

VLG 承认书专用章
受控文件

维力谷无线技术股份有限公司送样天线
承认书

客户/项目名	仕方 SLK-T904 5G 双 WIFI 智能天线 (3.5 米 302 线材)		频段	5G 主/分: 700-960/1710-2690/3300-5000MHz 5G MIMO1/2: 1710-2690/3300-5000MHz WIFI: 2400-2500/5150-5850MHz			
VLG 料号	V1194-205-A-02		版本	A			
射频	徐鹏飞	确认		品质	邵晓东	确认	
结构	鲁鹏东			PM	黄莉莉		
日期	2024-12-06						
客户项目名称料号	客户项目名称: SLK-T904 客户项目编号:						
客户确认							

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研发项目客户满意度调查 (客户请针对我们的研发或 PM 管理人员工作进行一个评述, 督促我们更好服务于你)

RF 技术人员	<input type="checkbox"/> 满意	<input type="checkbox"/> 基本满意	<input type="checkbox"/> 不满意
结构技术人员	<input type="checkbox"/> 满意	<input type="checkbox"/> 基本满意	<input type="checkbox"/> 不满意
项目管理 (PM 管理人员)	<input type="checkbox"/> 满意	<input type="checkbox"/> 基本满意	<input type="checkbox"/> 不满意

建议项说明:

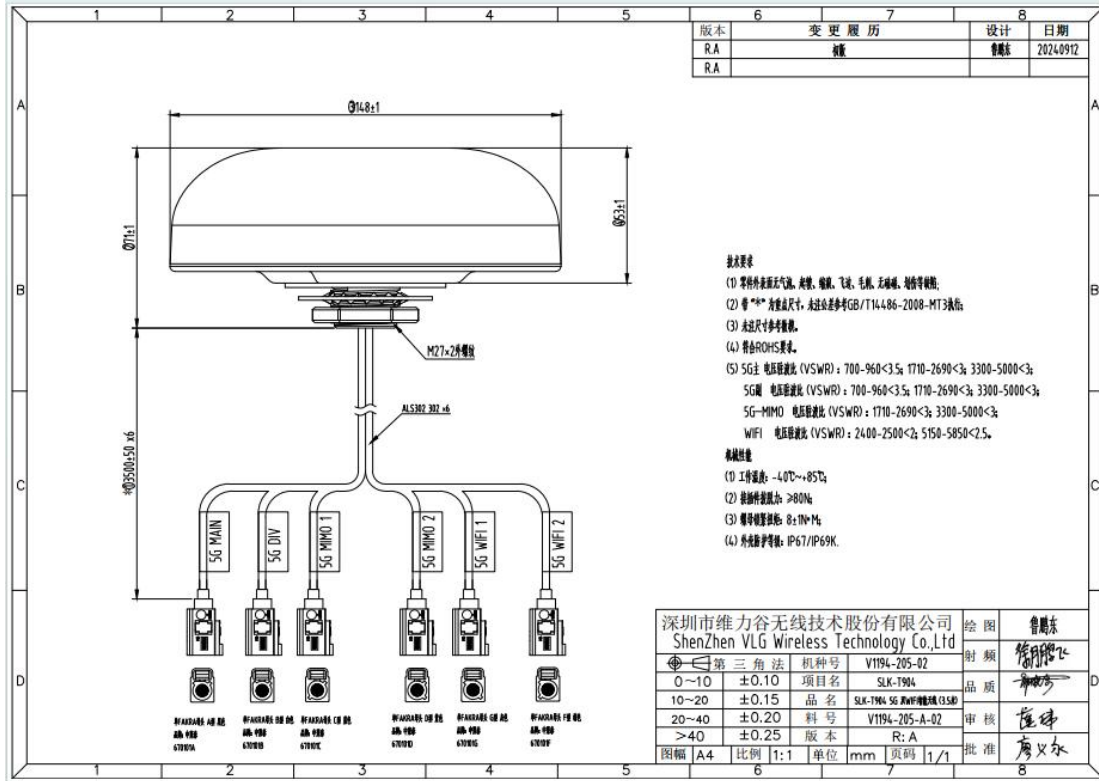
天线组装图片:

The diagram shows a top view of the antenna with a diameter of $\phi 148 \pm 1$ mm and a height of $\phi 31 \pm 1$ mm. It features a central feed point with an M27*2 thread and an AL5882 302-4 connector. Below the main assembly, there are six separate cable assemblies labeled: 5G MAIN, 5G DIV, 5G MIMO 1, 5G MIMO 2, 5G WIFI 1, and 5G WIFI 2. Each cable assembly includes a connector and a corresponding antenna element.

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3、产品图面(Product Picture)

