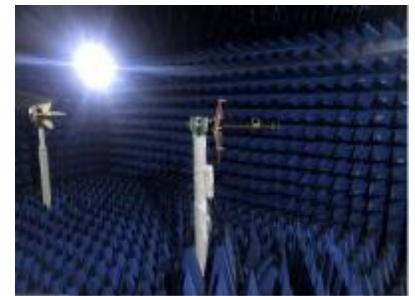


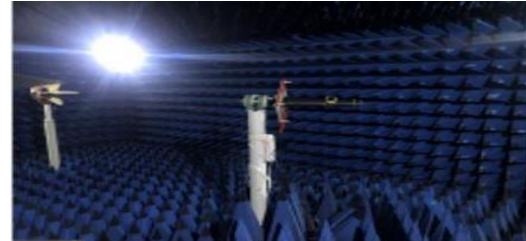
Yusheng Communications-equipment Co.,LTD

L57Q-C Antenna debugging test report

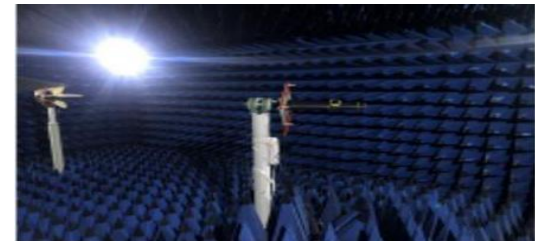


Yusheng Communications-equipment Co.,LTD

Project Development Environment



We are transitioning from the internet age to the intelligent age, and the nation is building a digital society and smart cities. The next 5-10 years hold enormous development potential for both the consumer electronics market and the Internet of Things (IoT) market. The wireless communications field is highly diversified, and in the future, leveraging the advantages of our core antenna business's customer platform and our comprehensive strength, we strive to provide customers with competitive, professional-grade product solutions.



Yusheng Communications-equipment Co.,LTD

- 1、 Project Debugging Introduction
 - 2、 Report version outline
 - 3、 Shutdown active parameters
 - 4、 Passive Antenna Parameters
 - 5、 Antenna environment processing and improvement
 - 6、 Summary additional notes
-

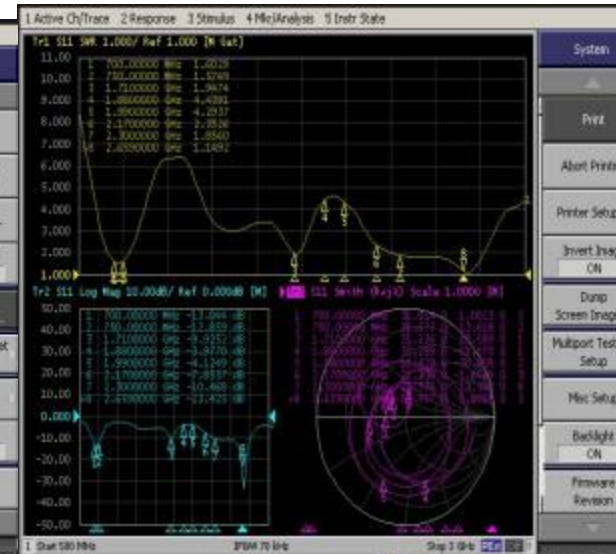
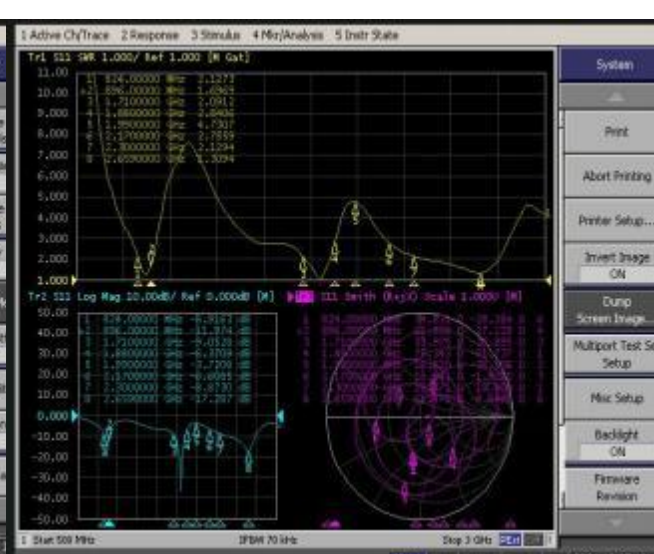
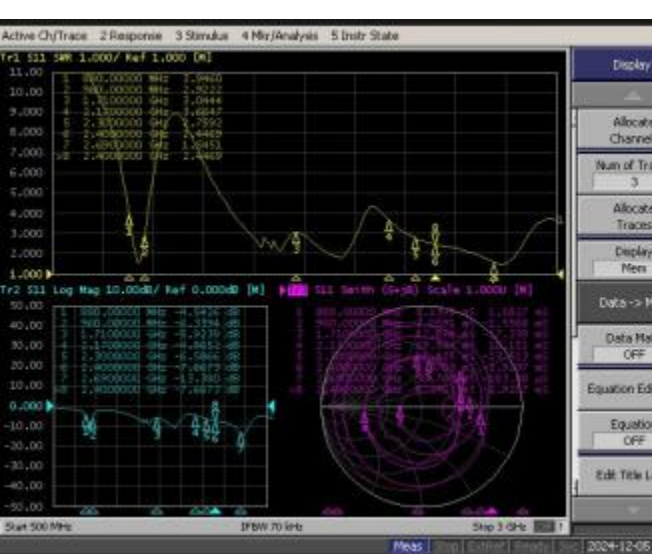
Introduction to project debugging

