

# Shenzhen HX Antenna Co., Ltd.

## SPECIFICATION FOR APPROVAL

**Name of the company** : \_\_\_\_\_

**Name of an article** : NB-FPC antenna

**Material code** : **HX-FPCNB-3020-50A-YGZN01-F**

**Customer item number**: \_\_\_\_\_

**Specifications** : See the specification

**Date** : 2023-09-19

Customer countersignature:

Department of Engineering	Quality department	Approve

Shen zhen hongxin technology electronics Co.Ltd:

Department of Engineering	Quality department	Approve
Huang Xiaoyu	Zhang Huan	Zhuang Weifeng

**一： Antenna parameter**

Design Specifications	Typical	Units
Antenna form	FPC antenna	N/A
Working Frequency	800-900	MHZ
Gain	2.5	DBi
Antenna efficiency	35~80	%
VSWR	<1.8	N/A
Polarization	vertical polarization	N/A
Radiation pattern	360°	N/A
Impedance	50	ohm
Power handling	33	dbm
Interface	Welded joint	N/A
Antenna size	30*20	mm
Operating Temp	-30-70	°C
Storing Temp	-30-70	°C

## 二: Antenna physical diagram

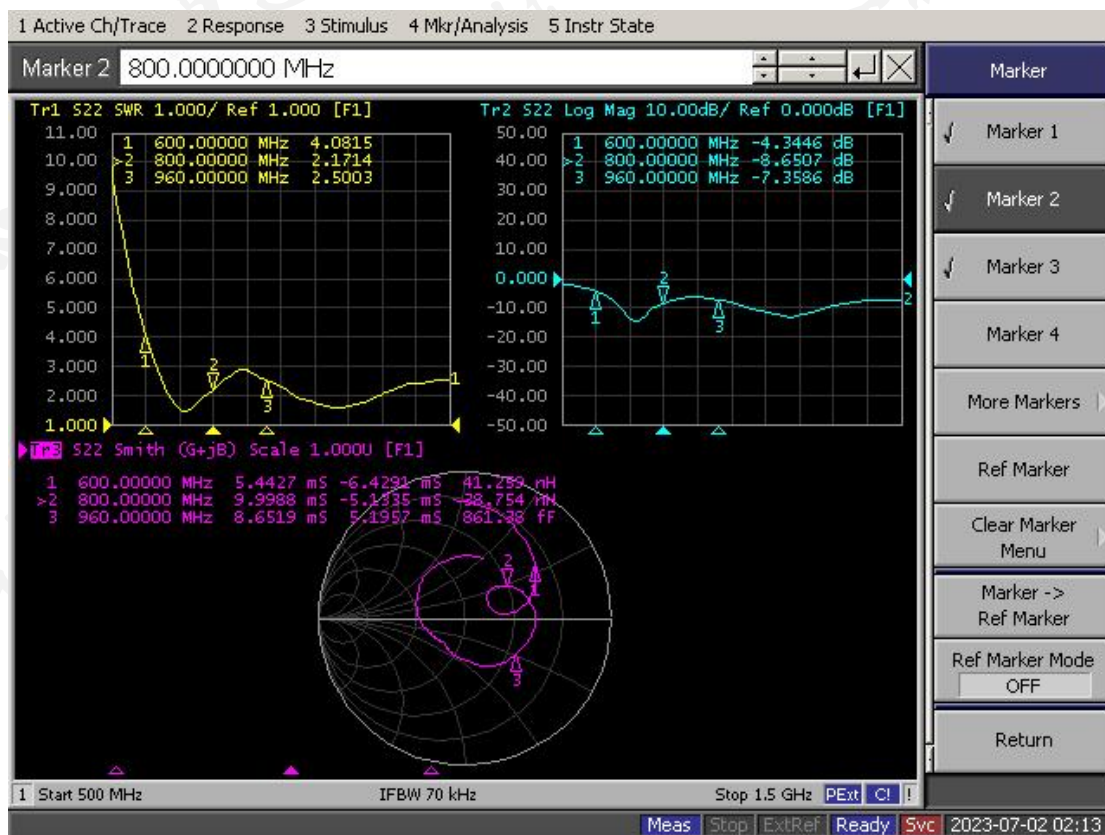


### Fill:

- 1.The antenna parameters are tested according to the simulated environment, and there will be performance deviations for different products.
- 2.The function of the antenna is sensitive. Please inform us to evaluate if there is any change in the peripheral structure of the main body.

