

SPEED TECHNOLOGY

样品承认书

Sample Approval Form

客 户:

Customer

深圳无尽瓦特科技有限公司

供 应 商:

Supplier

惠州硕贝德汽车智联科技有限公司

项 目 名 称:

Project Name

Ampere 弹片天线项目

产 品 名 称:

Part Name

VISUN,LTE 弹片天线

产 品 料 号:

Part Number

39040004

产 品 型 号:

Part Model

弹片天线

制 作 日 期:

Prepare Date

2024-10-16

供应商确认			客户确认	
			Customer Approval	
Prepared By 制作	Checked By 审核	Approved By 确认	Checked By 审核	Approved By 确认
赖县强	周胜中	周世扬		

APPROVAL SHEET

PRODUCT NAME

Wifi 弹片天线

CUSTOMER APPROVED BY

CUSTOMER NAME OR MODEL

APPROVED DATE

SPECIFICATION /规格书

Product Name: VISUN,LTE 弹片天线Description: 贴片式弹片天线

VERSION INFORMATION

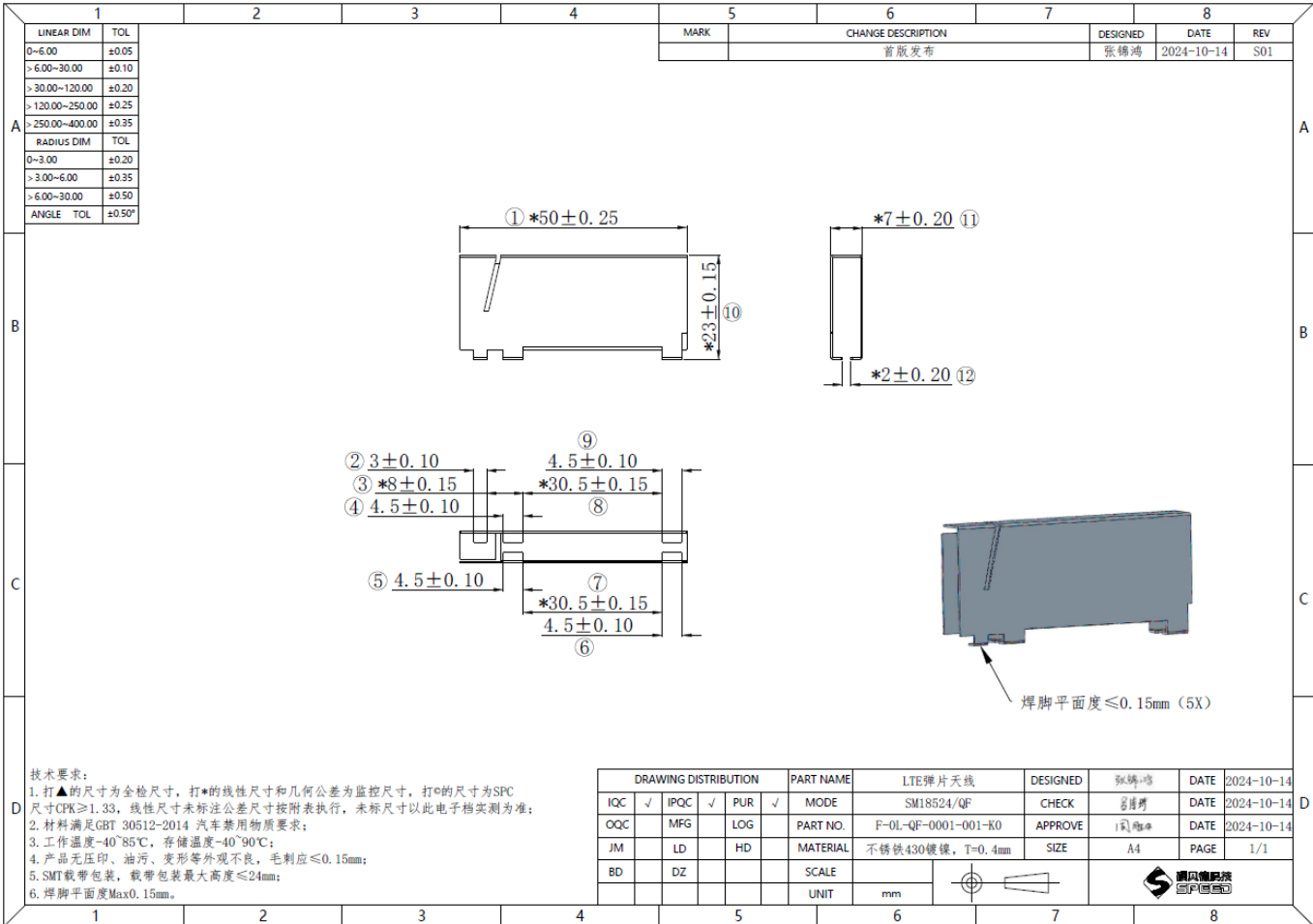
VERSION	DATE	REVISION DESCRIPTION	PREPARED	CHECKED	APPROVED
V1.0	2024-10-16	NEW ISSUED			

