

Specification For Approval

Customer Skypine Electronics (shenzhen) CO.,Ltd

Supplier Gaoke Ant Co., Ltd.

Customer P/N 3-W301-0033-02-00

Production Name 2.4G &5.8G built-in antennas

Production Number GKZS-2.4&5.8G-AC358-MMCXZG-320

Supplier Signature		
Engineer	Checked by	Approved by
Liu Guangjing	Xie Qianju	Pan Xiwang
2024.7.13	2024.7.13	2024.7.13

Customer Signature		
Engineer	Checked by	Approved by
Year Month Day	Year Month Day	Year Month Day

Note: After the customer confirms and stamps, please send this letter of acknowledgement back to our company.

Gaoke Ant Co., Ltd.
Address: No.22 Guangcong South Road, Shengang, Conghua District, Guangzhou City, China
Tel: 020-87080630/87080639/87080632
Fax: 020-87080731
<http://www.gkzs.com.cn>

Gaoke Ant Co., Ltd.

[illegible]

3 Antenna technical parameters

Design Specifications	Typical
Antenna type	The PCB board is equipped with an internal antenna
working Frequency	2400-2500MHz、5150-5850MHz
Gain	5.73dBi @2400-2500MHz -3.09dBi@5150-5850MHz
Antenna efficiency	$\geq 30\%$
VSWR	≤ 2.5
Ploriaztion	linear polarization
Radiation pattern	omnidirectional
impedance	50 Ω
Power handling	33dBm
Interface	MMCX gold-plated curved male connector / RG178cable (black) L=320mm
Overall dimensions	35x8mm
Weight	2.1g
Operatin Temp	-40~80℃
Storing Temp	-40~80℃

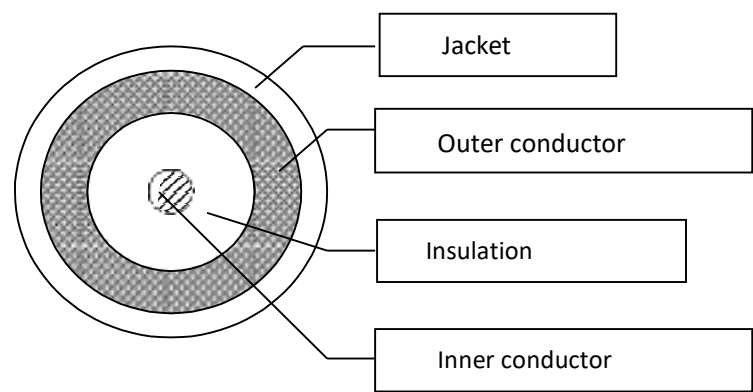
4 Wire parameter

4.1 product description

4.1.1 This product is soft Teflon insulation series coaxial cable. Is suitable for the microwave equipment, wireless communication systems and equipment.
Product features: Excellent flexi-ability, good V.S.W.R, good shielding performance.

4.2 Cable with data and structure diagram:

2.1 lstructure diagram



2.2 Specification of cable:

	Item	NO	Materials and size
Inner conductor	Material	/	Silver plated copper wire
	Composition	mm	7/0.102±0.003
	OD	mm	Φ0.30
Insulation	Material	/	Teflon FEP (200 degrees of fluorinated ethylene propylene resin)
	Thickness	mm	0.30
	OD	mm	Φ0.90±0.05
	Color	/	transparent color
Outer conductor	Material	/	Tinned copper wire
	Form	/	Weave
	Density	%	92% (22 Mesh; 48 Coding 3*16/0.10)
	OD	mm	Φ1.25±0.05

Jacket	Material	/	Teflon FEP (200 degrees of fluorinated ethylene propylene resin)
	Thickness	mm	0.25
	OD	mm	$\Phi 1.80 \pm 0.05$
	color of sheath	/	transparent color or brown transparent color (Can also be processed according to customer requirements)