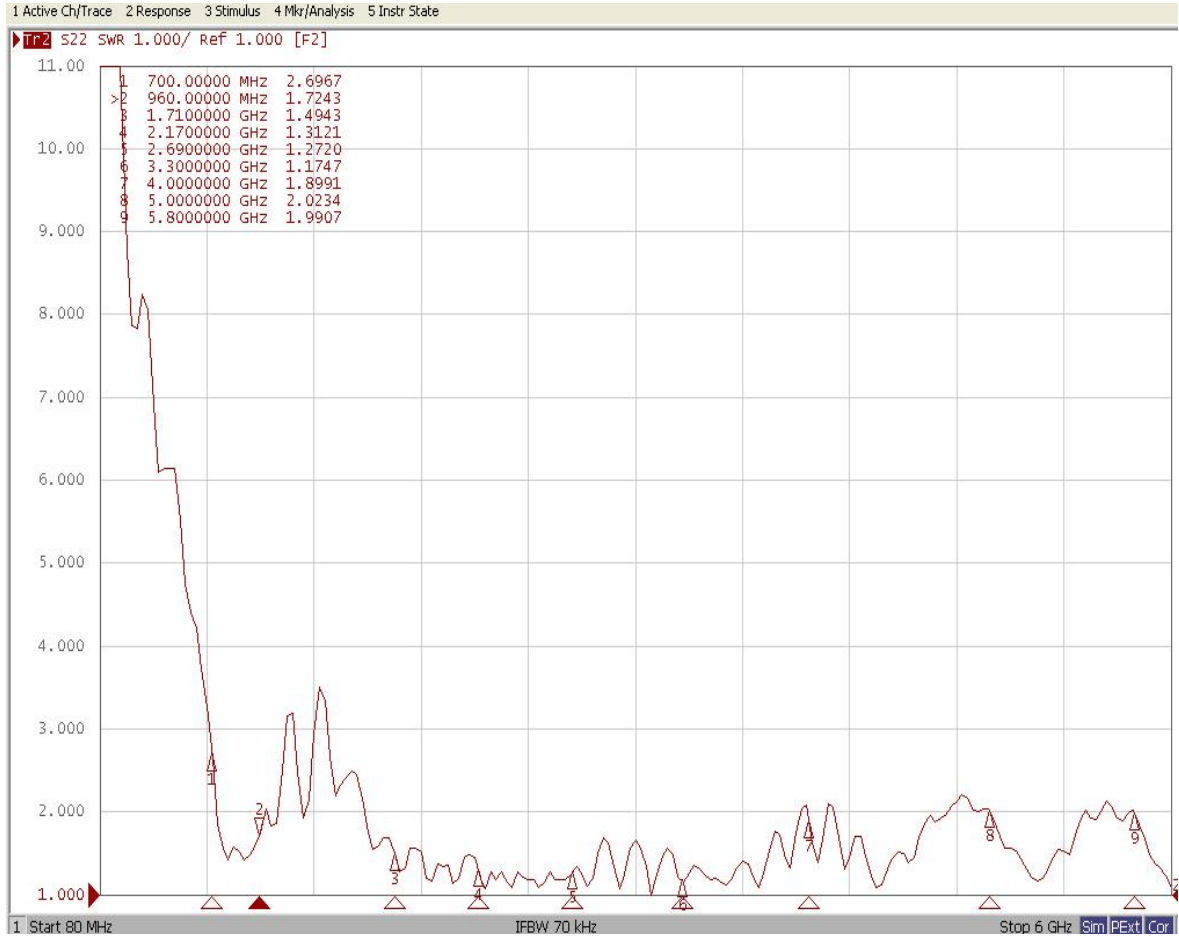


4、产品规格描述 (Product specification describes)

电气参数(Parameter)	
频率范围 (Frequency)	4G&5G 主天线 700-960/1710-2690/3300-5000MHz 4G&5G 分集天线 700-960/1710-2690/3300-5000MHz 5G-MIMO1/5G-MIMO2 1710-2690/3300-5000 MHz WiFi: 2400-2500/5150-5850MHz
带宽 (Bandwidth)	/
输入阻抗 (Impedance)	50 Ω
驻波比 (VSWR)	5G 主天线: 700-960 \leq 3, 1710-2690 \leq 3, 3300-5000 \leq 3 5G 分集天线: 700-960 \leq 3.5, 1710-2690 \leq 3, 3300-5000 \leq 3 5G-MIMO: 1710-2690 \leq 3, 3300-5000 \leq 2.5 WiFi: 2400-2500 \leq 2, 5150-5850MHz \leq 2
极化方式 (Polarization)	Linear polarization/Vertical
辐射方向图 (Radiation pattern)	Omn-directional
接口类型 (Connector)	FAKRA
机械参数(Mechanical Parameter)	
线长(Cable Length)	3500 \pm 50mm
环境参数(Environment Parameter)	
工作温度(Operation Temperature)	-40 $^{\circ}$ C~85 $^{\circ}$ C
储藏温度(Storage Temperature)	-40 $^{\circ}$ C~85 $^{\circ}$ C

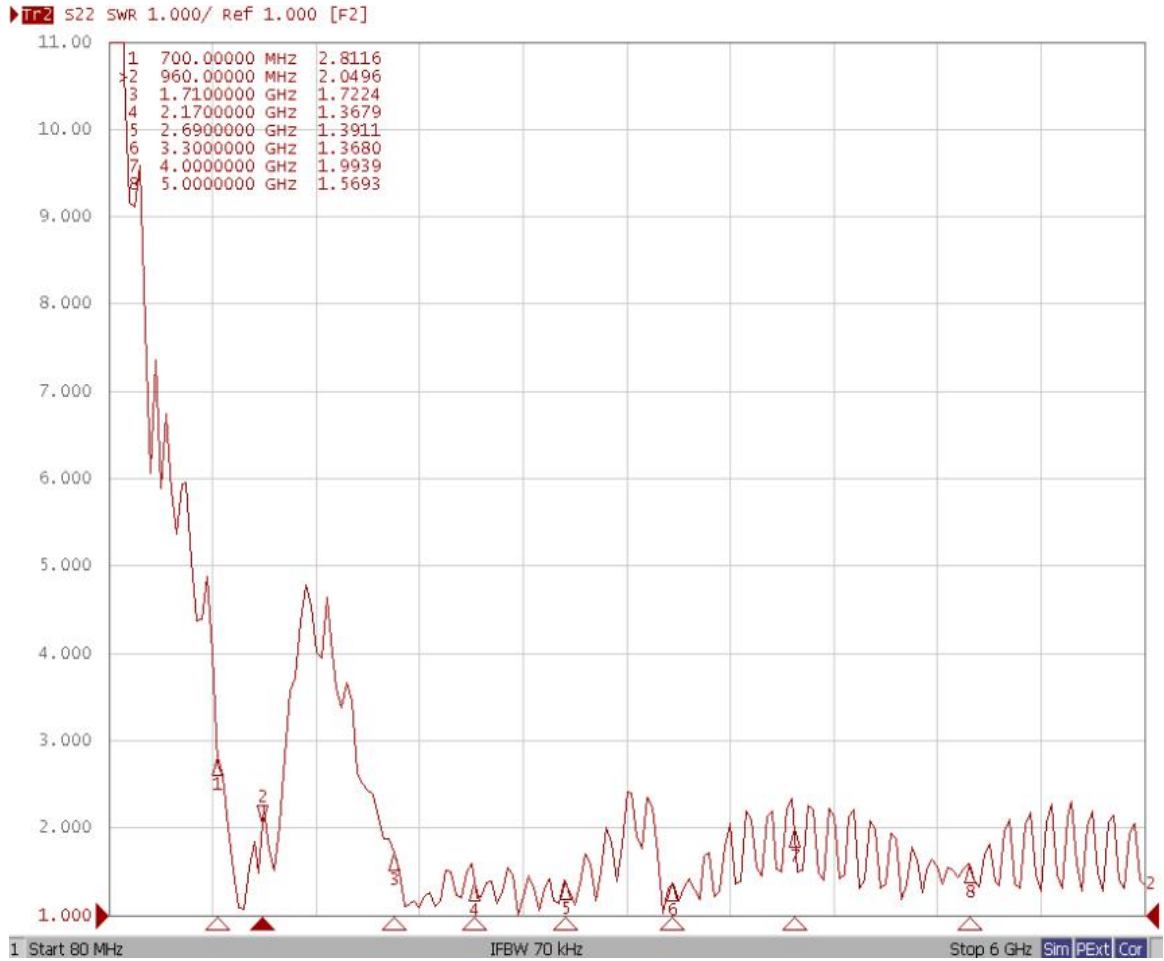
5、电气性能测试报告 (Radiation Report)

