

Antenna Test Report



Customer	桑格尔
Project	Z6 Lite
Antenna Revision	A6
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Date:	2022. 06. 20

Purpose

This report is to measure the performance of antenna for **LiteZ6** . The antenna operating frequency at 824-960MHz, 1710-2690MHz; GPS: 1575MHZ; WIFI: 2400-2500MHZ , 5150-5850MHZ , All test data are showed as below.

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 - 4. *OTA***
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1.Product Overview & Dimension

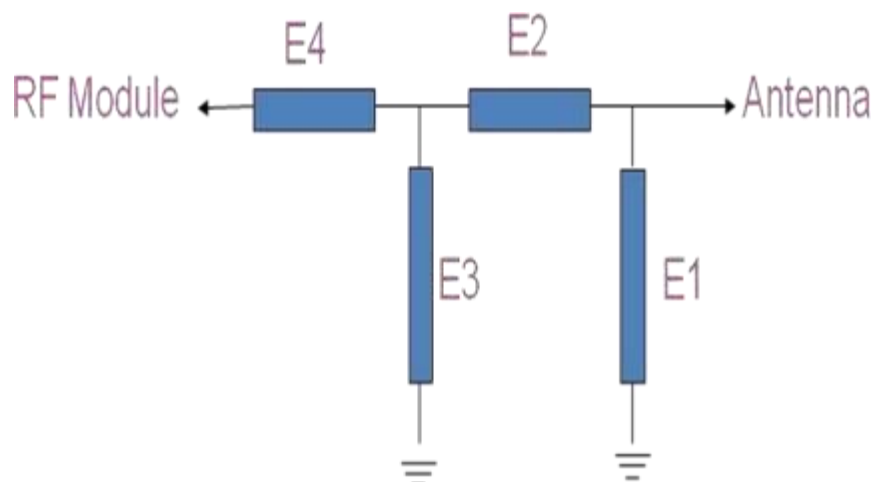


2. TestSystem

Sequence Number	Test Item	equipment
S parameter	VSWR	Agilent 5071C & Agilent 5062A
OTA Test	TRP& TIS	Agilent 8960 E5515C& Agilent 4438C&CMW500 &CMW270 ETS& SATIMO
Gain & Efficiency	Gain & Efficiency	ETS& SATIMO Agilent 5071C



