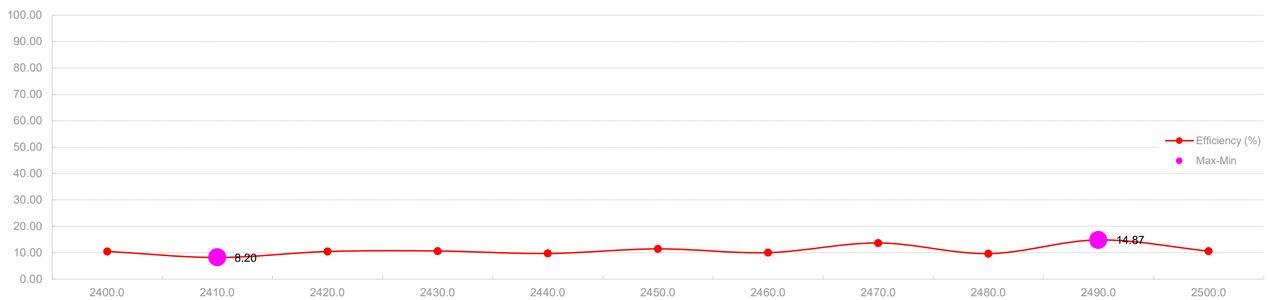
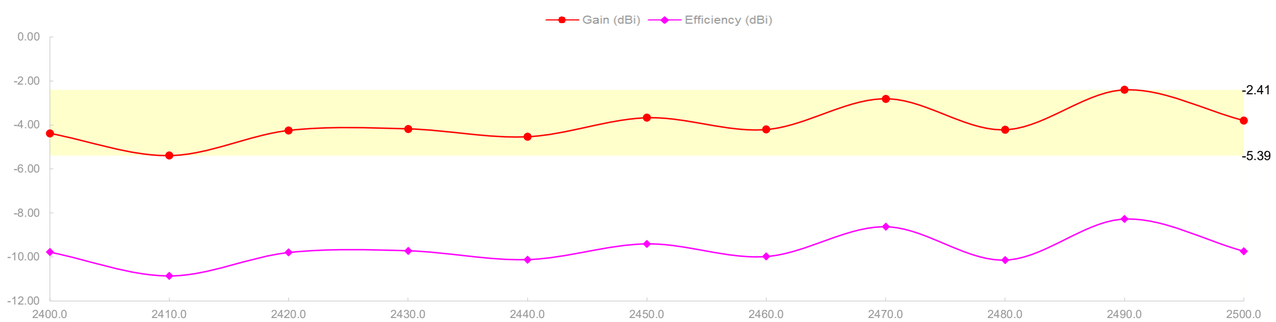
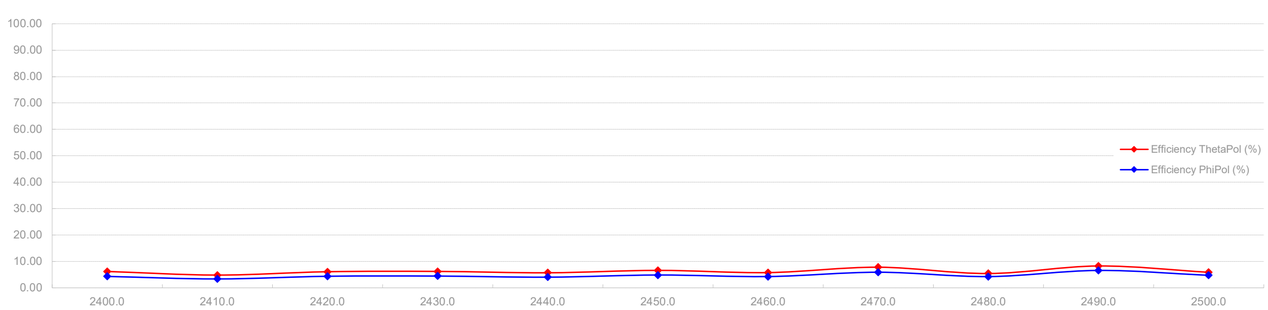
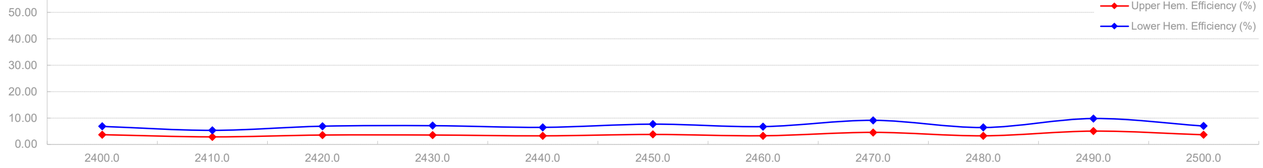
禾电迅科技有限公司