PREPARED BY

CHECKED BY

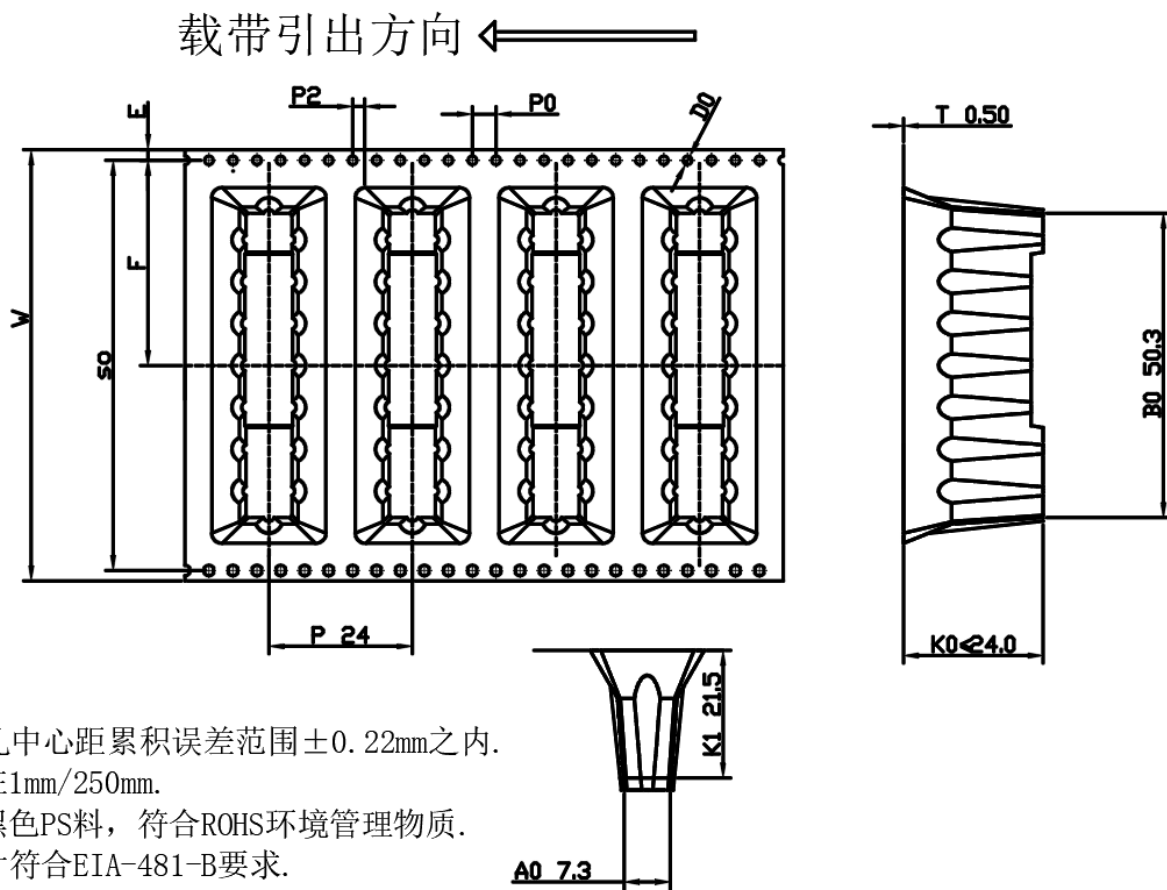
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一、Structure 成品结构图



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LTE 弹片天线	2024-10-16	1/15
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二、包装



- 1: 10个链孔中心距累积误差范围 $\pm 0.22\text{mm}$ 之内.
- 2: 反弯度在 $1\text{mm}/250\text{mm}$.
- 3: 材料: 黑色PS料, 符合ROHS环境管理物质.
- 4: 所有尺寸符合EIA-481-B要求.
- 5: 厚度: $0.50 \pm 0.05\text{mm}$.
- 6: 使用 $\phi 330\text{mm}$ 胶盘, 包装零件数量: 120PCS/2.88m
- 7: 保护带: 黑色PS材料.

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VISUNE/LTE 弹片天线	2024-10-16	2/15
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三、Electrical Characteristics 电气参数 1

1.1 VISUNE/LTE 弹片天线

No	Part Name	SPEC
1	Frequency Range/频率范围	600MHz~960MHz 1710MHz~2690MHz
2	V.S.W.R/电压驻波比	600MHz~700MHz VSWR $\leq$ 5.0 700MHz~960MHz VSWR $\leq$ 4.0 1710MHz~2690MHz VSWR $\leq$ 3.0
3	Efficiency /效率	600MHz~960MHz&25% 1710MHz~2690 MHz&40%
4	Impendence/阻抗	50 ohm
5	Polarization/极化	LP/线性极化

1.2 Material/材质

No	Part Name	SPEC
1	Antenna/天线	SUS430
2	RF CaLTE/射频连接线	无
		无

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VISUN/LTE 弹片天线	2024-10-16	3/15
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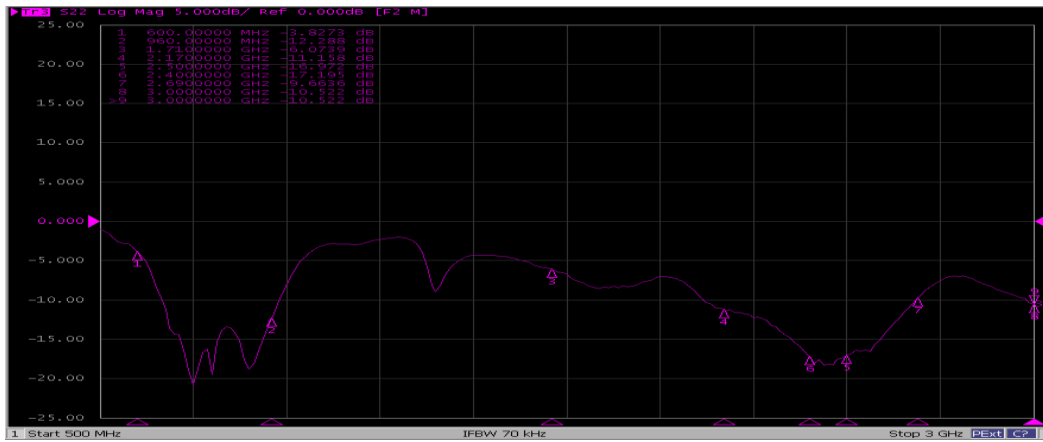
四、Testing Conditions 测试条件

1	Low Temperature Operational 低温工作测试	All of the specifications in Item 1 is to be satisfied after antennas exposed to $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 24H, and then to normal temperature 2H 当天线暴露在温度为 $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 24H 后，然后常温放置 2H，天线电气性能不变。
2	High Temperature Operational 高温工作测试	All of the specifications in Item 1 is to be satisfied after antennas exposed to $+85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 24H, and then to normal temperature 2H 当天线暴露在温度为 $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 24H 后，然后常温放置 2H，天线电气性能不变。
3	Packing Drop Test 包装跌落测试	A single antenna drops with height 1.2M and marLTE platform, down ten times in accordance with the order of six-sided triangular corner 将单个天线，跌落高度为 1.2M，大理石平台，按照一角三棱六面顺序共跌十次。
4	Operating Temp 工作温度	$-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$
5	Storage Temp 储存温度	$-40^{\circ}\text{C} \sim 90^{\circ}\text{C}$