3. Antenna Matching Network- 主天线



主通路 匹配	Element	Value
	E1	18nH
	E2	0 欧姆
	E3	NA
	E4	0 欧姆

开关地 匹配	Element	Value
	RF1	0 欧姆
	RF2	3nH
	RF3	18nH
	RF4	NA

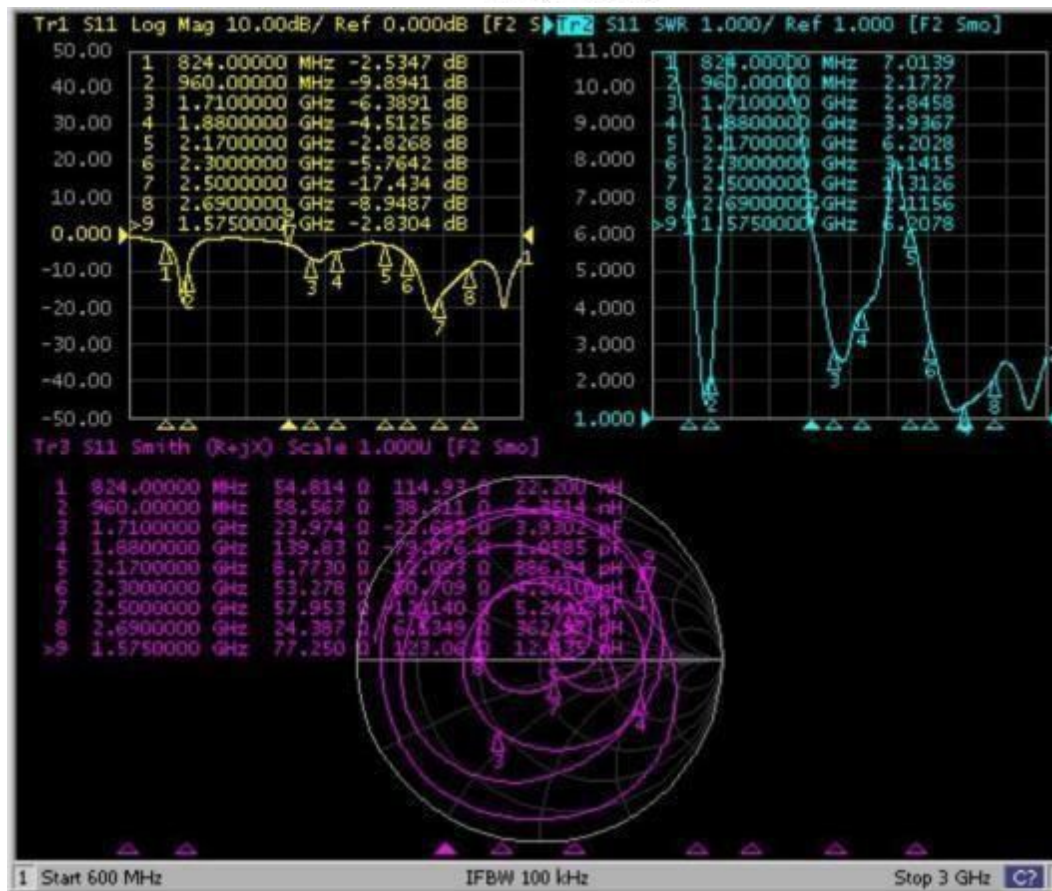
PCB板端 0 欧姆直通