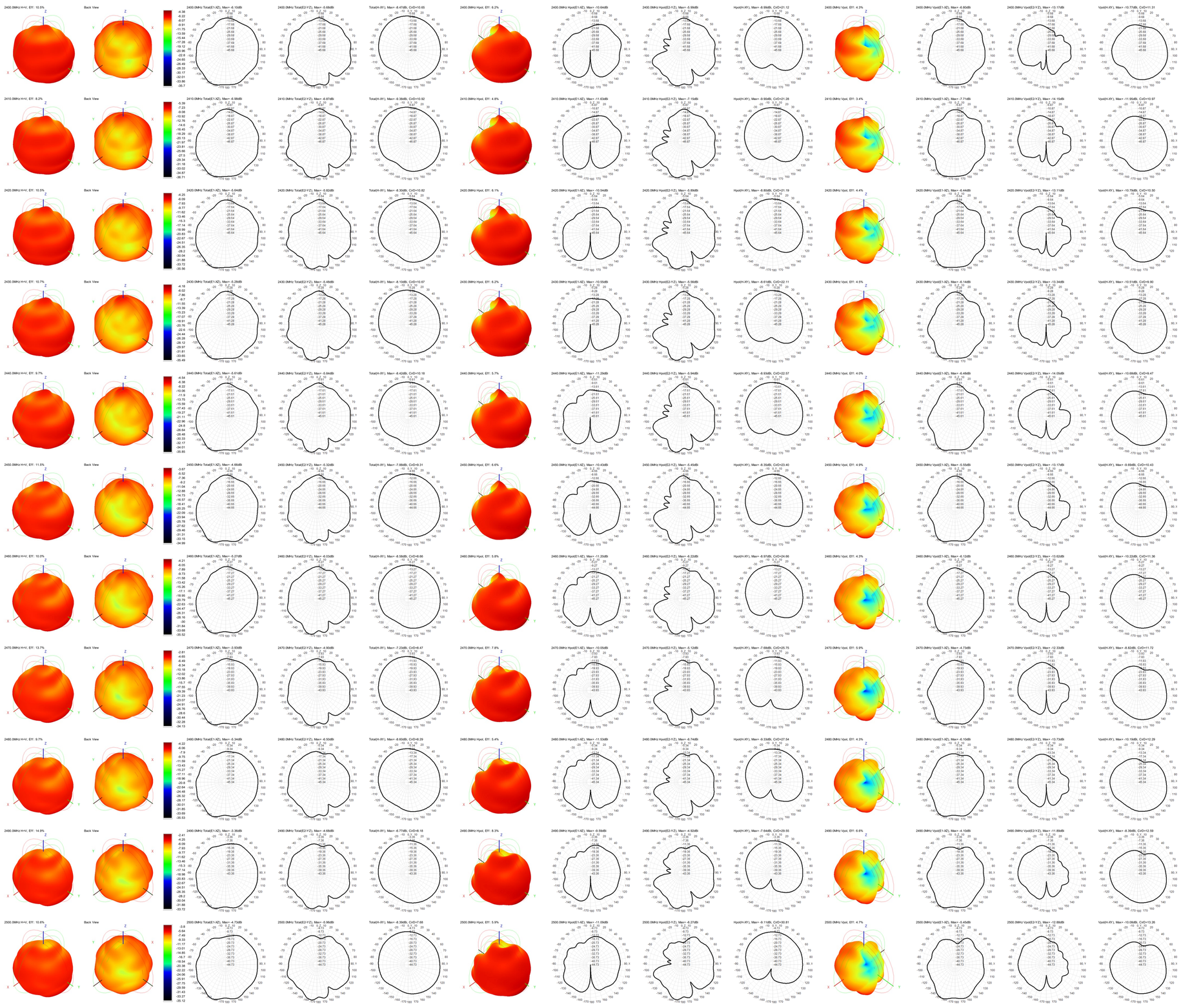
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-9.78	-10.86	-9.80	-9.72	-10.12	-9.40	-9.98	-8.63	-10.14	-8.28	-9.74
Gain (dBi)	-4.38	-5.39	-4.25	-4.18	-4.54	-3.67	-4.21	-2.81	-4.22	-2.41	-3.80
Efficiency (%)	10.52	8.20	10.48	10.67	9.73	11.47	10.05	13.72	9.68	14.87	10.62
Directivity (dB)	5.40	5.47	5.55	5.54	5.58	5.73	5.77	5.82	5.92	5.87	5.94
Peak Gain Position (Theta)	157.00	157.00	157.00	157.00	157.00	157.00	157.00	158.00	158.00	158.00	158.00
Peak Gain Position (Phi)	45.00	44.00	43.00	43.00	43.00	42.00	42.00	43.00	42.00	41.00	42.00
Efficiency ThetaPol (%)	6.20	4.83	6.10	6.22	5.70	6.61	5.77	7.81	5.42	8.27	5.88
Efficiency PhiPol (%)	4.32	3.37	4.38	4.45	4.03	4.86	4.27	5.91	4.26	6.59	4.73
Upper Hem. Efficiency (%)	3.69	2.87	3.56	3.57	3.26	3.79	3.29	4.58	3.27	5.05	3.65
Lower Hem. Efficiency (%)	6.83	5.33	6.91	7.11	6.47	7.69	6.76	9.14	6.41	9.82	6.96
