WX.0022.L4.GAS 4G/GNSS/WIFI ANTENNA

Specification

1.Application:

This application shall apply for antenna unit which shall be used such as automotive, conventional communications, smart home, etc..

2.Electrical Specification:

Those specifications were specially defined for customer's model, and all characteristics were measured under the model's handset testing jig .

2-1. Frequency Band:

Frequency Band	MHz
4G+WIFI+GNSS	4G : 690-960/1710-2690 WIFI: 2400-2500/5150-5850 GNSS: 1561/1575.42

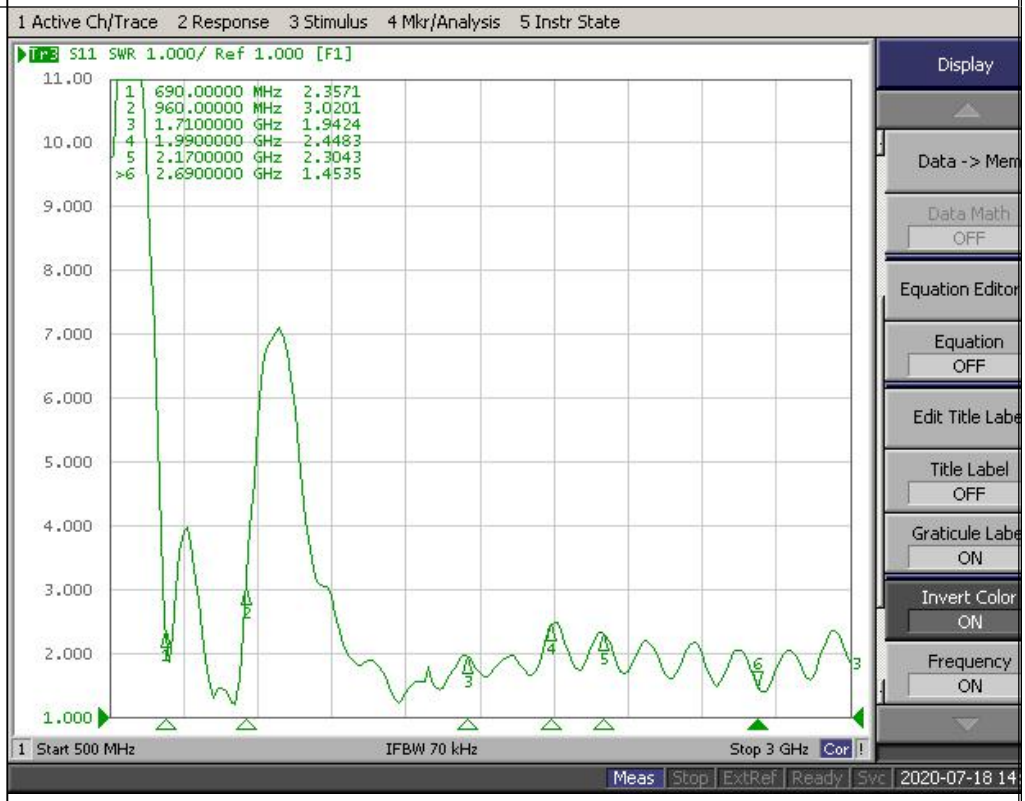
2-2. Impedance

50 ohm nominal

2-3. VSWR

4G antenna

Frequency Band(MHz)	690	960	1710	1990	2170	2690
Typical Value:	2.35	3.02	1.94	2.44	2.30	1.45

Measuring Method	1. A 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR. 2. Keeping this jig away from metal at least 20 cm
Picture	

