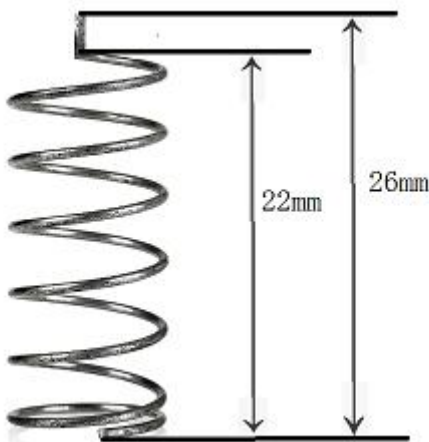


Antenna Spec

1. Antenna describe:

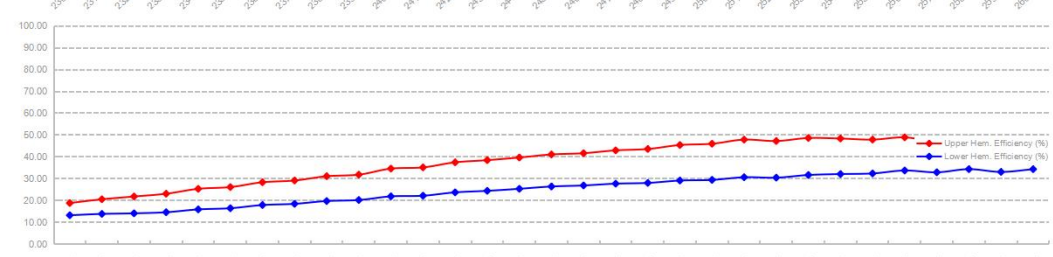
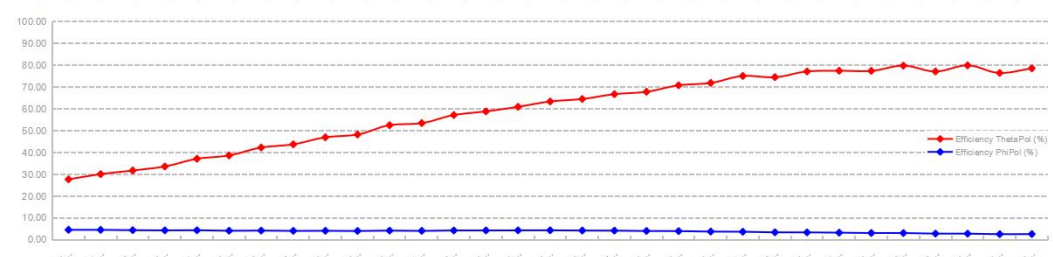
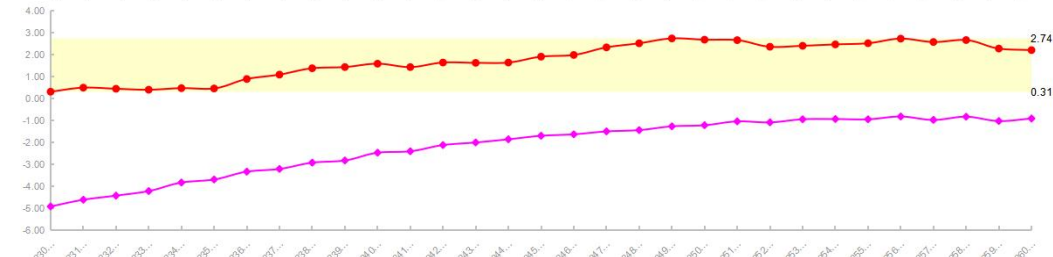
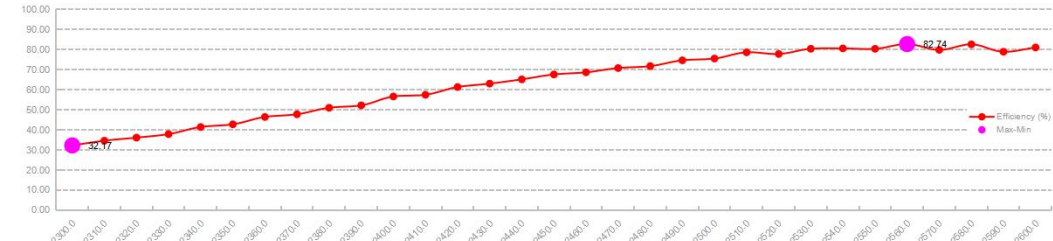
Anetenna Type	Spring antenna
Model name	HX-AP24-1089-D1
Anetenna gain	2.68 dBi (Max)
Frequency range	2400-2500 MHz
Connector type	direct
Manufacturer	SHENZHEN HYPERSYNES CO.,LTD
Address	Building 50, Ailian Industrial Zone, Wulian Community, LonggangStreet, Longgang District, Shenzhen

