

Specification

Customer Name:Yuyao Sunny Optical Intelligence Technology Co., Ltd.

Customer Part- No: ANT8904578004985

Kexin Part- No: ACH547

Spec Description: Dual- band elbow black stubby antenna / L=50MM / Elbow
(RP-SMA- J)

Date of Issue: 2023

Factory Acceptance

Department	Review	Approval
RF Department	Liu Jingxiong	Li Bin
Mechanical Department	Xie Dongzhan	Li Bin
Quality Department	Wang Fei	Li Bin

Customer Acceptance

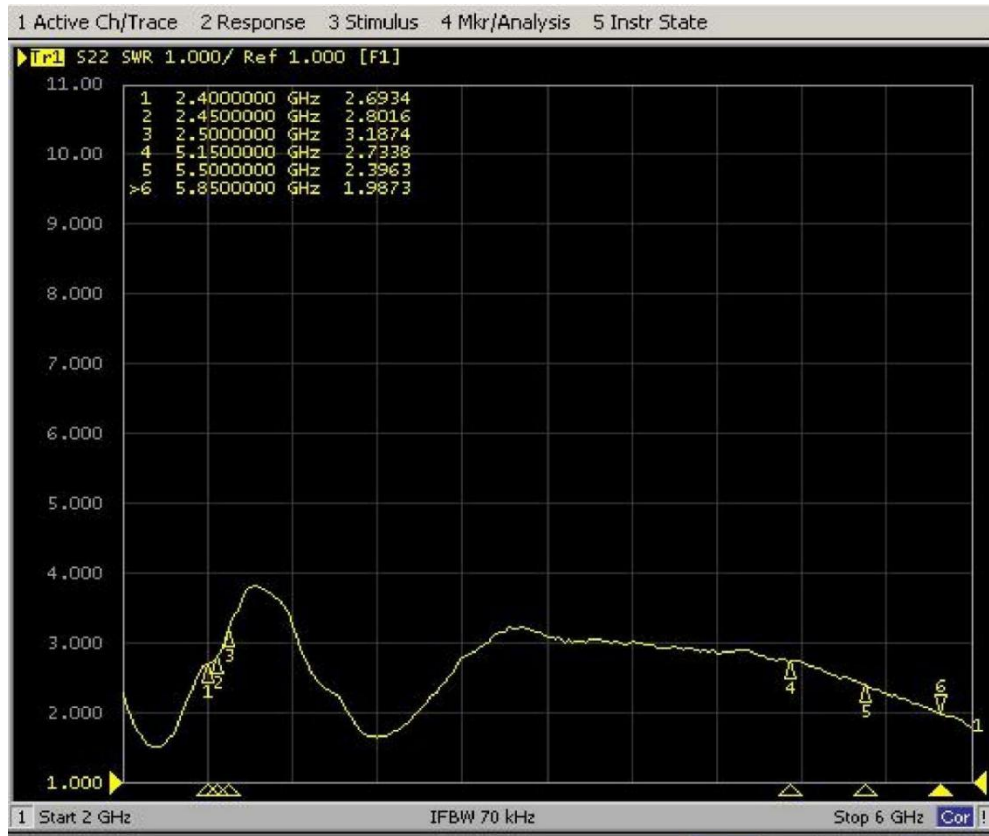
Inspection	Review	Approval

Product image



Refer to the attached VSWR test plot.

VSWR:



Product Performance Specifications

Electrical Specifications:

Item	Parameter
Frequency Range (MHz)	2400- 2500 / 5150- 5850
Input Impedance (Ω)	50
V.S.W.R	≤ 2.5 (Reference only, without matching device)
Gain (dBi)	2.0 ± 0.5 (Reference only, without matching device)
Max. Gain	2.03 dBi
Antenna Type	Rod antenna

Item	Parameter
Polarization Type	Vertical
Maximum Power (W)	10
Vertical Lobe Angle (E- plane)	45~60°
Horizontal Lobe Angle (H- plane)	360°

Mechanical Specifications

Item	Parameter
Connector Type	RP-SMA- J (right- angle elbow)
Cable Type	N/A
Antenna Dimension	50 * Φ15 mm
Operating Temperature	-20 ~ +65 °C
Storage Temperature	-30 ~ +75 °C