4G&5G Main Antenna



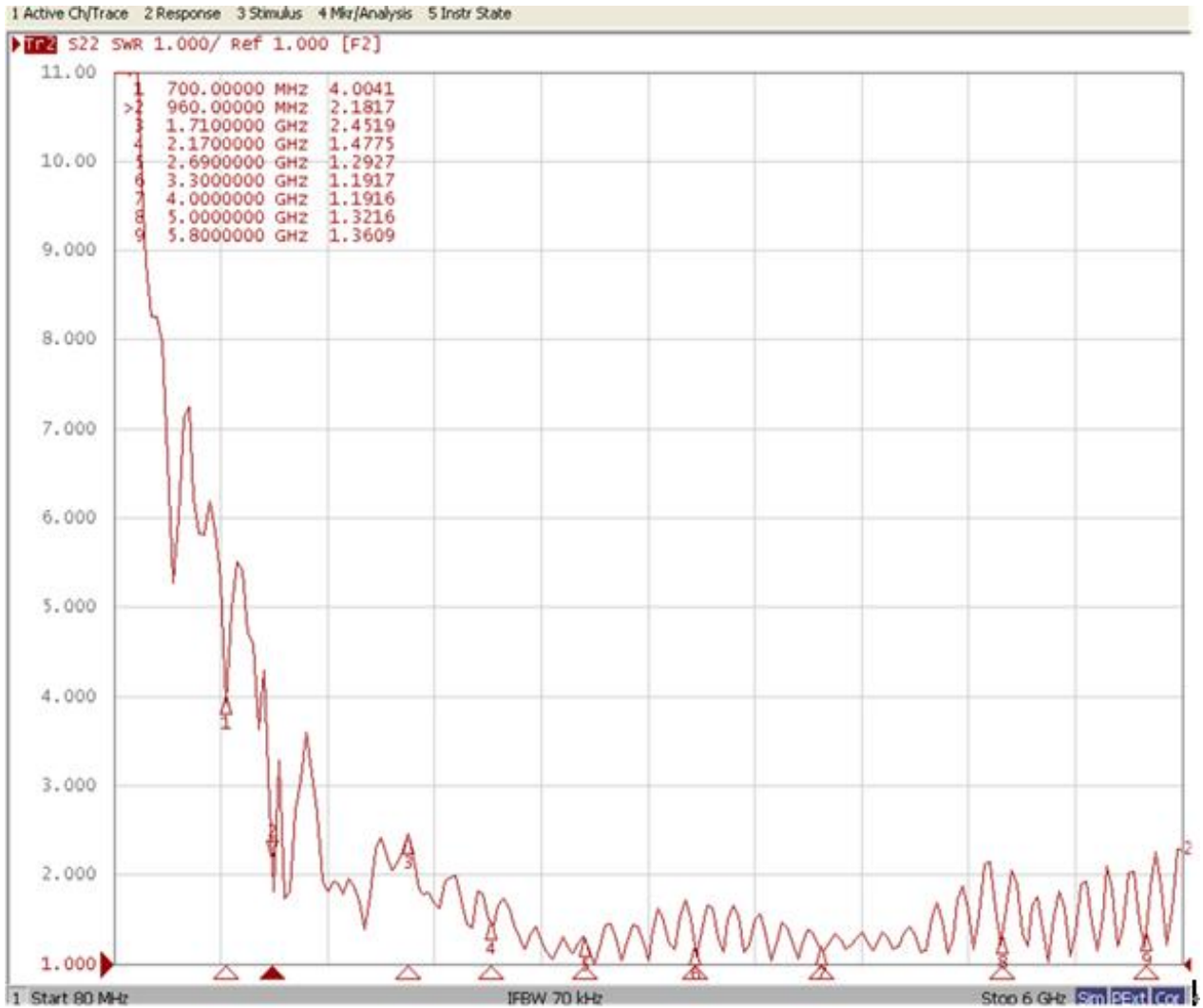
Frequency(MHz)	700	960	1710	2170	2690	3300	4000	5000
VSWR	2.70	1.72	1.49	1.31	1.27	1.17	1.89	2.03