4.3 The cable properties

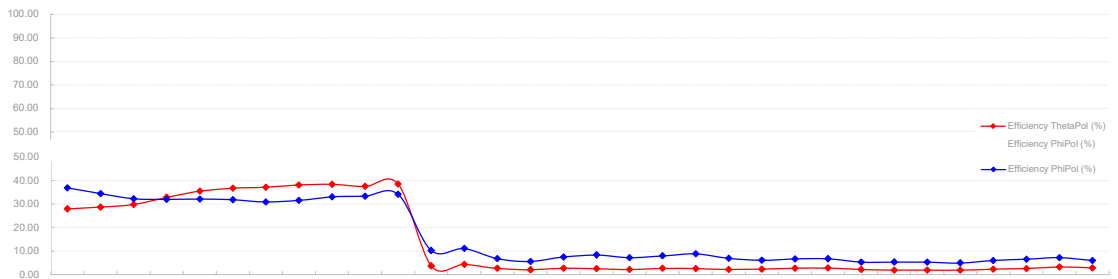
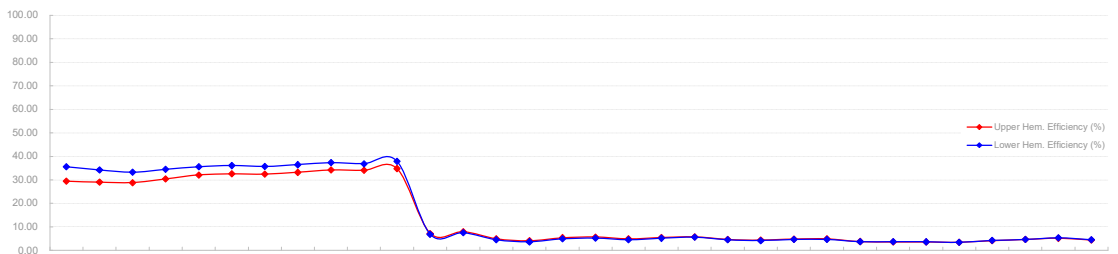
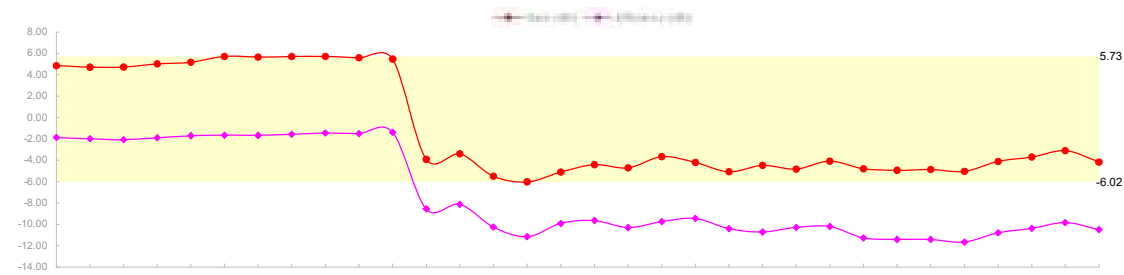
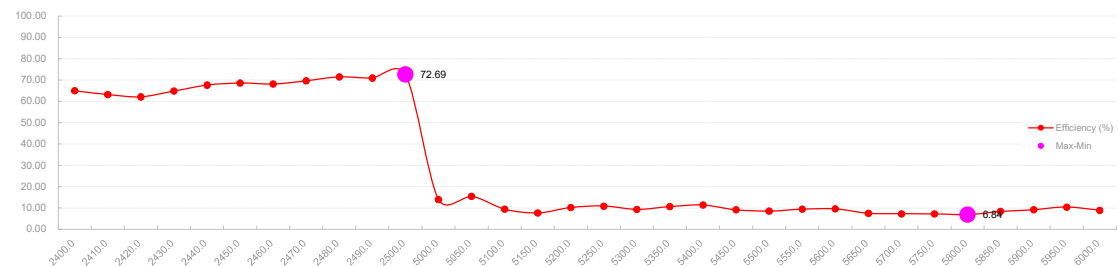
4.3.1 Electrical properties