## 三、VSWR / Return Loss / Smith Chart

### 3.1.Test chart

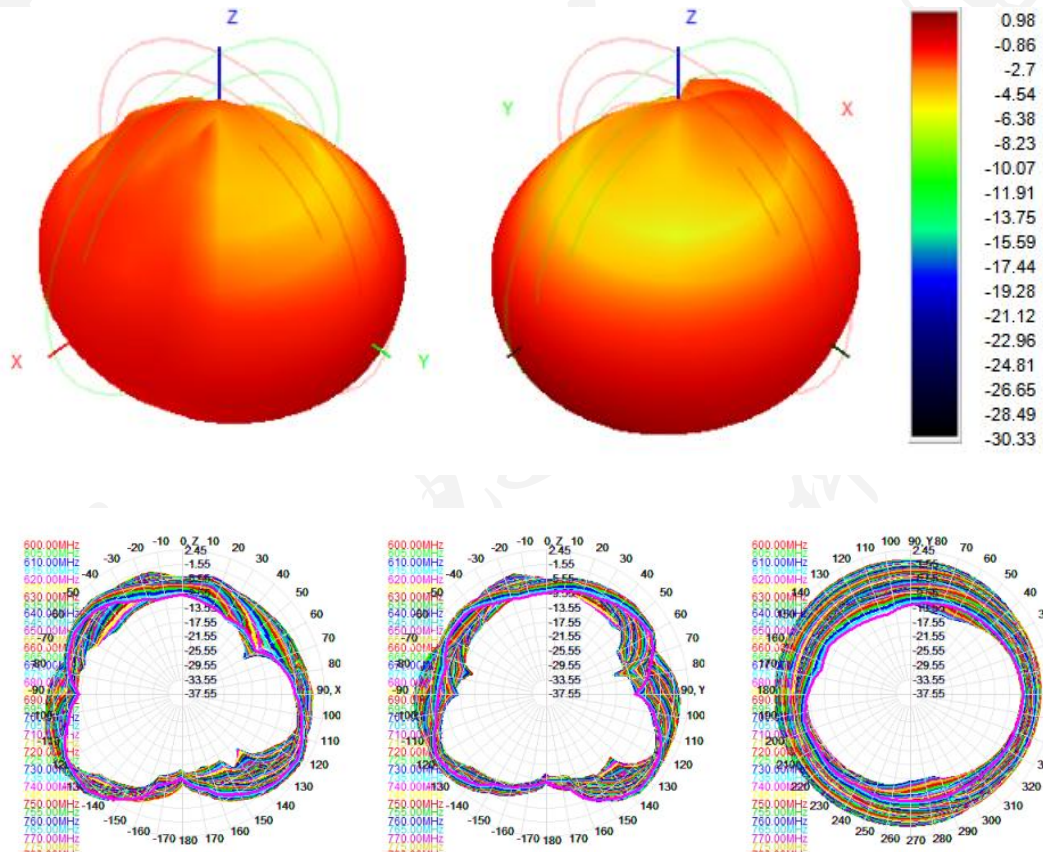


## 四：RF Laboratory testing

### 4.1.Gain and Efficiency

Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Frequency (MHz)	825	830	835	870	875	880	885	890	895	900	905	910	915	950	955	960
Efficiency (dBi)	-4.00	-4.02	-4.04	-3.85	-3.58	-3.40	-3.56	-3.76	-3.79	-3.76	-3.80	-3.93	-4.14	-5.46	-5.54	-5.74
Gain (dBi)	1.05	1.04	1.04	1.66	2.14	2.46	2.36	2.11	1.99	1.90	1.71	1.42	1.05	0.00	0.00	-0.16
Efficiency (%)	39.80	39.61	39.46	41.23	43.84	45.70	44.07	42.11	41.79	42.12	41.70	40.44	38.59	28.46	27.95	26.68
Directivity (dB)	5.05	5.06	5.08	5.50	5.72	5.87	5.92	5.87	5.78	5.66	5.51	5.35	5.19	5.46	5.54	5.58
Peak Gain Position (Theta)	105.00	105.00	105.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Peak Gain Position (Phi)	180.00	180.00	180.00	180.00	180.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00
Efficiency ThetaPol (%)	27.50	27.42	27.25	26.42	27.06	27.73	27.16	26.14	25.74	25.85	25.64	24.78	23.54	16.00	15.39	14.90
Efficiency PhiPol (%)	12.31	12.19	12.22	14.80	16.78	17.97	16.91	15.96	16.05	16.27	16.07	15.65	15.05	12.45	12.56	11.78
Upper Hem. Efficiency (%)	15.71	15.24	14.81	12.86	13.46	13.75	13.01	12.28	12.17	12.29	12.24	12.03	11.67	9.85	9.98	9.64
