



Zhejiang Haitong Communication Electronics Co., Ltd

Antenna specification

Project name: WIFI63-AU+AF

Operating frequency band: AF WCDMA 1/8 FDD B2/4/7/28/66
AU FDD B1/B3/B5/B7/B8/B20/B28/B38/B40

Tel: 0755-26551151

Address of R&D Center:

Shenzhen: South Area, 1st Floor, Phoenix Building, Keji North 1st Road, Nanshan District, Shenzhen

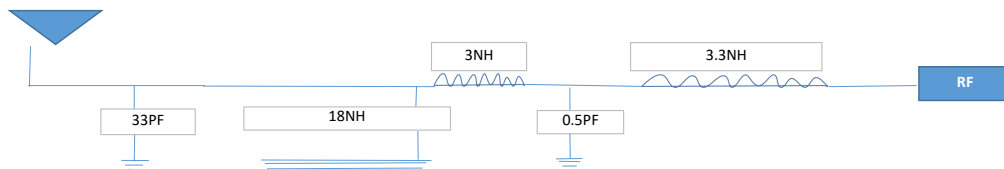
Shanghai: 1st Floor, Building C5, No. 2555 Xiupu Road, Pudong New Area, Shanghai

Xi'an : Room 101, Block A11, Phase II Software R&D Base, Software New Town, Xi'an Hi tech Zone

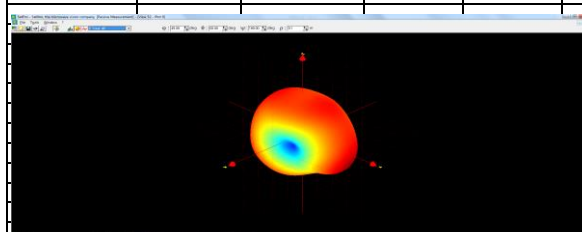
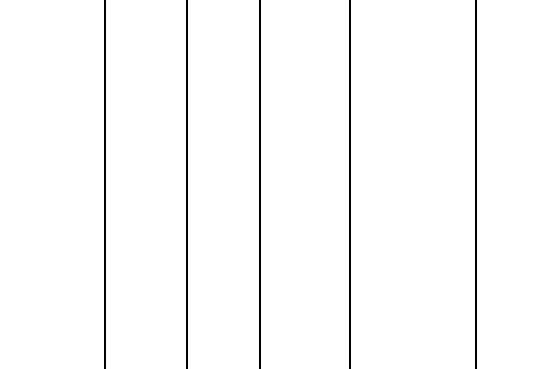
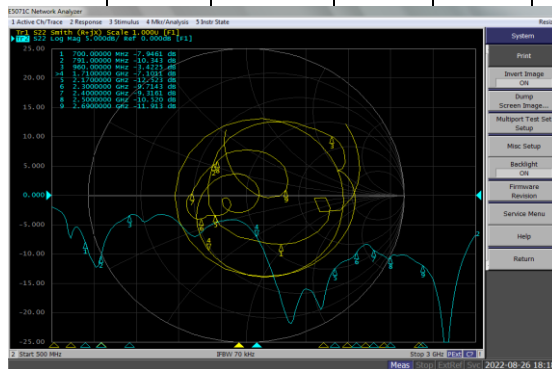
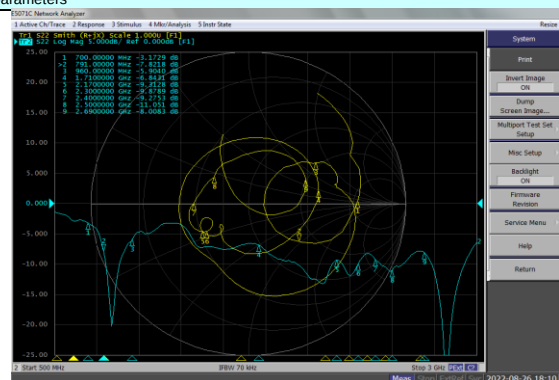
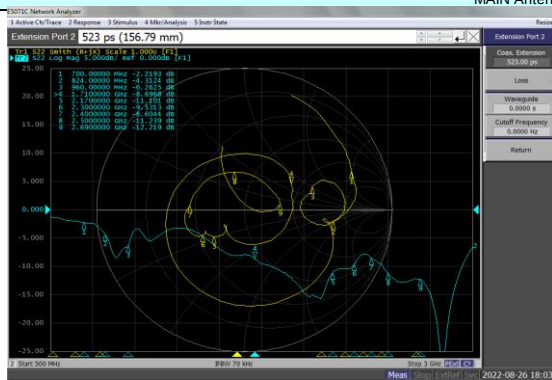
Beijing :Building 21, No. 8, Dongbei Wangxi Road, Haidian District, Beijing