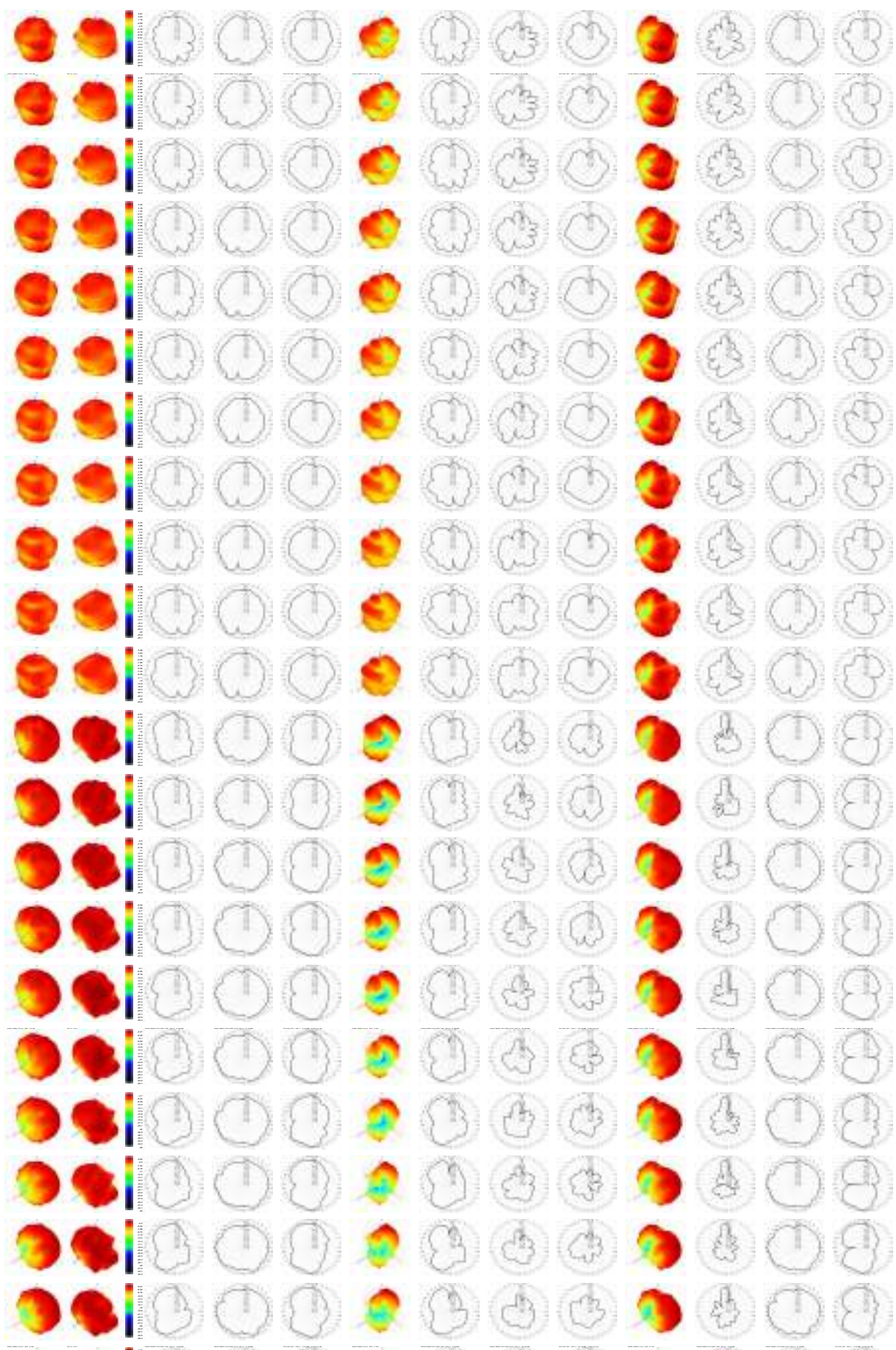
test project	Standard value		Note
Rated temperature / voltage	$-55^{\circ}\text{C} \sim +200^{\circ}\text{C}$ / 30V		/
Insulation resistance	3000M Ω ·Km		Resistance tester
Conductor resistance	345 Ω /Km 20 $^{\circ}\text{C}$		/
Pressure	2KV		Withstand voltage tester
Insulation	Unaged	Tensile Strength	2500 PSI MIN. (1.76Kg/mm ²)
		Elongation	200% MIN
	Aged	Tensile Strength	2500 PSI*75% (168HRS*232 $^{\circ}\text{C}$)
		Elongation	200% MIN*75% (168HRS*232 $^{\circ}\text{C}$)
Jacket	Unaged	Tensile Strength	2500 PSI MIN. (1.76Kg/mm ²)
		Elongation	200% MIN
	Aged	Tensile Strength	2500 PSI*75% (168HRS*232 $^{\circ}\text{C}$)
		Elongation	200% MIN*75% (168HRS*232 $^{\circ}\text{C}$)
Characteristic impedance	$50 \pm 2 \Omega$		Analysis of network analyzer The TRK tester
Capacitance	95.8 PF/M		Digital capacitance meter
	69. 5%		