T90(H)圆度	10.65	10.92	10.82	10.67	10.18	9.31	8.66	8.47	8.29	8.18	7.68
Gain 15deg (dBi)											
E1(XZ)波瓣宽度	76.00	74.00	74.00	73.00	35.00	32.00	31.00	31.00	31.00	31.00	32.00
E1(XZ)前后比	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E2(YZ)波瓣宽度	45.00	70.00	24.00	22.00	22.00	22.00	23.00	24.00	68.00	25.00	24.00
E2(YZ)前后比	0.83	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
最大增益处轴比(P)	22.02	24.30	27.46	32.37	33.87	34.51	31.77	30.34	28.84	27.35	26.52
仰角10度最差(大)轴比(P)	52.13	47.14	47.16	48.51	47.16	52.71	80.26	48.63	47.34	47.79	52.86
Hc(XY)波瓣宽度	220.00	216.00	218.00	216.00	218.00	225.00	230.00	232.00	230.00	231.00	231.00
Hc(XY)前后比	2.62	2.84	2.91	2.90	2.69	2.28	1.99	1.97	2.10	2.20	2.28
左旋圆极化效率(%)	5.06	3.93	5.03	5.12	4.69	5.60	4.96	6.84	4.84	7.46	5.35
右旋圆极化效率(%)	5.46	4.27	5.44	5.55	5.04	5.87	5.09	6.88	4.84	7.41	5.27
Empty											