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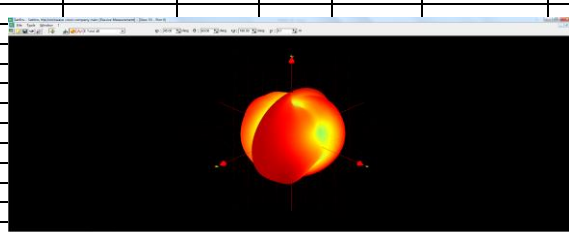
RF engineer	侯杰				
Structural engineer					
Test engineer					
Read					
Account engineer					
Test environment	Temperature	22℃		Temperature	65%
Machine state	Motherboard version				
	PA bom	ANT switch-matching-PA			
	Antenna version				
	Antenna bom	ANT-matching-ANT switch			
	Software version				
	Other				
Circuit matching:					



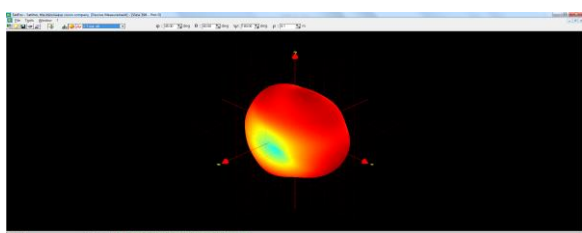
Test equipment	(Agilent E5071C)
MAIN Antenna passive parameters	