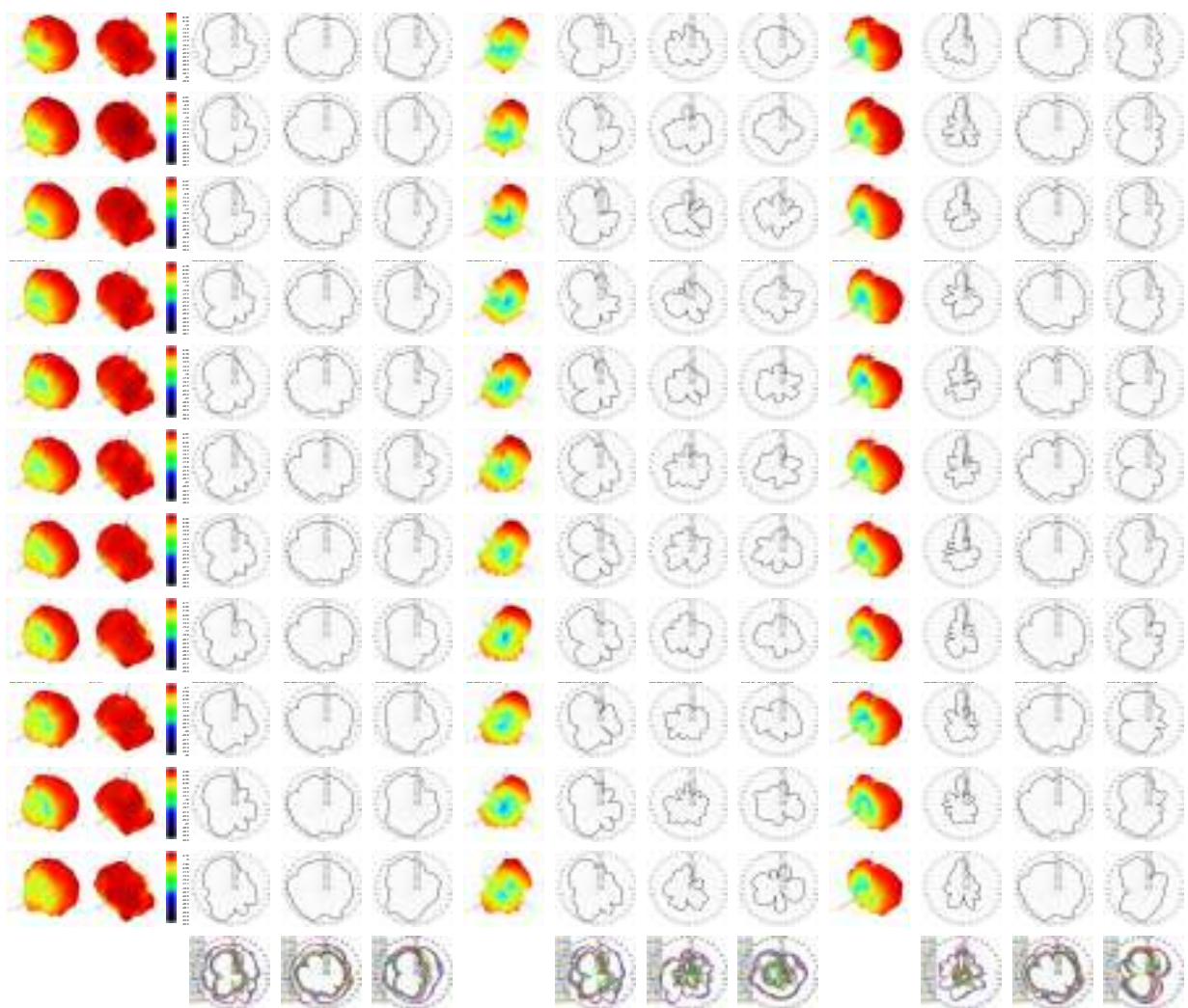
Velocity			Analysis of network analyzer
Propagation Delay	4. 8ns/m		/
Shielding attenuation	100dB		/
Bending radius	<9mm		/
Flame retardant	passed		VW-1 provides material report
Attenuation (dB/m)	test frequency	Attenuation	Sea level to 20 DEG C test
	0. 1GHz	0. 46	
	0. 4GHz	0. 95	
	1GHz	1. 48	
	2GHz	2. 65	
	3GHz	3. 28	
	4GHz	3. 54	
	5GHz	4. 30	
	6GHz	4. 80	
VSWR	0. 3—3GHz	≤1. 30	
	3—6GHz	≤1. 35	