4G&5G Diversity Antenna



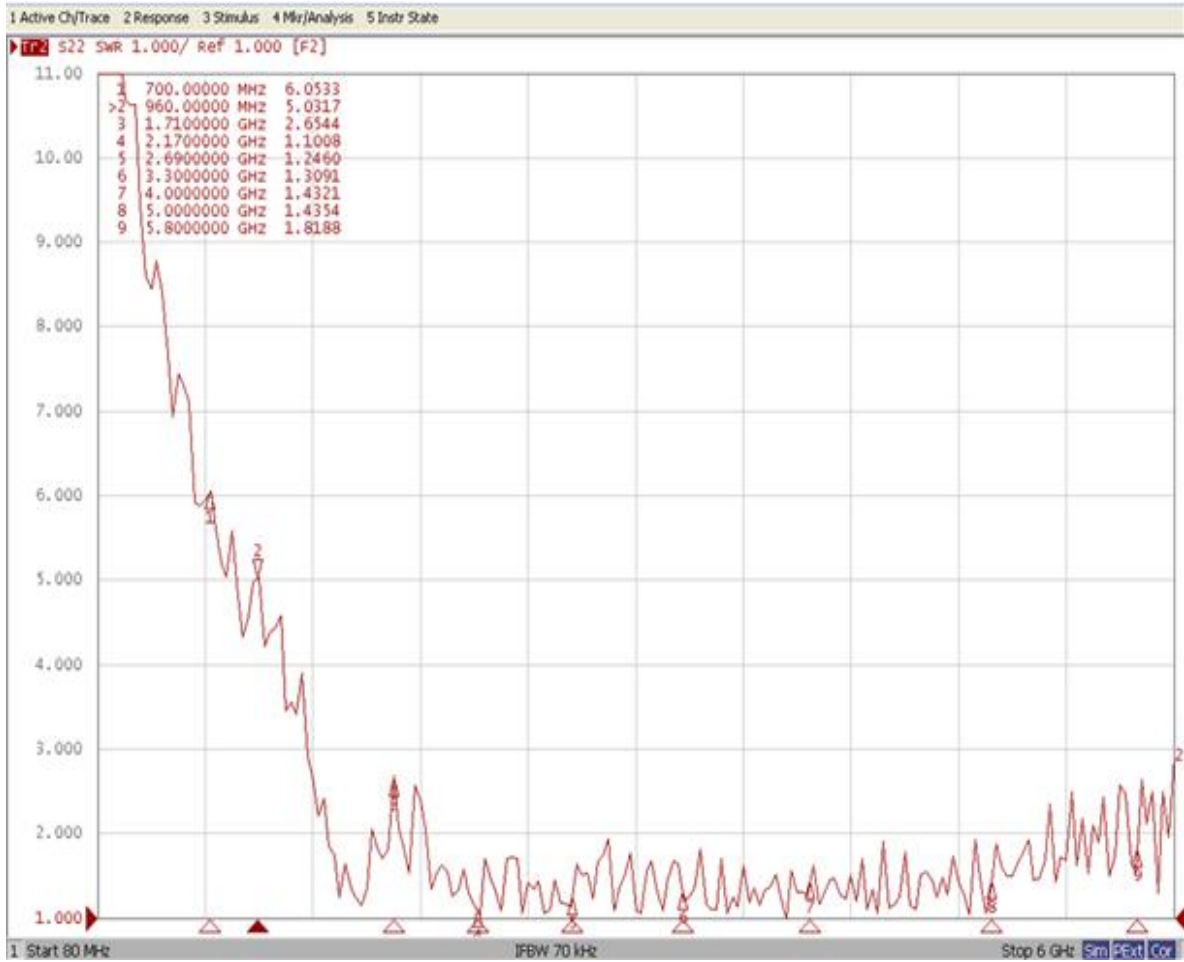
Frequency(MHz)	700	960	1710	2170	2690	3300	4000	5000
VSWR	2.82	2.05	1.72	1.37	1.39	1.37	2.00	1.57

5G-MIMO1 Antenna



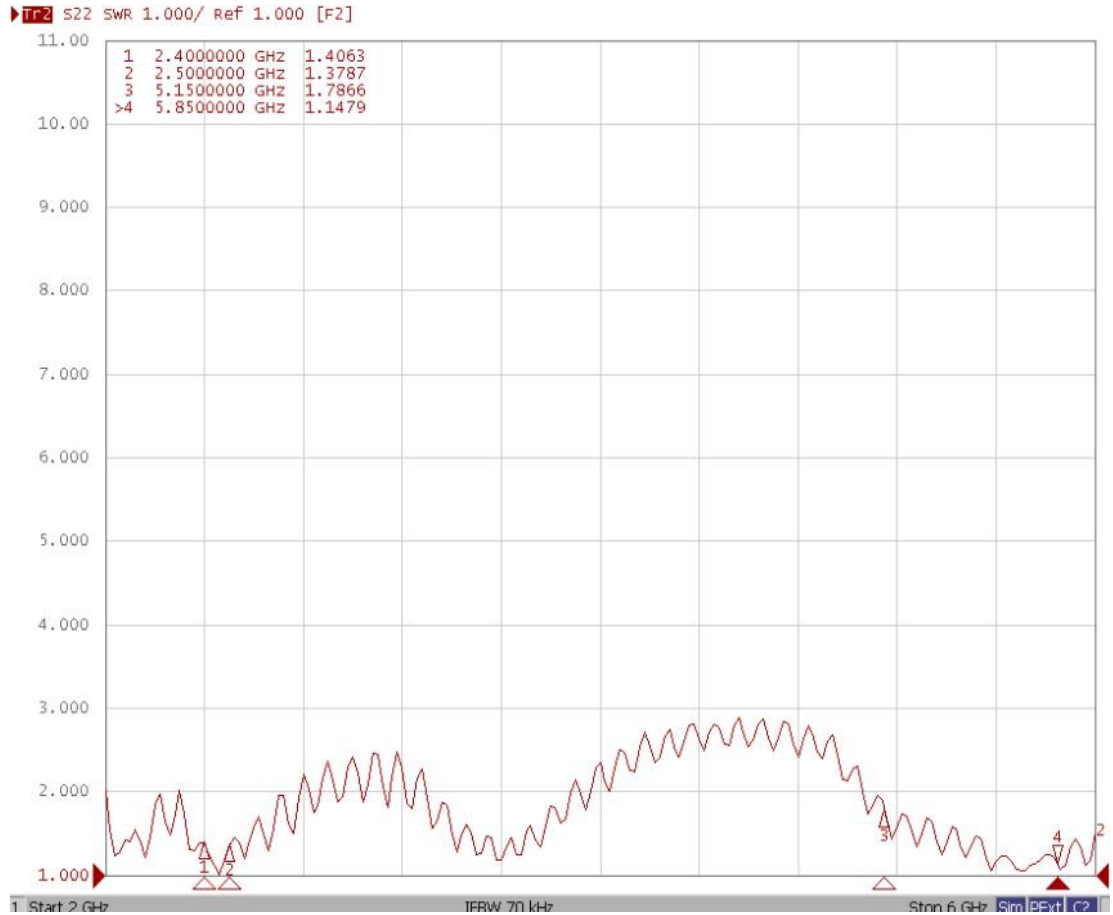
Frequency(MHz)	1710	2170	2690	3300	4000	5000
VSWR	2.45	1.47	1.29	1.20	1.19	1.32