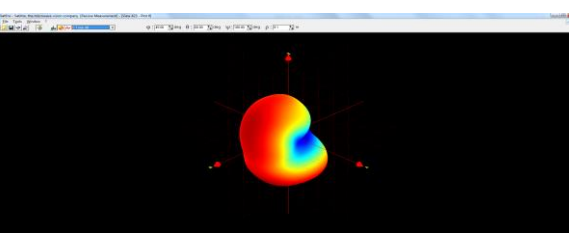
880-960



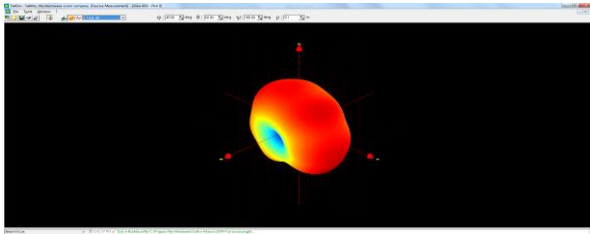
1710-2690



800-900



1450-1500

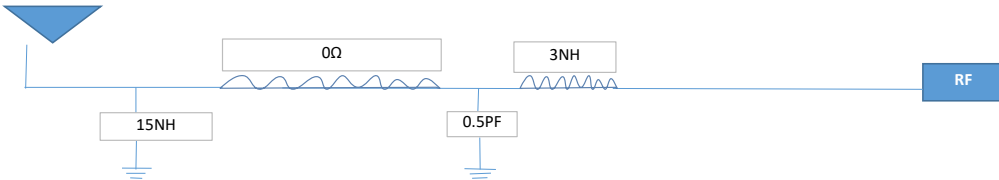


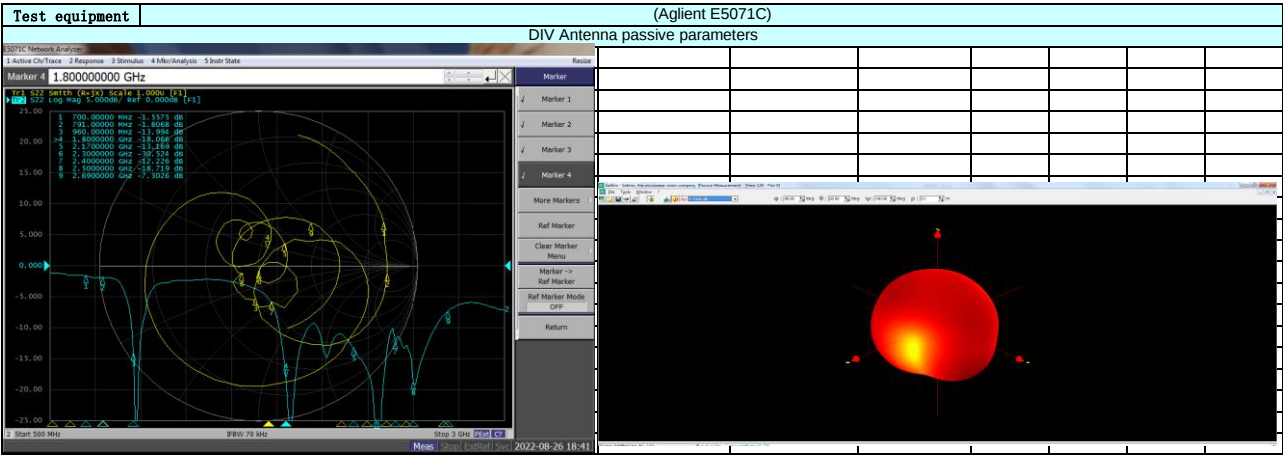
700-800

Efficiency test results

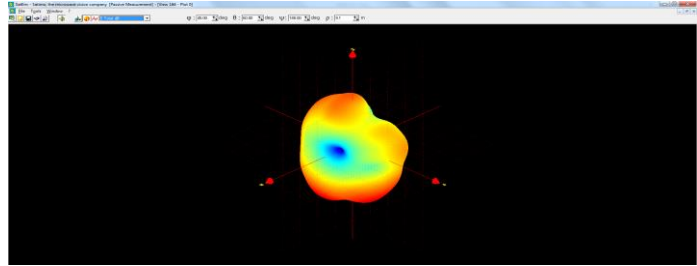
Test equipment	Satimo SG24
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Passive efficiency											
Main Antenna passive parameters											
f(MHz)	Efficiency	Average gain	Max gain	f(MHz)	Efficiency	Average gain	Max gain	f(MHz)	Efficiency	Average gain	Max gain
700	34%	-4.6	-0.6	790	36%	-4.4	-1.4	880	44%	-3.5	0.9
710	36%	-4.4	-0.2	800	38%	-4.2	-1.4	890	45%	-3.4	1.2
720	37%	-4.3	0.1	810	40%	-4.0	-1.7	900	45%	-3.5	1.4
730	37%	-4.3	0.5	820	40%	-3.9	-2.0	910	43%	-3.6	1.0
740	36%	-4.4	0.7	830	41%	-3.9	-1.7	920	41%	-3.9	0.4
750	36%	-4.4	0.8	840	42%	-3.8	-1.9	930	39%	-4.0	0.0
760	37%	-4.3	0.7	850	42%	-3.8	-2.2	940	38%	-4.2	-0.2
770	38%	-4.2	0.7	860	41%	-3.9	-2.4	950	38%	-4.2	-0.4
780	37%	-4.3	0.7	870	40%	-4.0	-2.4	960	40%	-4.0	-0.5
790	36%	-4.5	0.3	1400	32%	-4.9	-0.4	1710	55%	-2.6	3.7
800	35%	-4.6	-0.1	1410	32%	-4.9	-0.5	1730	57%	-2.4	3.5
				1420	32%	-5.0	-0.2	1750	57%	-2.5	3.2
				1430	31%	-5.1	-0.1	1770	57%	-2.5	3.5
				1440	30%	-5.2	-0.1	1790	58%	-2.4	3.8
				1450	28%	-5.5	-0.1	1810	58%	-2.4	3.4
				1460	26%	-5.9	-0.3	1830	56%	-2.5	3.5
				1470	25%	-6.0	-0.4	1850	58%	-2.4	3.7
				1480	25%	-6.1	-0.5	1870	57%	-2.5	2.8