 广州市高科中实通信技术有限公司

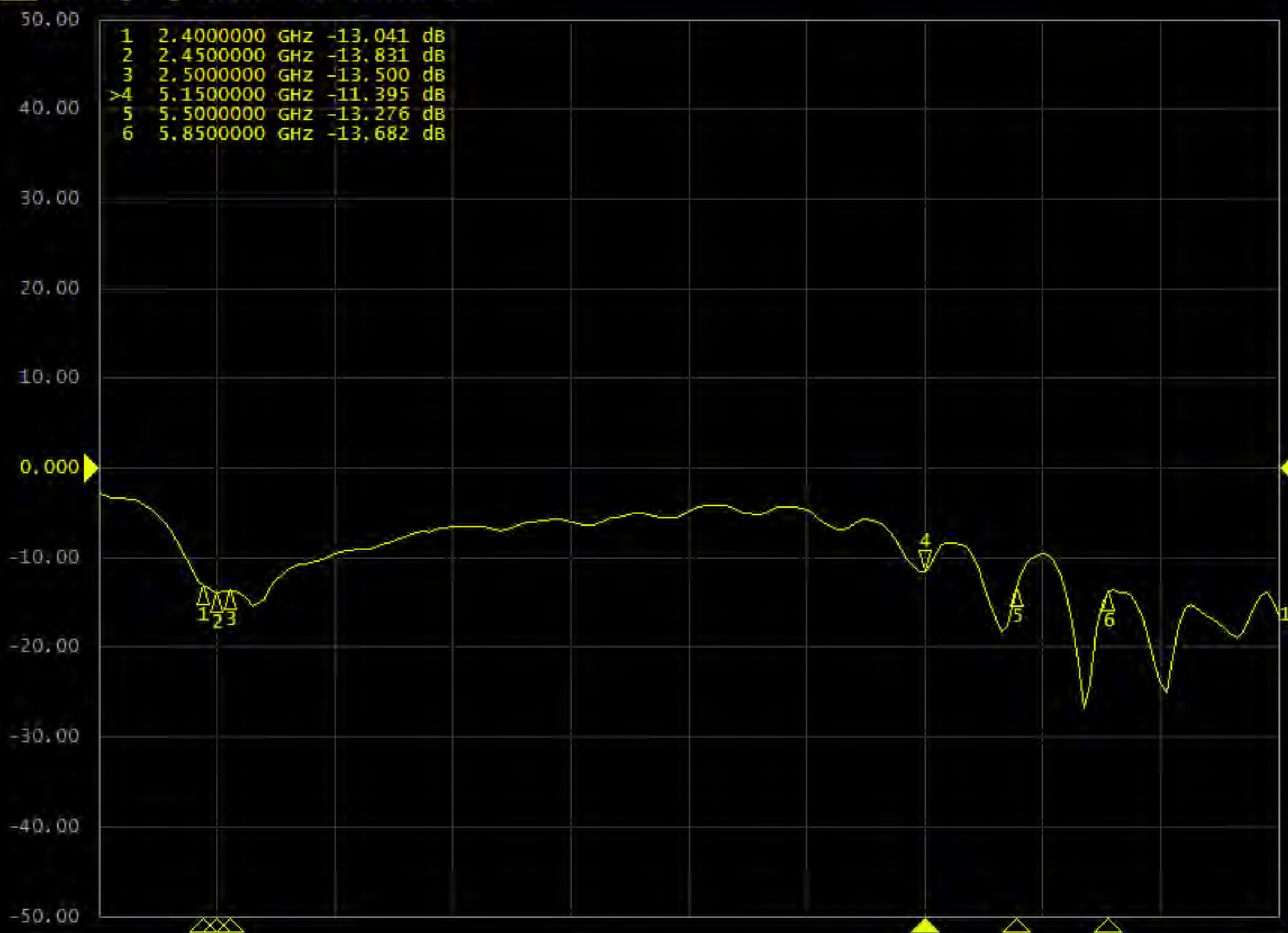
Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0	5000.0	5050.0	5100.0	5150.0	5200.0	5250.0	5300.0	5350.0	5400.0	5450.0	5500.0	5550.0	5600.0	5650.0	5700.0	5750.0	5800.0	5850.0	5900.0	5950.0	6000.0
Efficiency (dBi)	-1.87	-1.99	-2.07	-1.88	-1.70	-1.64	-1.67	-1.57	-1.46	-1.49	-1.39	-8.55	-8.12	-10.26	-11.14	-9.91	-9.64	-10.30	-9.73	-9.44	-10.40	-10.71	-10.27	-10.20	-11.26	-11.40	-11.41	-11.65	-10.78	-10.37	-9.82	-10.51
Gain (dBi)	5.87	4.72	4.73	5.02	5.19	5.73	5.67	5.71	5.72	5.59	5.48	-3.91	-3.40	-5.50	-6.02	-5.10	-4.41	-4.70	-3.65	-4.40	-5.07	-4.47	-4.81	-4.07	-4.78	-4.94	-4.87	-5.04	-4.11	-3.70	-3.89	-4.15
Efficiency (%)	64.97	63.20	62.09	64.88	67.63	68.60	68.15	69.65	71.51	70.94	72.69	13.97	15.43	9.43	7.69	10.22	10.87	9.34	10.63	11.37	9.13	8.49	9.40	9.55	7.48	7.24	7.23	6.84	8.35	9.18	10.43	8.90
Directivity (dB)	6.74	6.71	6.80	6.90	6.89	7.36	7.34	7.28	7.18	7.08	6.86	4.64	4.72	4.76	5.12	4.80	5.22	5.60	6.08	5.25	5.32	6.24	5.45	6.13	6.48	6.47	6.54	6.61	6.68	6.67	6.73	6.35
Peak Gain Position (Theta)	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	90.00	90.00	150.00	135.00	150.00	135.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00
Peak Gain Position (Phi)	285.00	285.00	285.00	285.00	285.00	285.00	285.00	285.00	285.00	285.00	285.00	285.00	285.00	195.00	285.00	195.00	285.00	195.00	285.00	195.00	90.00	90.00	195.00	210.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
Efficiency ThetaPol (%)	28.00	28.75	29.86	32.86	35.50	36.73	37.21	38.10	38.45	37.51	38.54	3.71	4.33	2.65	2.12	2.72	2.53	2.14	2.65	2.57	2.22	2.38	2.73	2.80	2.17	1.91	1.92	1.89	2.34	2.63	3.22	2.89
Efficiency PhiPol (%)	36.96	34.45	32.23	32.02	32.13	31.87	30.94	31.55	33.07	33.42	34.14	10.26	11.10	6.78	5.57	7.50	8.34	7.20	7.98	8.80	6.91	6.11	6.67	6.75	5.31	5.33	5.31	4.94	6.01	6.55	7.21	6.01
Upper Hem. Efficiency (%)	29.38	28.98	28.82	30.42	32.09	32.52	32.45	33.20	34.21	34.07	34.80	7.17	7.95	4.92	4.05	5.36	5.67	4.88	5.48	5.74	4.63	4.32	4.81	4.85	3.76	3.56	3.58	3.40	4.16	4.58	5.13	4.40
