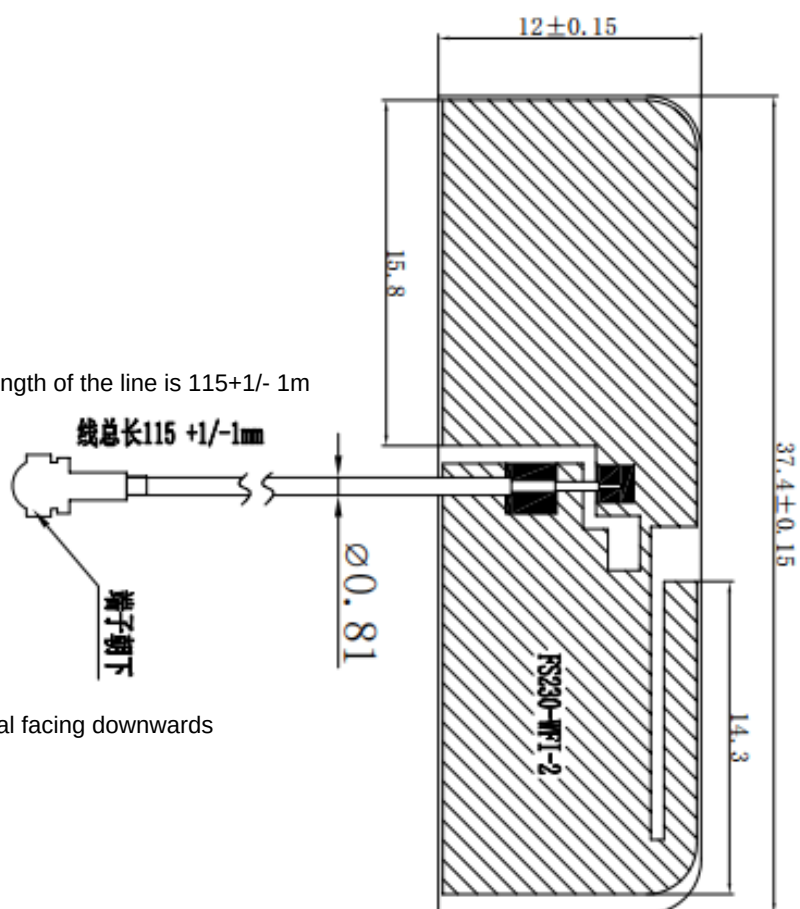
5850.000MHz E2



三. assembly drawing



The total length of the line is 115+1/- 1m



Terminal facing downwards

四. Summary

This antenna is designed based on standard samples and meets the electrical and structural performance standards. Please confirm.