



2.4GHz& 5GHz Dipole FPC ANT Specification

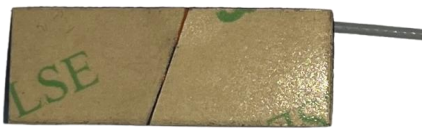
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Web: www.b-link.net.cn



(Top View)



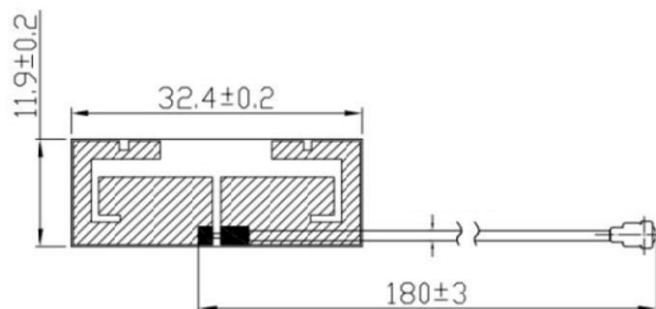
(Bottom View)

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	2025-04-03	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

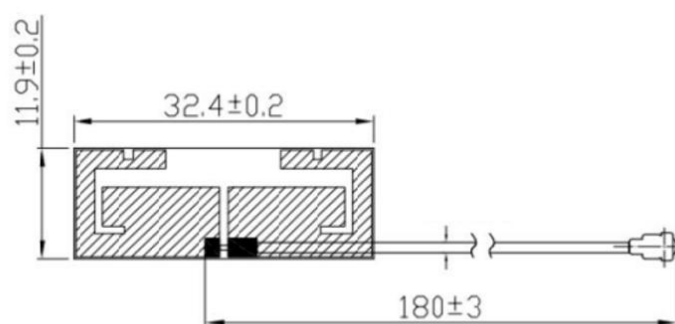
1.2 Applications

- 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)	2dBi
Polarization	Linear
Admitted Power	2W
Connector	IPEX1
Efficiency	40%~50%
Cable	RF $\Phi 1.13$ gray cable and length is 180 mm

2. Mechanical Specifications



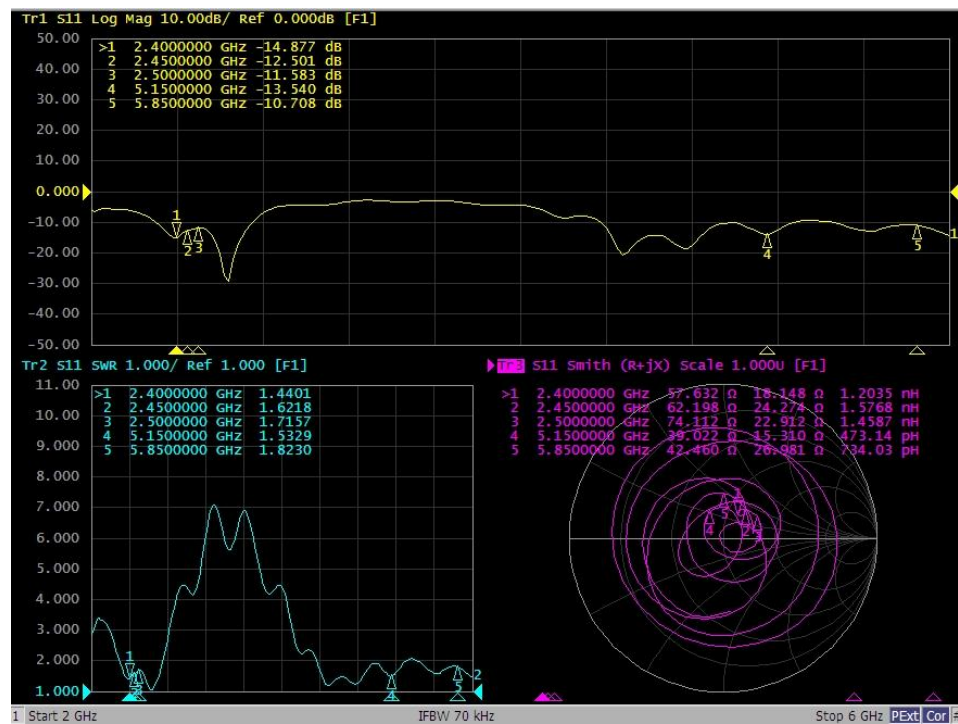
Antenna made by FPC material and fixed to customer' s product shell by bottom side adhesive,

Then through IPEX1 connector connect main board RF signal port.