50.00
40.00
30.00
20.00
10.00
0.00
2400.0
2410.0
2420.0
2430.0
2440.0
2450.0
2460.0
2470.0
2480.0
2490.0
2500.0
Upper Hem. Efficiency (%)
Lower Hem. Efficiency (%)


2400.0MHz H+V, Eff: 10.5%
Back View
2400.0MHz Total(E1-XZ), Max= -6.10dB
2400.0MHz Total(E2-YZ), Max= -5.68dB
Total(H-XY), Max= -8.47dB, CrD=10.65
2400.0MHz Hpol, Eff: 6.2%
2400.0MHz Hpol(E1-XZ), Max= -10.64dB
2400.0MHz Hpol(E2-YZ), Max= -5.99dB
Hpol(H-XY), Max= -8.99dB, CrD=21.12
2400.0MHz Vpol, Eff: 4.3%
2400.0MHz Vpol(E1-XZ), Max= -6.80dB
2400.0MHz Vpol(E2-YZ), Max= -13.17dB
Vpol(H-XY), Max= -10.77dB, CrD=11.31
2410.0MHz H+V, Eff: 8.2%
Back View
2410.0MHz Total(E1-XZ), Max= -6.98dB
2410.0MHz Total(E2-YZ), Max= -6.87dB
Total(H-XY), Max= -9.38dB, CrD=10.92
2410.0MHz Hpol, Eff: 4.8%
2410.0MHz Hpol(E1-XZ), Max= -11.63dB
2410.0MHz Hpol(E2-YZ), Max= -7.15dB
Hpol(H-XY), Max= -9.90dB, CrD=21.26
2410.0MHz Vpol, Eff: 3.4%
2410.0MHz Vpol(E1-XZ), Max= -7.71dB
2410.0MHz Vpol(E2-YZ), Max= -14.15dB
Vpol(H-XY), Max= -11.95dB, CrD=10.97
2420.0MHz H+V, Eff: 10.5%
Back View
2420.0MHz Total(E1-XZ), Max= -5.64dB
2420.0MHz Total(E2-YZ), Max= -5.82dB
Total(H-XY), Max= -8.36dB, CrD=10.82
2420.0MHz Hpol, Eff: 6.1%
2420.0MHz Hpol(E1-XZ), Max= -10.54dB
2420.0MHz Hpol(E2-YZ), Max= -5.89dB
Hpol(H-XY), Max= -8.80dB, CrD=21.19
2420.0MHz Vpol, Eff: 4.4%
2420.0MHz Vpol(E1-XZ), Max= -6.44dB
2420.0MHz Vpol(E2-YZ), Max= -13.11dB
Vpol(H-XY), Max= -10.78dB, CrD=10.50
2430.0MHz H+V, Eff: 10.7%
Back View
2430.0MHz Total(E1-XZ), Max= -5.28dB
2430.0MHz Total(E2-YZ), Max= -5.48dB
Total(H-XY), Max= -8.10dB, CrD=10.67
2430.0MHz Hpol, Eff: 6.2%
2430.0MHz Hpol(E1-XZ), Max= -10.55dB
2430.0MHz Hpol(E2-YZ), Max= -5.56dB
Hpol(H-XY), Max= -8.61dB, CrD=22.11
2430.0MHz Vpol, Eff: 4.5%
2430.0MHz Vpol(E1-XZ), Max= -6.14dB
2430.0MHz Vpol(E2-YZ), Max= -13.34dB
Vpol(H-XY), Max= -10.51dB, CrD=9.90
2440.0MHz H+V, Eff: 9.7%
Back View
2440.0MHz Total(E1-XZ), Max= -5.61dB
2440.0MHz Total(E2-YZ), Max= -5.84dB
Total(H-XY), Max= -8.42dB, CrD=10.18
2440.0MHz Hpol, Eff: 5.7%
2440.0MHz Hpol(E1-XZ), Max= -11.29dB
2440.0MHz Hpol(E2-YZ), Max= -5.94dB
Hpol(H-XY), Max= -8.93dB, CrD=22.57
2440.0MHz Vpol, Eff: 4.0%
2440.0MHz Vpol(E1-XZ), Max= -6.49dB
2440.0MHz Vpol(E2-YZ), Max= -14.05dB
Vpol(H-XY), Max= -10.68dB, CrD=9.47
2450.0MHz H+V, Eff: 11.5%
Back View
2450.0MHz Total(E1-XZ), Max= -4.66dB
2450.0MHz Total(E2-YZ), Max= -5.32dB
Total(H-XY), Max= -7.88dB, CrD=9.31
2450.0MHz Hpol, Eff: 6.6%
2450.0MHz Hpol(E1-XZ), Max= -10.43dB
2450.0MHz Hpol(E2-YZ), Max= -5.45dB
Hpol(H-XY), Max= -8.35dB, CrD=23.40
2450.0MHz Vpol, Eff: 4.9%
2450.0MHz Vpol(E1-XZ), Max= -5.55dB
2450.0MHz Vpol(E2-YZ), Max= -13.17dB
Vpol(H-XY), Max= -9.69dB, CrD=10.43
2460.0MHz H+V, Eff: 10.0%
Back View
2460.0MHz Total(E1-XZ), Max= -5.27dB