开关逻辑：RF1：B8/高频段；RF2：B5；RF3：B17；

RF4：NA（待定）

4. Test Result

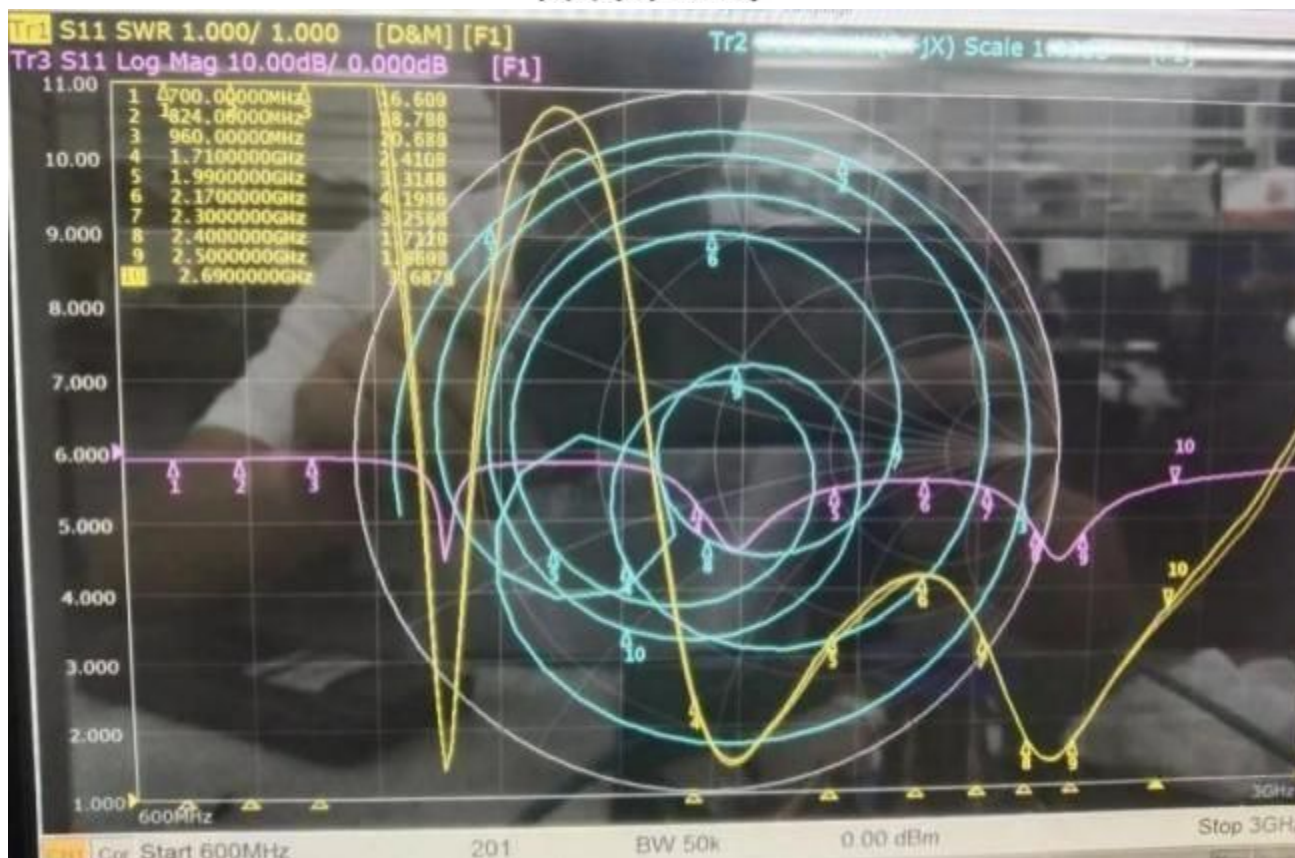
4.1 S11 Parameter-VSWR-主天线



Frequency	824	960	1710	2170	2300	2500	2690
VSWR	7.01	2.17	2.84	6.20	3.14	1.31	2.11