model	watch			
Plate type	motherboard			
Frequency band and antenna material	main antenna	frequency band		Material
		2G	850/1900	LDS
		3G	1/2/4/5	LDS
		4G	LTE B1/2/4/5/7/8/12/13/17/28AB/38/41/66	LDS
	Other antennas	GPS+WIFI/BT	1575.42MHz/2.45GHz	LDS
Performance requirements				

Report version outline

Report version	reporting time	Problems solved by this antenna development
V0. 1	20251203	Antenna preliminary debugging
V0. 2	20251206	Antenna initial optimization and debugging
V0. 3	20251219	Antenna optimization and debugging (switch logic definition)
V0. 4	20260120	Antenna sample verification test (switch logic definition)
V0. 5	202600203	Verify that the antenna feed point faces outwards
V0. 6	20260402	Antenna Verification Report

Antenna passive parameters



Antenna passive efficiency

Freq. (M Hz)	Efficie ncy (%)	Efficie ncy (dB)	Gain(d B i)
880.0	1.5%	-18.24	-11.75
890.0	1.7%	-17.70	-11.46
900.0	2.2%	-16.58	-11.24
910.0	2.8%	-15.53	-10.98
920.0	3.2%	-14.95	-10.89
930.0	3.9%	-14.09	-10.12
940.0	3.5%	-14.56	-10.65
950.0	3.4%	-14.69	-10.84
960.0	3.0%	-15.23	-10.97

1710.0	7.6%	-11.19	-7.51
1730.0	8.2%	-10.86	-7.34
1750.0	8.6%	-10.66	-7.22
1770.0	9.1%	-10.41	-7.19
1790.0	9.5%	-10.22	-7.06
1810.0	9.7%	-10.13	-7.12
1830.0	9.9%	-10.04	-7.20
1850.0	10.1%	-9.96	-6.84
1870.0	10.3%	-9.87	-6.52
1890.0	10.6%	-9.75	-6.27
1910.0	10.9%	-9.63	-6.08
1930.0	11.5%	-9.39	-5.87
1950.0	11.9%	-9.24	-5.29
1970.0	12.1%	-9.17	-5.08
1990.0	12.2%	-9.14	-4.89
2010.0	12.1%	-9.17	-4.83
2030.0	11.9%	-9.24	-4.95
2050.0	11.8%	-9.28	-5.16
2070.0	11.4%	-9.43	-5.21
2090.0	11.2%	-9.51	-5.32
2110.0	10.9%	-9.63	-5.43
2130.0	10.7%	-9.71	-5.51
2150.0	10.2%	-9.91	-5.63
2170.0	10.5%	-9.79	-5.65