UNLESS OTHER SPECIFIED TOLERANCES ON: X=± X.X=± X.XX=± ANGLES=± HOLEDIA=±		KINGRF TECHNOLOGY CO., LTD.	
SCALE:	UNIT: mm	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF KINGRF TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
DRAWN BY: LI	CHECKED BY: YS		
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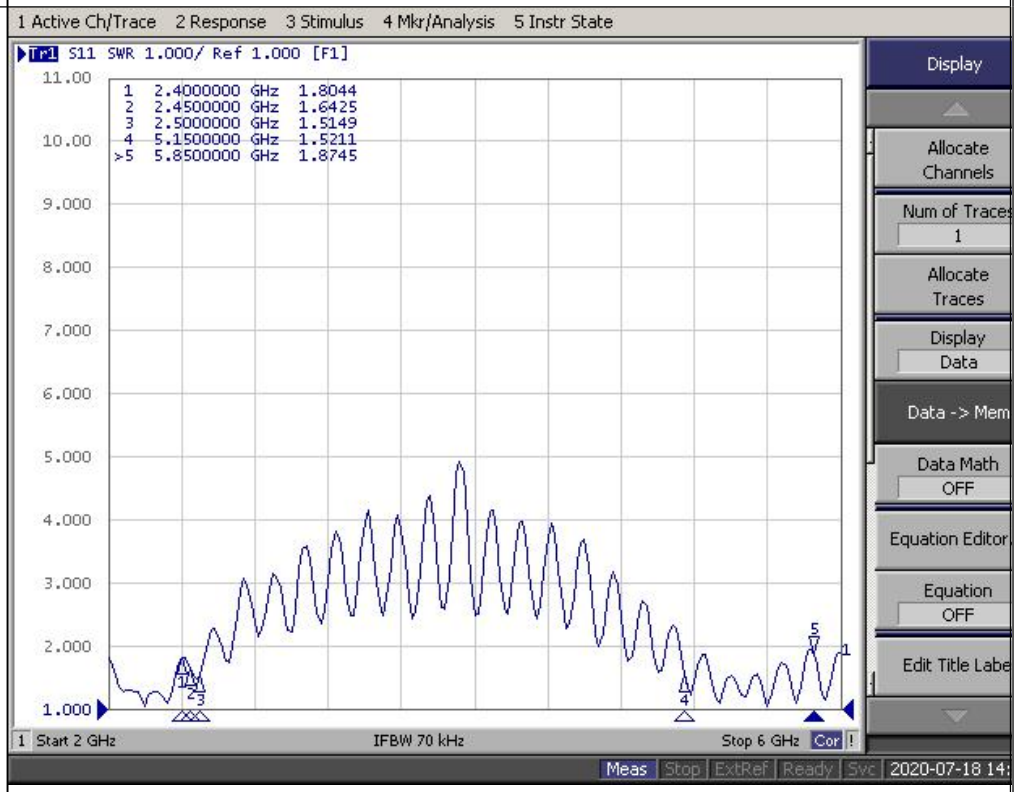
TITLE: WX.0022.L4.GAS 4G/GNSS/WIFI ANTENNA Specification		SPEC REV. P0	