Lower Hem. Efficiency (%)	35.58	34.22	33.27	34.46	35.54	36.07	35.70	36.45	37.30	36.87	37.88	6.80	7.48	4.51	3.64	4.85	5.19	4.46	5.15	5.63	4.50	4.17	4.59	4.70	3.72	3.69	3.65	3.44	4.18	4.60	5.30	4.50
T90(H)角度	9.54	9.30	8.73	7.88	7.20	7.29	6.97	6.95	7.49	8.31	8.88	18.38	18.06	16.69	16.93	18.88	17.27	18.64	18.90	17.94	18.46	14.89	15.71	19.43	17.43	16.02	20.44	14.96	13.46	12.80	14.89	13.90
Gain 15deg (dBi)																																
E1(XZ)波瓣宽度	16.35	16.67	17.06	17.40	17.68	17.93	18.02	18.27	18.58	18.95	19.23	38.38	63.51	34.48	79.76	38.48	37.66	30.96	36.42	63.47	50.84	40.79	42.04	39.81	57.58	38.57	31.77	70.26	38.28	33.00	26.91	26.32
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	0.00	2.51	0.83	0.00	0.07	0.00	0.00	0.33	0.34	0.00	0.00	0.00	0.00	0.12	0.00	0.62	0.16	0.00	0.00	0.00	0.00
E2(YZ)波瓣宽度	17.81	17.65	17.75	17.56	17.75	17.42	17.52	17.97	18.16	18.48	18.64	77.41	37.70	105.62	77.73	33.71	36.76	26.41	24.17	22.58	21.48	20.36	21.90	18.80	17.86	17.48	17.65	18.32	17.23	18.16	18.61	18.52
E2(YZ)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	0.00	0.83	0.35	0.00	0.05	1.36	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
最大增益处轴比(P)	4.16	4.28	4.53	4.86	5.07	5.77	5.92	6.34	6.66	6.77	6.75	32.36	32.49	43.05	31.01	38.78	46.53	24.70	44.45	20.96	17.85	31.33	46.50	12.53	10.66	14.52	14.08	14.76	12.01	13.95	24.10	11.32
顶点(Theta=0)轴比(P)	15.39	11.59	9.32	8.17	7.55	7.51	7.49	8.09	10.28	13.45	18.85	16.99	15.23	15.83	29.85	19.49	15.66	12.24	22.62	19.06	20.25	17.41	15.63	17.04	13.16	26.62	20.24	13.86	18.33	16.36	28.23	18.51
仰角10度最大差(D)轴比(P)	47.81	58.22	68.45	54.49	46.69	63.40	46.51	71.16	64.43	47.97	53.86	66.74	59.42	51.96	56.56	81.13	60.39	80.22	64.45	66.23	65.45	79.00	58.02	76.49	62.56	55.90	75.92	52.24	55.47	62.00	89.59	68.76
Hc(XY)波瓣宽度	40.77	60.93	56.31	52.56	54.42	50.06	50.46	49.72	46.86	44.93	44.58	38.00	36.74	47.57	50.77	36.25	36.35	34.11	33.05	30.84	67.34	74.03	32.22	41.49	68.38	67.65	64.02	48.43	65.36	61.18	38.58	27.90
Hc(XY)前后比	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
左旋圆极化效率(%)	31.19	30.38	30.38	32.32	34.52	35.74	36.14	37.42	38.69	38.66	39.43	7.20	7.91	4.77	3.85	5.25	5.57	4.83	5.39	5.81	4.70	4.23	4.77	4.87	3.67	3.52	3.56	3.47	4.39	4.78	5.28	4.52