2. Picture of antenna:



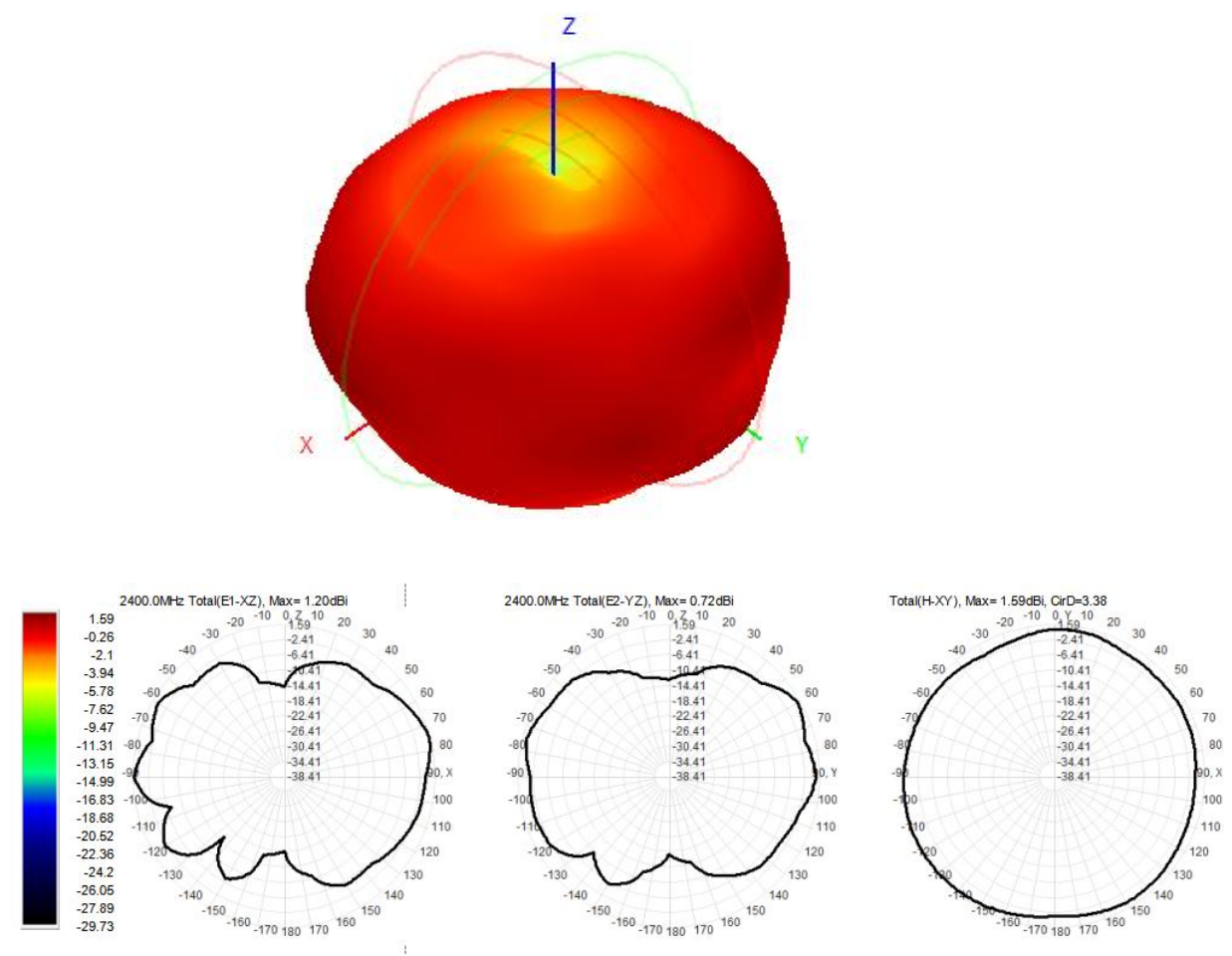
Test Data

Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Frequency (MHz)	2300.0	2310.0	2320.0	2330.0	2340.0	2350.0	2360.0	2370.0	2380.0	2390.0	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0	2510.0	2520.0	2530.0	2540.0	2550.0	2560.0	2570.0	2580.0	2590.0	2600.0
Efficiency (dBi)	-4.93	-4.62	-4.43	-4.22	-3.83	-3.70	-3.34	-3.21	-2.93	-2.83	-2.47	-2.41	-2.13	-2.01	-1.86	-1.70	-1.63	-1.50	-1.44	-1.27	-1.22	-1.05	-1.09	-0.95	-0.94	-0.82	-0.98	-0.83	-1.03	-0.91	
Gain (dBi)	0.31	0.49	0.44	0.40	0.47	0.46	0.89	1.09	1.38	1.43	1.59	1.43	1.64	1.63	1.64	1.91	1.99	2.33	2.52	2.74	2.68	2.66	2.36	2.40	2.47	2.52	2.73	2.58	2.67	2.28	2.21
Efficiency (%)	32.17	34.51	36.04	37.81	41.36	42.69	46.36	47.71	50.95	52.15	56.58	57.43	61.30	62.99	65.13	67.58	68.63	70.76	71.73	74.63	75.51	78.61	77.80	80.38	80.57	80.36	82.74	79.84	82.59	78.90	81.04
Directivity (dB)	5.23	5.11	4.88	4.62	4.31	4.15	4.23	4.30	4.31	4.26	4.06	3.84	3.77	3.63	3.50	3.61	3.62	3.83	3.96	4.01	3.90	3.71	3.45	3.35	3.40	3.47	3.55	3.55	3.50	3.31	3.12
Peak Gain Position (Theta)	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	75.00	75.00	75.00	75.00	90.00	90.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00
Peak Gain Position (Phi)	210.00	195.00	195.00	195.00	195.00	195.00	210.00	210.00	210.00	210.00	195.00	345.00	345.00	345.00	345.00	210.00	195.00	0.00	0.00	345.00	345.00	345.00	0.00	0.00	0.00	0.00	345.00	345.00	345.00	345.00	345.00
Efficiency ThetaPol (%)	27.65	30.02	31.68	33.53	37.04	38.59	42.20	43.67	46.88	48.15	52.43	53.38	57.07	58.76	60.85	63.28	64.44	66.62	67.73	70.69	71.79	74.97	74.41	77.03	77.35	77.30	79.70	77.04	79.83	76.36	78.46
Efficiency PhiPol (%)	4.52	4.50	4.36	4.28	4.32	4.11	4.16	4.04	4.07	4.00	4.15	4.05	4.22	4.23	4.28	4.30	4.19	4.14	4.00	3.94	3.72	3.64	3.39	3.35	3.22	3.06	3.04	2.80	2.76	2.54	2.58
Upper Hem. Efficiency (%)	18.87	20.61	21.87	23.14	25.39	26.19	28.39	29.19	31.16	31.88	34.64	35.21	37.53	38.51	39.72	41.13	41.70	43.00	43.63	45.45	46.03	47.92	47.29	48.66	48.42	47.93	48.96	46.87	48.19	45.76	46.66
Lower Hem. Efficiency (%)	13.29	13.90	14.17	14.67	15.97	16.50	17.97	18.52	19.80	20.27	21.94	22.23	23.77	24.47	25.41	26.45	26.93	27.76	28.10	29.18	29.48	30.69	30.51	31.72	32.15	32.43	33.78	32.96	34.40	33.14	34.39