2-3. VSWR

WIFI antenna

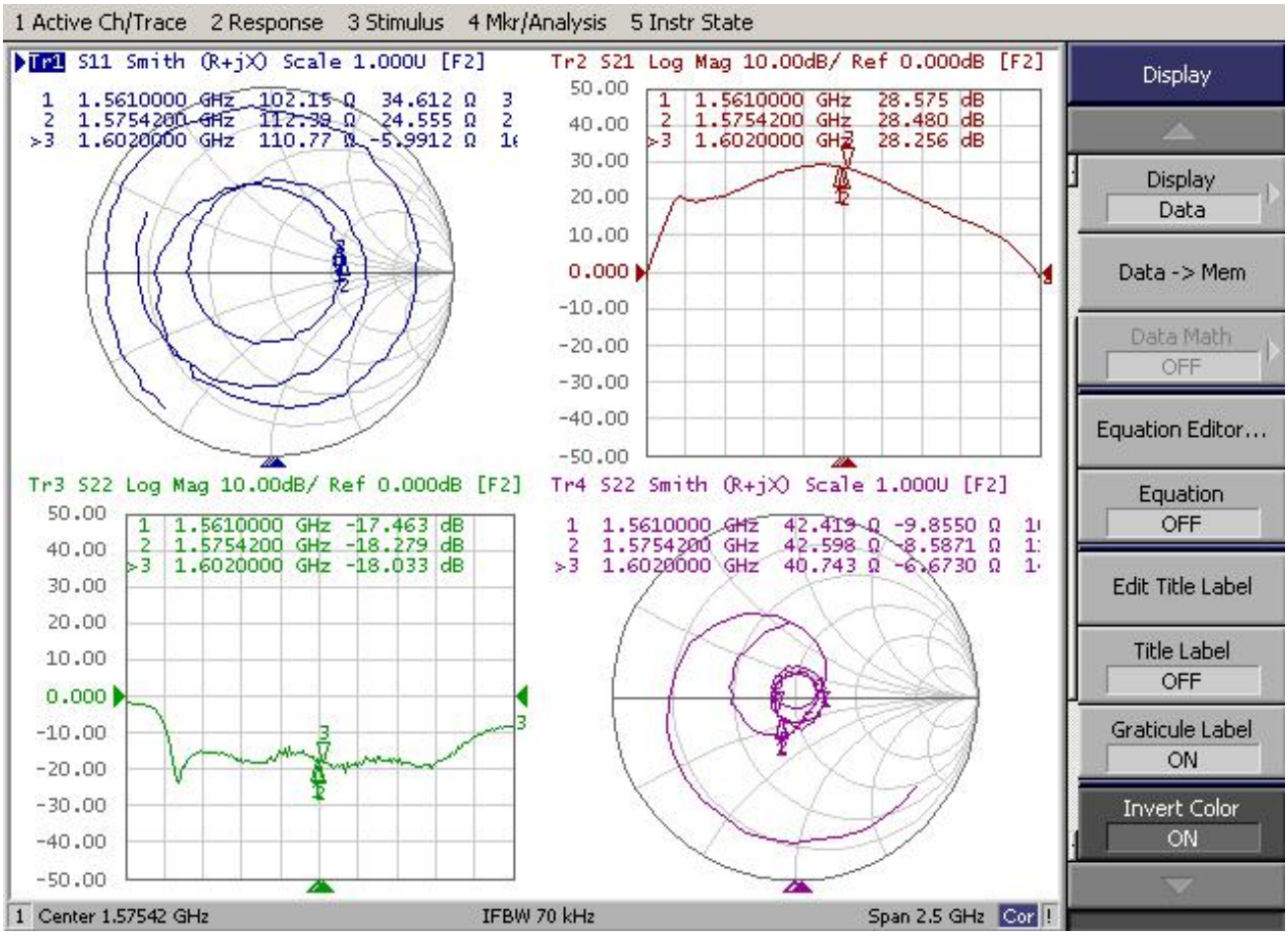
Frequency Band(MHz)	2400	2450	2500	5150	5850
Typical Value:	1.80	1.64	1.51	1.52	1.87

Measuring Method	3. A 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR. 4. Keeping this jig away from metal at least 20 cm
Picture	