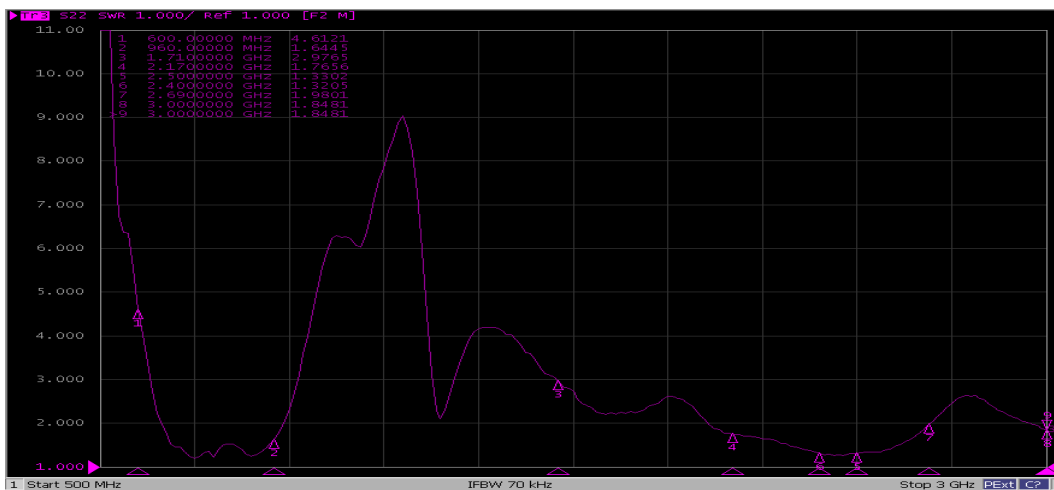
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VISUNE/LTE 弹片天线	2024-10-16	4/15
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五、Electrical Report /电气报告-----LTE 4G1 Main 天线

S11



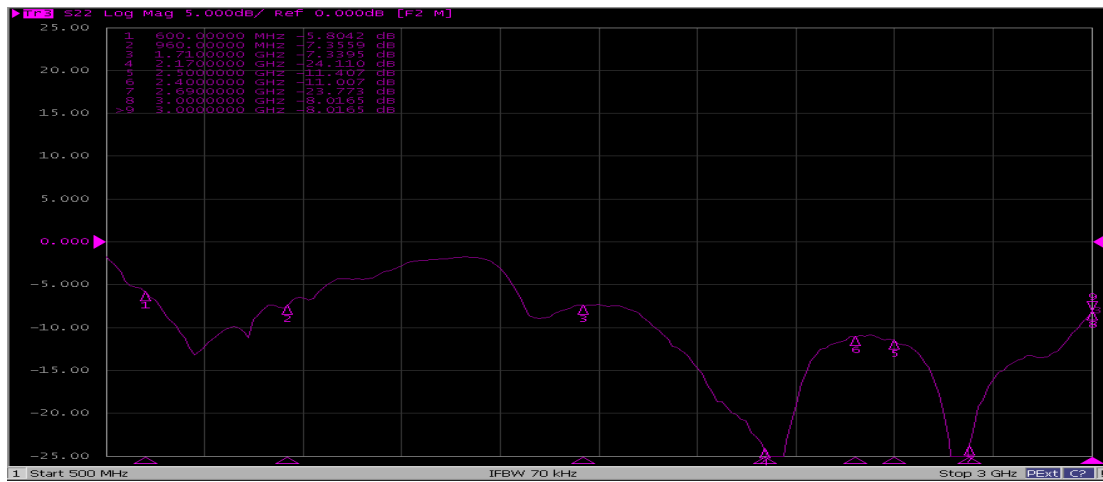
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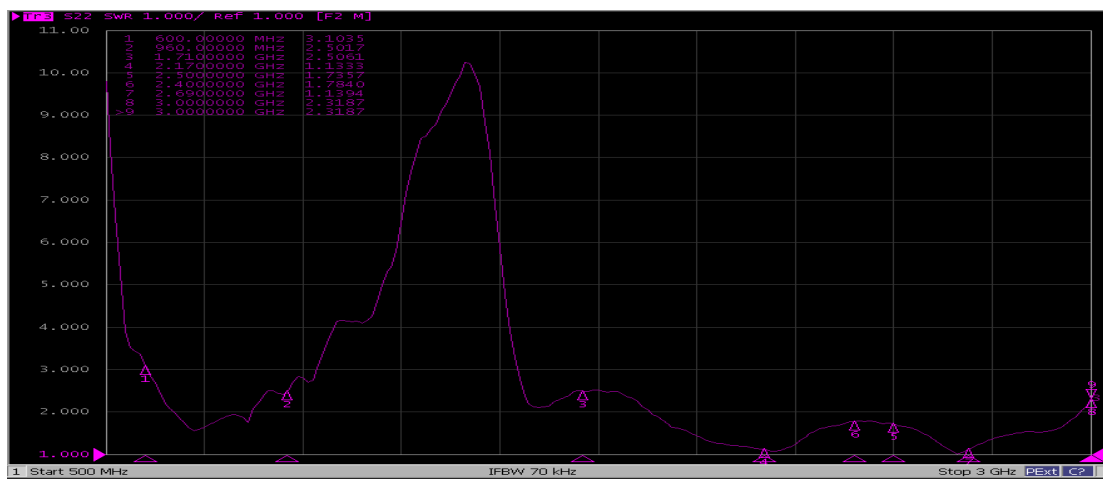
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VISUN/LTE 弹片天线	2024-09-06	5/15
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六、Electrical Report /电气报告-----LTE 4G2 Div 天线