2300.0	8.1%	-10.92	-6.55
2320.0	9.2%	-10.36	-6.26
2340.0	10.1%	-9.96	-5.71
2360.0	11.1%	-9.55	-5.25
2380.0	11.2%	-9.51	-5.16
2400.0	10.7%	-9.71	-5.24
2420.0	10.5%	-9.79	-5.32
2440.0	10.6%	-9.75	-5.39
2460.0	10.8%	-9.67	-5.42
2480.0	10.9%	-9.63	-5.43
2500.0	11.0%	-9.59	-5.46
2520.0	11.2%	-9.51	-5.49
2540.0	11.4%	-9.43	-5.37
2560.0	11.3%	-9.47	-5.29
2580.0	11.1%	-9.55	-5.18
2600.0	10.9%	-9.63	-5.22
2620.0	10.2%	-9.91	-5.36
2640.0	9.7%	-10.13	-5.71
2660.0	9.2%	-10.36	-6.12
2680.0	7.9%	-11.02	-6.22
2700.0	7.5%	-11.25	-6.72

Passive Antenna Efficiency

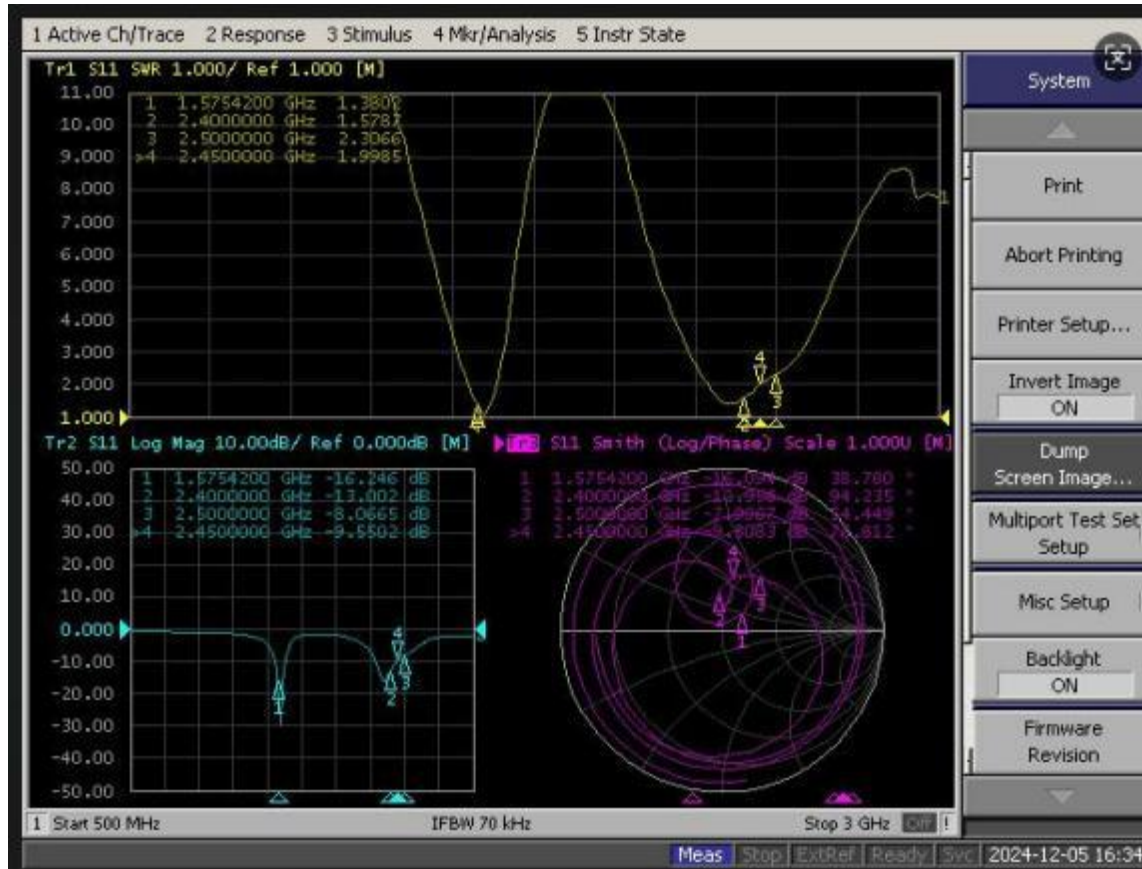
22nH

Freq. (MHz)	Efficiency (%)	Efficiency (dB)	Gain(dBi)
700.0	1.5%	-18.24	-12.22
710.0	1.7%	-17.70	-11.19
720.0	1.9%	-17.21	-10.63
730.0	2.1%	-16.78	-10.42
740.0	1.8%	-17.45	-10.76
750.0	1.6%	-17.96	-11.49
760.0	1.4%	-18.54	-12.16

