CUSTOMER: xiaomi

LUXSHAREICT P/N: LX-P98816-MAIN-X3-4151-A
LX-P98816-DIV-X3-4175-A
LX-P98816-G&W-X3-4151-A

CUSTOMER APPROVER CHECKER

Kunshan Liantao Electronics Co., LTD

Add: No. 158, Jinchang Road, Jinxi Town, Kunshan City,
Suzhou City, Jiangsu Province
Tel ： 0512-82698999

LUXSHARE ICT	**Product Specification**	**P/N**	**LX-P98816-MAIN-X3-4151-A** **LX-P98816-DIV-X3-4175-A** **LX-P98816-G&W-X3-4151-A**
Revision Date:	5/16/24	Page:	1/24

ME	Xing Zhang	Check/Appr.	
Package Eng.			
RF	Nanmeng Ren	Check/Appr.	

Date	Issue	Detail changes

1. Scope

This document contains required environmental,electrical characteristic, mechanical, packageand reliability test requirements.

2. Environmental Requirement

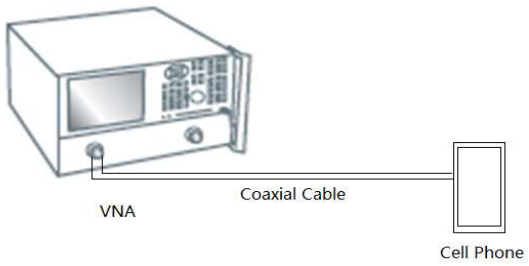
all components must be free from lead (Pb) and other banned or restricted substances according to customer's requirements.

3.Electrical Characteristic Measurement Method

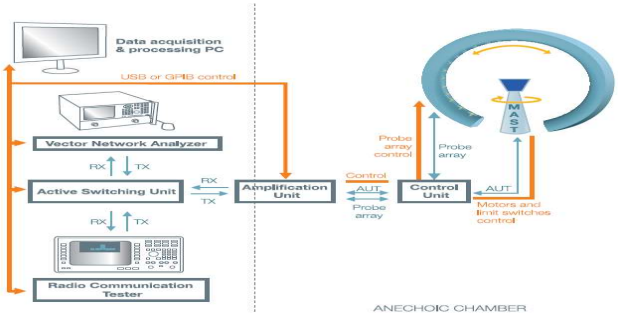
3.1 Measurement method

To measure the Return Loss and VSWR, Smith Chart, Vector Network Analyzer Agilent E5071C was used. Satimo SG24 Anechoic chamber was used to measure the Efficiency, Gain, TRP and TIS.

3.1.1Return Loss and VSWR

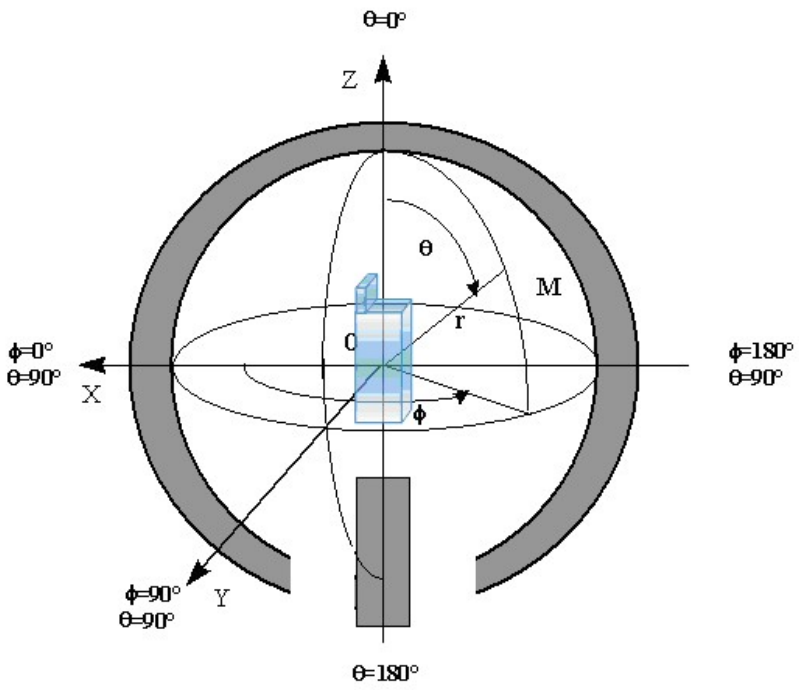


3.1.2 Efficiency, Gain, OTA measurement



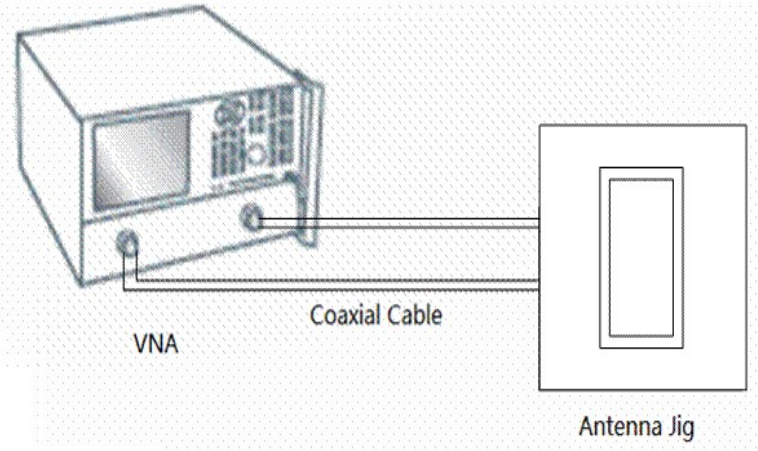
3.1.3 Cutting plane and polarization

Phi=0deg Phi=90deg Theta=90deg



3.1.4 RF Jig

LUXSHAREICT designs a special S11 RF test jig for antenna test in mass production line.The antenna with average frequency in line is selected as reference antenna, and the results of the test jig is going to correlated to the performance in the real phone.