4. Test Result

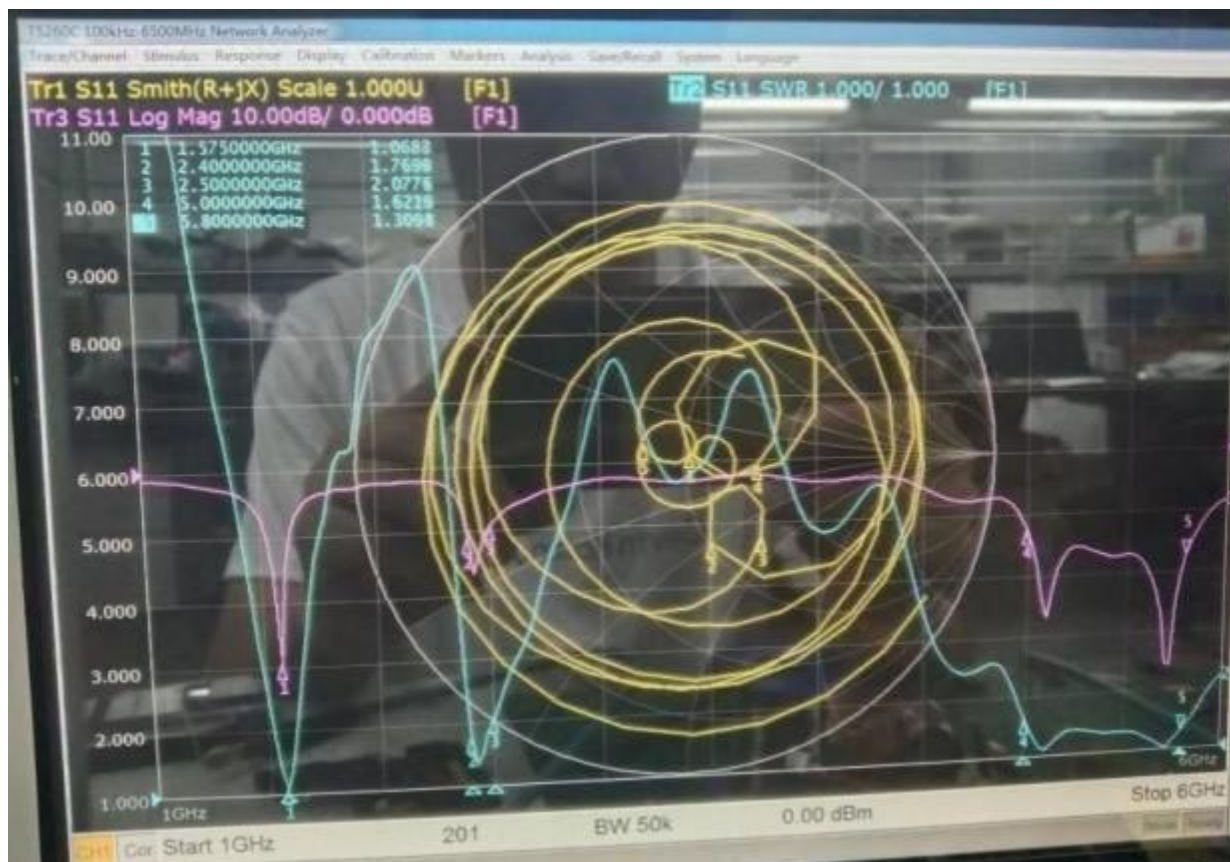
4.1 S11Parameter-VSWR-分集天线



Frequency	880	960	1710	2170	2300	2500	2690
VSWR	/	/	2.25	4.16	3.15	1.26	3.85

4. Test Result

4.1 S11 Parameter-VSWR-三合一天线



Frequency	1575	2400	2450	2500	5150	5500	5850
VSWR	1.06	1.76	1.35	2.07	1.62	1.23	1.30

4. Test Result

4.2 Gain & Efficiency——主天线

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
710	13.45	-0.70
820	15.50	-0.60
960	16.31	-2.96
1710	16.60	0.80
1880	18.24	0.50
2170	17.10	-3.36
2300	18.11	-2.23
2500	25.19	0.20
2600	25.91	-0.20

4. Test Result

4.2 Gain & Efficiency——三合一天线

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
1570	50.50	2.10
1575	52.12	2.33
1580	45.13	1.60
2400	40.12	0.18
2420	41.26	0.21
2440	43.20	0.50
2450	39.23	0.17
2460	38.25	1.82
2480	39.99	0.52
2500	40.56	0.60

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
5000	36.49	0.90
5150	40.26	2.03
5250	43.23	2.10
5350	40.36	2.08
5450	41.26	2.06
5550	40.36	2.16
5650	42.69	2.09
5750	38.25	2.05
5850	39.99	2.07