				1490	25%	-6.0	-0.5	1890	54%	-2.7	2.2
				1500	26%	-5.8	-0.4	1910	55%	-2.6	2.4
								1930	52%	-2.9	2.4
								1950	48%	-3.2	2.1
								1970	49%	-3.1	2.6
								1990	48%	-3.2	2.8
								2010	44%	-3.6	2.7
								2030	42%	-3.7	2.3
								2050	43%	-3.6	2.6
								2070	47%	-3.3	2.5
								2090	50%	-3.0	2.2
								2110	52%	-2.8	2.3
								2130	55%	-2.6	2.1
								2150	57%	-2.4	1.5
								2170	55%	-2.6	1.2
								2190	54%	-2.7	0.7
								2210	52%	-2.8	0.3
								2230	51%	-2.9	0.1
								2250	51%	-3.0	0.2
								2270	50%	-3.0	0.3
								2290	47%	-3.3	0.3
								2310	47%	-3.3	0.5
								2330	47%	-3.3	0.3
								2350	46%	-3.3	0.4
								2370	42%	-3.8	0.3
								2390	39%	-4.1	0.3
								2410	37%	-4.4	0.0
								2430	35%	-4.5	0.0
								2450	33%	-4.8	0.3
								2470	33%	-4.9	0.8
								2490	34%	-4.7	1.1
								2510	37%	-4.4	1.3
								2530	39%	-4.1	1.7
								2550	41%	-3.9	1.9
								2570	43%	-3.6	2.0
								2590	46%	-3.4	2.0
								2610	47%	-3.3	2.3
								2630	45%	-3.4	1.9
								2650	45%	-3.4	1.7
								2670	45%	-3.4	1.9
								2690	48%	-3.2	1.9

RF engineer	侯杰				
Structural engineer					
Test engineer					
Read					
Account engineer					
Test environment	Temperature	22℃		Temperature	65%
Machine state	Motherboard version				
	PA bom	ANT switch-matching-PA			
	Antenna version				
	Antenna bom	ANT-matching-ANT switch			
	Software version				
	Other				
Circuit matching:					
					