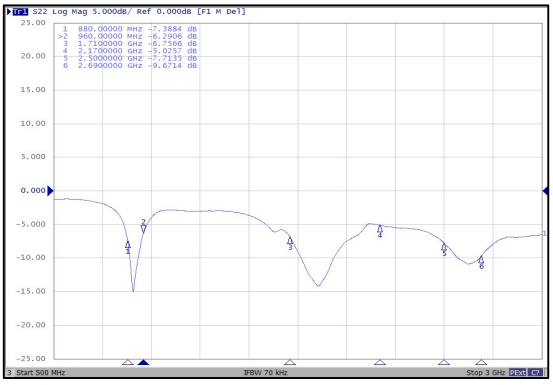


4.Pictures of antenna and antenna type

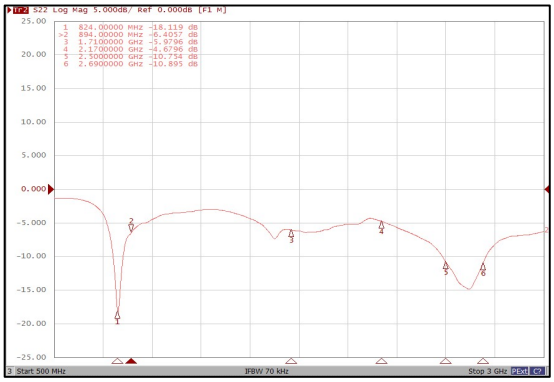
ANT	Type	Material Quality
Main	Internal	FPC
DIV	Internal	FPC
WCN	Internal	FPC