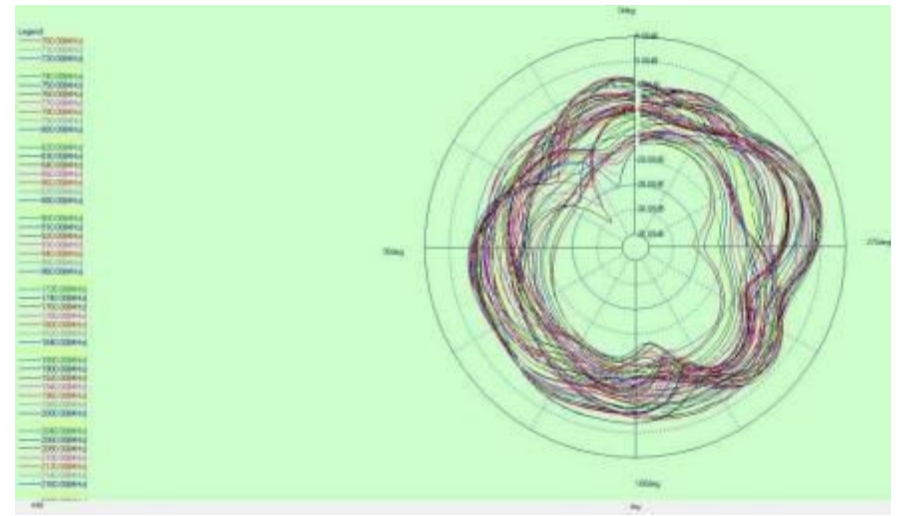
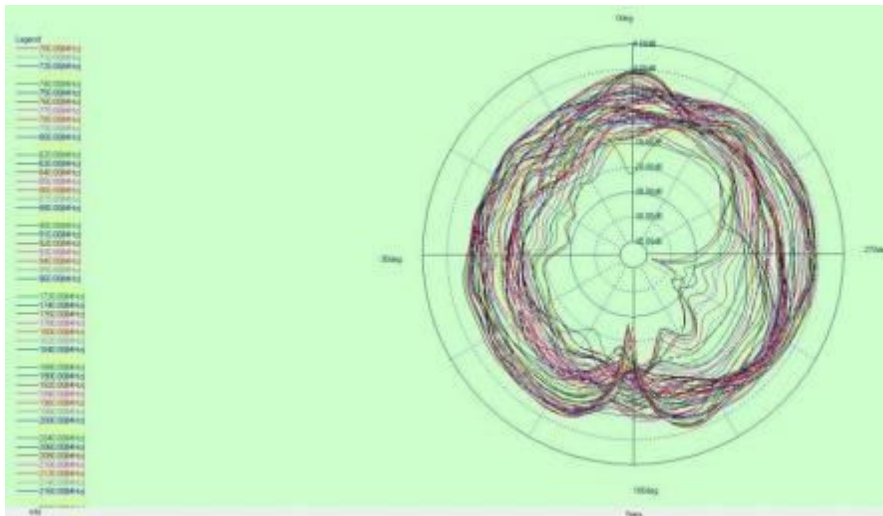
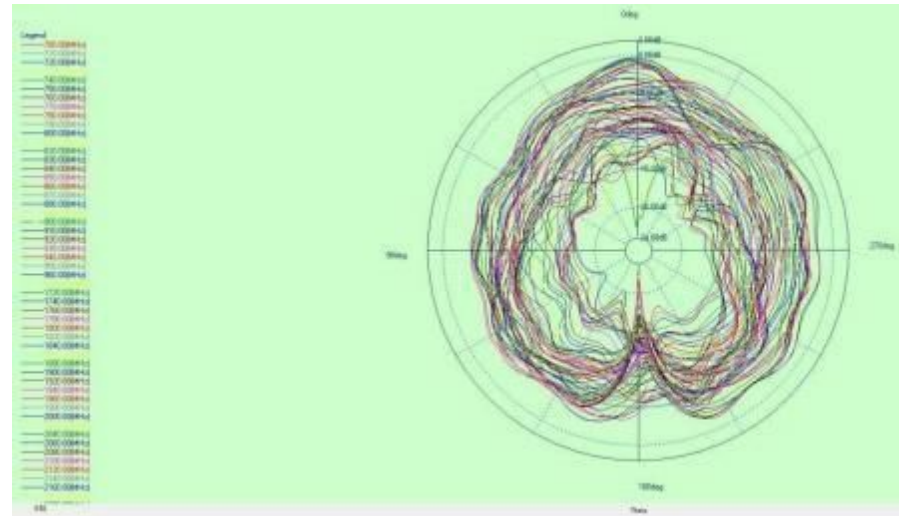
4. Test Result

4.2 Gain & Efficiency——分集天线

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
820	/	/
960	/	/
1710	25.12	0.38
1880	40.25	1.13
2170	21.35	-0.65
2300	31.06	0.56
2500	30.26	0.97
2690	16.18	-0.96