2460.0MHz Total(E2-YZ), Max= -6.05dB
Total(H-XY), Max= -8.58dB, CrD=8.66
2460.0MHz Hpol, Eff: 5.8%
2460.0MHz Hpol(E1-XZ), Max= -11.20dB
2460.0MHz Hpol(E2-YZ), Max= -6.23dB
Hpol(H-XY), Max= -8.97dB, CrD=24.66
2460.0MHz Vpol, Eff: 4.3%
2460.0MHz Vpol(E1-XZ), Max= -4.12dB
2460.0MHz Vpol(E2-YZ), Max= -13.63dB
Vpol(H-XY), Max= -10.20dB, CrD=11.36
2470.0MHz H+V, Eff: 13.7%
Back View
2470.0MHz Total(E1-XZ), Max= -3.93dB
2470.0MHz Total(E2-YZ), Max= -4.90dB
Total(H-XY), Max= -7.23dB, CrD=8.47
2470.0MHz Hpol, Eff: 7.8%
2470.0MHz Hpol(E1-XZ), Max= -10.05dB
2470.0MHz Hpol(E2-YZ), Max= -5.12dB
Hpol(H-XY), Max= -7.69dB, CrD=25.75
2470.0MHz Vpol, Eff: 5.9%
2470.0MHz Vpol(E1-XZ), Max= -4.73dB
2470.0MHz Vpol(E2-YZ), Max= -12.33dB
Vpol(H-XY), Max= -8.83dB, CrD=11.72
2480.0MHz H+V, Eff: 9.7%
Back View
2480.0MHz Total(E1-XZ), Max= -5.34dB
2480.0MHz Total(E2-YZ), Max= -6.50dB
Total(H-XY), Max= -8.60dB, CrD=8.29
2480.0MHz Hpol, Eff: 5.4%
2480.0MHz Hpol(E1-XZ), Max= -11.53dB
2480.0MHz Hpol(E2-YZ), Max= -6.74dB
Hpol(H-XY), Max= -9.33dB, CrD=27.54
2480.0MHz Vpol, Eff: 4.3%
2480.0MHz Vpol(E1-XZ), Max= -6.10dB
2480.0MHz Vpol(E2-YZ), Max= -13.73dB
Vpol(H-XY), Max= -10.16dB, CrD=12.29
2490.0MHz H+V, Eff: 14.9%
Back View
2490.0MHz Total(E1-XZ), Max= -3.36dB
2490.0MHz Total(E2-YZ), Max= -4.68dB
Total(H-XY), Max= -6.77dB, CrD=8.18
2490.0MHz Hpol, Eff: 8.3%
2490.0MHz Hpol(E1-XZ), Max= -9.59dB
2490.0MHz Hpol(E2-YZ), Max= -4.92dB
Hpol(H-XY), Max= -7.64dB, CrD=29.55
2490.0MHz Vpol, Eff: 6.6%
2490.0MHz Vpol(E1-XZ), Max= -4.10dB
2490.0MHz Vpol(E2-YZ), Max= -11.89dB
Vpol(H-XY), Max= -9.39dB, CrD=12.59
2500.0MHz H+V, Eff: 10.6%
Back View
2500.0MHz Total(E1-XZ), Max= -4.73dB
2500.0MHz Total(E2-YZ), Max= -5.96dB
Total(H-XY), Max= -8.39dB, CrD=7.68
2500.0MHz Hpol, Eff: 5.9%
2500.0MHz Hpol(E1-XZ), Max= -11.09dB
2500.0MHz Hpol(E2-YZ), Max= -6.27dB
Hpol(H-XY), Max= -11dB, CrD=30.81
2500.0MHz Vpol, Eff: 4.7%
2500.0MHz Vpol(E1-XZ), Max= -5.45dB
2500.0MHz Vpol(E2-YZ), Max= -12.88dB
Vpol(H-XY), Max= -10.08dB, CrD=13.26

广州冬麦科技有限责任公司

智能手表蓝牙天线承认书

SPECIFICATION FOR APPROVAL

客 户 名 称

CUSTOMER NAME：

产 品 名 称

RODUCT NAME：Norm2

料号P/N: AP1000 REV:B

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
CHECKED BY	杨小凤	
APPROVED BY	谷伟	
DATE	2025-6-12	

产品主要技术参数

主要技术指标		Main technical specifications	
频率范围（MHZ）	2.4G	Frequency Range (MHz)	2402-2480
中心频率特性阻抗(Ω)	50±10	Center frequency Impedance(Ω)	50±10
增益(dBi)	0±0.5	Peak Gain(dBi)	0±0.5
输出电压驻波比	<2.0	VSWR	<2.0
极化方式	垂直极化	Polarization	Linear,Vertical
方向性	全向性	Radiation	Omni-directional
连接方式	FPC	Connector Type	FPC routing
物理性能		Physical Properties	
天线本体材料	Copper	Antenna Base	Copper
天线走线材料	Copper	Antenna cover	Copper
工作温度	-20℃~+60℃	Operating Temp	-20℃~+60℃
保存温度	-20℃~+70℃	Storage Temp	-20℃~+70℃