RF $\Phi 1.13$ gray cable length 180mm±3mm.

Dimensions and tolerances of FCB: 32.4mm±0.2mm long and 11.9mm±0.2mm wide.

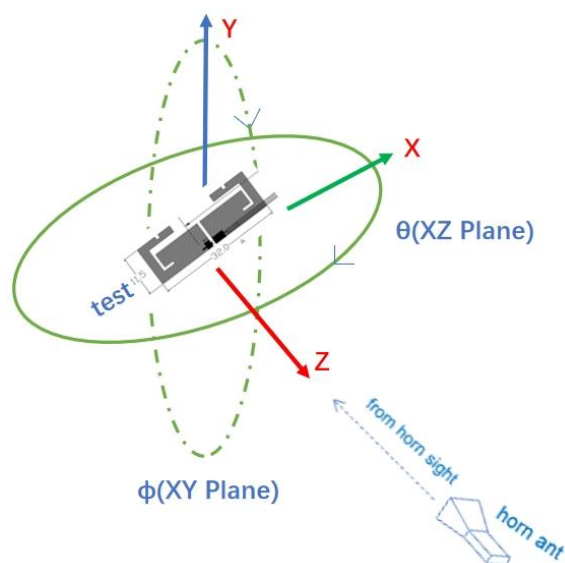
3. S-parameter



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

VSWR: ≤ 1.8

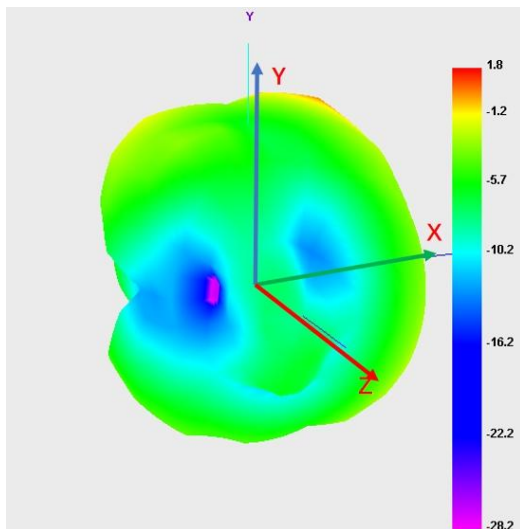
4. Radiation parameter



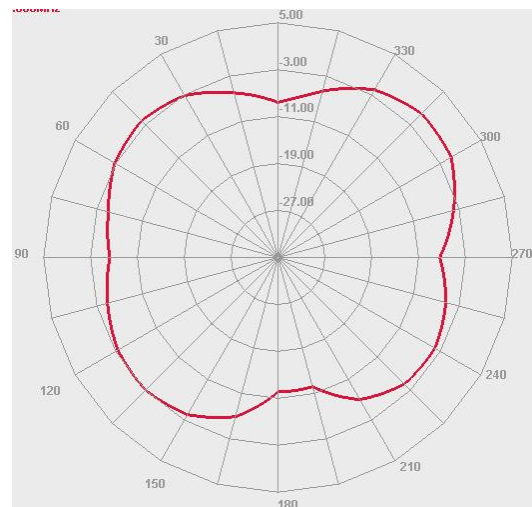
4.1 Gain and efficiency

Frequency	Gain	efficiency
2400~2500MHz	0.51-2dBi	40%~50%
5150~5850MHz	-1.56-1dBi	40%~50%