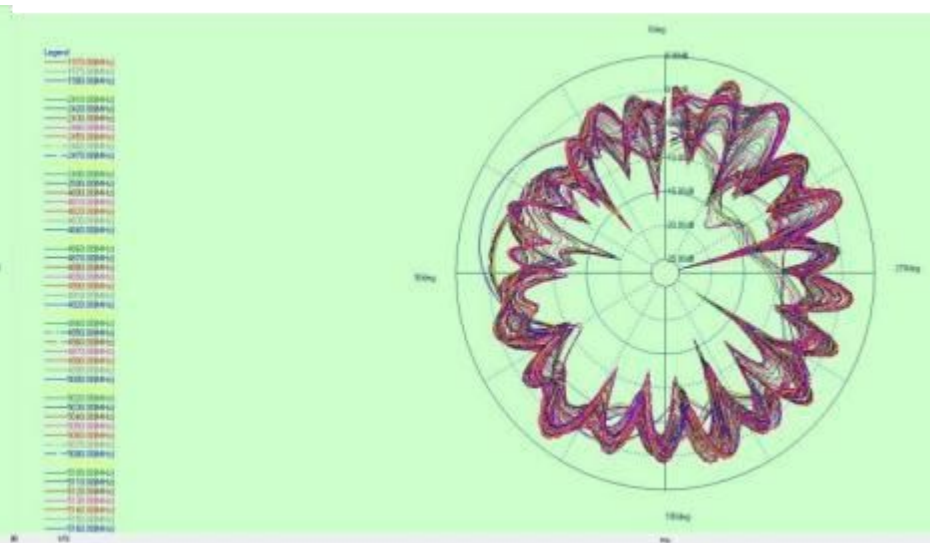
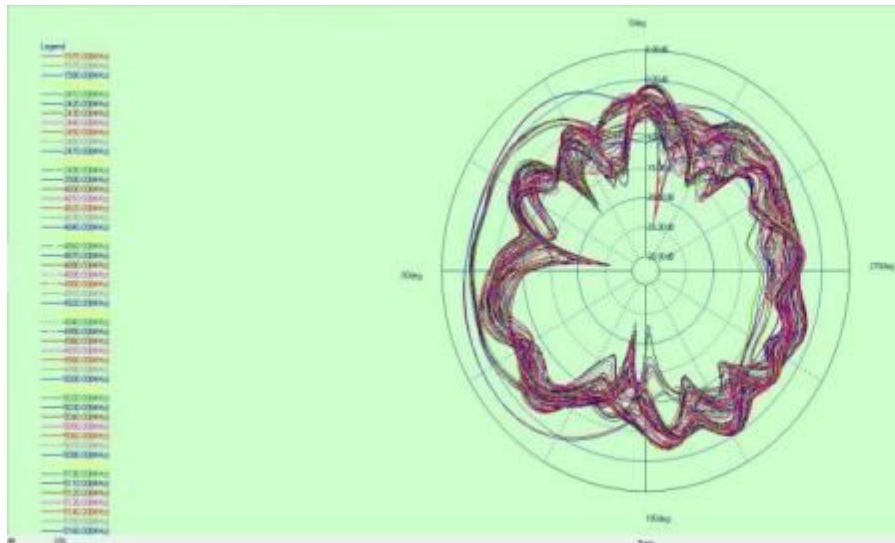
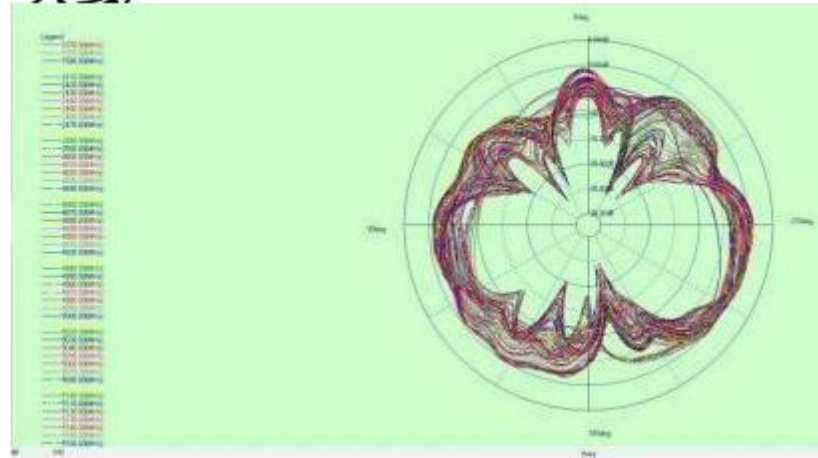
4. Test Result