S11



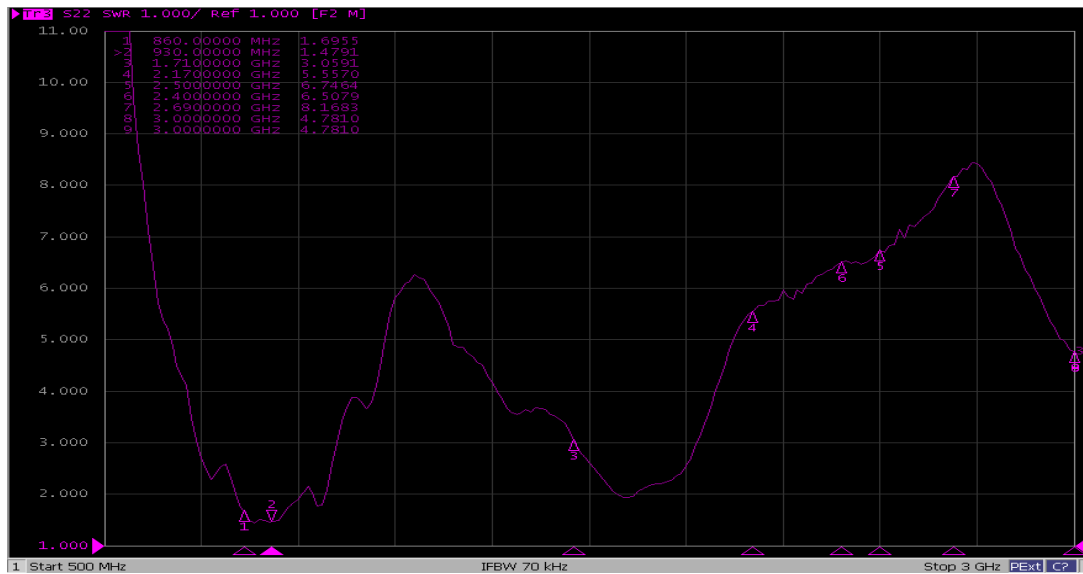
VSWR



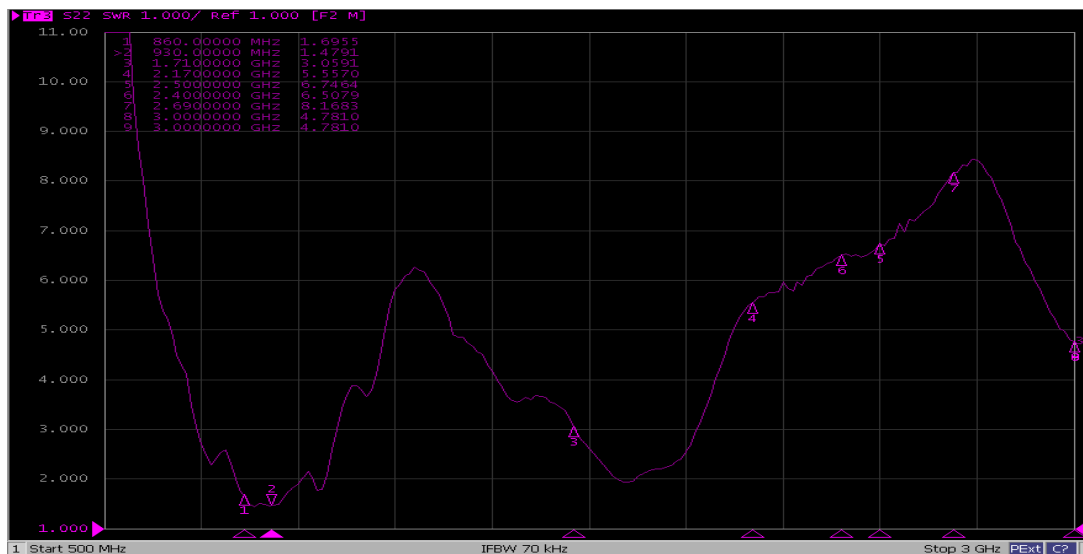
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七、Electrical Report /电气报告-----VISUN 天线

S11



VSWR



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VISUNE/LTE 弹片天线	2024-10-16	7/15
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八、Electrical Report /电气报告-----LTE 4G1 Main 天线 Efficiency&gain

Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
600	-7.52	17.68	-4.19	900	-3.25	47.33	1.12	2300	-2.72	53.45	3.12
610	-7.18	19.16	-3.18	910	-3.50	44.70	0.44	2310	-2.83	52.09	3.18
620	-6.93	20.25	-2.70	920	-3.63	43.32	-0.21	2330	-2.96	50.57	3.25
630	-6.84	20.69	-1.37	930	-3.71	42.57	-1.07	2350	-2.90	51.33	3.13
640	-6.67	21.51	-2.98	940	-3.90	40.77	-0.59	2370	-2.85	51.90	3.14
650	-6.06	24.77	-2.47	950	-4.17	38.27	-0.04	2390	-2.72	53.42	3.19
660	-5.94	25.47	-2.51	960	-4.49	35.60	0.04	2410	-2.76	52.96	3.14
670	-5.63	27.36	-2.66	1710	-3.08	49.22	1.35	2430	-2.90	51.26	3.67
680	-5.70	26.94	-2.14	1730	-2.98	50.39	1.69	2450	-2.69	53.78	4.04
690	-5.88	25.80	-2.12	1750	-2.82	52.22	1.82	2470	-2.42	57.24	4.48
700	-6.05	24.84	-2.32	1770	-2.86	51.77	1.77	2490	-2.52	55.99	4.62
710	-6.26	23.67	-2.33	1790	-2.74	53.24	2.41	2510	-2.81	52.34	4.57
720	-6.24	23.77	-1.58	1810	-2.72	53.47	2.70	2530	-2.77	52.87	4.77
730	-6.14	24.34	-1.00	1830	-2.81	52.34	3.16	2550	-2.72	53.41	5.06
740	-6.03	24.94	-0.45	1850	-2.90	51.27	3.27	2570	-2.75	53.04	5.39
750	-5.79	26.39	-1.33	1870	-3.06	49.45	3.38	2590	-2.79	52.57	5.33
760	-5.48	28.35	-0.66	1890	-3.12	48.74	3.73	2610	-3.06	49.42	5.24
770	-5.31	29.47	-0.43	1910	-3.12	48.75	4.02	2630	-3.16	48.27	4.95
780	-5.25	29.88	-0.37	1930	-3.20	47.86	3.95	2650	-3.12	48.71	4.98
790	-5.08	31.05	-0.27	1950	-3.37	46.08	3.65	2670	-3.30	46.75	4.71
800	-5.26	29.80	-0.49	1970	-3.46	45.11	3.49	2690	-3.83	41.35	4.52
810	-5.40	28.87	-0.77	1990	-3.55	44.14	3.12				
820	-5.36	29.11	-0.81	2010	-4.37	36.60	2.27				
830	-5.19	30.30	-0.62	2030	-4.37	36.60	1.81				
840	-5.10	30.88	-0.45	2050	-4.27	37.39	1.66				
850	-5.10	30.94	-0.34	2070	-3.75	42.14	2.21				
860	-5.03	31.43	-0.72	2090	-3.49	44.77	2.41				
870	-4.60	34.64	-0.23	2110	-3.48	44.83	2.25				
880	-3.61	43.52	1.39	2130	-3.32	46.57	2.36				
890	-3.10	48.93	1.73	2150	-3.35	46.24	2.45				
				2170	-2.89	51.35	3.07				