Far- Field Radiation Test Raw Data

Frequency ID	1	2	3	4	5	6	7
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0
Efficiency (dBi)	-2.36	-2.45	-2.54	-2.46	-2.53	-2.73	-2.87
Gain (dBi)	1.01	0.87	0.90	1.12	0.98	0.55	0.47
Efficiency (%)	58.09	56.85	55.68	56.76	55.82	53.39	51.67
Directivity (dB)	3.36	3.32	3.45	3.58	3.51	3.27	3.33
Peak Gain Position (Theta)	103.00	102.00	82.00	82.00	81.00	79.00	148.00
Peak Gain Position (Phi)	28.00	29.00	53.00	56.00	59.00	83.00	143.00
Efficiency ThetaPol (%)	33.75	33.20	32.75	33.68	33.46	32.22	31.22
Efficiency PhiPol (%)	24.35	23.65	22.93	23.08	22.36	21.17	20.45
Upper Hem. Efficiency (%)	30.74	30.28	29.84	30.78	30.34	28.84	27.59
Lower Hem. Efficiency (%)	27.36	26.57	25.84	25.98	25.48	24.55	24.07
VER7							
T90(H) Circularity	3.43	3.82	4.23	4.66	4.84	4.72	4.22
Gain 15deg (dBi)							
E1(XZ) Beamwidth	109.00	113.00	116.00	120.00	120.00	122.00	122.00
E1(XZ) Front-to-Back Ratio	1.25	1.14	0.90	0.53	0.50	0.49	0.49
E2(YZ) Beamwidth	59.00	54.00	49.00	53.00	56.00	57.00	57.00
E2(YZ) Front-to-Back Ratio	3.09	3.41	3.58	3.60	3.45	3.31	3.14
Axial Ratio @ Peak Gain (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Worst-case Axial Ratio @ 10° Elevation (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Hc(XY) Beamwidth	294.00	281.00	271.00	263.00	254.00	250.00	251.00
Hc(XY) Front-to-Back Ratio	2.94	3.20	3.29	3.42	3.49	3.47	3.34

Frequency ID	8	9	10	11	12	13	14
Frequency (MHz)	2470.0	2480.0	2490.0	2500.0	5150.0	5170.0	5190.0
Efficiency (dBi)	-2.99	-3.05	-3.01	-2.71	-2.19	-2.38	-2.46
Gain (dBi)	0.46	0.42	0.30	0.31	1.09	1.11	1.13
Efficiency (%)	50.21	49.60	50.05	53.57	60.35	57.76	56.74
Directivity (dB)	3.45	3.46	3.31	3.02	3.28	3.50	3.59
Peak Gain Position (Theta)	148.00	148.00	148.00	148.00	91.00	90.00	90.00
Peak Gain Position (Phi)	144.00	145.00	146.00	147.00	138.00	237.00	236.00
Efficiency ThetaPol (%)	30.23	29.71	29.97	32.22	54.38	52.01	51.07
Efficiency PhiPol (%)	19.99	19.89	20.08	21.35	5.97	5.75	5.67
Upper Hem. Efficiency (%)	26.45	25.73	25.86	27.65	28.52	26.91	26.34
Lower Hem. Efficiency (%)	23.76	23.87	24.19	25.92	31.83	30.85	30.40
VER7							
T90(H) Circularity	3.59	3.23	3.32	3.67	1.50	1.48	1.53
Gain 15deg (dBi)							

E1(XZ) Beamwidth	122.00	119.00	118.00	117.00	80.00	81.00	75.00
E1(XZ) Front-to-Back Ratio	0.48	0.43	0.38	0.34	6.70	6.37	6.04
E2(YZ) Beamwidth	55.00	53.00	52.00	53.00	63.00	54.00	55.00
E2(YZ) Front-to-Back Ratio	3.11	3.17	3.35	3.73	7.97	8.17	7.78
Axial Ratio @ Peak Gain (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Worst-case Axial Ratio @ 10° Elevation (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Hc(XY) Beamwidth	259.00	287.00	278.00	262.00	360.00	360.00	360.00
Hc(XY) Front-to-Back Ratio	3.15	3.03	3.02	3.28	0.22	0.02	0.04