6.Passive Measurement Data

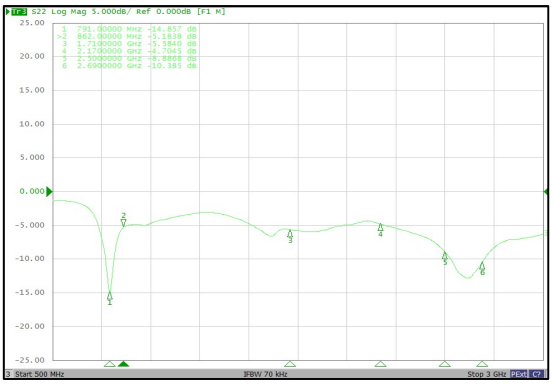
6.1 Main Ant



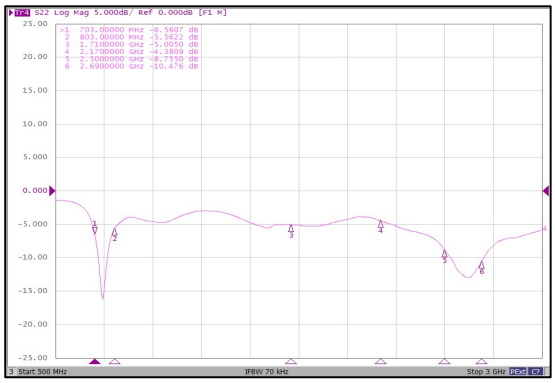
State 1



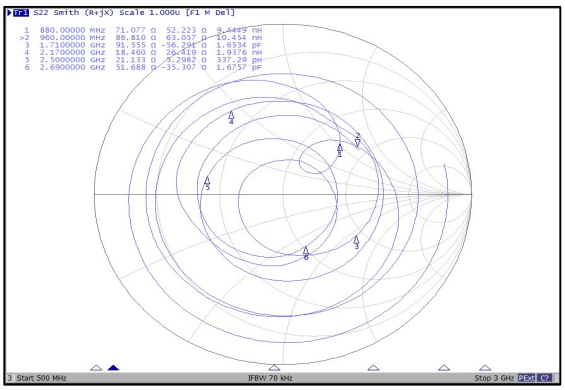
State 2



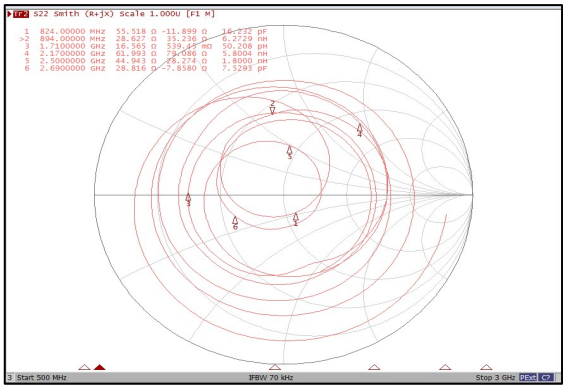
State 3



State 4



State 1



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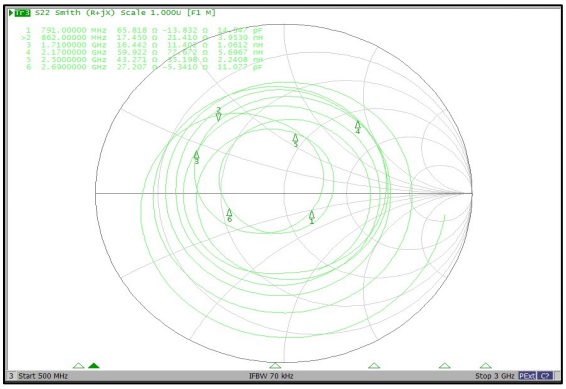
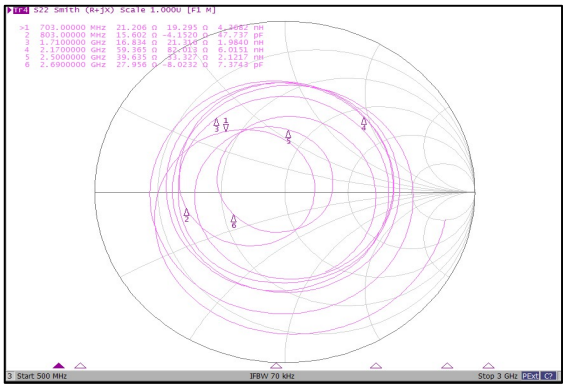
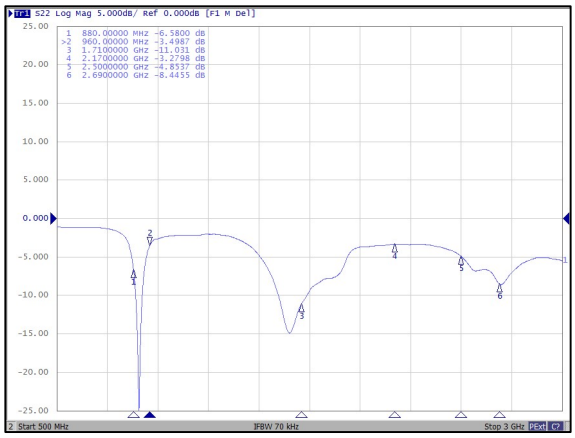