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VISUNE/LTE 弹片天线	2024-10-16	8/15
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九、Electrical Report /电气报告-----LTE 4G2 Div 天线 Efficiency&gain

Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
600	-7.66	17.14	-3.09	900	-6.17	24.18	-0.17	2300	-2.75	53.12	3.54
610	-7.40	18.19	-2.41	910	-6.23	23.84	-0.63	2310	-3.08	49.23	3.68
620	-7.27	18.77	-2.20	920	-6.07	24.74	-0.99	2330	-3.13	48.64	3.91
630	-6.96	20.12	-2.23	930	-5.53	28.00	-0.74	2350	-2.96	50.56	3.96
640	-6.84	20.69	-2.37	940	-4.93	32.11	0.23	2370	-2.78	52.73	3.62
650	-6.95	20.18	-2.35	950	-4.47	35.74	0.90	2390	-2.60	54.90	3.85
660	-6.72	21.27	-2.29	960	-4.14	38.56	1.28	2410	-2.64	54.39	3.64
670	-6.37	23.09	-1.86	1710	-2.56	55.45	3.12	2430	-2.69	53.77	3.90
680	-6.30	23.46	-2.33	1730	-2.51	56.11	3.01	2450	-2.60	55.01	4.14
690	-6.45	22.65	-2.56	1750	-2.40	57.54	3.00	2470	-2.17	60.72	4.84
700	-6.67	21.54	-2.05	1770	-2.53	55.81	2.62	2490	-2.29	58.99	4.85
710	-6.69	21.45	-1.35	1790	-2.34	58.33	2.77	2510	-2.45	56.85	4.24
720	-6.50	22.38	-1.09	1810	-2.27	59.35	2.82	2530	-2.43	57.20	4.11
730	-6.43	22.73	-1.08	1830	-2.23	59.84	2.93	2550	-2.43	57.13	3.79
740	-6.24	23.75	-0.95	1850	-2.19	60.37	2.96	2570	-2.33	58.44	4.07
750	-6.28	23.54	-1.00	1870	-2.21	60.13	2.93	2590	-2.28	59.19	4.13
760	-6.42	22.82	-1.33	1890	-2.15	60.99	2.80	2610	-2.34	58.30	4.35
770	-6.43	22.74	-1.36	1910	-1.99	63.20	3.11	2630	-2.34	58.33	4.42
780	-6.22	23.89	-1.15	1930	-1.89	64.77	3.45	2650	-2.04	62.52	4.67
790	-5.80	26.32	-0.75	1950	-1.87	65.09	3.52	2670	-1.88	64.83	4.80
800	-5.89	25.75	-1.51	1970	-1.65	68.36	3.66	2690	-2.04	62.51	4.40
810	-6.02	25.03	-1.79	1990	-1.36	73.09	4.12				
820	-5.69	26.96	-1.35	2010	-1.79	66.18	3.58				
830	-5.30	29.54	-0.86	2030	-1.92	64.24	3.32				
840	-5.01	31.55	-0.31	2050	-2.03	62.67	3.12				
850	-4.99	31.73	0.02	2070	-2.03	62.70	3.30				
860	-5.16	30.48	0.19	2090	-2.01	62.92	3.62				
870	-5.57	27.74	0.24	2110	-2.20	60.29	3.30				
880	-5.95	25.44	0.27	2130	-2.38	57.77	3.32				
890	-6.18	24.10	0.15	2150	-2.52	56.00	3.25				
				2170	-2.46	56.76	2.88				