T90(H) 圓度	6.27	6.01	5.78	5.54	5.04	4.62	4.20	3.81	3.57	3.69	3.38	2.96	2.86	2.69	3.04	3.70	4.25	4.51	4.31	3.80	3.30	2.98	2.87	2.97	3.13	3.24	3.13	2.80	2.40	2.15	2.15
Gain 15deg (dBi)																															
E1(XZ) 波瓣寬度	19.00	19.00	19.00	19.00	20.00	22.00	23.00	24.00	24.00	24.00	23.00	50.00	52.00	51.00	52.00	30.00	27.00	26.00	25.00	27.00	33.00	45.00	50.00	52.00	52.00	52.00	50.00	50.00	52.00	55.00	58.00
E1(XZ) 前後比	4.90	5.25	5.39	5.49	5.44	5.51	5.61	5.88	6.31	6.67	6.91	7.04	7.02	7.02	7.09	7.42	7.88	8.55	8.77	8.78	8.54	8.48	8.37	8.55	8.71	8.84	8.85	8.66	8.33	8.16	7.86
E2(YZ) 波瓣寬度	35.00	30.00	30.00	25.00	29.00	42.00	48.00	53.00	55.00	56.00	56.00	56.00	57.00	58.00	57.00	59.00	62.00	68.00	74.00	79.00	82.00	75.00	73.00	74.00	75.00	76.00	76.00	75.00	73.00		
E2(YZ) 前後比	6.13	6.31	6.67	7.07	6.96	6.77	6.40	6.32	6.38	6.49	6.70	6.59	6.26	5.90	6.13	6.25	6.41	6.40	6.22	6.20	6.31	6.41	6.45	6.38	6.25	6.40	6.48	6.71	6.72	6.62	6.44
最大增益軸比(P)	14.45	22.44	24.19	26.70	27.33	28.12	18.27	18.92	19.52	20.22	35.39	30.05	31.44	29.48	25.89	17.64	24.45	20.37	20.85	19.96	20.74	21.15	20.61	25.05	24.61	26.76	31.00	26.91	30.62	35.31	34.44
頂點(Theta=0) 軸比(P)	1.62	4.13	7.48	10.70	13.84	17.51	27.82	34.22	17.55	13.35	11.23	8.79	7.96	6.80	6.05	5.34	5.36	6.14	6.29	7.06	7.93	8.23	8.47	9.17	10.21	10.41	10.62	11.30	10.20	8.96	8.28
仰角10度垂直(大) 軸比(P)	61.13	90.82	67.43	57.84	55.52	72.39	59.73	69.72	62.04	51.02	72.81	63.91	68.01	59.85	52.86	51.53	98.13	64.27	77.38	93.82	76.91	78.44	61.67	73.47	90.46	75.24	60.35	64.63	72.51	67.57	62.09
Hc(XY) 波瓣寬度	112.00	114.00	117.00	122.00	130.00	329.00	136.00	137.00	137.00	139.00	143.00	360.00	360.00	360.00	354.00	321.00	312.00	309.00	316.00	329.00	339.00	360.00	360.00	360.00	360.00	343.00	340.00	343.00	360.00	360.00	360.00
Hc(XY) 前後比	1.42	1.50	1.49	1.39	1.14	0.82	0.72	0.81	0.99	1.24	1.36	1.21	0.79	0.66	0.58	0.65	0.75	0.99	1.15	0.82	0.47	0.18	0.06	0.14	0.36	0.63	0.72	0.51	0.17	0.00	0.00
左側圓極化效率 (%)	17.36	18.50	19.22	20.11	21.64	21.88	23.40	23.72	25.20	26.04	28.27	28.42	30.17	31.02	31.99	33.54	34.56	35.92	36.63	38.12	38.55	40.13	39.81	41.63	41.89	41.79	43.11	41.08	42.01	40.23	41.04
右側圓極化效率 (%)	14.81	16.01	16.82	17.69	19.72	20.82	22.96	23.99	25.75	26.10	28.31	29.01	31.12	31.97	33.13	34.04	34.07	34.84	35.10	36.51	36.96	38.48	37.99	38.75	38.68	38.57	39.63	38.76	40.58	38.67	40.00
Empty																															