5G-MIMO2 Antenna



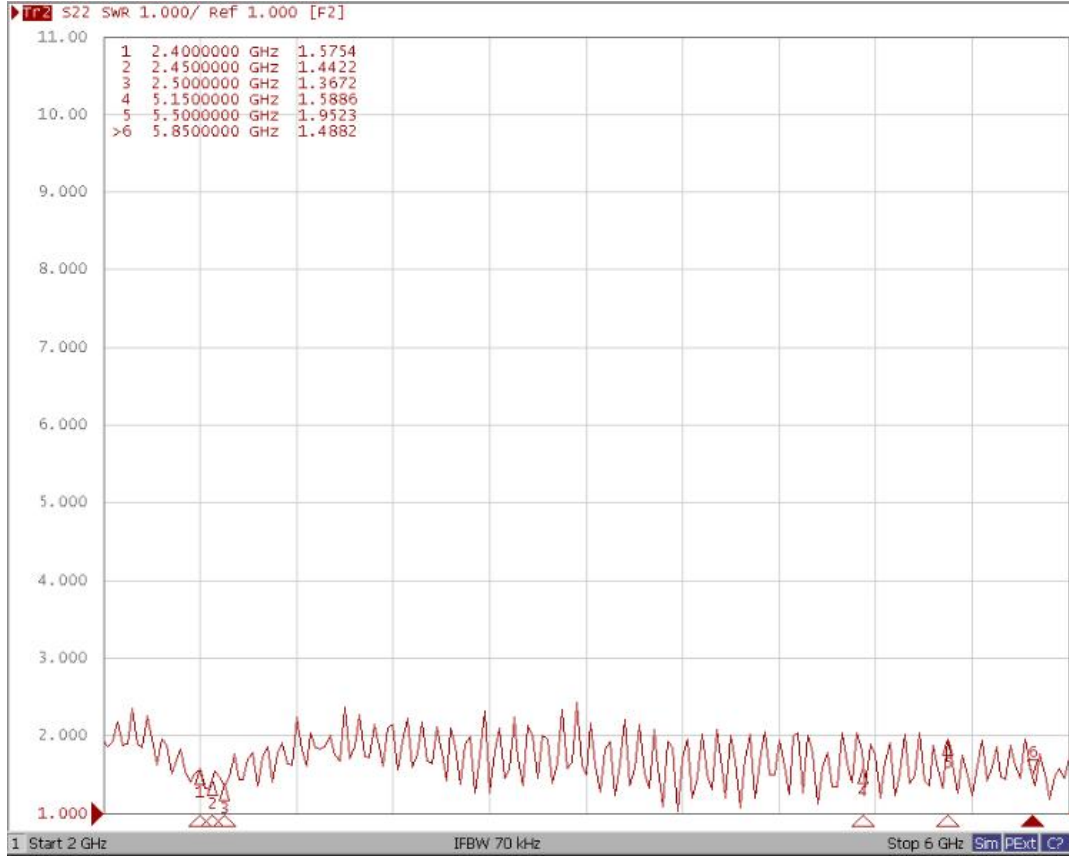
Frequency(MHz)	1710	2170	2690	3300	4000	5000
VSWR	2.65	1.10	1.24	1.31	1.43	1.44