700-960

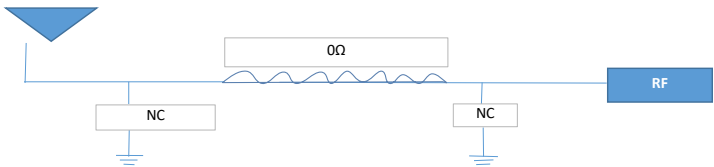


1800-2700

Efficiency test results

Test equipment				Satimo SG24			
Passive efficiency							
DIV Antenna passive parameters							
f(MHz)	Efficiency	Average gain	Max gain	f(MHz)	Efficiency	Average gain	Max gain
910	28%	-5.5	-2.1	1800	45%	-3.5	3.5
920	32%	-4.9	-1.3	1820	46%	-3.4	3.8
930	36%	-4.4	-0.6	1840	43%	-3.7	3.4
940	40%	-4.0	0.3	1860	38%	-4.3	2.5
950	43%	-3.7	0.8	1880	33%	-4.9	2.1
960	45%	-3.5	1.3	1900	29%	-5.3	1.6
				1920	27%	-5.6	0.5
				1940	27%	-5.7	0.2
				1960	27%	-5.7	-0.2
				1980	27%	-5.7	-0.3
				2000	27%	-5.8	-1.0
				2020	26%	-5.8	-1.2
				2040	25%	-6.0	-1.3
				2060	24%	-6.2	-1.2
				2080	25%	-6.0	-1.5
				2100	26%	-5.9	-1.2
				2120	28%	-5.5	-0.6
				2140	30%	-5.2	0.1
				2160	34%	-4.7	0.6
				2180	36%	-4.5	1.3
				2200	39%	-4.1	2.1
				2220	40%	-3.9	2.2
				2240	41%	-3.8	2.7
				2260	41%	-3.9	2.8
				2280	41%	-3.9	3.2
				2300	41%	-3.8	3.5
				2320	40%	-4.0	3.6
				2340	40%	-4.0	4.0
				2360	41%	-3.9	4.1
				2380	41%	-3.9	3.9
				2400	40%	-4.0	3.7
				2420	41%	-3.9	3.5
				2440	41%	-3.9	3.2
				2460	41%	-3.9	3.1
				2480	38%	-4.2	2.9
				2500	37%	-4.3	2.5
				2520	37%	-4.4	1.9
				2540	36%	-4.5	1.8
				2560	33%	-4.8	1.5
				2580	33%	-4.8	1.3
				2600	33%	-4.8	0.9
				2620	32%	-4.9	0.7
				2640	29%	-5.4	-0.1
				2660	27%	-5.7	-0.5
				2680	26%	-5.9	-0.6
				2700	24%	-6.1	-0.7

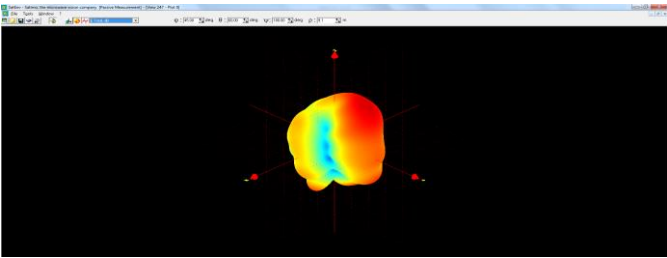
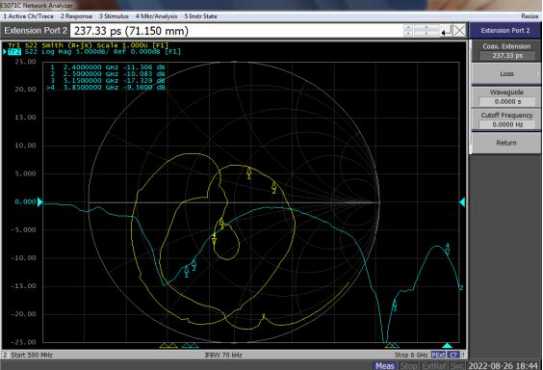
RF engineer	侯杰				
Structural engineer					
Test engineer					
Read					
Account engineer					
Test environment	Temperature	22℃		Temperature	65%
Machine state	Motherboard version				
	PA bom	ANT switch-matching-PA			
	Antenna version				
	Antenna bom	ANT-matching-ANT switch			
	Software version				
	Other				



Circuit matching WIFI1:				
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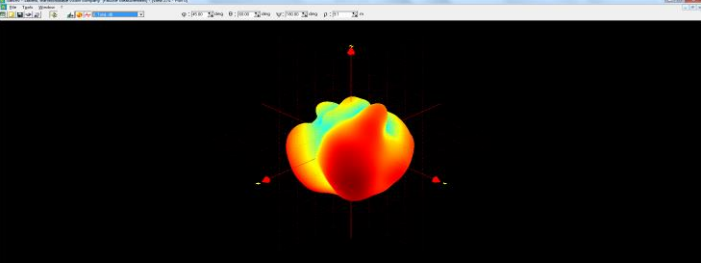