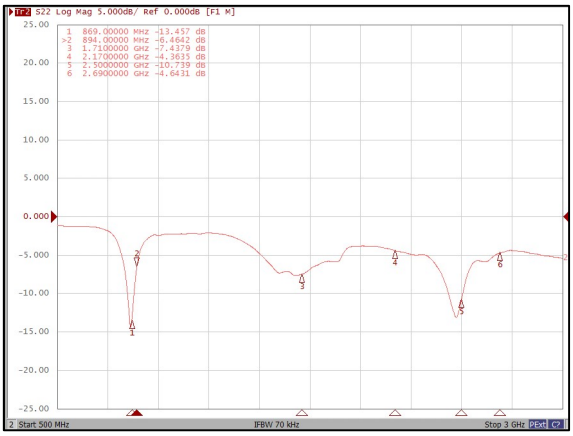
State 3

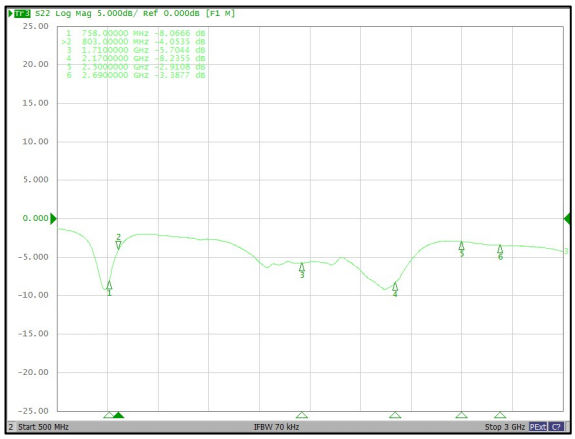


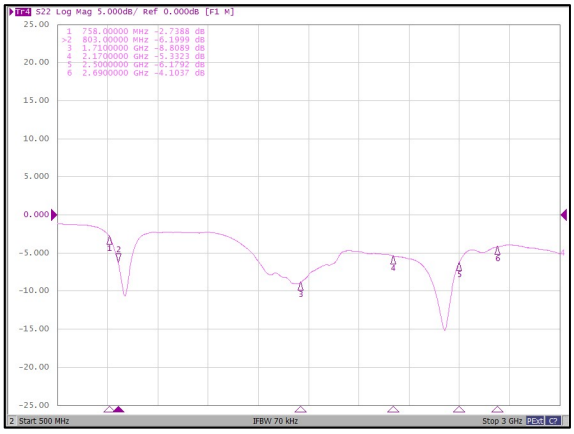
State 4

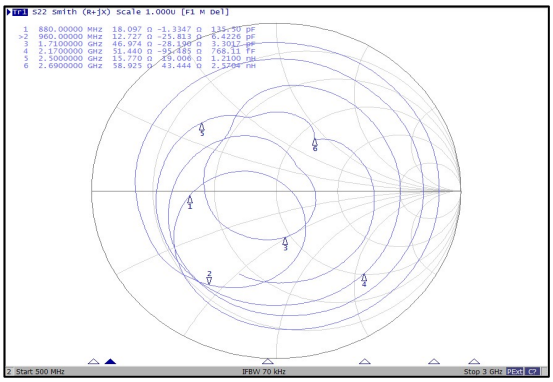
6.2 Diversity antenna



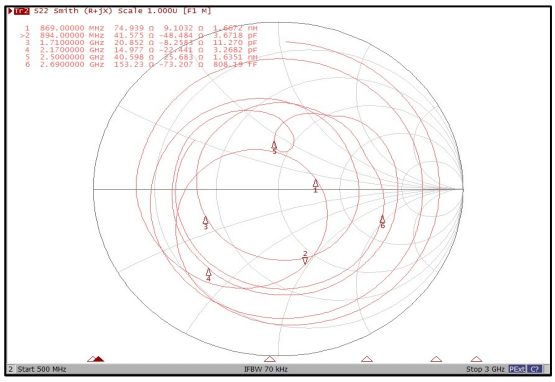




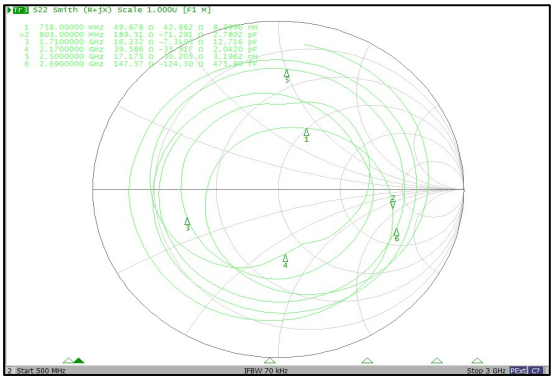




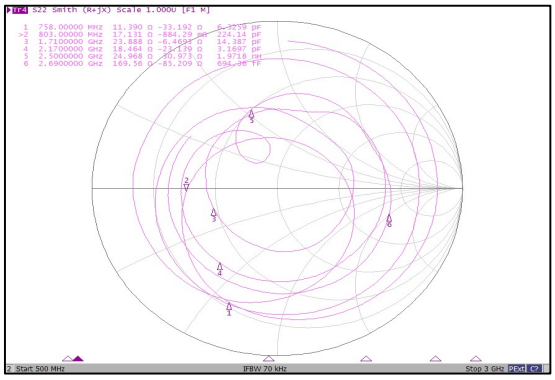
State 1



State 2

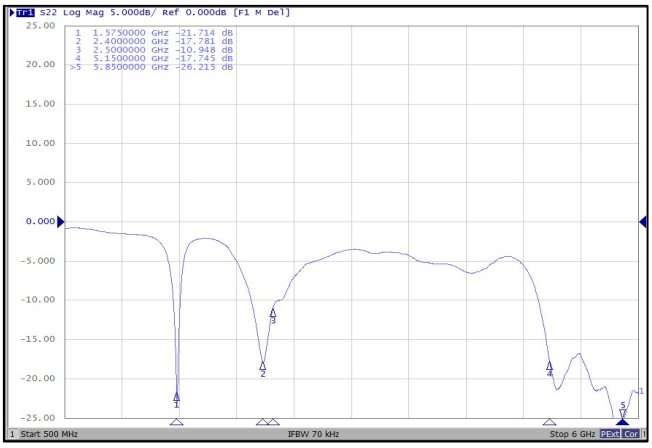


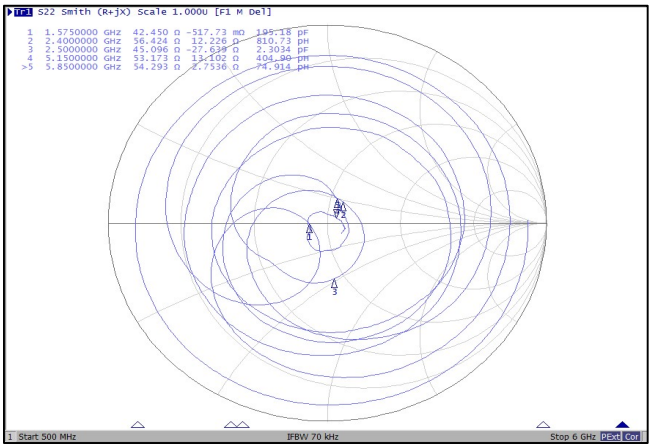
State 3



State 4

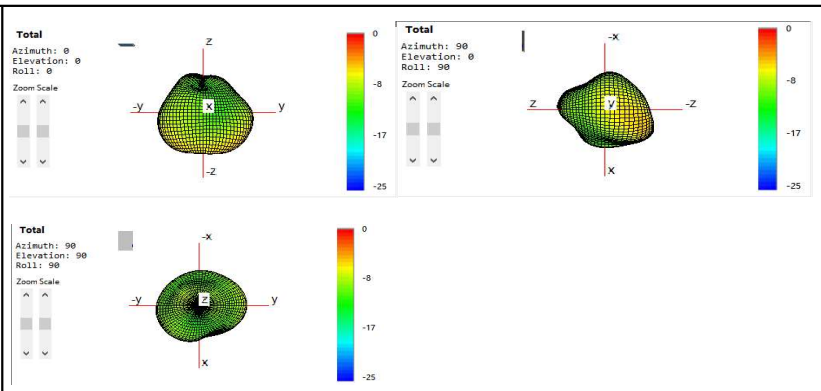
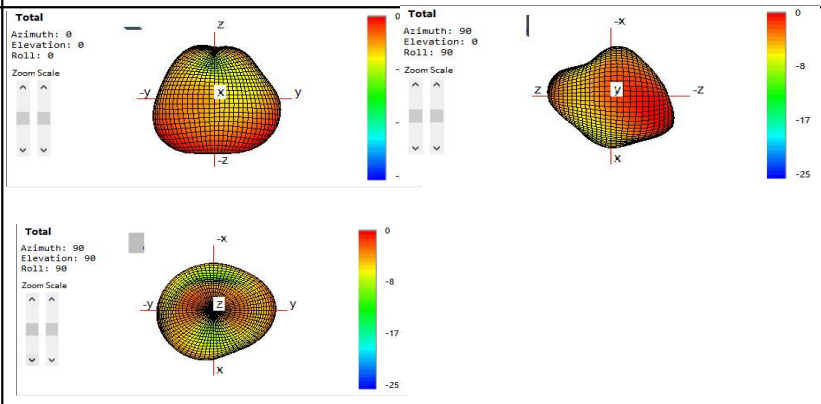
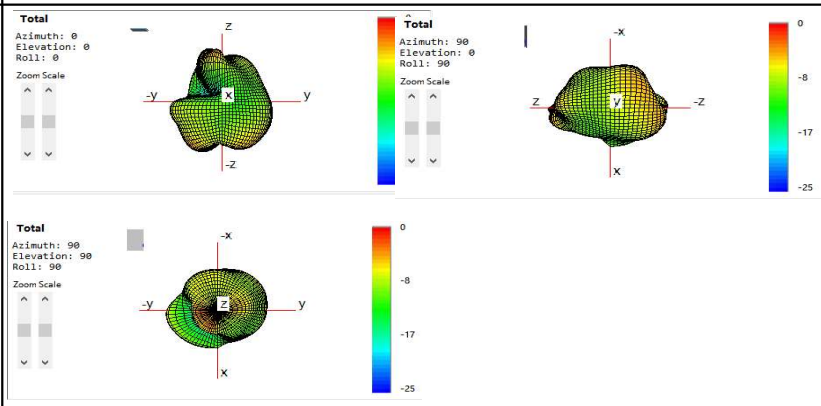
6.3 WCN Ant