WIFI-1 Antenna



Frequency(MHz)	2400	2500	5150	5850
VSWR	1.41	1.37	1.78	1.14

WIFI-2 Antenna



Frequency(MHz)	2400	2500	5150	5850
VSWR	1.57	1.36	1.59	1.49

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5G Main Antenna

频点	效率	损耗	增益	频点	效率	损耗	增益	频点	效率	损耗	增益
700	25.05%	-6.01	0.69	1910	25.78%	-5.89	2.07	2670	26.34%	-5.79	1.65
710	25.32%	-5.96	0.88	1930	26.91%	-5.70	2.18	2690	25.84%	-5.88	1.17
720	25.90%	-5.87	0.96	1950	27.85%	-5.55	2.22				1.5
730	26.41%	-5.78	0.83	1970	28.31%	-5.48	2.05	3300	24.46%	-6.12	1.39
740	26.83%	-5.71	1.06	1990	27.21%	-5.65	1.99	3350	23.40%	-6.31	1.74
750	27.18%	-5.66	1.56	2010	26.82%	-5.71	2.01	3400	23.82%	-6.23	1.9
760	27.73%	-5.57	1.95	2030	27.89%	-5.54	2.02	3450	24.00%	-6.20	1.88
770	28.85%	-5.40	2.01	2050	28.96%	-5.38	2.06	3500	24.57%	-6.10	2.06
780	29.63%	-5.28	2.22	2070	28.09%	-5.51	1.48	3550	24.50%	-6.11	2.14
790	29.28%	-5.33	2.16	2090	28.90%	-5.39	1.46	3600	23.64%	-6.26	2.17
800	30.17%	-5.20	1.42	2110	27.70%	-5.57	1.94	3650	22.76%	-6.43	1.81
810	34.23%	-4.66	1.56	2130	28.10%	-5.51	1.19	3700	22.97%	-6.39	2.09
820	34.44%	-4.63	1.53	2150	28.35%	-5.47	1.44	3750	21.29%	-6.72	1.95
830	35.76%	-4.47	1.23	2170	29.53%	-5.30	1.75	3800	21.18%	-6.74	2
840	37.55%	-4.25	1.16	2190	30.77%	-5.12	1.52	3850	20.39%	-6.91	1.72
850	38.71%	-4.12	1.22	2210	29.70%	-5.27	1.4	3900	21.74%	-6.63	1.28
860	38.03%	-4.20	1.21	2230	31.09%	-5.07	1.67	3950	21.66%	-6.64	1.34
870	36.14%	-4.42	1.25	2250	31.62%	-5.00	1.94	4000	22.32%	-6.51	1.28
880	35.20%	-4.53	1.07	2270	31.67%	-4.99	1.98	4050	22.57%	-6.46	1.01
890	33.02%	-4.81	0.86	2290	31.55%	-5.01	1.89	4100	21.98%	-6.58	0.96
900	32.89%	-4.83	0.81	2310	31.75%	-4.98	2.07	4150	20.99%	-6.78	1.13
910	30.39%	-5.17	0.71	2330	31.94%	-4.96	2.12	4200	21.89%	-6.60	0.91
920	31.70%	-4.99	0.81	2350	32.31%	-4.91	2.03	4250	20.85%	-6.81	1.04
930	28.33%	-5.48	0.83	2370	32.95%	-4.82	2.08	4300	20.75%	-6.83	0.54
940	27.15%	-5.66	0.87	2390	33.29%	-4.78	2.21	4350	21.62%	-6.65	0.73
950	26.92%	-5.70	0.87	2410	32.89%	-4.83	2.35	4400	21.78%	-6.62	0.69
960	26.83%	-5.71	0.93	2430	32.05%	-4.94	2.22	4450	20.75%	-6.83	1.25
				2450	30.38%	-5.17	1.84	4500	20.98%	-6.78	0.92
1710	26.81%	-5.72	1.28	2470	30.38%	-5.17	1.97	4550	21.97%	-6.58	0.84
1730	25.40%	-5.95	0.82	2490	29.28%	-5.33	1.59	4600	23.09%	-6.37	0.58
1750	25.36%	-5.96	0.84	2510	28.35%	-5.47	1.67	4650	23.21%	-6.34	0.64
1770	25.22%	-5.98	0.92	2530	27.66%	-5.58	1.66	4700	22.98%	-6.39	0.62
1790	25.73%	-5.89	0.74	2550	27.02%	-5.68	1.49	4750	22.09%	-6.56	1.01
1810	25.46%	-5.94	0.83	2570	26.41%	-5.78	1.55	4800	21.77%	-6.62	1.17
1830	24.68%	-6.08	0.86	2590	26.53%	-5.76	1.24	4850	21.31%	-6.71	1.02
1850	25.02%	-6.02	1.69	2610	27.42%	-5.62	1.39	4900	20.52%	-6.88	0.75
1870	25.03%	-6.01	2.23	2630	25.99%	-5.85	1.53	4950	20.43%	-6.90	0.52
1890	25.80%	-5.88	2.29	2650	26.10%	-5.83	1.45	5000	20.06%	-6.98	0.61

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5G Diversity Antenna

频点	效率	损耗	增益	频点	效率	损耗	增益	频点	效率	损耗	增益
700	24.91%	-6.04	0.65	1910	30.79%	-5.12	1.56	2670	33.44%	-4.76	1.46
710	26.34%	-5.79	0.79	1930	30.18%	-5.20	1.45	2690	31.96%	-4.95	1.32
720	28.81%	-5.40	0.82	1950	30.71%	-5.13	1.5				
730	28.97%	-5.38	0.84	1970	30.76%	-5.12	1.36	3300	23.63%	-6.26	1.21
740	29.60%	-5.29	0.86	1990	32.02%	-4.95	1.32	3350	23.99%	-6.20	1.13
750	30.59%	-5.14	0.95	2010	32.65%	-4.86	1.44	3400	24.58%	-6.09	0.91
760	30.98%	-5.09	0.99	2030	34.80%	-4.58	1.51	3450	23.78%	-6.24	0.78
770	30.76%	-5.12	1.05	2050	32.57%	-4.87	1.58	3500	23.48%	-6.29	0.96
780	32.03%	-4.94	1.13	2070	35.85%	-4.45	1.81	3550	23.70%	-6.25	1.01
790	32.57%	-4.87	1.05	2090	35.26%	-4.53	1.73	3600	25.14%	-6.00	0.72
800	33.09%	-4.80	1.03	2110	36.21%	-4.41	1.79	3650	24.75%	-6.06	0.71
810	31.89%	-4.96	1.06	2130	33.88%	-4.70	1.65	3700	23.30%	-6.33	0.82
820	30.76%	-5.12	1.27	2150	32.65%	-4.86	1.76	3750	23.33%	-6.32	0.76
830	29.52%	-5.30	1.28	2170	33.08%	-4.80	1.59	3800	21.69%	-6.64	0.64
840	32.14%	-4.93	1.25	2190	33.46%	-4.75	1.27	3850	20.09%	-6.97	0.77
850	28.93%	-5.39	1.43	2210	32.38%	-4.90	1.32	3900	20.97%	-6.78	0.63
860	31.44%	-5.02	1.38	2230	34.08%	-4.67	1.35	3950	21.75%	-6.62	0.58
870	26.60%	-5.75	1.35	2250	34.50%	-4.62	1.39	4000	20.51%	-6.88	0.54
880	31.34%	-5.04	1.27	2270	35.44%	-4.50	1.21	4050	19.96%	-7.00	1.12
890	28.46%	-5.46	1.39	2290	34.66%	-4.60	1.34	4100	19.85%	-7.02	1.28
900	31.47%	-5.02	0.95	2310	34.03%	-4.68	1.58	4150	19.22%	-7.16	1.42
910	31.81%	-4.97	1.11	2330	33.45%	-4.76	1.87	4200	18.64%	-7.30	0.84
920	31.15%	-5.06	1.02	2350	31.59%	-5.00	1.75	4250	19.55%	-7.09	0.61
930	31.34%	-5.04	1.01	2370	33.92%	-4.69	1.61	4300	19.73%	-7.05	0.94
940	29.27%	-5.34	0.97	2390	32.26%	-4.91	1.83	4350	19.05%	-7.20	1.27
950	32.18%	-4.92	0.88	2410	33.95%	-4.69	1.79	4400	19.29%	-7.15	0.74
960	30.17%	-5.20	0.61	2430	32.15%	-4.93	1.57	4450	19.06%	-7.20	0.59
				2450	32.57%	-4.87	1.81	4500	18.73%	-7.27	0.93
1710	30.08%	-5.22	1.72	2470	31.24%	-5.05	1.67	4550	18.52%	-7.32	1.32
1730	33.11%	-4.80	1.81	2490	32.93%	-4.82	1.52	4600	18.09%	-7.43	0.68
1750	32.56%	-4.87	1.92	2510	31.81%	-4.97	1.56	4650	18.39%	-7.35	0.54
1770	33.89%	-4.70	2.03	2530	32.08%	-4.94	1.58	4700	18.99%	-7.22	0.86
1790	33.84%	-4.71	1.98	2550	33.99%	-4.69	1.69	4750	18.18%	-7.40	0.52
1810	32.73%	-4.85	1.55	2570	33.73%	-4.72	1.71	4800	19.31%	-7.14	1.02
1830	31.95%	-4.96	1.54	2590	33.51%	-4.75	1.65	4850	19.52%	-7.09	0.58
1850	31.49%	-5.02	1.44	2610	33.72%	-4.72	1.52	4900	19.54%	-7.09	0.65
1870	31.84%	-4.97	1.78	2630	33.79%	-4.71	1.58	4950	18.65%	-7.29	0.78
1890	31.06%	-5.08	1.82	2650	32.85%	-4.83	1.66	5000	18.98%	-7.22	0.55