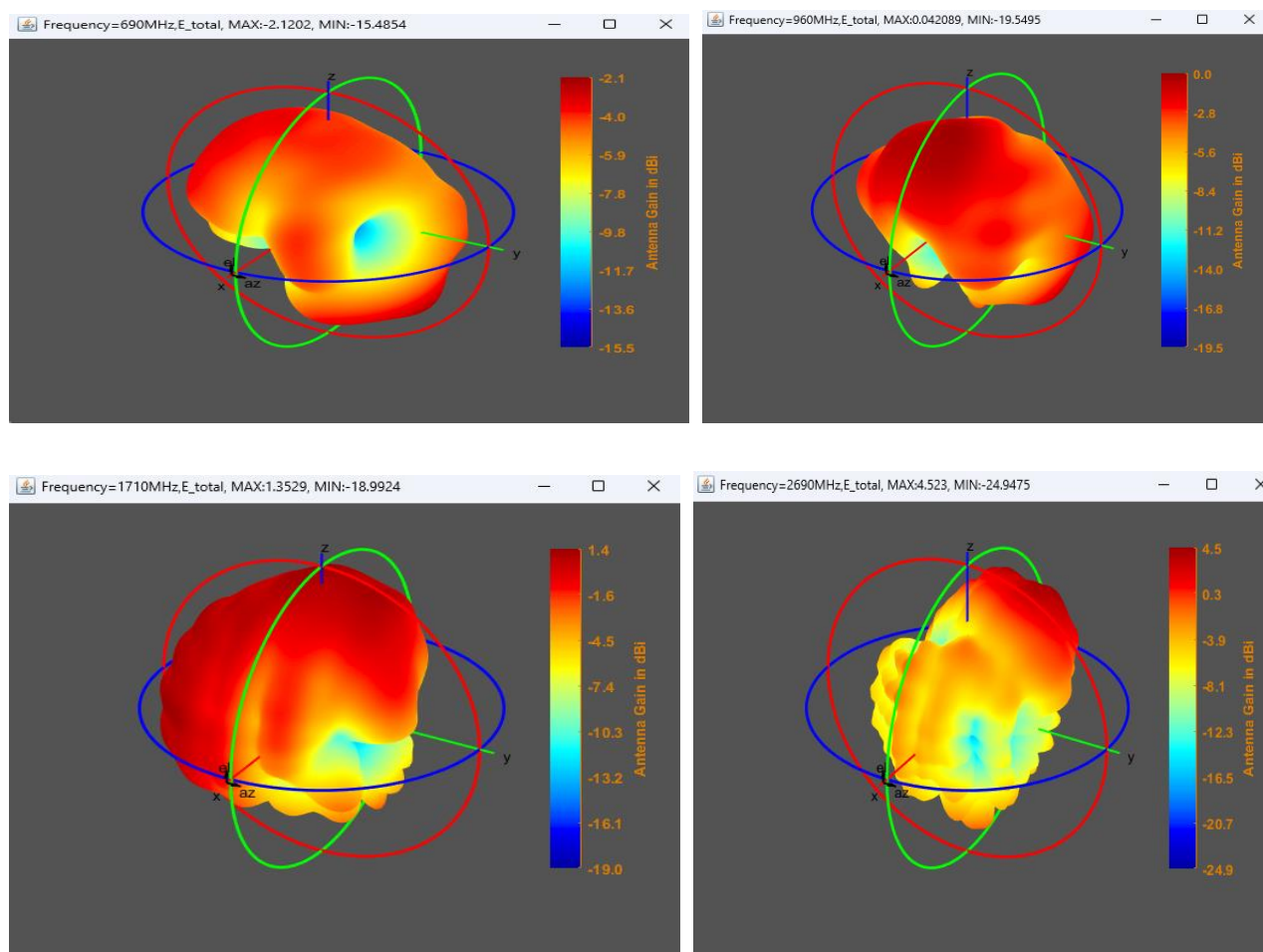
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VISUNE/LTE 弹片天线	2024-10-16	9/15
Prepared by	Checked by	Approved by

十、Electrical Report /电气报告-----VISUN 天线 Efficiency&gain

Frequency (MHz)	Efficiency(dB)	Efficiency(%)	Gain(dBi)
860	-3.60	43.62	-0.24
870	-3.79	41.76	-0.64
880	-4.01	39.75	-0.76
890	-3.75	42.15	0.44
900	-3.53	44.39	0.54
910	-3.94	40.35	-0.11
920	-3.71	42.59	0.00
930	-4.07	39.15	0.26

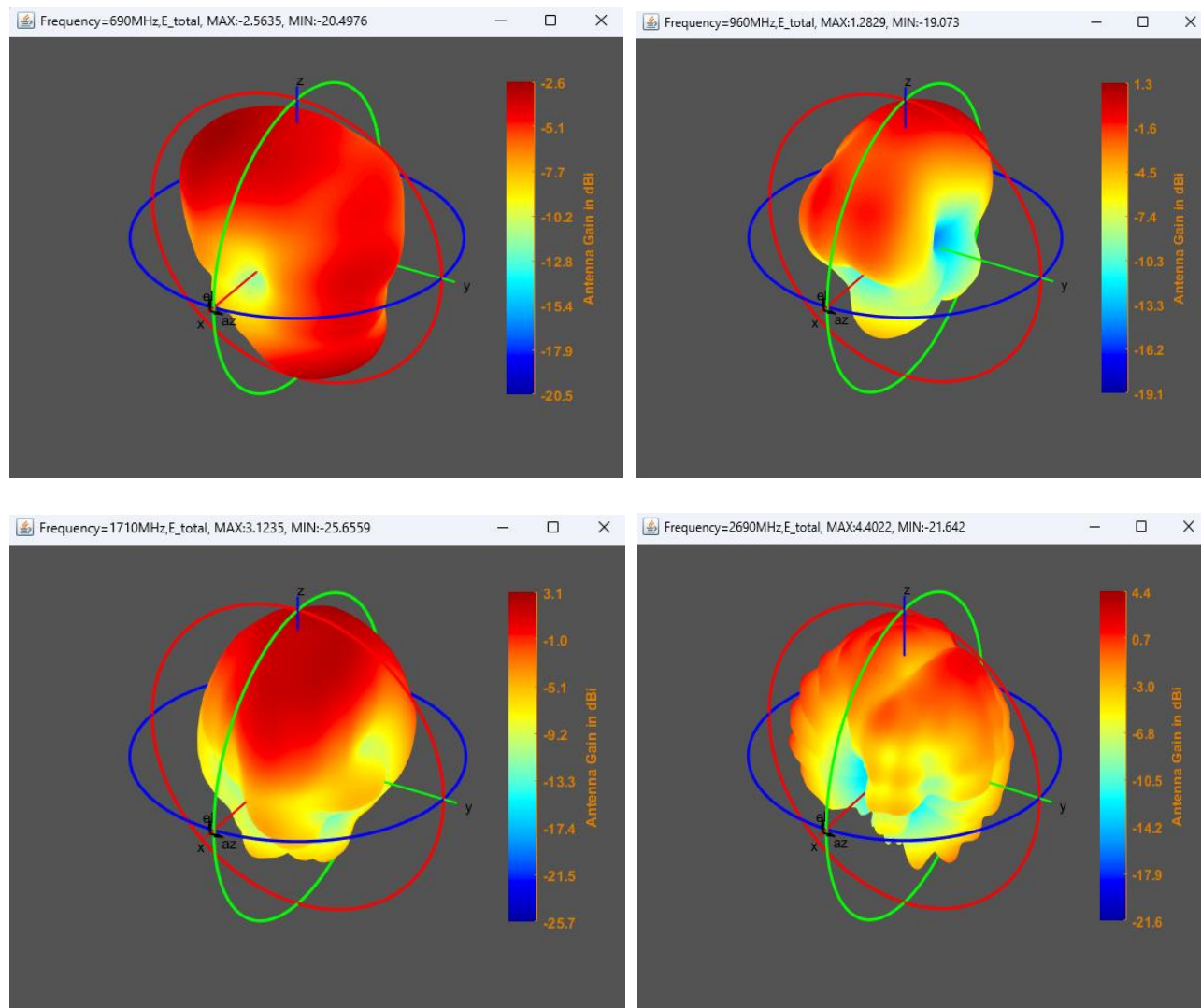
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VISUNE/LTE 弹片天线	2024-10-16	10/15
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十一、Electrical Report /电气报告-----LTE 4G1 Main 天线 3D Plot