4.3 2D Pattern-主天线



4. Test Result

4.3 2D Patern-三合一天线



4. Test Result---2G

Band	Channel	TRP	TIS
GSM-850	128	24.68	
	190	25.47	
	251	25.16	-98.27
GSM-900	975	24.26	
	62	24.34	
	124	24.08	-98.39
GSM-1800	512	22.57	
	698	23.11	
	885	23.48	-99.72
GSM-1900	512	24.24	
	661	24.17	
	810	24.32	-99.38

4. Test Result---3G+LTE-B4

Band	Channel	TRP	TIS
WCDMA-B1	9612	15.21	
	9750	15.03	
	9888	16.07	-98.64
WCDMA-B2	9262	15.28	
	9400	15.39	
	9538	16.41	-99.76
WCDMA-B5	4132	14.21	
	4183	15.03	
	4233	15.07	-97.62
WCDMA-B8	2712	15.57	
	2787	15.15	
	2863	14.46	-95.76
LTE-B4	20000	15.94	
	20175	16.31	
	20350	16.89	-87.39

4. Test Result---4G-

Band	Channel	Frequency (MHz)	TRP	Channel	Frequency (MHz)	TIS
LTE Band 1	18050	1925	15.24	50	2115	
	18300	1950	16.31	300	2140	
	18550	1975	15.55	550	2165	-89.42
LTE Band 2	18700	1860	14.46	700	1940	
	18900	1880	14.37	900	1960	
	19100	1900	15.71	1100	1980	-88.14
LTE Band 3	19250	1715	15.38	1250	1810	
	19575	1747.5	15.65	1575	1842.5	
	19900	1780	16.72	1900	1875	-88.26
LTE Band 7	20850	2510	15.41	2850	2630	
	21100	2535	15.65	3100	2655	
	21350	2560	16.48	3350	2680	-88.39
LTE Band 17	23755	706.5	15.15	5755	736.5	
	23790	710	16.34	5790	740	
	23825	713.5	15.03	5825	743.5	-85.471
LTE Band 38	37850	2580	16.15	37850	2580	
	38000	2595	15.24	38000	2595	
	38150	2610	15.06	38150	2610	-88.43
LTE Band 39	38350	1890	15.26	38350	1890	
	38450	1900	15.84	38450	1900	
	38550	1910	15.53	38550	1910	-88.36
LTE Band 40	38750	2310	15.62	38750	2310	
	39150	2350	16.29	39150	2350	
	39550	2390	15.91	39550	2390	-87.65
LTE Band 41	40340	2506	15.11	40340	2506	
	40620	2593	15.39	40620	2593	
	41340	2580	14.48	41340	2580	-88.45

4. Test Result--三合一天线

Test Equipment:	R&S CMW500			
Test Condition:	3D chamber			
Band	Wireless Protocol	Channel	TRP(dBm)	TIS(dBm)
WIFI	802.11 b/11 Mbps	1	12.55	-80.10
		6	12.03	-81.06
		11	12.10	-80.35
	802.11 g/54 Mbps	1	11.35	-66.76
		6	10.34	-67.40
		11	11.05	-68.62
	802.11 n/65 Mbps	1	10.51	-64.16
		6	9.81	-64.89
		11	10.39	-65.03
	802.11 a/54 Mbps	36	11.15	-70.65
		149	13.13	-73.15
		165	14.26	-73.36

4. Test Result



GPS实测收星定位效果

Thank you !