Frequency ID	15	16	17	18	19	20	21
Frequency (MHz)	5210.0	5230.0	5250.0	5270.0	5290.0	5310.0	5330.0
Efficiency (dBi)	-2.45	-2.31	-2.21	-2.11	-2.16	-2.51	-2.72
Gain (dBi)	1.03	1.00	1.07	1.15	1.21	1.01	1.08
Efficiency (%)	56.84	58.75	60.15	61.51	60.87	56.08	53.51
Directivity (dB)	3.49	3.31	3.28	3.26	3.37	3.52	3.79
Peak Gain Position (Theta)	89.00	83.00	103.00	100.00	86.00	92.00	92.00
Peak Gain Position (Phi)	232.00	226.00	141.00	138.00	17.00	234.00	232.00
Efficiency ThetaPol (%)	51.31	53.17	54.41	55.59	54.97	50.70	48.50
Efficiency PhiPol (%)	5.52	5.58	5.74	5.92	5.89	5.38	5.01
Upper Hem. Efficiency (%)	26.62	27.77	28.27	28.41	28.03	25.94	24.75
Lower Hem. Efficiency (%)	30.22	30.98	31.88	33.10	32.84	30.14	28.75
VER7							
T90(H) Circularity	1.57	1.63	1.63	1.60	1.43	1.62	1.76
Gain 15deg (dBi)							
E1(XZ) Beamwidth	72.00	78.00	79.00	79.00	78.00	78.00	81.00
E1(XZ) Front-to-Back Ratio	6.16	6.46	6.67	6.65	6.48	6.07	6.03
E2(YZ) Beamwidth	60.00	69.00	75.00	74.00	67.00	59.00	59.00
E2(YZ) Front-to-Back Ratio	7.92	8.35	8.43	8.25	8.09	8.49	8.41
Axial Ratio @ Peak Gain (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Worst-case Axial Ratio @ 10° Elevation (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Hc(XY) Beamwidth	360.00	360.00	360.00	360.00	360.00	360.00	360.00
Hc(XY) Front-to-Back Ratio	0.12	0.18	0.31	0.51	0.33	0.19	0.26

Frequency ID	22	23	24	25	26	27	28
Frequency (MHz)	5350.0	5370.0	5390.0	5410.0	5430.0	5450.0	5470.0
Efficiency (dBi)	-2.62	-2.42	-2.36	-2.08	-2.07	-2.37	-2.57
Gain (dBi)	1.10	1.12	1.06	1.14	1.23	1.07	0.97
Efficiency (%)	54.74	57.33	58.05	61.97	62.03	57.97	55.28
Directivity (dB)	3.71	3.54	3.42	3.22	3.31	3.44	3.54
Peak Gain Position (Theta)	90.00	85.00	98.00	103.00	100.00	98.00	96.00
Peak Gain Position (Phi)	228.00	222.00	158.00	137.00	287.00	235.00	231.00
Efficiency ThetaPol (%)	49.79	52.16	52.68	56.13	56.15	52.56	50.37
Efficiency PhiPol (%)	4.95	5.17	5.37	5.84	5.88	5.41	4.91
Upper Hem. Efficiency (%)	25.44	26.74	26.90	28.58	28.89	27.37	26.05
Lower Hem. Efficiency (%)	29.30	30.59	31.15	33.39	33.14	30.60	29.23

VER7

T90(H) Circularity	1.56	1.60	1.69	1.71	1.58	1.62	1.71
Gain 15deg (dBi)							
E1(XZ) Beamwidth	74.00	73.00	75.00	78.00	78.00	77.00	77.00
E1(XZ) Front-to-Back Ratio	6.54	6.81	6.80	6.78	6.45	6.20	6.15
E2(YZ) Beamwidth	67.00	74.00	77.00	76.00	73.00	69.00	71.00
E2(YZ) Front-to-Back Ratio	8.31	8.32	8.55	8.71	8.74	8.57	8.27
Axial Ratio @ Peak Gain (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Worst-case Axial Ratio @ 10° Elevation (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Hc(XY) Beamwidth	360.00	360.00	360.00	360.00	360.00	360.00	360.00
Hc(XY) Front-to-Back Ratio	0.35	0.27	0.12	0.16	0.43	0.41	0.35

Frequency ID	29	30	31	32	33	34	35
Frequency (MHz)	5490.0	5510.0	5530.0	5550.0	5570.0	5590.0	5610.0
Efficiency (dBi)	-2.56	-2.19	-2.17	-2.04	-2.10	-2.20	-2.35
Gain (dBi)	1.02	1.40	1.37	1.22	1.18	1.22	1.14
Efficiency (%)	55.47	60.36	60.63	62.58	61.73	60.30	58.23
Directivity (dB)	3.58	3.59	3.54	3.25	3.27	3.42	3.49
Peak Gain Position (Theta)	91.00	87.00	86.00	86.00	104.00	98.00	94.00
Peak Gain Position (Phi)	225.00	221.00	218.00	217.00	287.00	228.00	224.00
Efficiency ThetaPol (%)	50.67	54.96	54.87	56.39	55.60	54.48	52.74
Efficiency PhiPol (%)	4.80	5.39	5.76	6.19	6.13	5.82	5.49
Upper Hem. Efficiency (%)	25.91	28.05	28.14	29.12	28.83	28.24	27.49

Lower Hem. Efficiency (%)	29.56	32.31	32.49	33.46	32.90	32.05	30.74
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VER7