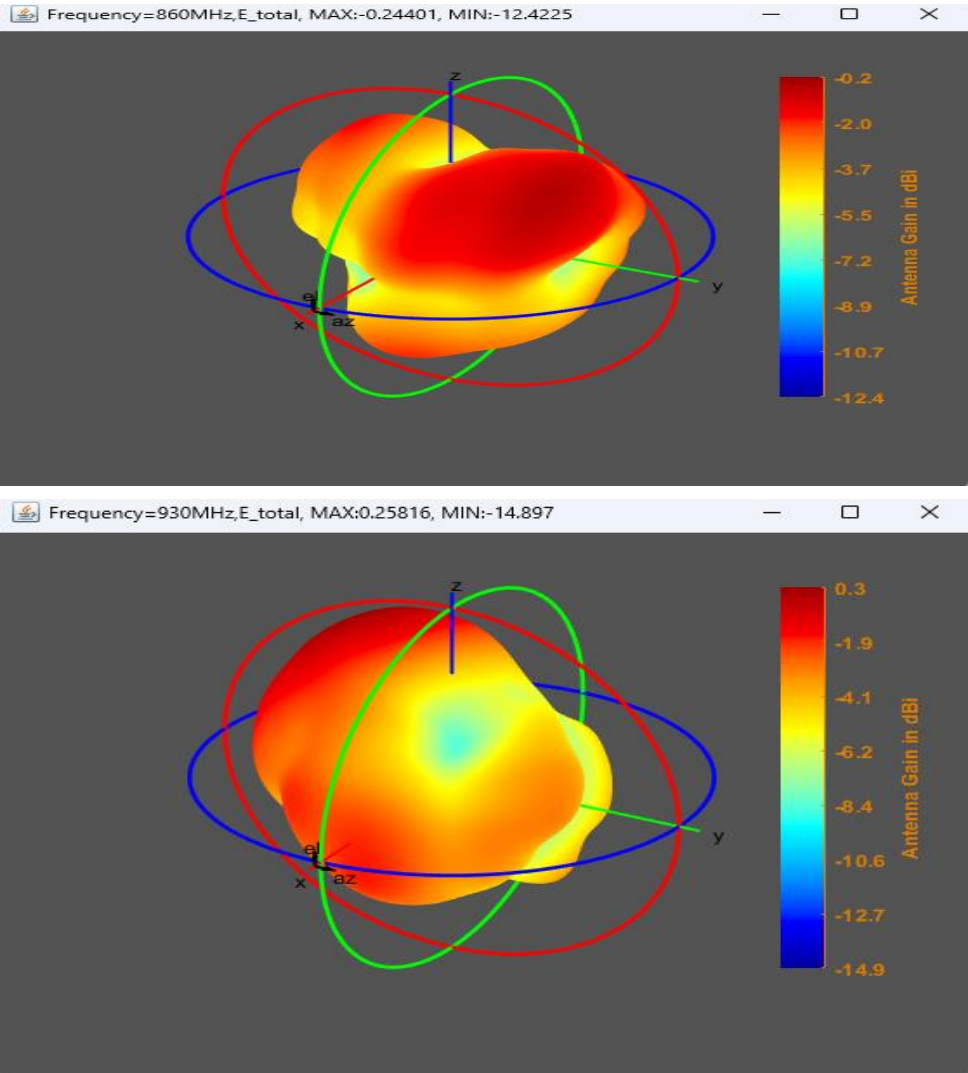
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VISUNE/LTE 弹片天线	2024-10-16	11/15
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十二、Electrical Report /电气报告-----LTE 4G2 Div 天线 3D Plot