5G-MIMO1 Antenna

频点	效率	损耗	增益	频点	效率	损耗	增益	频点	效率	损耗	增益
1710	29.47%	-5.31	1.85	2290	32.05%	-4.94	1.47	3650	20.73%	-6.83	0.96
1730	30.59%	-5.14	1.93	2310	32.05%	-4.94	1.64	3700	20.30%	-6.93	1.07
1750	30.25%	-5.19	2.11	2330	32.85%	-4.83	1.45	3750	19.66%	-7.07	1.25
1770	31.41%	-5.03	2.25	2350	32.15%	-4.93	1.67	3800	21.18%	-6.74	0.97
1790	31.98%	-4.95	2.16	2370	32.44%	-4.89	1.67	3850	20.62%	-6.86	0.91
1810	30.95%	-5.09	2.13	2390	33.41%	-4.76	1.37	3900	21.03%	-6.77	0.74
1830	30.72%	-5.13	2.11	2410	33.45%	-4.76	1.21	3950	20.58%	-6.86	0.87
1850	30.60%	-5.14	2.03	2430	33.22%	-4.79	1.15	4000	21.28%	-6.72	0.8
1870	30.35%	-5.18	1.94	2450	32.32%	-4.91	1.41	4050	21.17%	-6.74	0.89
1890	30.47%	-5.16	1.69	2470	30.85%	-5.11	1.45	4100	21.39%	-6.70	1.2
1910	30.58%	-5.15	1.71	2490	30.07%	-5.22	1.52	4150	21.05%	-6.77	0.93
1930	30.15%	-5.21	1.6	2510	30.10%	-5.21	1.26	4200	21.14%	-6.75	1.11
1950	30.18%	-5.20	1.65	2530	29.15%	-5.35	1.52	4250	21.13%	-6.75	1.03
1970	30.29%	-5.19	1.51	2550	29.08%	-5.36	1.63	4300	21.15%	-6.75	0.87
1990	30.51%	-5.15	1.47	2570	28.94%	-5.39	1.47	4350	20.84%	-6.81	0.65
2010	30.69%	-5.13	1.59	2590	28.96%	-5.38	1.47	4400	20.63%	-6.85	0.75
2030	29.94%	-5.24	1.42	2610	29.33%	-5.33	1.52	4450	20.12%	-6.96	0.79
2050	29.84%	-5.25	1.33	2630	29.59%	-5.29	1.54	4500	20.03%	-6.98	1.16
2070	30.69%	-5.13	1.41	2650	30.90%	-5.10	1.26	4550	20.13%	-6.96	1.04
2090	30.90%	-5.10	1.06	2670	31.32%	-5.04	1.43	4600	20.01%	-6.99	0.92
2110	30.74%	-5.12	1.11	2690	30.96%	-5.09	1.47	4650	20.02%	-6.99	0.81
2130	29.12%	-5.36	1.36					4700	19.58%	-7.08	0.77
2150	29.80%	-5.26	1.15	3300	23.04%	-5.90	1.38	4750	20.25%	-6.94	0.74
2170	31.07%	-5.08	1.74	3350	24.05%	-5.74	1.25	4800	20.39%	-6.90	0.69
2190	33.31%	-4.77	1.34	3400	23.86%	-5.77	1.18	4850	21.01%	-6.78	0.59
2210	33.14%	-4.80	1.21	3450	22.46%	-6.00	1.15	4900	21.26%	-6.72	0.55
2230	33.75%	-4.72	1.36	3500	22.14%	-6.06	1.13	4950	19.44%	-7.11	0.46
2250	33.88%	-4.70	1.32	3550	21.67%	-6.14	0.96	5000	18.78%	-7.26	0.56
2270	34.11%	-4.67	1.21	3600	21.52%	-6.17	1.12				