4.7nH

Freq. (MHz)	Efficiency (%)	Efficiency (dB)	Gain(dBi)
800.0	2.8%	-15.53	-11.03
810.0	2.9%	-15.38	-10.81
820.0	3.1%	-15.09	-10.72
830.0	3.2%	-14.95	-10.64
840.0	3.3%	-14.81	-10.36
850.0	3.1%	-15.09	-10.61
860.0	2.9%	-15.38	-10.74
870.0	2.8%	-15.53	-10.82
880.0	2.7%	-15.69	-11.03
890.0	2.5%	-16.02	-11.16

Antenna Passive Parameters-GPS/WIFI/BT



Passive Antenna Efficiency-GPS/WIFI/BT

Freq. (M Hz)	Efficiency (%)	Efficiency (dB)	Gain(dBi)
1550	10.4%	-9.83	-5.37
1555	10.5%	-9.79	-5.19
1560	10.6%	-9.75	-5.34
1565	10.7%	-9.71	-5.26
1570	10.9%	-9.63	-5.17
1575	11.0%	-9.59	-5.03
1580	11.2%	-9.51	-4.92
1585	10.9%	-9.63	-4.95
1590	10.7%	-9.71	-4.99
1595	10.5%	-9.79	-5.16
1600	10.2%	-9.91	-5.24
1605	10.1%	-9.96	-5.35
1610	9.8%	-10.09	-5.48

Freq. (M Hz)	Efficiency (%)	Efficiency (dB)	Gain(dBi)
2400	9.3%	-10.32	-5.57
2410	9.7%	-10.13	-5.48
2420	9.9%	-10.04	-5.33
2430	10.5%	-9.79	-5.24
2440	10.6%	-9.75	-5.16
2450	10.3%	-9.87	-5.27
2460	10.1%	-9.96	-5.34
2470	9.7%	-10.13	-5.59
2480	9.5%	-10.22	-5.68
2490	9.2%	-10.36	-5.73
2500	8.6%	-10.66	-5.92

Antenna Active Parameters - Hand Grip-1#

Frequency band	CH	TRP (dbm)	TIS (dbm)
GSM 850	CH(LOW)	18.34	
	CH(Mid)	18.53	
	CH(High)	18.29	-91.87
PCS 1900	CH(LOW)	18.27	
	CH(Mid)	18.55	
	CH(High)	18.84	-98.46

Frequency band	CH	TRP (dbm)	TIS (dbm)
W - B1	CH(LOW)	13.52	
	CH(Mid)	14.22	
	CH(High)	13.51	-100.27
W - B2	CH(LOW)	13.39	
	CH(Mid)	13.57	
	CH(High)	13.42	-100.41
W - B4	CH(LOW)	12.52	
	CH(Mid)	13.03	
	CH(High)	12.69	-98.24
W - B5	CH(LOW)	8.93	
	CH(Mid)	9.42	
	CH(High)	8.71	-92.02