Lower Hem. Efficiency (%)	24.09	24.36	24.66	28.37	30.37	31.95	31.06	29.82	29.62	29.83	29.46	28.41	26.92	18.61	17.98	17.04
T90(H)圆度	2.47	2.11	1.85	1.60	2.09	2.47	2.71	2.95	3.26	3.53	3.67	3.92	4.20	6.99	7.29	7.65
Gain 15deg (dBi)																
E1(XZ)波瓣宽度	46.00	46.00	45.00	42.00	41.00	40.00	39.00	39.00	39.00	39.00	39.00	40.00	41.00	37.00	37.00	37.00
E1(XZ)前后比	8.82	8.63	8.30	6.67	6.53	6.46	6.60	6.62	6.48	6.26	6.09	5.93	5.57	5.74	5.96	6.20
E2(YZ)波瓣宽度	45.00	45.00	44.00	42.00	41.00	40.00	39.00	39.00	38.00	38.00	37.00	38.00	37.00	33.00	32.00	32.00
E2(YZ)前后比	8.74	8.70	8.56	6.47	6.12	6.01	5.97	6.08	6.10	6.06	6.10	6.12	6.09	6.20	6.32	6.65
最大增益外轴比(P)	3.77	3.89	3.88	2.90	2.56	1.58	1.31	1.16	0.91	0.67	0.72	0.90	1.17	2.13	2.26	2.66
顶点(Theta=0)外轴比(P)	24.52	26.26	27.39	26.70	22.30	17.09	13.81	11.76	9.84	7.68	6.00	4.69	3.41	2.48	3.17	3.52
仰角10度最差(大)轴比(P)	48.62	46.94	32.73	47.15	46.70	50.13	49.03	50.32	58.00	67.93	56.05	76.50	65.07	31.64	48.82	48.43
Hc(XY)波瓣宽度	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	329.00	296.00	270.00	193.00	173.00	110.00	106.00	105.00
Hc(XY)前后比	0.41	0.34	0.31	0.64	0.71	0.79	0.73	0.84	1.01	1.19	1.26	1.41	1.45	1.91	1.99	2.04
左旋圆极化效率(%)	31.32	31.24	31.10	31.14	32.75	33.68	31.87	29.86	29.05	28.57	27.55	26.02	24.05	16.09	15.92	15.30
右旋圆极化效率(%)	8.48	8.36	8.37	10.09	11.09	12.02	12.20	12.25	12.74	13.55	14.15	14.42	14.54	12.37	12.04	11.38