Tr1 S22 Log Mag 5.000dB/ Ref 0.000dB [F1 M Del]
1 1.5750000 GHz -21.714 dB
2 2.4000000 GHz -17.781 dB
3 2.5000000 GHz -10.948 dB
4 5.1500000 GHz -17.745 dB
>5 5.8500000 GHz -26.215 dB
25.00
20.00
15.00
10.00
5.000
0.000
-5.000
-10.00
-15.00
-20.00
-25.00
1 Start 500 MHz
IFBW 70 kHz
Stop 6 GHz


Tr1 S22 Smith (R+jX) Scale 1.000U [F1 M Del]
1 1.5750000 GHz 42.450 Ω -517.73 mΩ 199.18 pF
2 2.4000000 GHz 56.424 Ω 12.226 Ω 810.73 pH
3 2.5000000 GHz 45.096 Ω -27.639 Ω 2.3034 pF
4 5.1500000 GHz 53.173 Ω 13.102 Ω 404.96 pH
>5 5.8500000 GHz 54.293 Ω 2.7536 Ω 74.914 pH
1 Start 500 MHz
IFBW 70 kHz
Stop 6 GHz

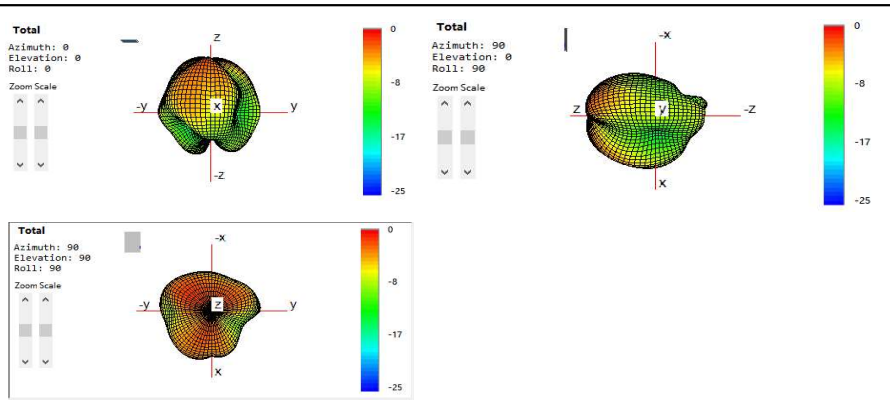
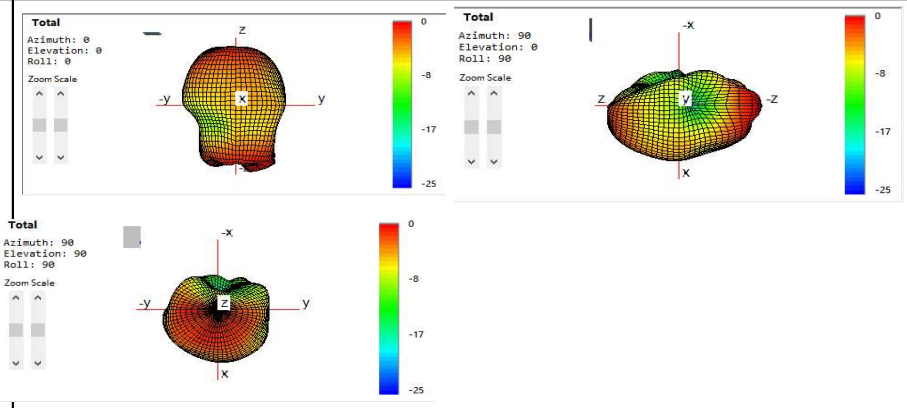
6.4 Radiation Pattern