右旋圆极化效率(%)	33.77	32.82	31.71	32.56	33.12	32.86	32.01	32.23	32.82	32.28	33.25	6.76	7.52	4.66	3.83	4.97	5.30	4.51	5.24	5.56	4.43	4.26	4.63	4.68	3.81	3.72	3.68	3.37	3.95	4.40	5.14	4.38
最大增益处轴比(+/-45极化)	0.09	0.38	0.57	0.84	0.98	1.05	1.35	1.53	1.85	2.12	2.41	5.13	4.57	3.36	7.58	4.56	6.36	3.73	4.09	4.72	4.61	3.92	15.60	3.18	4.08	2.38	2.58	1.43	2.69	0.86	23.89	0.44
最大增益处轴比(水平垂直极化)	4.16	4.26	4.48	4.75	4.92	5.61	5.65	5.99	6.16	6.12	5.92	10.81	11.75	14.37	7.69	11.80	9.10	13.11	12.72	10.92	10.52	12.99	2.91	10.12	7.86	12.46	11.90	13.86	10.28	13.66	0.24	11.27
T60度Phi-一圈最大轴比(+/-45	0.03	0.03	0.01	0.06	0.05	0.03	0.01	0.01	0.08	0.07	0.01	0.00	0.03	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.07	0.06	0.01	0.03	0.14	0.13	0.10	0.01	0.08	0.19	0.01
T60度Phi-一圈最大轴比(水平垂直极化2	0.02	0.05	0.03	0.03	0.01	0.05	0.04	0.00	0.01	0.03	0.04	0.03	0.01	0.06	0.00	0.01	0.08	0.04	0.04	0.13	0.05	0.00	0.02	0.01	0.03	0.03	0.01	0.03	0.03	0.01	0.02	0.01
T90度(H)Phi-一圈最大轴比(+/-40极化	0.02	0.03	0.01	0.01	0.05	0.04	0.00	0.03	0.01	0.00	0.00	0.01	0.02	0.14	0.21	0.04	0.07	0.11	0.03	0.26	0.10	0.27	0.19	0.04	0.01	0.16	0.03	0.07	0.00	0.02	0.01	0.02
T90度(H)Phi-一圈最大轴比(水平垂直极化	0.02	0.01	0.00	0.03	0.02	0.01	0.02	0.02	0.01	0.05	0.01	0.00	0.07	0.06	0.02	0.15	0.00	0.09	0.08	0.03	0.01	0.13	0.06	0.08	0.01	0.13	0.06	0.08	0.02	0.02	0.01	0.04
辐射场天线主瓣下倾角度(平均值)	-59.33	64.02	-53.07	-40.99	-17.49	-17.49	-18.76	-16.20	-14.42	-14.83	-14.95	-17.37	69.83	46.08	5.04	15.46	20.04	22.71	28.28	28.71	31.79	25.96	22.34	23.33	27.17	33.64	-21.25	18.18	7.46	13.34	-9.67	-19.51
辐射场2+4平面圆极化隔度	6.15	6.26	6.56	6.84	7.08	7.38	7.48	7.61	7.88	8.88	9.67	18.84	14.97	15.80	11.67	11.06	15.62	12.24	21.30	19.60	14.60	15.62	16.96	12.60	19.14	16.82	16.96	13.83	17.85	16.35	11.79	10.79
Theta85.0-一圈最大增益	-0.13	-0.48	-0.29	0.07	0.13	0.24	0.22	0.23	0.43	0.47	0.53	-4.81	-4.37	-6.80	-7.84	-5.97	-5.51	6.30	-5.45	-5.33	-6.26	-7.20	-6.24	-6.46	-7.55	-7.79	-7.27	-7.55	-7.11	-6.51	-5.90	-6.46
Theta85.0-一周圆度(为最大最小增益值的差, 单位		6.09	6.18	5.88	6.62	6.40	6.71	7.45	8.33	8.92	17.02	15.91	14.71	15.22	15.07	15.83	19.94	17.18	17.22	16.90	14.99	15.28	16.63	15.52	15.33	19.03	15.05	14.12	12.64	15.37	13.07	
Empty																																