### 4.2.Radiation pattern

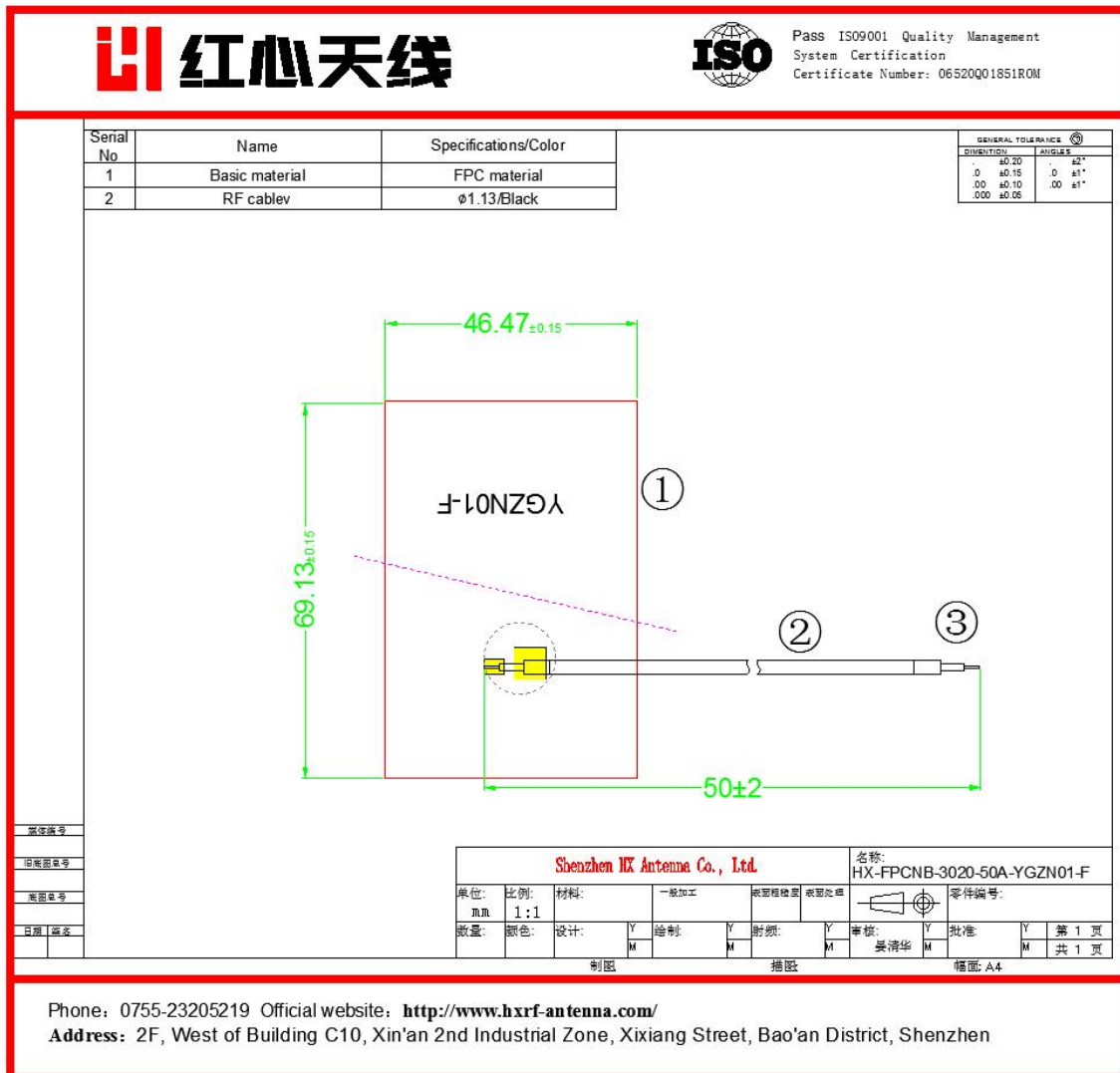


### 五: Storage environment

Working temperature: -30 to 70°C

reserve temperature: -30 to 70°C

### 六: Dimensions



## 七: Note

1. Do not apply too much mechanical stress to product components, do not attempt to bend or disassemble and reassemble the product, as this May cause damage to product components or components.
2. Do not expose the product directly to open flames.
3. This specification only applies to the functionality of product **HX-FPCNB-3020-50A-YGZN01-F** as a single unit.