Main ant

720MHz	
880MHz	
1710MHz	

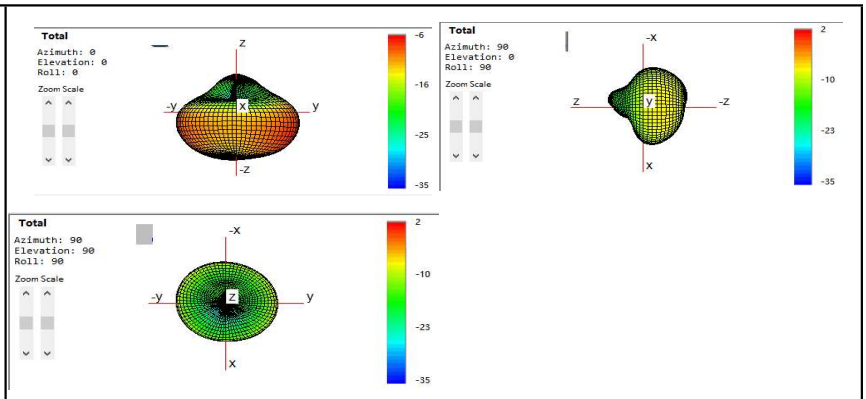
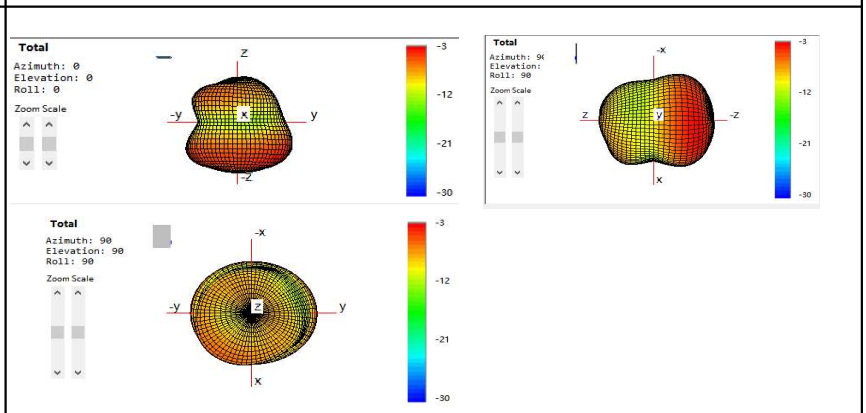
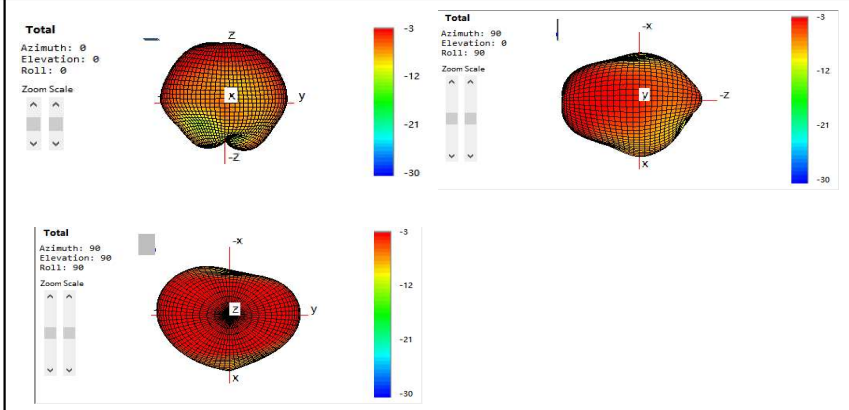
6.4 Radiation Pattern

Main ant

2100MHz	
2600MHz	

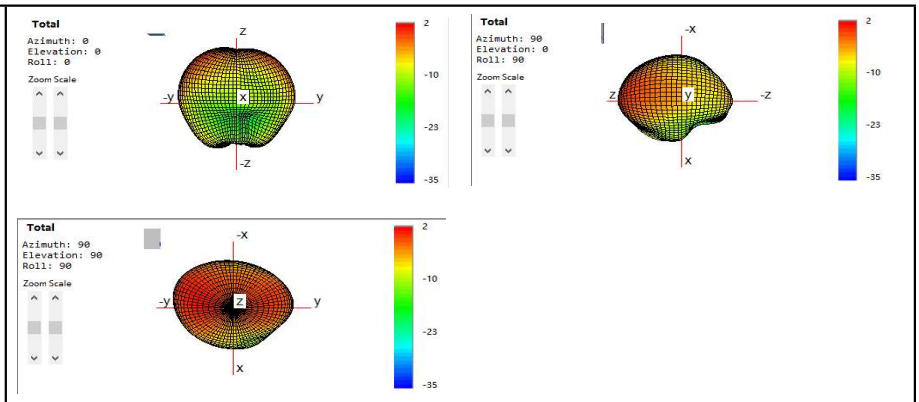
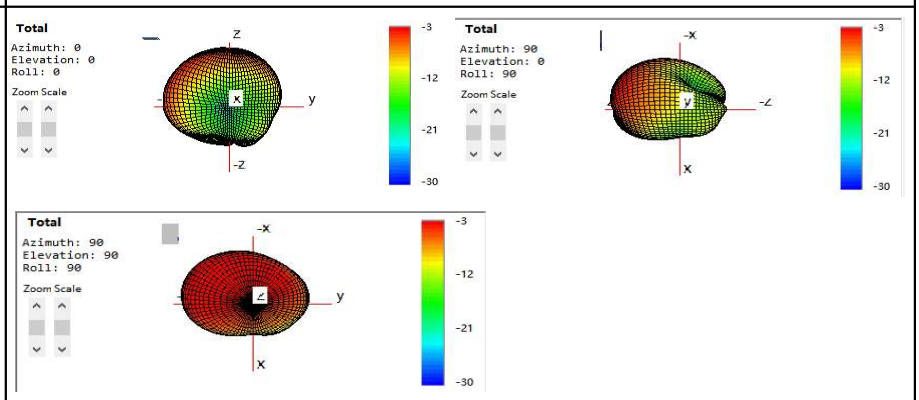
6.4 Radiation Pattern