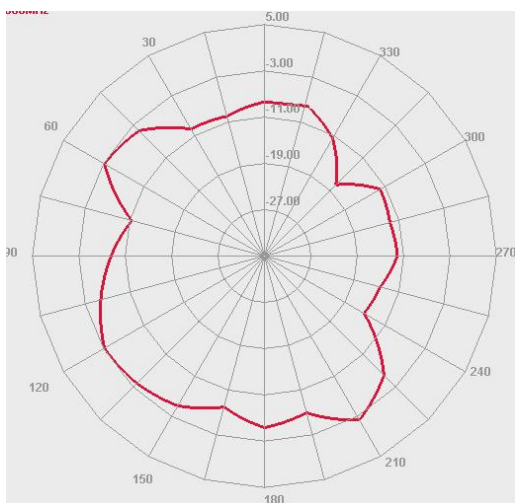
4.2 2.45GHz Radiation Pattern



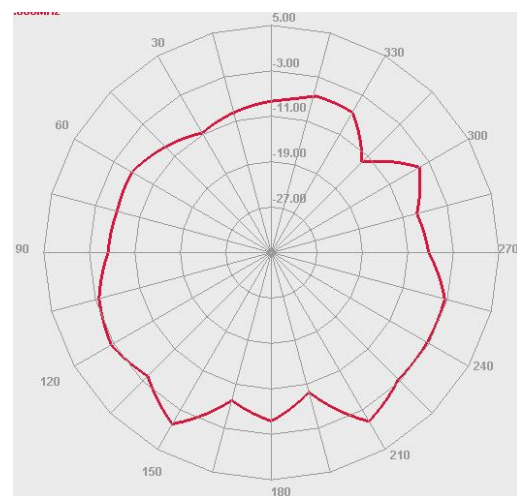
3D radiation



XY plane

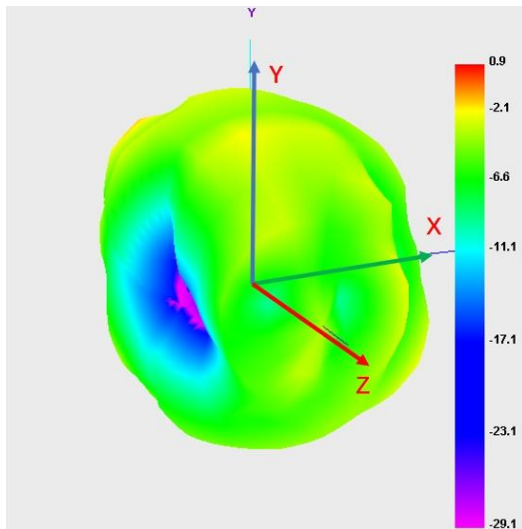


XZ plane

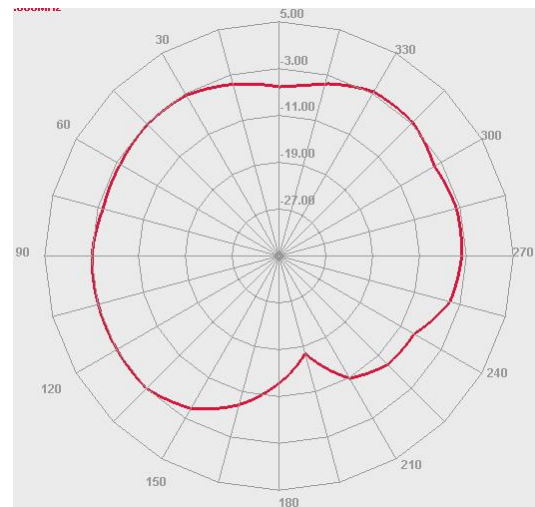


YZ plane

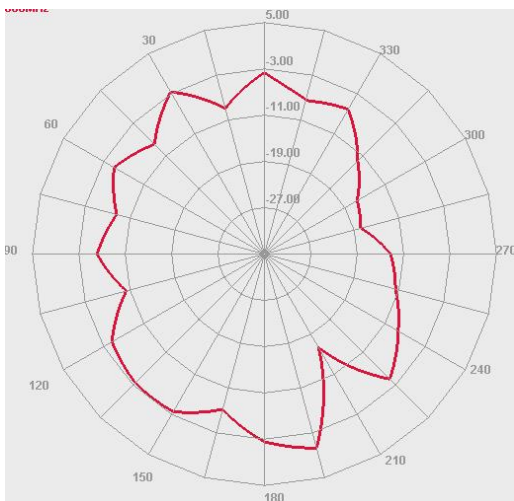
4.3 5.47GHz Radiation Pattern



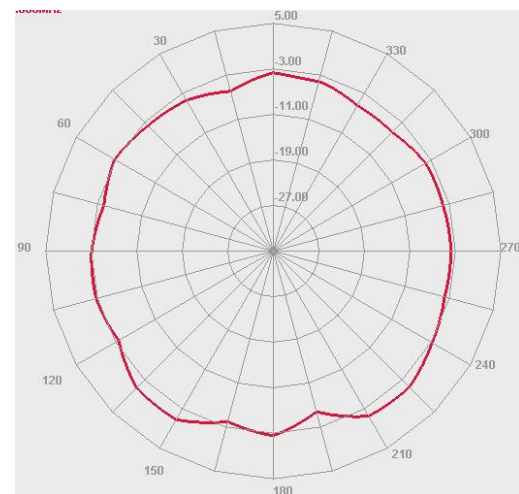
3D radiation



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	35.56	-4.49	0.73
2410	33.03	-4.81	0.46
2420	36.05	-4.43	0.8
2430	39.81	-4	1.11

2440	35.15	-4.54	0.51
2450	35.64	-4.48	0.59
2460	43.75	-3.59	1.56
2470	46.34	-3.34	2.00
2480	42.95	-3.67	1.41
2490	45.18	-3.45	1.58
2500	48.75	-3.12	1.78

Passive Test For 5G			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5150	35.64	-4.48	-1.56
5160	39.44	-4.04	-1.2
5170	40.73	-3.9	-1.05
5180	42.85	-3.68	-0.82
5190	47.86	-3.2	-0.34
5200	45.08	-3.46	-0.64
5210	41.2	-3.85	-1.01
5220	42.65	-3.7	-0.86
5230	48.52	-3.14	-0.42
5240	47.64	-3.22	-0.45
5250	49.2	-3.08	-0.33
5260	49.65	-3.04	-0.28
5270	43.75	-3.59	-0.77
5280	43.15	-3.65	-0.8
5290	45.49	-3.42	-0.53
5300	43.55	-3.61	-0.75
5310	43.85	-3.58	-0.63
5320	46.34	-3.34	-0.33