T90(H) Circularity	1.55	2.14	2.30	1.84	1.81	1.83	1.74
Gain 15deg (dBi)							
E1(XZ) Beamwidth	73.00	73.00	73.00	75.00	79.00	78.00	74.00
E1(XZ) Front-to-Back Ratio	6.63	6.69	6.80	6.81	6.41	6.32	6.39
E2(YZ) Beamwidth	76.00	82.00	84.00	83.00	81.00	80.00	77.00
E2(YZ) Front-to-Back Ratio	8.28	8.74	9.35	9.65	9.55	8.98	9.00
Axial Ratio @ Peak Gain (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Worst-case Axial Ratio @ 10° Elevation (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Hc(XY) Beamwidth	360.00	360.00	360.00	360.00	360.00	360.00	360.00
Hc(XY) Front-to-Back Ratio	0.20	0.07	0.19	0.36	0.69	0.65	0.42

Frequency ID	36	37	38	39	40	41	42
Frequency (MHz)	5630.0	5650.0	5670.0	5690.0	5710.0	5730.0	5750.0
Efficiency (dBi)	-2.37	-2.08	-1.88	-1.73	-1.80	-1.75	-1.85
Gain (dBi)	1.30	1.74	1.73	1.74	1.58	1.61	1.46
Efficiency (%)	57.89	61.95	64.84	67.08	66.12	66.79	65.33
Directivity (dB)	3.67	3.82	3.62	3.48	3.38	3.36	3.31
Peak Gain Position (Theta)	90.00	88.00	87.00	93.00	92.00	103.00	97.00
Peak Gain Position (Phi)	220.00	218.00	216.00	155.00	152.00	229.00	222.00
Efficiency ThetaPol (%)	52.47	55.97	58.30	60.28	59.57	60.34	59.17
Efficiency PhiPol (%)	5.41	5.98	6.54	6.80	6.55	6.45	6.16
Upper Hem. Efficiency (%)	27.48	29.43	30.62	30.97	29.97	30.64	30.98
Lower Hem. Efficiency (%)	30.41	32.52	34.23	36.11	36.15	36.16	34.35

VER7

T90(H) Circularity	1.82	2.24	2.30	2.09	2.25	1.95	1.66
Gain 15deg (dBi)							
E1(XZ) Beamwidth	70.00	64.00	63.00	69.00	73.00	77.00	78.00
E1(XZ) Front-to-Back Ratio	6.56	7.15	7.66	7.31	6.48	5.73	5.67
E2(YZ) Beamwidth	74.00	83.00	87.00	84.00	85.00	87.00	90.00
E2(YZ) Front-to-Back Ratio	9.51	9.86	9.81	9.85	9.48	9.11	9.10
Axial Ratio @ Peak Gain (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Worst-case Axial Ratio @ 10° Elevation (P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Hc(XY) Beamwidth	360.00	360.00	360.00	360.00	360.00	360.00	360.00
Hc(XY) Front-to-Back Ratio	0.28	0.42	0.64	1.11	1.42	1.05	0.37

Frequency ID	43	44	45	46	47
Frequency (MHz)	5770.0	5790.0	5810.0	5830.0	5850.0
Efficiency (dBi)	-1.84	-1.76	-1.68	-1.59	-1.55
Gain (dBi)	1.73	1.86	2.03	1.87	1.94
Efficiency (%)	65.50	66.61	67.89	69.26	69.97
Directivity (dB)	3.56	3.63	3.71	3.47	3.49
Peak Gain Position (Theta)	90.00	87.00	88.00	89.00	92.00
Peak Gain Position (Phi)	310.00	215.00	213.00	177.00	149.00
Efficiency ThetaPol (%)	59.36	60.16	61.09	62.41	63.20
Efficiency PhiPol (%)	6.14	6.45	6.79	6.86	6.77
Upper Hem. Efficiency (%)	31.70	32.54	33.07	33.20	32.94
Lower Hem. Efficiency (%)	33.80	34.07	34.82	36.06	37.03

VER7

T90(H) Circularity	2.09	2.30	2.61	2.43	2.11
Gain 15deg (dBi)					
E1(XZ) Beamwidth	74.00	71.00	63.00	62.00	70.00
E1(XZ) Front-to-Back Ratio	6.24	6.81	7.29	7.51	7.07
E2(YZ) Beamwidth	87.00	90.00	96.00	93.00	91.00
E2(YZ) Front-to-Back Ratio	9.81	9.96	9.81	10.18	10.02
Axial Ratio @ Peak Gain (P)	1.50	1.50	1.50	1.50	1.50
Worst-case Axial Ratio @ 10° Elevation (P)	1.50	1.50	1.50	1.50	1.50
Hc(XY) Beamwidth	360.00	360.00	360.00	360.00	360.00
Hc(XY) Front-to-Back Ratio	0.35	0.40	0.84	1.20	1.43

Radiation pattern plots:

