深圳市红心科技电子有限公司

SPECIFICATION FOR APPROVAL

	Company Name:		
	Item Name:	915M glue stick as	ntenna
	Stock Number:	HX-AP915-20713	3-D2
	Customer Mate	erial Number:	
	Specification	: See specifica	ation
	Date:	2020-07-01	
			-33
Customer	countersign:		
Engineer	ing Department	Quality Department	ratify
	W		

Engineering	Department	Quality Department	ratify	
Weifeng	Zhuang	Huan Zhang	Lu Liu	
17		XXXX	SK.	1
XX	15			W
	7.E			

Shenzhen Hongxin Technology Electronics Co., Ltd.:

: Antenna Parameter

·		
Design Specifications	Typical	Units
Antenna form	glue stick antenna	
working Frequency	915±2	MHZ
Gain	8	DBi
Antenna efficiency	35~80	%
VSWR	<1.8	3
Ploriaztion	Vertical polarization	4
Radiation pattern	omnibearing	
impedance	50	ohm
Power handling	33	dbm
Interface	RPSMA	N/A
Overal dimensions	207*13	mm
Weight	no requirement	\$ P
Operatin Temp	-30-70	°C
Storing Temp	-30-70	°C

二: Antenna diagram



Note: 1. The antenna parameters are tested in a simulated environment, and performance may vary for different products.

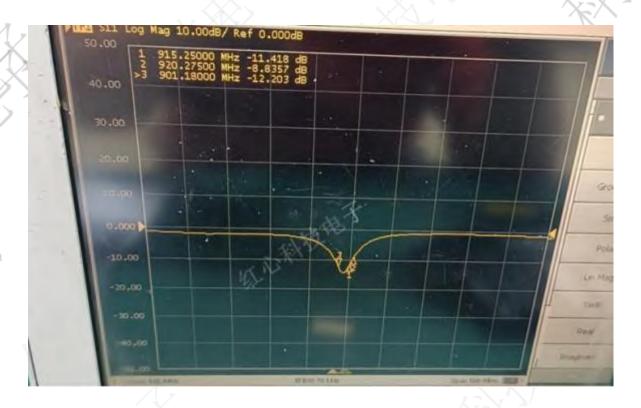
2. The antenna functionality is quite sensitive; please inform us for evaluation if there are any changes to the surrounding structure.

三、VSWR/Return Loss/Smith Chart

VSWR



Return Loss



Smith Chart

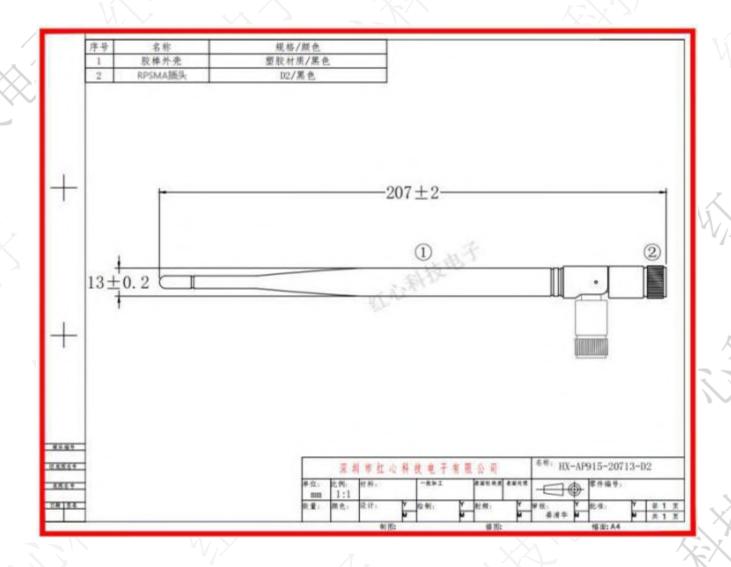


4: Storage environment

operating temperature: $-30 \text{ to } 70^{\circ} \text{ C}$

storage temperature: $-30 \text{ to } 70^{\circ} \text{ C}$

5: dimensions



Test Data:

Frequency ID	1	2	3	4	技有的	- 6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Frequency (MHz)	800	802	804	806	808	610	812	814	816	818	820	822	824	826	828	830	832	834	836	638
Efficiency (dBi)	-8.83	-8.74	-8.66	-8.58	-8.49	-8.31	-6.22	-8.05	-7.85	-7.68	-7,56	-7.27	-7.12	-7.02	-6.89	-6.72	-6.64	-6.42	-6.17	-5.93
Gain (dBi)	-4.30	-4.42	4.45	-4.54	-4,52	-4.60	-4.69	-4.65	4.57	4.45	-4.37	-4.12	-4.06	-4.00	-3.93	-3.84	-3.79	-3.56	-3.25	-3.0
Efficiency (%)	13.08	13.36	13.60	13.87	14.15	14.76	15.05	15.66	16.39	17.06	17.55	18.74	19.40	19.86	20.48	21.28	21.68	22.80	24.13	25.54
Directivity (dB)	4.53	4.33	4.21	4.04	3.97	3.70	3.54	3.40	3.29	3,23	3.18	3.15	3.07	3.02	2.95	2,88	2,85	2.86	2.92	2.92
Peak Gain Position (Theta)	135.00	135.00	135,00	135.00	135,00	135.00	135.00	135.00	150,00	150.00	150.00	150.00	150.00	150.00	150.00	150,00	105.00	105,00	105.00	105.00
Peak Gain Position (Phi)	300.00	300.00	285,00	285,00	285,00	265.00	285.00	165.00	285.00	165,00	165,00	165,00	165.00	165.00	165.00	165.00	15,00	0.00	0.00	0.00
Efficiency ThetaPol (%)	8.62	8.90	9,15	9.44	9.73	10.22	10.52	11.05	11.73	12,35	12,89	13.95	14.61	15.14	15.81	16,60	17.13	18,22	19.51	20.87
Efficiency PhiPal (%)	4.47	4.45	4,44	4.43	4,43	4.54	4.53	4.58	4.66	4.71	4.67	4.80	4.79	4.72	4.67	4.67	4.55	4.57	4.52	4.67
Upper Hem. Efficiency (%)	5.22	5.44	5.65	5.88	6.12	6.52	6.77	7.18	7.66	E.10	8.48	9.21	9.69	10.06	10.52	11.07	11.42	12.16	12.99	13.88
Lower Hem. Efficiency (%)	7.87	7.92	7.95	7.99	9.03	8.24	8.28	8.49	8.73	B.96	9.07	9.54	9.71	9.80	9.96	10.21	10.26	10.64	11.13	11.66
T90(H)Mig	5.18	5.00	5.04	4,89	4.70	4.62	4.51	4.57	4,63	4,57	4,48	4,38	4.40	4.23	4.20	4,11	4,04	3.91	3.84	3.71
Gain 15deg (dBi)	10.00	- 17 W							5000			50.1	Esci.							
E1(XZ)該關軍座	38.00	38.00	37.00	37:00	38.00	38.00	38.00	38.00	38.00	37.00	37.00	37.00	36.00	36.00	36.00	35.00	75.00	74.00	73.00	73.00
E1(XZ) 前标比	0.46	0.40	0.29	0.23	0.21	0.18	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.19	0.36	0.44
E2(YZ)被耐宽度	38.00	38.00	38.00	38,00	38,00	38.00	38.00	38.00	38.00	37,00	37.00	36.00	36.00	35.00	35.00	75.00	74,00	73.00	73.00	73.00
E2(YZ)前后比	0.35	0.36	0,25	0,19	0.11	0.09	0.00	0.00	0.00	0,00	0.00	0,00	0.00	0.00	0.00	0.10	0,37	0.66	0.91	1.13
最大增益处辅比(P)	6.45	6.45	7.22	7.12	7,15	7.21	7.26	9.95	5.82	12.17	12,41	12.40	12.54	12.70	12.99	13,14	11.54	9,87	10.39	10.76
原点(Theta=0)处辅比(P)	40.04	35.48	28,32	34.78	28,06	26.55	26.28	26.94	29.43	26,02	25.34	29.09	31.83	29.90	28.77	32.70	35,98	37,58	47.27	44.98
伸角10度最亮(大)轴比(P)	49.24	49.22	49.75	50.15	50.32	64.93	56.24	54.71	55.13	55.78	55.23	67.37	52.88	68.74	56.26	59.00	57.04	62.78	60.00	54.28
Hc(XY)被壓電燈	276.00	279.00	280.00	280.00	284.00	285.00	283.00	284.00	284.00	265.00	285.00	288.00	2B2.00	286.00	285.00	289,00	288.00	293.00	293.00	297.00
Hc(XY)而后比	0.35	0.29	0.38	0,39	0.40	0.37	0.45	0.38	0.44	0.48	0.51	0.43	0.46	0.44	0.41	0.35	0,39	0.29	0.33	0.24
左旋铜版化效率(%)	7.57	7.67	7.78	7.89	8.01	8.29	8.42	8.72	9.08	9,40	9,65	10.26	10.56	10.82	11.10	11,49	11,70	12,27	13.03	13.79
右旋圆板化效率(%)	5.51	5.68	5.82	5.98	6.14	6.47	6.63	6.94	7.31	7.65	7.91	8.48	8.81	9.04	9.38	9.78	9.98	10.52	11.10	11.75



Frequency ID	- 21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Frequency (MHz)	840	842	844	846	848	850	852	854	856	858	860	862	564	866	868	870	872	874	876	878
Efficiency (dBi)	-5.65	-5.33	-5.15	-5.00	-4.82	-4.69	-4.58	-4.39	-4.23	-4.10	-3.58	-3.72	-3.61	-3.47	-3.32	-3.32	-3.26	-3.17	-3.13	-3.09
Gain (dBi)	-2.71	-2.39	-2.22	-2.04	-1.87	-1.78	-1.69	-1.52	-1.29	-1.09	-0.91	-0.58	-0.41	-0.21	-0.02	0.03	0.15	0.27	0.35	0.43
Efficiency (%)	27.24	29.32	30.52	31.65	32.97	33,99	34.80	36.39	37.77	38.88	40.92	42.51	43.53	45.01	46.59	46.52	47.20	48.16	48.64	49.11
Directivity (dB)	2.94	2.93	2,93	2,95	2,95	2.90	2.90	2.87	2,94	3,01	3,07	3.14	3.20	3.25	3.30	3,35	3,41	3.44	3.48	3.52
Peak Gain Position (Theta)	105.00	105.00	105,00	105.00	105,00	105,00	105.00	105.00	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)	0.00	0.00	15,00	0.00	0.00	15.00	0.00	0.00	270.00	270,00	270,00	270.00	255.00	255.00	255.00	240.00	240,00	240.00	240.00	240.00
Efficiency ThetaPol (%)	22.50	24.49	25,76	26,97	28.35	29.47	30.40	32.01	33.45	34,63	36,63	38.24	39.32	40.82	42.41	42.51	43,26	44.26	44.83	45.38
Efficiency PhiPal (%)	4.74	4.83	4.77	4.58	4,62	4.52	4,40	4.38	4.32	4.25	4,29	4.27	4.21	4.19	4.18	4.01	3.94	3.90	3.80	3.73
Upper Hem. Efficiency (%)	14.92	16.20	17.00	17.74	19.58	19.28	19.84	20.87	21,78	22.53	23.81	24.85	25.54	26.51	27.52	27.56	28.02	28,65	28.99	29.31
Lower Hem. Efficiency (%)	12.32	13.12	13.53	13.92	14.39	14.71	14.96	15.52	15.99	16,35	17.11	17.66	17.99	18.50	19.07	18.96	19.19	19.51	19.65	19.79
T90(H)同位	3.60	3.45	3,34	3,21	3,12	2.97	2.89	2.85	2.73	2.71	2,60	2,59	2.53	2.46	2.46	2,44	2,38	2.35	2.34	2.33
Gain 15deg (dBi)		8-5-60	4 - 50		EV. 201					Gw.T.	Swoll	5w.2			100	E 2012		- 64		
E1(XZ)該剛家庭	72.00	71.00	71.00	70.00	69.00	70.00	70.00	69.00	69.00	69.00	68.00	69.00	69.00	46.00	45.00	45.00	45.00	45.00	44.00	44,00
E1(XZ)iii ki tt	0.53	0.66	0.78	0.92	1.06	1.10	1.26	1.38	1,54	1,64	1.80	1.93	2.03	2.23	2.46	2.65	2.94	3.08	3.23	3.41
E2(YZ)被耐宽度	73.00	73.00	73,00	72.00	72.00	73.00	73.00	56,00	56,00	56,00	55,00	55.00	55.00	55.00	54.00	54.00	54,00	54.00	53.00	53.00
E2(YZ)前后比	1.37	1.54	1,78	2.03	2.16	2.33	2.47	2.75	2.99	3,28	3,51	3.73	3.97	4.12	4.40	4.55	4,74	4,92	5.12	5.23
最大增益处辅比(P)	11.29	11.62	13,72	12,60	13.26	15.41	14.09	14.75	11.64	12.12	12,51	12.82	13.70	14.15	14.45	16,01	16,12	16.48	16.57	16.67
庚点(Theta=0)处辅比(P)	45.26	33,38	32,17	28,49	31,52	28.70	28.49	27.35	28.48	26,13	29,07	29.32	27.66	29.31	27.74	31,95	26,35	26,70	28,07	26.53
仰角10位最亮(大)轴比(P)	54.83	52.76	77.27	73.06	58.42	55,48	54.13	55.48	58.10	55.59	58.05	58.18	58.64	58.72	58.71	57.95	56.03	55.14	55.28	56.33
Hc(XY)被壓電投	299.00	305.00	314.00	327.00	331.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
Hc(XY)前后比	0.31	0.27	0.25	0,22	0.23	0.15	E1.0	0.16	0.12	0.08	0.09	0.08	0.07	0.05	0.04	0.04	0.03	0,00	0.00	0.00
左旋侧板化效率(%)	14.67	15.76	16,35	16,91	17.57	18.05	18.47	19.23	19.86	20,33	21,30	22.03	22.41	23.06	23.66	23,37	23,63	24,04	24.25	24.45
有旋圆板化效率(%)	12.57	13.56	14.17	14.75	15.40	15.94	16.33	17.15	17.91	15,55	19.62	20.47	21.12	21.96	22.93	23,15	23,58	24.12	24.39	24.65



Frequency ID	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Frequency (MHz)	880	862	884	886	888	890	892	894	896	898	900	902	904	906	908	910	912	914	916	918
Efficiency (dBi)	-2.91	-2.84	-2,72	-2.56	-2.42	-2.44	-2.28	-2.19	-2,16	-2,10	-1.92	-1,91	-1.78	-1.61	-1.45	-1,36	-1.11	-1.03	-0.99	-0.91
Gain (dBi)	0.62	0.69	0.82	0.99	1.13	1.09	1.24	1.29	1.27	1.32	1.43	1.42	1.46	1.60	1.71	1.77	1.99	2.03	2.05	2.13
Efficiency (%)	51.19	52.05	53.40	55.50	57.32	56.96	59.15	60.37	60.88	61.66	64.25	64.37	66.30	69.03	71.62	73.20	77.47	78.81	79.54	B1.14
Directivity (dB)	3.52	3,53	3,55	3.55	3.55	3.53	3.52	3.48	3,42	3,42	3.35	3.33	3.25	3.21	3.16	3,12	3,10	3.07	3.04	3.04
Peak Gain Position (Theta)	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	75,00	75.00	75.00	75.00	75.00	75.00
Peak Gain Position (Phi)	255.00	240.00	240,00	240,00	240.00	240.00	225.00	240.00	240,00	225,00	225,00	225.00	210.00	195.00	195.00	180,00	195,00	195,00	150.00	180,00
Efficiency ThetaPol (%)	47.42	48.32	49.68	51.73	53.53	53.32	55.49	56.78	57.42	58,31	60.91	61.20	63.19	65.95	68.60	70.28	74.57	76,03	76.91	78.63
Efficiency PhiPal (%)	3.78	3.73	3.72	3.77	3.79	3.54	3.65	3:59	3.46	3,35	3.34	3.17	3.11	3.08	3.03	2.92	2.91	2.78	2.63	2.52
Upper Hem. Efficiency (%)	30.59	31:13	31.95	33.20	34.26	34.00	35.24	35.84	36.03	36.13	37,64	37.50	38.35	39.67	40.89	41.52	43.67	44.18	44.35	45.02
Lower Hem. Efficiency (%)	20.60	20.92	21,46	22,30	23.05	22.96	23.91	24.52	24.85	25,33	26.61	25.87	27.95	29.36	30.74	31.67	33.81	34.63	35.19	36.12
T90(H)同段	2.30	2.27	2.21	2.17	2.14	2.07	1.99	1.98	1.89	1,68	1,84	1,74	1.74	1.64	1.58	1,52	1.46	1.41	1.35	1.27
Gain 15deg (dBi)		- 1.00	- A		= (8.1		E.50		100						100	- 200				E 223
E1(XZ)該陶家庭	44.00	44.00	43.00	43.00	43.00	44,00	45.00	45.00	46.00	46.00	47.00	48.00	49.00	48.00	49.00	50.00	52.00	52.00	52.00	53.00
E1(XZ)iii ki tt	3.62	3.77	3.98	4.18	4.34	4.48	4.69	4.82	4.94	5.10	5.23	5.36	5.44	5.60	5.67	5.80	5.B8	5.95	5.04	6.14
E2(YZ)被耐宽度	53.00	53.00	53,00	54,00	54,00	54.00	55.00	55.00	56,00	55,00	56,00	57.00	57.00	58.00	68.00	68.00	69,00	69.00	69.00	69.00
E2(YZ)前后比	5.43	5.61	5,75	5.92	6.08	6.18	6.33	6.46	6.56	6,62	6,70	6.76	6.79	6.81	6.86	6,96	6,98	7.02	7.04	7.08
最大增益处辅比(P)	15.64	17.10	17,24	17,36	17.59	17.81	19.51	18.18	18.56	20,22	20,63	21.30	23.72	28.42	28.68	43.41	29,66	30.33	32.41	42.76
庚点(Theta=0)处辅比(P)	24.31	26.65	27.62	23,83	24,78	24.13	22.29	22.45	21.90	20,57	21.33	22,03	22.64	22.02	20.44	20,59	17,62	18.99	19.82	18.10
仰角10度最亮(大)轴比(P)	56.36	56.55	56,59	56.68	56.76	55.57	56.81	56,97	57.00	57.02	57.27	57.34	57.53	57.64	57.80	58.09	59.84	58.31	60.25	60.35
Hc(XY)被服定度	360.00	350.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360,00	360.00	360.00	360.00	360.00	360.00	360,00	360.00	360.00	360.00	360.00
Hc(XY)前后比	0.00	0.01	0,00	0.00	0.00	0.01	0.00	0.00	0.01	0.04	0.04	0.01	0.08	0.06	0.04	0.04	0,05	0.05	0.04	0.06
左旋圆板化效率(%)	25.46	25.90	26,55	27,55	28,42	28.19	29.23	29.78	30,01	30,39	31,66	31.74	32.70	34.05	35.39	36.21	38,41	39.04	39.42	40.22
石旋圆板化效率(%)	25.73	26.14	26.65	27.95	28,89	28.77	29.92	30.58	30,67	31.27	32,60	32.63	33.60	34.95	36.23	36,99	39,07	39.77	40.12	40.92