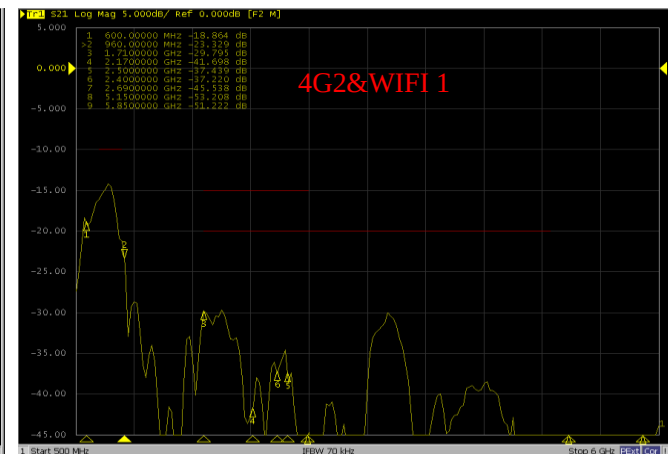
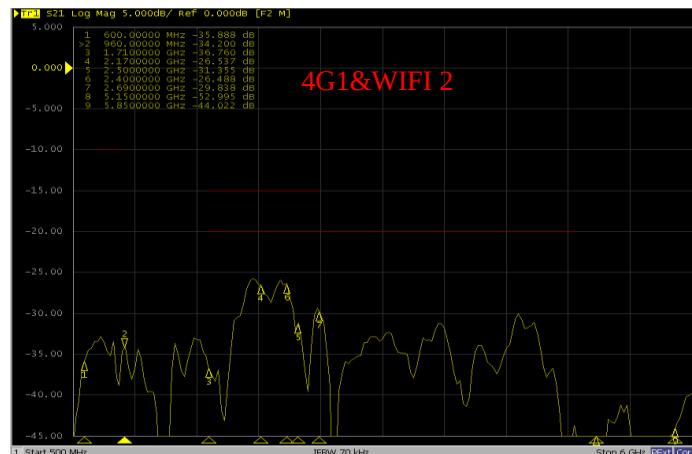
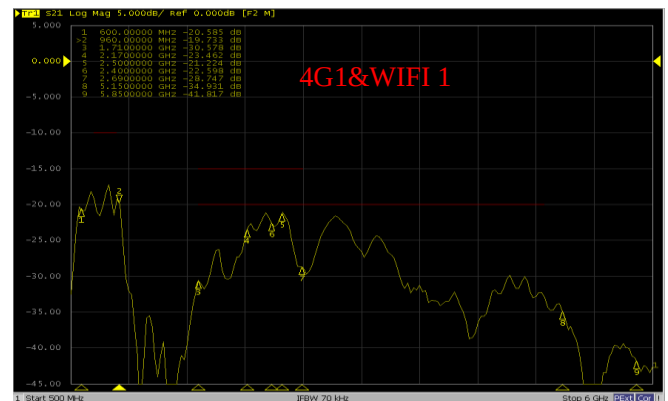
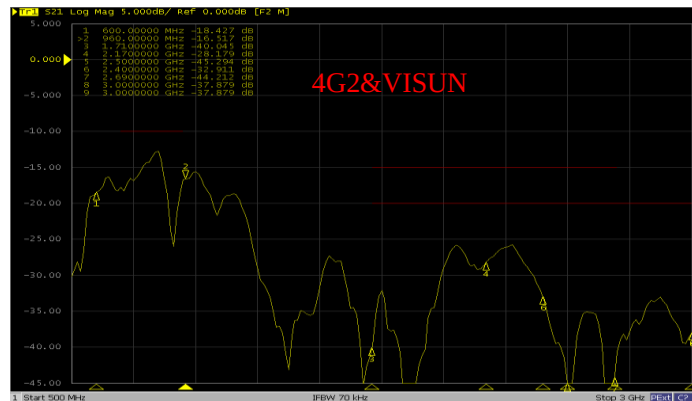
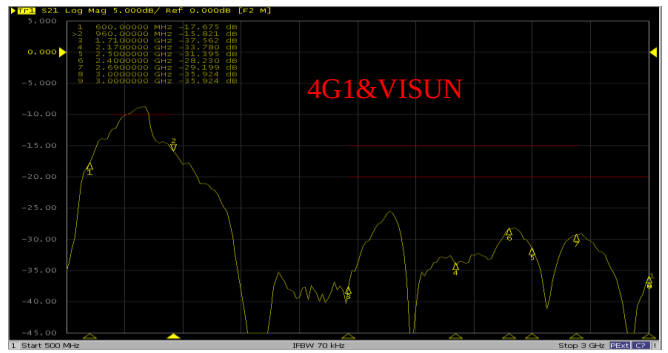
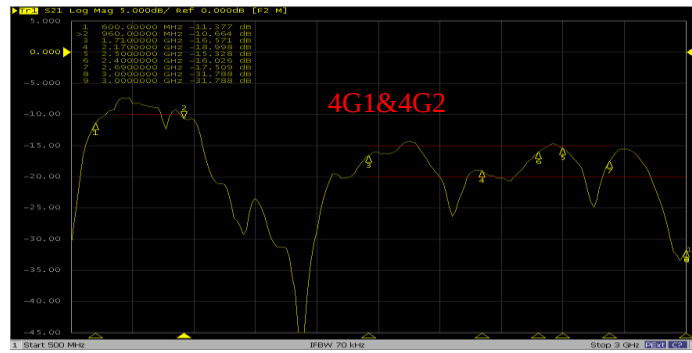
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VISUNE/LTE 弹片天线	2024-10-16	12/15
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十三、Electrical Report /电气报告-----VISUN 天线 3D Plot



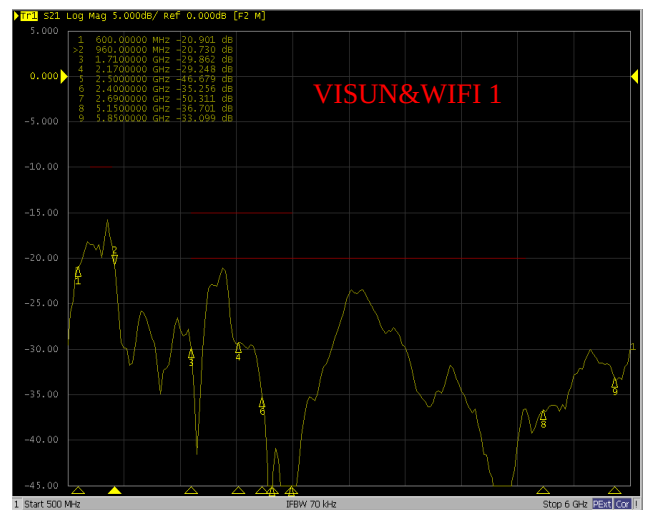
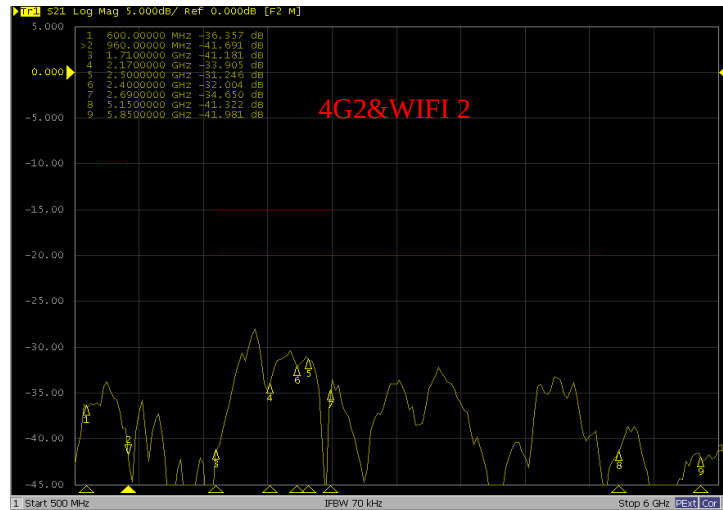
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VISUNE/LTE 弹片天线	2024-10-16	13/15
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十四、Electrical Report /电气报告-----S15 Isolation



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VISUNE/LTE 弹片天线	2024-10-16	14/15
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十五、Electrical Report /电气报告-----S15 Isolation



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VISUNE/LTE 弹片天线	2024-10-16	15/15
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