Diversity ant

770MHz	
930MHz	
1800MHz	

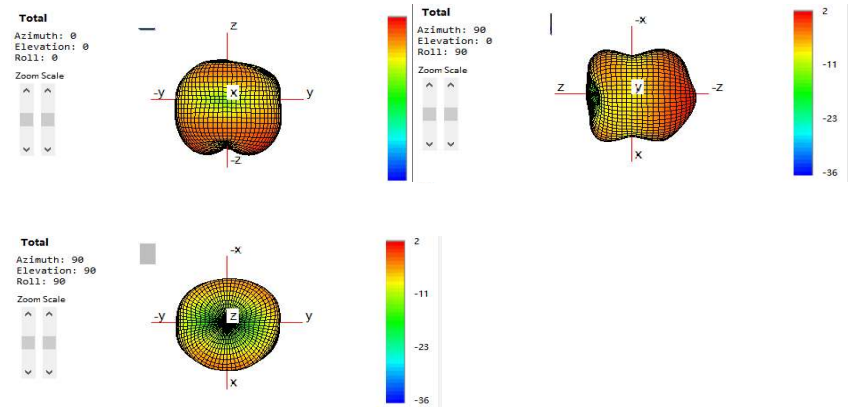
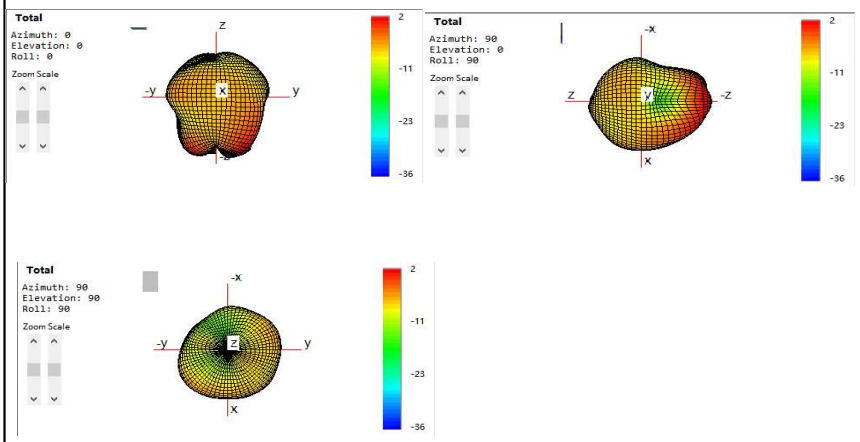
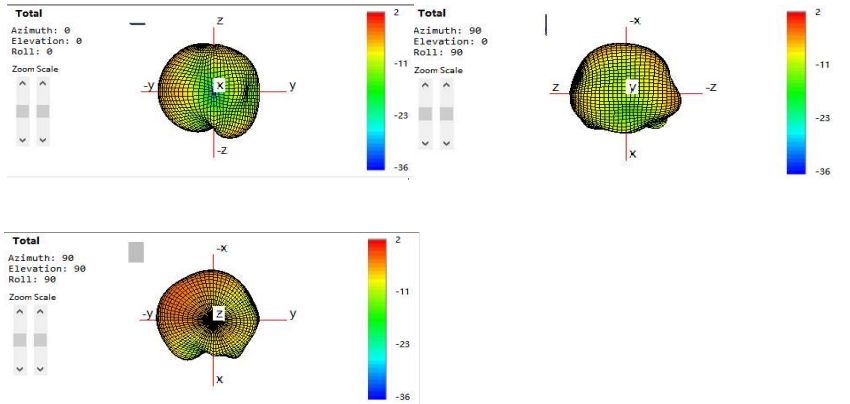
6.4 Radiation Pattern

Diversity ant

2100MHz	
2600MHz	

6.4 Radiation Pattern

WCN ant

GPS 1575MHz	
WIFI 2450MHz	
WIFI 5500MHz	

6.5 Efficiency

main ant

Fre(MHz)	Eff(dB)	Eff(%)	Peak Gain
700	-10.7	8.6	-7.0
720	-8.9	12.8	-5.6
740	-8.0	15.8	-4.8
760	-7.0	20.1	-3.8
780	-6.5	22.3	-2.9
800	-6.8	20.9	-2.7
820	-5.8	26.2	-1.3
840	-4.6	34.7	-0.2
860	-4.8	33.4	-0.6
880	-5.3	29.2	-1.1
900	-4.6	34.6	-0.6
920	-5.8	26.5	-1.9
940	-7.3	18.8	-3.4
960	-8.7	13.5	-5.1
1710	-6.3	23.2	-3.0
1730	-5.4	29.0	-2.4
1750	-4.9	32.7	-1.9
1770	-5.0	32.0	-1.3
1790	-4.6	34.4	-0.7
1810	-4.3	37.5	-0.6
1830	-4.0	40.1	0.3
1850	-3.5	45.1	0.2
1870	-3.5	44.8	0.0
1890	-3.5	45.2	0.4
1910	-3.9	40.6	0.4
1930	-3.6	44.2	0.3
1950	-4.0	39.4	0.7
1970	-4.4	36.5	0.6
1990	-4.0	39.4	0.6
2010	-4.6	34.8	0.7
2030	-4.4	36.0	0.6
2050	-4.6	34.4	0.6
2070	-5.1	31.0	0.1
2090	-5.4	29.1	-0.1
2110	-5.5	28.1	-0.3
2130	-5.5	28.4	-1.0
2150	-5.6	27.8	-0.2
2170	-6.0	25.0	-0.2