▶ Tr1 S11 Log Mag 10.00dB/ Ref 0.000dB [F1]



Recall State

State01

State02

State03

State04

State05

State06

State07

State08

State09

UserPres

File Dialog...

Return

1 Start 2 GHz

IFBW 70 kHz

Stop 6.5 GHz Cor 1

Meas

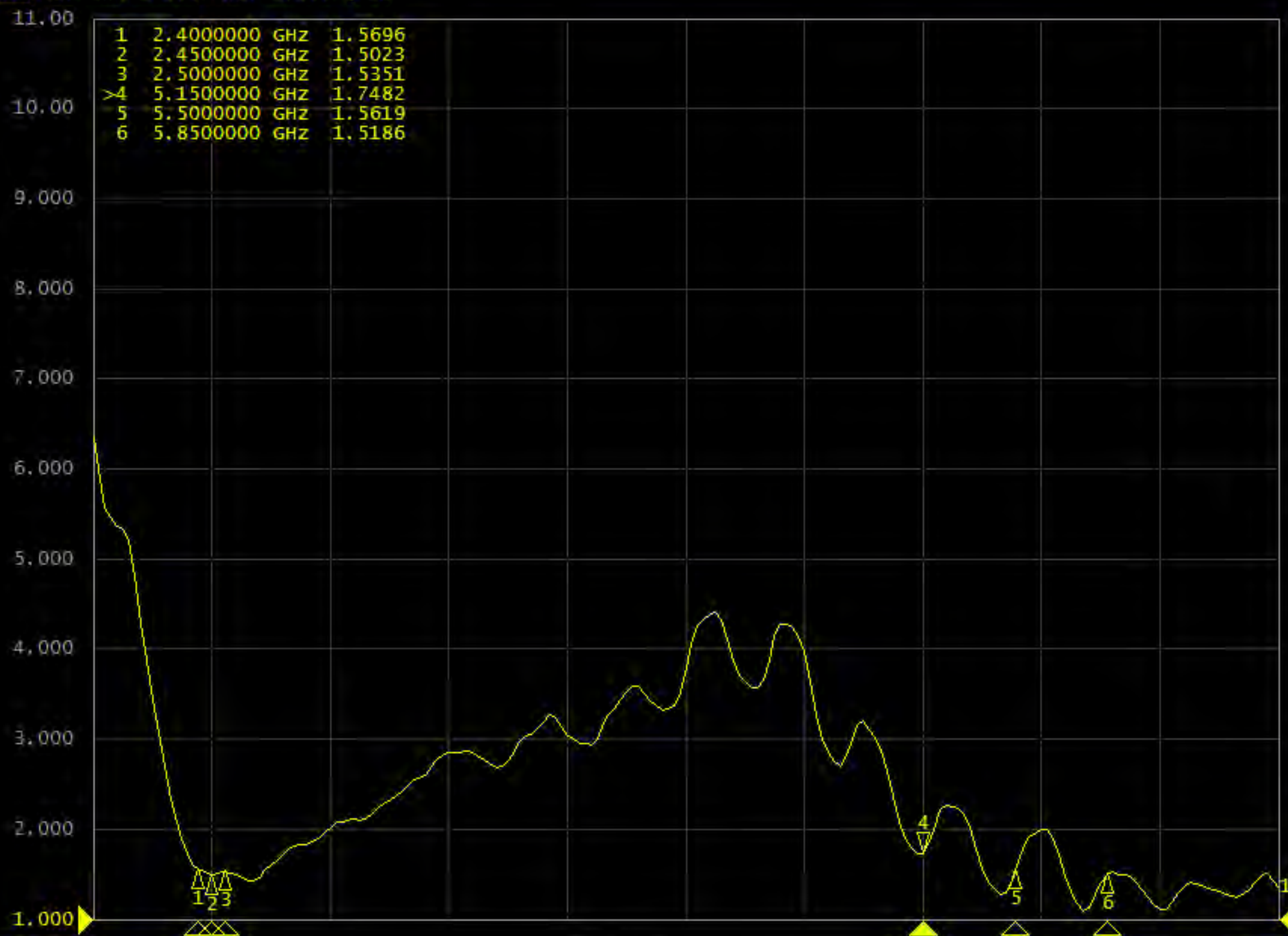
Stop

ExtRef

Svc

2026-01-09 16:35

► Tr1 S11 SWR 1.000/ Ref 1.000 [F1]



1 Start 2 GHz

IFBW 70 kHz

Stop 6.5 GHz

Cor

Meas

Stop

ExpRef

Src

2026-01-09 16:36

Format

SWR

Log Mag

Phase

Group Delay

Smith

Polar

Lin Mag

SWR

Real

Imaginary

Expand
PhasePositive
Phase

Return



盐雾实验报告

Product Name	cable head	Number of experiments	3PCS	
Experimental requirements	Concentration of sodium chloride solution	5% (m ²)	Intake pressure (first time)	2 kg/c m ²
	PH value	6.5-7.2	Exhaust pressure (secondary)	1 kg/c m ²
	Pressure tank temperature	47°C±1°C	Salt water tank temperature	35°C±1°C
	Laboratory temperature	35°C±1°C	Relative humidity in the laboratory	75-85%
	Experimental time requirements	(48)H, no oxidation (no yellowing, greenness, red rust, white rust, etc.)		
Description of Experimental Equipment				
Start time	2024.07.11	End time	2024.07.13	
Experimental content and records				
Duration of the experiment	Description of the actual situation			Note
☐ 24H ☐ 28H	No oxidation (no yellowing, greenness, red rust, white rust, etc.)			Appearance
☐ 40H ☒ 48H	No oxidation (no yellowing, greenness, red rust, white rust, etc.)			Appearance
☐ 56H ☐ 72H				
(Judgment)	☒ Qualified ☐ Unqualified ☐ Special Feature ☐ Downgraded usage:			
	Laboratory Technician/Date:Xie Wenting 2024.07.13		Review/Date:Jeon Jun 2024.07.13	
Note				