Test equipment	(Aglient E5071C)
WIFI Antenna passive parameters	



WIFI2

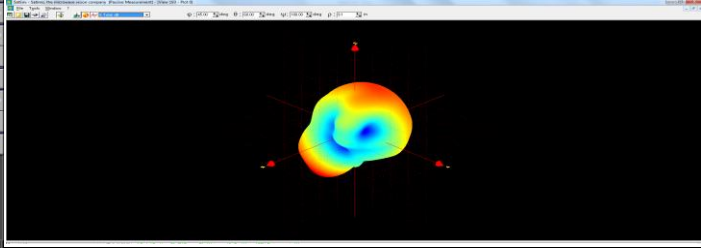
2.4G



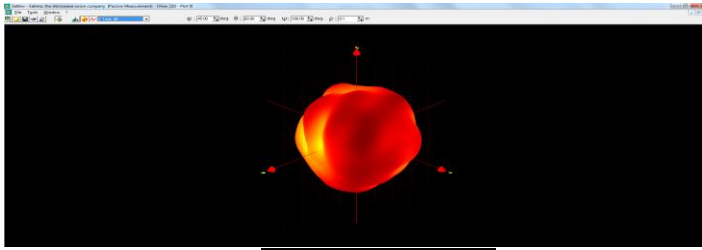
5G



WIFI1



2.4G



5G

Efficiency test results

Test equipment	Satimo SG24
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Passive efficiency

WiFi				WiFi12			
WiFi12		WiFi		WiFi12		WiFi12	
f(MHz)	Efficiency	Average gain	Max gain	f(MHz)	Efficiency	Average gain	Max gain
2400	65%	-1.9	3.1	5150	56%	-2.5	3.2
2410	65%	-1.9	3.1	5200	53%	-2.7	2.8
2420	65%	-1.9	2.9	5250	55%	-2.6	2.9
2430	64%	-1.9	2.9	5300	52%	-2.8	2.9
2440	65%	-1.9	2.9	5350	45%	-3.4	2.9
2450	66%	-1.8	2.9	5400	39%	-4.0	2.8
2460	66%	-1.8	2.9	5450	44%	-3.6	3.0
2470	66%	-1.8	2.8	5500	43%	-3.6	3.1
2480	65%	-1.9	2.5	5550	45%	-3.4	3.2
2490	64%	-1.9	2.3	5600	45%	-3.4	2.8
2500	64%	-1.9	2.5	5650	46%	-3.4	2.8
				5700	45%	-3.4	2.5
				5750	51%	-3.0	2.7
				5800	60%	-2.2	3.6
				5850	54%	-2.7	2.8

WiFi11				WiFi11			
f(MHz)	Efficiency	Average gain	Max gain	f(MHz)	Efficiency	Average gain	Max gain
2400	32%	-4.9	4.2	5150	32%	-4.9	0.4
2410	33%	-4.8	4.4	5200	33%	-4.8	0.2
2420	34%	-4.7	4.5	5250	33%	-4.8	0.0
2430	34%	-4.7	4.4	5300	33%	-4.8	0.7
2440	34%	-4.6	4.4	5350	34%	-4.7	0.6
2450	35%	-4.6	4.3	5400	36%	-4.4	0.4
2460	35%	-4.6	4.2	5450	34%	-4.6	0.2
2470	34%	-4.6	4.1	5500	33%	-4.8	0.0
2480	34%	-4.7	4.1	5550	36%	-4.4	0.1
2490	34%	-4.7	3.9	5600	35%	-4.6	0.0
2500	35%	-4.6	3.7	5650	36%	-4.4	0.2
				5700	35%	-4.5	-0.4
				5750	36%	-4.5	0.6
				5800	36%	-4.4	0.7
				5850	39%	-4.1	1.4