5G-MIMO2 Antenna

频点	效率	损耗	增益	频点	效率	损耗	增益	频点	效率	损耗	增益
1710	23.17%	-6.35	1.57	2290	31.13%	-5.07	1.35	3650	23.39%	-6.31	1.24
1730	25.47%	-5.94	1.59	2310	32.30%	-4.91	1.52	3700	23.42%	-6.30	1.35
1750	26.18%	-5.82	1.63	2330	31.80%	-4.98	1.33	3750	23.14%	-6.36	1.53
1770	26.29%	-5.80	1.77	2350	31.02%	-5.08	1.55	3800	22.71%	-6.44	1.25
1790	25.43%	-5.95	1.89	2370	30.48%	-5.16	2.05	3850	22.30%	-6.52	1.19
1810	25.31%	-5.97	1.95	2390	29.86%	-5.25	1.25	3900	22.61%	-6.46	1.02
1830	25.20%	-5.99	1.94	2410	30.70%	-5.13	1.08	3950	23.10%	-6.36	1.15
1850	25.07%	-6.01	1.84	2430	30.80%	-5.11	1.03	4000	23.01%	-6.38	1.08
1870	25.71%	-5.90	1.78	2450	31.07%	-5.08	1.29	4050	24.57%	-6.10	1.17
1890	25.83%	-5.88	1.53	2470	30.82%	-5.11	1.33	4100	24.96%	-6.03	1.48
1910	26.01%	-5.85	1.55	2490	30.15%	-5.21	1.38	4150	22.87%	-6.41	1.21
1930	26.03%	-5.84	1.44	2510	29.66%	-5.28	1.21	4200	21.05%	-6.77	1.38
1950	26.27%	-5.81	1.49	2530	28.07%	-5.52	1.47	4250	21.39%	-6.70	1.31
1970	26.29%	-5.80	1.35	2550	27.16%	-5.66	1.58	4300	23.02%	-6.38	1.15
1990	27.27%	-5.64	1.31	2570	26.11%	-5.83	2.02	4350	24.62%	-6.09	1.08
2010	28.95%	-5.38	1.43	2590	28.43%	-5.46	1.42	4400	24.36%	-6.13	1.18
2030	29.15%	-5.35	1.24	2610	30.11%	-5.21	1.55	4450	24.02%	-6.19	1.22
2050	26.07%	-5.84	1.17	2630	30.82%	-5.11	1.49	4500	23.03%	-6.38	1.59
2070	26.71%	-5.73	1.25	2650	31.52%	-5.01	1.21	4550	22.37%	-6.50	1.47
2090	28.76%	-5.41	1.19	2670	32.90%	-4.83	1.38	4600	23.49%	-6.29	1.33
2110	30.80%	-5.11	0.95	2690	32.69%	-4.86	1.42	4650	25.16%	-5.99	1.24
2130	30.06%	-5.22	1.25					4700	25.07%	-6.01	1.2
2150	29.37%	-5.32	1.04	3300	25.53%	-5.93	1.46	4750	26.27%	-5.81	1.17
2170	29.12%	-5.36	1.23	3350	24.86%	-6.05	1.33	4800	26.02%	-5.85	1.13
2190	29.41%	-5.32	1.23	3400	24.71%	-6.07	1.26	4850	23.95%	-6.21	1.02
2210	29.73%	-5.27	1.12	3450	23.86%	-6.22	1.23	4900	23.46%	-6.30	0.98
2230	29.22%	-5.34	1.25	3500	23.97%	-6.20	1.21	4950	23.49%	-6.29	0.89
2250	30.07%	-5.22	1.21	3550	22.85%	-6.41	1.04	5000	23.38%	-6.31	1.13
2270	30.18%	-5.20	1.09	3600	23.09%	-6.37	1.18				

WIFI-1 Antenna

频点	效率	损耗	增益	频点	效率	损耗	增益
2400	38.58%	-4.14	2.03	5150	19.71%	-7.05	0.61
2410	37.92%	-4.21	2.11	5200	20.32%	-6.92	0.78
2420	40.72%	-3.90	2.01	5250	20.14%	-6.96	0.71
2430	39.98%	-3.98	2.23	5300	21.49%	-6.68	0.55
2440	39.00%	-4.09	2.26	5350	21.29%	-6.72	0.48
2450	39.62%	-4.02	2.12	5400	20.11%	-6.97	0.58
2460	40.41%	-3.94	2.06	5450	20.18%	-6.95	0.62
2470	40.13%	-3.97	2.01	5500	18.70%	-7.28	0.99
2480	38.52%	-4.14	2.09	5550	19.52%	-7.09	0.87
2490	38.98%	-4.09	2.22	5600	19.36%	-7.13	0.73
2500	39.64%	-4.02	2.06	5650	20.05%	-6.98	0.64
				5700	19.42%	-7.12	0.61
				5750	19.30%	-7.14	0.57
				5800	18.03%	-7.44	0.53
				5850	18.62%	-7.30	0.42

深圳市维力谷无线技术股份有限公司
ShenZhen VLG Wireless Technology Co.,Ltd

WIFI-2 Antenna

频点	效率	损耗	增益	频点	效率	损耗	增益
2400	37.59%	-4.25	1.94	5150	19.73%	-7.05	0.75
2410	38.53%	-4.14	1.98	5200	19.79%	-7.04	0.92
2420	39.57%	-4.03	1.97	5250	19.96%	-7.00	0.85
2430	41.48%	-3.82	2.04	5300	20.84%	-6.81	0.69
2440	40.40%	-3.94	2.07	5350	21.62%	-6.65	0.62
2450	38.61%	-4.13	2.03	5400	21.06%	-6.77	0.72
2460	40.85%	-3.89	2.05	5450	20.56%	-6.87	0.76
2470	40.10%	-3.97	2.03	5500	19.20%	-7.17	0.83
2480	39.44%	-4.04	2.05	5550	19.15%	-7.18	0.91
2490	38.64%	-4.13	2.07	5600	19.78%	-7.04	0.81
2500	40.19%	-3.96	1.99	5650	19.85%	-7.02	0.75
				5700	19.85%	-7.02	0.71
				5750	19.55%	-7.09	0.61
				5800	18.45%	-7.34	0.68
				5850	19.03%	-7.21	0.66