Fre(MHz)	Eff(dB)	Eff(%)	Peak Gain
2190	-5.8	26.1	0.0
2210	-5.7	27.0	0.2
2230	-6.0	24.9	-0.7
2250	-5.5	28.2	-1.0
2270	-5.9	25.9	-1.6
2290	-5.7	27.0	-1.3
2310	-5.5	28.1	-1.3
2330	-5.7	27.0	-1.6
2350	-5.2	30.0	-0.7
2370	-5.1	30.9	-0.3
2390	-5.1	31.3	-0.4
2410	-4.5	35.7	-0.7
2430	-4.8	33.3	-0.4
2450	-4.7	33.8	0.0
2470	-5.1	30.6	0.4
2490	-5.2	30.5	0.5
2510	-5.1	31.1	0.3
2530	-5.6	27.5	-0.1
2550	-5.1	30.7	0.2
2570	-5.6	27.7	-0.1
2590	-5.6	27.7	0.1
2610	-6.4	22.8	-0.5
2630	-6.4	23.0	-0.5
2650	-6.4	23.1	0.0
2670	-6.6	22.1	-1.0
2690	-6.5	22.5	-1.2

6.5 Efficiency

Diversity ant

Fre(MHz)	Eff(dB)	Eff(%)	Peak Gain
700	-14.1	3.9	-9.9
720	-13.1	4.9	-9.0
740	-12.9	5.2	-8.9
760	-12.2	6.0	-7.8
780	-11.8	6.6	-7.2
800	-11.8	6.6	-6.8
820	-12.2	6.1	-7.1
840	-10.9	8.2	-6.1
860	-9.3	11.7	-4.1
880	-8.5	14.2	-3.2
900	-9.0	12.7	-4.1
920	-7.6	17.5	-2.9
940	-8.2	15.1	-3.1
960	-9.1	12.5	-4.5
1710	-4.6	34.6	1.1
1730	-4.7	33.8	0.7
1750	-5.0	31.4	0.2
1770	-5.6	27.5	-0.5
1790	-5.8	26.2	-0.8
1810	-6.2	24.3	-1.1
1830	-6.5	22.7	-1.5
1850	-6.9	20.7	-2.1
1870	-7.4	18.1	-2.7
1890	-6.2	24.3	-1.1
1910	-6.0	25.2	-1.1
1930	-5.9	25.9	-1.2
1950	-5.9	25.9	-1.2
1970	-5.7	26.9	-1.1
1990	-5.3	29.6	-0.8
2010	-5.1	31.3	-0.4
2030	-4.8	33.3	0.0
2050	-4.4	36.7	0.7
2070	-4.4	36.6	1.2
2090	-4.5	35.7	1.6
2110	-4.3	37.3	1.9
2130	-4.8	33.1	1.6
2150	-5.0	31.5	1.3
2170	-5.9	25.9	0.2

Fre(MHz)	Eff(dB)	Eff(%)	Peak Gain
2190	-6.1	24.6	-0.1
2210	-5.5	28.3	0.7
2230	-5.2	30.1	1.1
2250	-4.8	33.0	1.9
2270	-4.8	33.2	1.9
2290	-4.7	34.0	2.0
2310	-4.5	35.9	1.9
2330	-5.0	31.5	1.3
2350	-5.1	30.9	0.8
2370	-5.6	27.5	0.1
2390	-6.3	23.7	-1.1
2410	-5.9	25.6	0.6
2430	-6.0	25.0	0.4
2450	-5.8	26.5	0.5
2470	-5.6	27.9	0.3
2490	-5.8	26.1	0.0
2510	-5.9	25.8	-0.2
2530	-5.9	25.6	-0.1
2550	-6.2	24.0	-0.1
2570	-6.3	23.7	0.0
2590	-5.6	27.5	0.5
2610	-5.3	29.5	0.6
2630	-5.5	28.4	0.1
2650	-5.9	25.8	-0.5
2670	-6.4	23.0	-1.2
2690	-6.7	21.5	-1.4

6.5 Efficiency

WCN ant

Frequency/MHZ	Eff(dB)	Eff(%)	Gain (dB)	Upper Hem.Total Radiated Pwr (dBm)
1550	-4.5	35.6	-0.3	-9.5
1560	-4.8	33.5	-0.4	-9.5
1570	-4.5	35.4	-0.5	-9.5
1580	-4.5	35.3	-0.8	-9.8
1590	-5.2	30.1	-1.4	-10.2
1600	-5.6	27.6	-1.9	-10.7
1610	-6.1	24.5	-2.0	-11.7
1620	-6.1	24.4	-2.5	-11.9
2400	-4.0	39.6	1.5	-9.2
2410	-3.6	43.7	1.5	-9.1
2420	-4.1	38.7	1.4	-9.0
2430	-4.2	38.4	1.0	-9.1
2440	-3.9	40.7	1.2	-9.0
2450	-4.3	37.3	1.0	-9.3
2460	-4.3	36.8	1.3	-9.0
2470	-4.7	34.2	1.4	-9.3
2480	-4.4	36.7	1.1	-9.4
2490	-4.5	35.3	1.3	-9.4
2500	-4.4	36.2	0.9	-9.2
5150	-7.5	17.8	-2.9	-9.6
5250	-7.1	19.3	-1.4	-8.9
5350	-6.0	25.2	-0.5	-8.8
5450	-5.8	26.2	0.1	-8.1
5550	-5.1	31.1	0.4	-7.2
5650	-5.4	29.2	0.0	-7.9
5750	-5.5	28.4	-1.2	-7.9
5850	-5.7	27.0	-1.1	-8.3