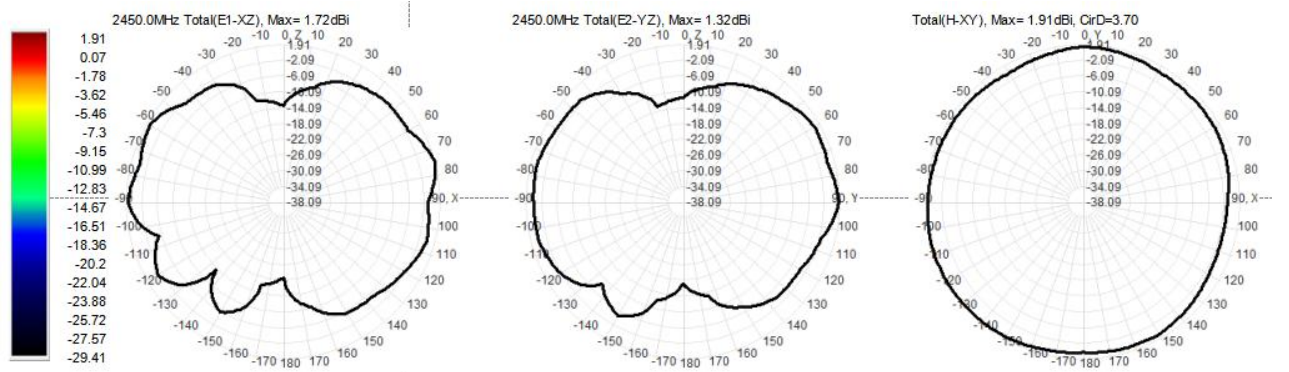
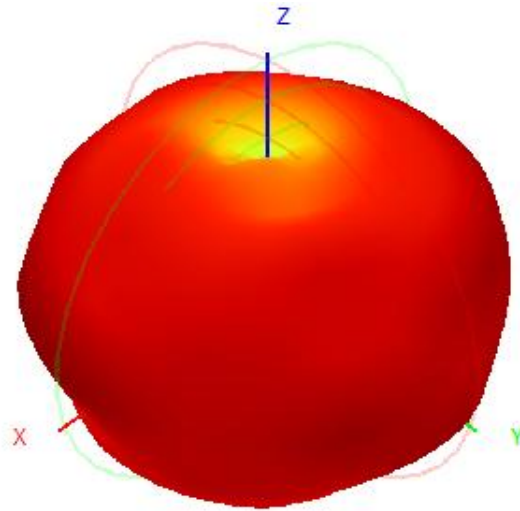


3. Antenna Radiation Pattern

2400.0MHz H+V, Eff: 56.6%



2450.0MHz H+V, Eff: 67.6%



2500.0MHz H+V, Eff: 75.5%

