



2.4GHz& 5GHz Dipole FPC ANT Specification

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(Top View)



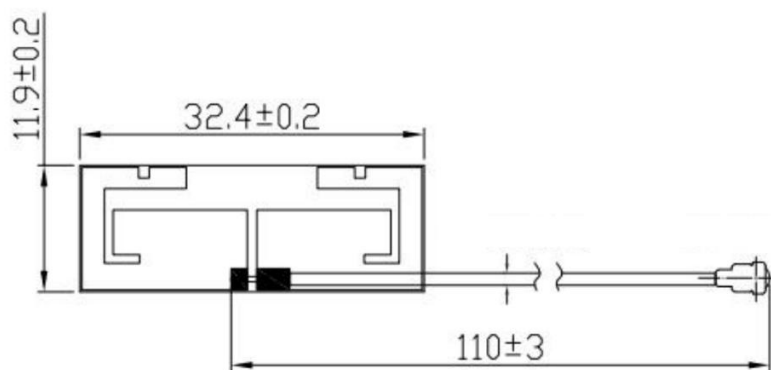
(Bottom View)

Product Name: 2.4GHz& 5GHz dipole FPC ANT	
Frequency: 2.4~2.5GHz and 5.15~5.85GHz	
Revision: V1.0	
Customer Approval:	
Company:	
Title:	
Signature:	Date:
BL-link Approval:	
Title:	
Signature:	Date:

Revision History

Revision	Summary	Release Date	Revised By
0.1	Initial release	2024-08-21	Zjh
1.0	Official release	2025-09-05	Zjh

1. Introduction



This antenna support 2.4GHz and 5GHz double frequency band. Designed by dipole antenna, theory almost Omni-directional radiation for far field.

Good port matching, low return loss, high efficiency can make communication more easily.

1.1 Features

- Operating Frequencies: 2400~2500MHz and 5150MHz~5850MHz
- Radiation: Omni-directional
- Modulation support: WLAN, BT, Zigbee
- Connect to host through IPEX1 connector

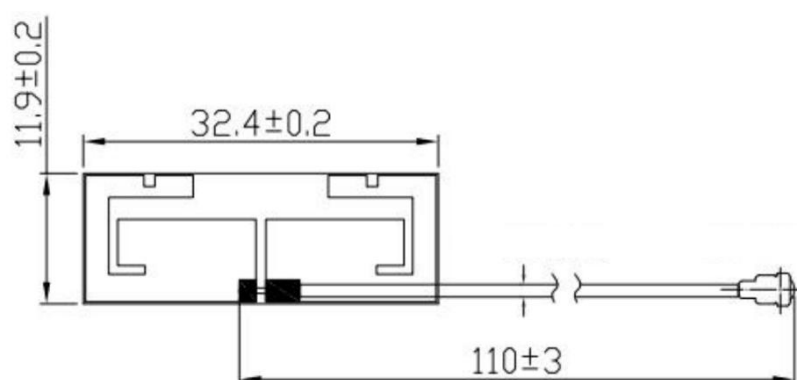
1.2 Applications

- IP Camera
- STB
- Smart TV
- Screen thrower
- Intelligent home furnishing
- Other devices which need to be supported by wireless network

1.3 General Specifications

Product Name	2.4GHz& 5GHz dipole FPC ANT
Frequency	2400~2500MHz and 5150MHz~5850MHz
Modulation support	WLAN/BT/Zigbee
VSWR	≤ 1.8
Return loss	$\leq -10\text{dB}$
Radiation	Omni-directional
Gain (peak)	2.4G:3.79dBi 5G:1.88dBi
Polarization	Linear
Admitted Power	2W
Connector	IPEX1
Efficiency	40%~55%
Cable	RF $\Phi 1.13$ gray cable and length is 110 mm