Antenna Active Parameters - Hand Grip-1#

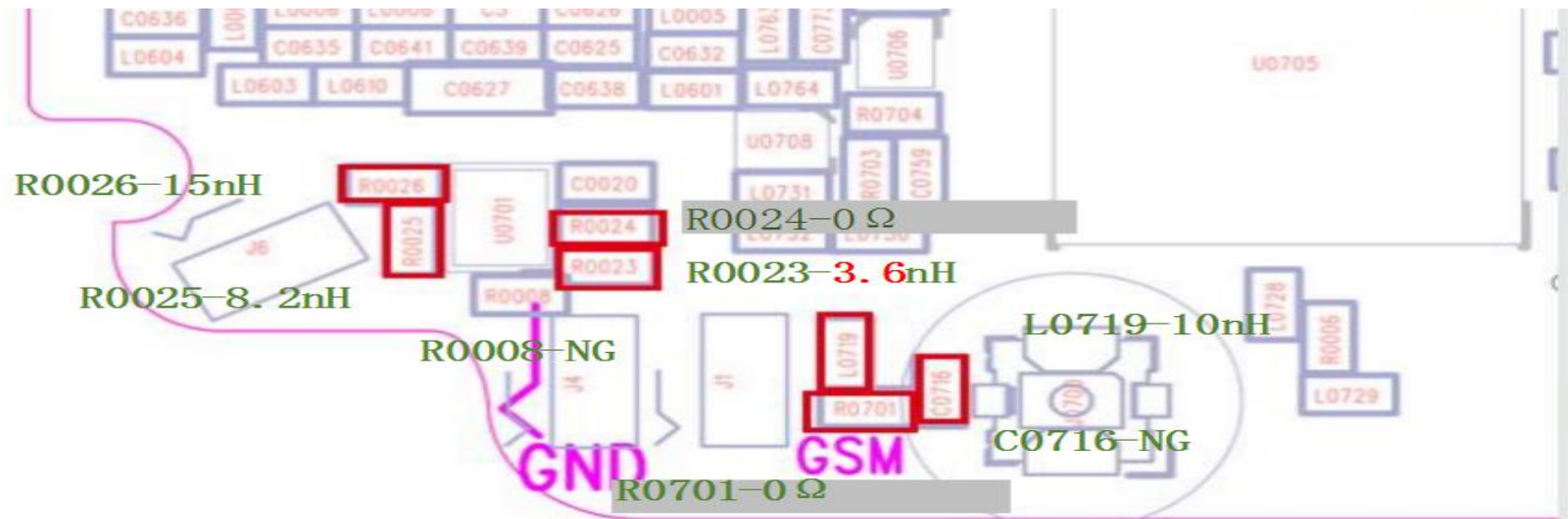
Frequency and	CH	TRP (dbm)	TIS (dbm)
LTE B1	CH(LOW)	13.46	
	CH(Mid)	13.67	
	CH(High)	13.42	-85.71
LTE B2	CH(LOW)	13.34	
	CH(Mid)	13.58	
	CH(High)	13.64	-85.59
LTE B4	CH(LOW)	12.52	
	CH(Mid)	12.64	
	CH(High)	13.57	-85.71
LTE B5	CH(LOW)	9.76	
	CH(Mid)	9.17	
	CH(High)	8.72	-80.02

Frequency and	CH	TRP (dbm)	TIS (dbm)
LTE B7	CH(LOW)	13.24	
	CH(Mid)	14.35	
	CH(High)	13.34	-84.59
LTE B12	CH(LOW)	5.67	
	CH(Mid)	5.74	
	CH(High)	6.22	-79.02
LTE B13	CH(LOW)	7.55	
	CH(Mid)	8.01	
	CH(High)	8.14	-78.57
LTE B17	CH(LOW)	5.65	
	CH(Mid)	6.26	
	CH(High)	6.31	-78.43

Antenna Active Parameters - Hand Grip-1#

LTE B28A	CH(LOW)	5.62	
	CH(Mid)	5.75	
	CH(High)	6.31	-78.17
LTE B28B	CH(LOW)	6.19	
	CH(Mid)	6.36	
	CH(High)	6.41	-78.42
LTE B38	CH(LOW)	13.78	
	CH(Mid)	13.54	
	CH(High)	13.34	-85.36
LTE B41	CH(LOW)	13.42	
	CH(Mid)	13.34	
	CH(High)	13.29	-85.67
LTE B66	CH(LOW)	12.75	
	CH(Mid)	13.6.1	
	CH(High)	12.48	-85.69

Switch Matching



Environmental Conditioning Procedure

RF1:W4+LTE4/66

RF2:G850/PCS1900+W1/2/5+LTE1/2/5/7/38/41

RF3:LTE13

RF4:LTE12/17/28AB

RF1: R0023-3.6nH

RF2: R0024-0 Ω

RF3: R0025-8.2nH

RF4:R0026-15nH



GPS Outdoor Measured Results



Thank you!