Frequency ID	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76
Frequency (MHz)	920	922	924	926	928	930	932	934	936	938	940	942	944	946	948	950
Efficiency (dBi)	-0.78	-0.78	-0.65	-0.54	-0.48	-0.38	-0.27	-0.27	-0.28	-0.28	-0.37	-0.48	-0.52	-0.59	-0.66	-0.63
Gain (dBi)	2,26	2.27	2.37	2.49	2,54	2.63	2.77	2.74	2.74	2.74	2.67	2.56	2.51	2.45	2.39	2.42
Efficiency (%)	83.53	83.61	86.17	88.35	89.60	91.63	94.05	93.98	93.83	93.77	91.73	89,59	88.67	87.34	85.88	86,57
Directivity (dB)	3.05	3.05	3.02	3.03	3.01	3.01	3.04	3.01	3.01	3.02	3.04	3.03	3.03	3.04	3.06	3.05
Peak Gain Position (Theta)	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	75.00	75.00
Peak Gain Position (Phi)	150.00	150.00	150.00	165.00	165.00	150.00	165.00	165.00	180.00	180.00	165.00	165.00	180.00	180.00	180.00	180.00
Efficiency ThetaPol (%)	81.09	81.32	83,94	86.20	87.54	89.62	92.10	92.12	92.05	92.07	90.13	88.08	87.24	85.98	84.59	85.31
Efficiency PhiPol (%)	2:44	2.29	2.22	2.16	2.07	2.00	1.95	1.86	1.77	1.70	1.60	1.50	1.43	1.37	1.30	1.26
Upper Hem. Efficiency (%)	46.19	46.08	47.37	48.48	49.09	50.16	51.45	51.41	51.31	51.30	50.23	49.07	48.64	47.93	47.16	47.58
Lower Hem. Efficiency (%)	37.34	37.53	38.79	39.87	40.51	41.47	42.60	42.58	42.51	42.47	41.50	40.52	40.03	39.41	38.72	38.99
T90(H)网度	1.24	1.17	1,09	1.08	1.03	0.97	0.92	0.89	0.85	0.82	0.79	0.76	0.72	0.71	0.70	0.69
Gain 15deg (dBi)	200	Sec. or all			lane and	Sec. Lake	Section 1	Service at	-	Second di						
E1(XZ)波蘭塞度	54.00	54.00	55,00	56.00	56.00	57.00	58.00	58.00	58.00	59.00	59.00	60.00	60.00	60.00	61.00	61.00
E1(XZ)前后比	6.22	6.30	6.42	6,50	6.55	6.68	6.77	6.84	6.99	7.06	7.13	7.24	7.32	7.41	7.49	7.53
E2(YZ)被衝変度	68.00	69.00	69.00	69,00	69.00	69.00	69.00	69.00	69.00	69.00	69.00	69.00	68.00	69.00	69.00	67.00
E2(YZ)前后比	7.09	7.12	7.12	7.17	7.17	7.17	7.22	7.26	7.25	7.28	7.33	7.35	7.36	7.37	7.49	7.51
最大增益处轴比(P)	33.92	34.36	34.89	39,90	41.28	36.16	45.52	48.98	40.01	38,43	59.00	53.40	37.28	36.29	37.38	38.70
质点(Theta=0)处输比(P)	16.17	14.33	17.89	14.61	13.51	13.35	12.28	11.28	10.34	8.98	8.36	7.67	5.86	4.40	4.69	2.88
仰角10度最差(人)输比(P)	60,37	60.31	60.43	60,29	60.11	59.89	49.81	47.01	44.85	43.56	43.69	41.11	40,52	39.21	39.63	37.91
Hc(XY)波测宽度	360.00	360,00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
Hc(XY)前后比	0.08	0.05	0.01	0.02	0.03	0.04	0.02	0.04	0.03	0.03	0.00	0.00	0.00	0.01	0.00	0.00
左旋圆极化效率(%)	41.37	41,40	42.63	43.70	44.35	45.31	46.52	46.49	46.41	46.38	45.33	44.30	43.83	43.18	42.47	42.83
右旋圆极化效率(%)	42,16	42.21	43.53	44.65	45.26	46.31	47.53	47.49	47.42	47.39	46.40	45.29	44.84	44.17	43.42	43.74