2. Mechanical Specifications



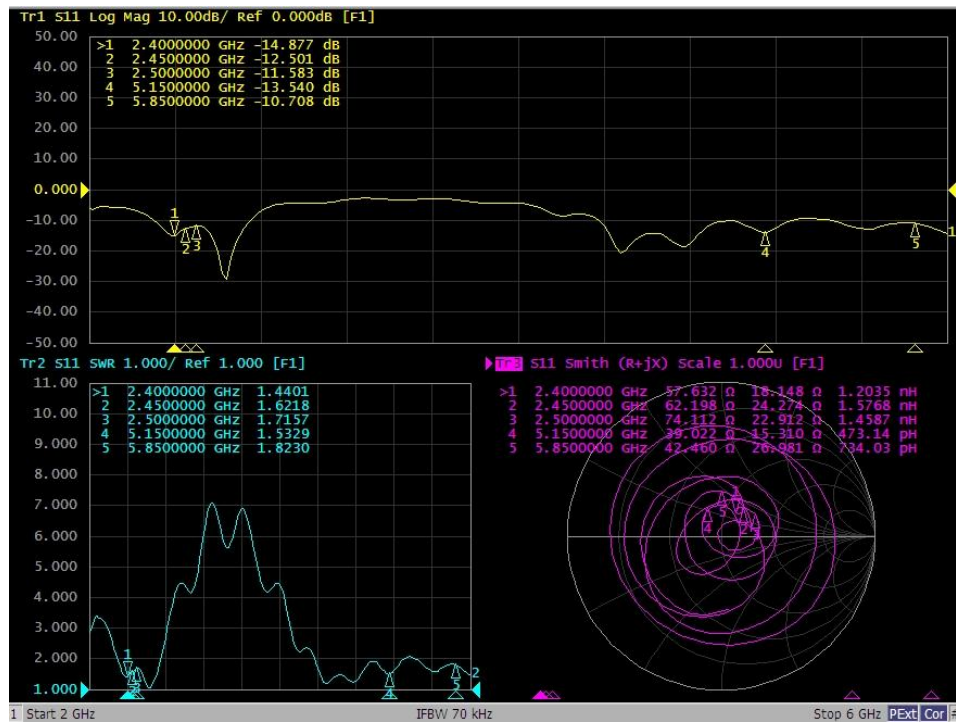
Antenna made by FPC material and fixed to customer' s product shell by bottom side adhesive,

Then through IPEX1 connector connect main board RF signal port.

RF $\Phi 1.13$ gray cable length $110\text{mm} \pm 3\text{mm}$.

Dimensions and tolerances of FCB: $32.4\text{mm} \pm 0.2\text{mm}$ long and $11.9\text{mm} \pm 0.2\text{mm}$ wide.

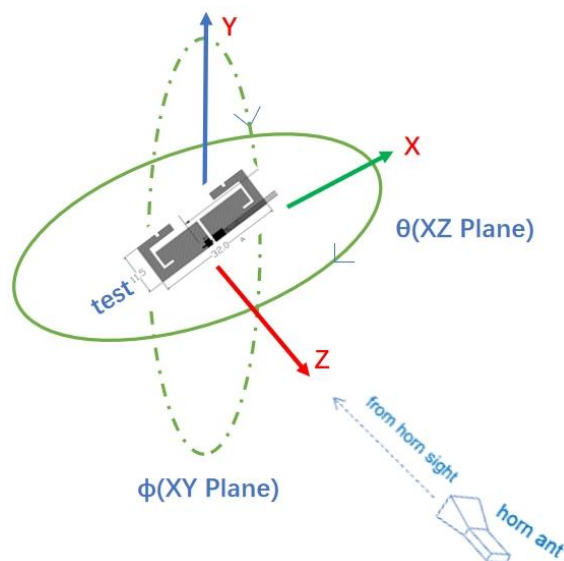
3. S-parameter



Return loss: $\leq -10\text{dB}$

VSWR: ≤ 1.8

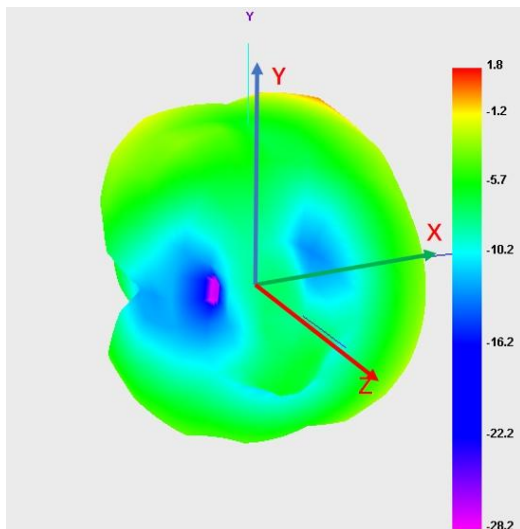
4. Radiation parameter



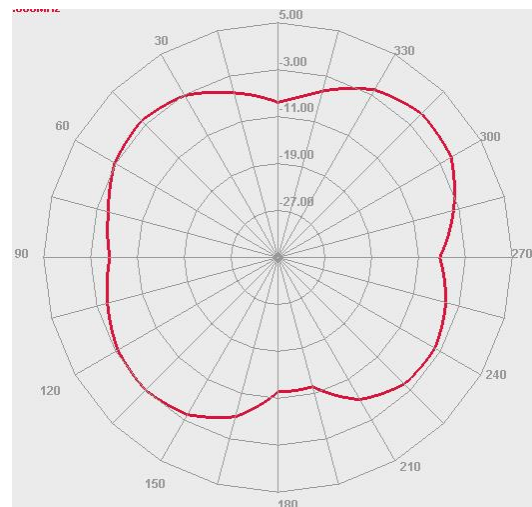
4.1 Gain and efficiency

Frequency	Gain	efficiency
2400~2500MHz	2~4dBi	40%~55%
5150~5850MHz	1~2dBi	40%~50%

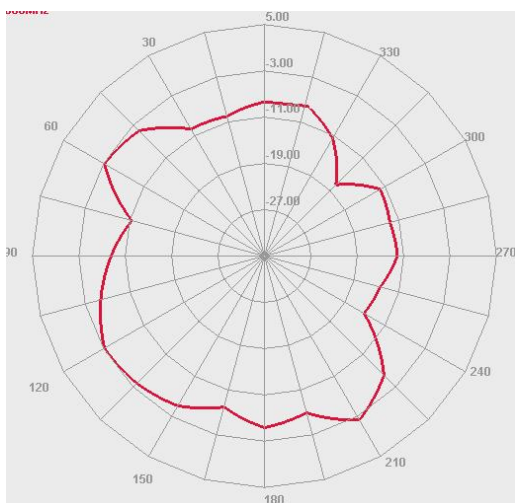
4.2 2.45GHz Radiation Pattern



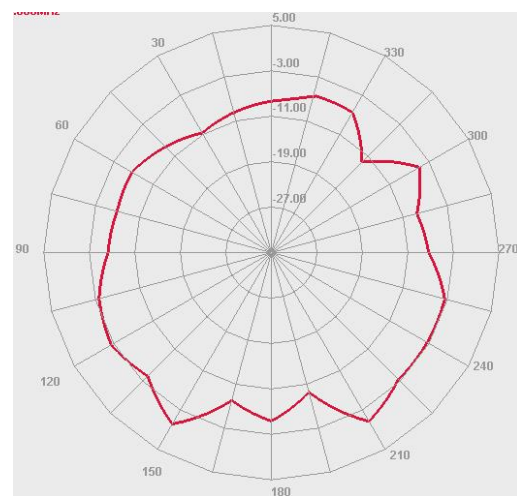
3D radiation



XY plane

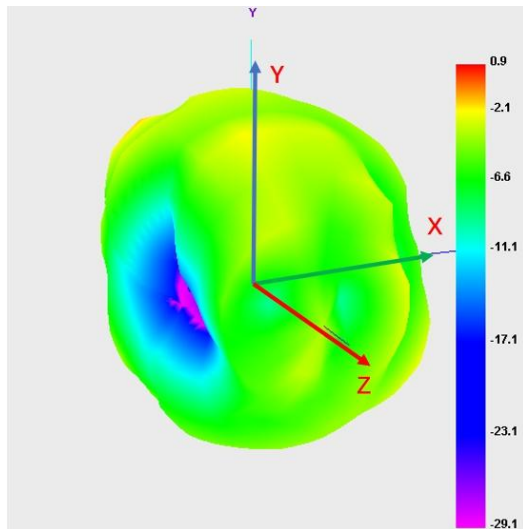


XZ plane

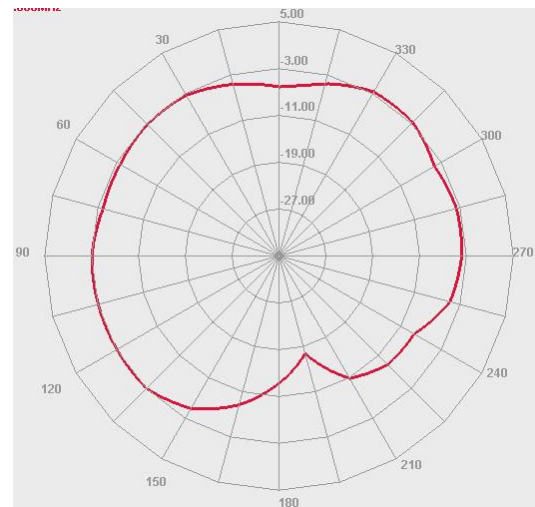


YZ plane

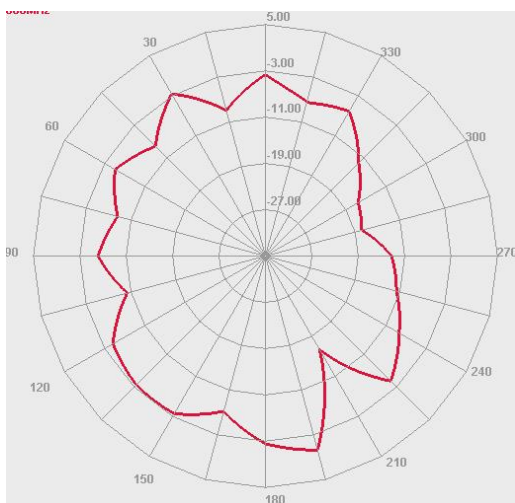
4.3 5.47GHz Radiation Pattern



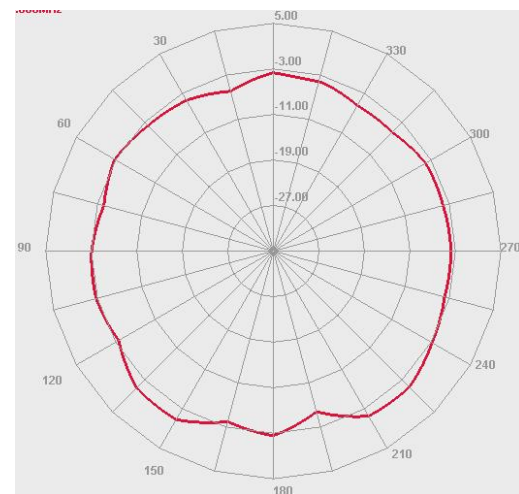
3D radiation



XY plane



XZ plane



YZ plane

5. Attachment

5.1 Full frequency Gain, Directivity & Efficiency table

Passive Test For 2G			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	41.78	-3.79	2.73
2410	38.81	-4.11	2.46
2420	40.45	-3.93	2.8
2430	44.66	-3.5	3.11

2440	39.44	-4.04	2.51
2450	39.99	-3.98	2.59
2460	49.09	-3.09	3.56
2470	51.99	-2.84	3.79
2480	48.19	-3.17	3.41
2490	50.69	-2.95	3.58
2500	54.7	-2.62	3.78

Passive Test For 5G			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5150	35.64	-4.48	-0.56
5160	39.44	-4.04	-0.2
5170	40.73	-3.9	-0.05
5180	42.85	-3.68	0.18
5190	47.86	-3.2	0.66
5200	45.08	-3.46	0.36
5210	41.2	-3.85	-0.01
5220	42.65	-3.7	0.14
5230	48.52	-3.14	0.58
5240	47.64	-3.22	0.55
5250	49.2	-3.08	0.67
5260	49.65	-3.04	0.72
5270	43.75	-3.59	0.23
5280	43.15	-3.65	0.2
5290	45.49	-3.42	0.47
5300	43.55	-3.61	0.25
5310	43.85	-3.58	0.37
5320	46.34	-3.34	0.67
5330	43.95	-3.57	0.47
5340	45.28	-3.44	0.68
5350	47.09	-3.27	0.86
5360	45.91	-3.38	0.8
5370	47.53	-3.23	0.97
5380	45.91	-3.38	0.83
5390	44.77	-3.49	0.73
5400	54.32	-2.65	1.73
5410	53.33	-2.73	1.74
5420	52.11	-2.83	1.68
5430	49.31	-3.07	1.56
5440	47.75	-3.21	1.36
5450	44.15	-3.55	1

5460	49.43	-3.06	1.41
5470	49.54	-3.05	1.42
5480	46.45	-3.33	1.19
5490	43.35	-3.63	0.96
5500	42.85	-3.68	0.95
5510	40.92	-3.88	0.86
5520	40.27	-3.95	0.88
5530	45.81	-3.39	1.5
5540	42.65	-3.7	1.16
5550	41.02	-3.87	1.05
5560	40.92	-3.88	1.05
5570	40.73	-3.9	1.16
5580	39.71	-4.01	1.12
5590	42.75	-3.69	1.56
5600	43.65	-3.6	1.67
5610	40.08	-3.97	1.44
5620	39.9	-3.99	1.32
5630	40.92	-3.88	1.58
5640	40.45	-3.93	1.57
5650	42.26	-3.74	1.84
5660	42.46	-3.72	1.88
5670	41.39	-3.83	1.85
5680	39.99	-3.98	1.64
5690	39.62	-4.02	1.76
5700	38.99	-4.09	1.67
5710	39.62	-4.02	1.71
5720	39.17	-4.07	1.63
5730	38.01	-4.2	1.44
5740	38.45	-4.15	1.51
5750	37.15	-4.3	1.44
5760	40.17	-3.96	1.31
5770	39.53	-4.03	1.36
5780	37.41	-4.27	1.12
5790	35.07	-4.55	0.88
5800	35.07	-4.55	0.9
5810	36.05	-4.43	0.99
5820	33.96	-4.69	0.75
5830	34.59	-4.61	0.84
5840	33.96	-4.69	0.75
5850	30.4	-5.17	0.36