5330	43.95	-3.57	-0.53
5340	45.28	-3.44	-0.32
5350	47.09	-3.27	-0.14
5360	45.91	-3.38	-0.2
5370	47.53	-3.23	-0.03
5380	45.91	-3.38	-0.17
5390	44.77	-3.49	-0.27
5400	54.32	-2.65	0.80
5410	53.33	-2.73	0.74
5420	52.11	-2.83	0.68
5430	49.31	-3.07	0.56
5440	47.75	-3.21	0.36
5450	44.15	-3.55	0

5460	49.43	-3.06	0.41
5470	49.54	-3.05	0.42
5480	46.45	-3.33	0.19
5490	43.35	-3.63	-0.04
5500	42.85	-3.68	-0.05
5510	40.92	-3.88	-0.14
5520	40.27	-3.95	-0.12
5530	45.81	-3.39	0.5
5540	42.65	-3.7	0.16
5550	41.02	-3.87	0.05
5560	40.92	-3.88	0.05
5570	40.73	-3.9	0.16
5580	39.71	-4.01	0.12
5590	42.75	-3.69	0.56
5600	43.65	-3.6	0.67
5610	40.08	-3.97	0.44
5620	39.9	-3.99	0.32
5630	40.92	-3.88	0.58
5640	40.45	-3.93	0.57
5650	42.26	-3.74	0.84
5660	42.46	-3.72	1.00
5670	41.39	-3.83	0.85
5680	39.99	-3.98	0.64
5690	39.62	-4.02	0.76
5700	38.99	-4.09	0.67
5710	39.62	-4.02	0.71
5720	39.17	-4.07	0.63
5730	38.01	-4.2	0.44
5740	38.45	-4.15	0.51
5750	37.15	-4.3	0.44
5760	40.17	-3.96	0.31
5770	39.53	-4.03	0.36
5780	37.41	-4.27	0.12
5790	35.07	-4.55	-0.12
5800	35.07	-4.55	-0.1
5810	36.05	-4.43	-0.01
5820	33.96	-4.69	-0.25
5830	34.59	-4.61	-0.16
5840	33.96	-4.69	-0.25
5850	30.4	-5.17	-0.64