2-3. VSWR

GNSS LNA

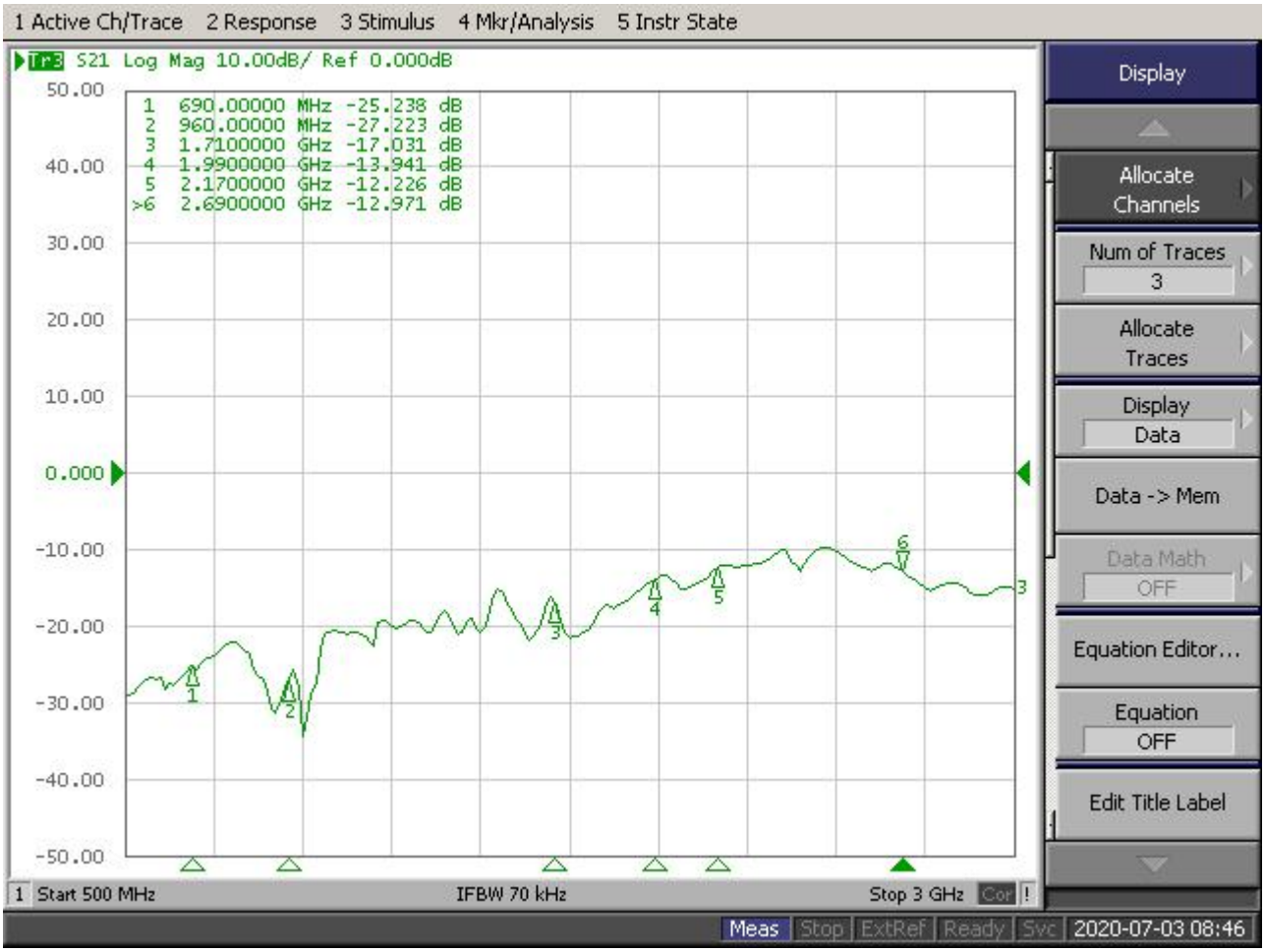
Characteristics	Specification
Frequency Range	1560MHz~1602MHz
Gain	28±3 dB
Noise Figure	2.0 dB typ
Output V.S.W.R	2.0 max
Operation Voltage	3.3~5 V
Current	10~25 mA



2-4. Antenna Isolation

4G Main antenna & WIFI

Frequency Band(MHz)	690	960	1710	1990	2170	2690
Typical Value:	-25	-27	-17	-13	-12	-12



UNLESS OTHER SPECIFIED TOLERANCES ON: X=± X.X=± X.XX=± ANGLES=± HOLEDIA=±		KINGRF	KINGRF TECHNOLOGY CO., LTD.
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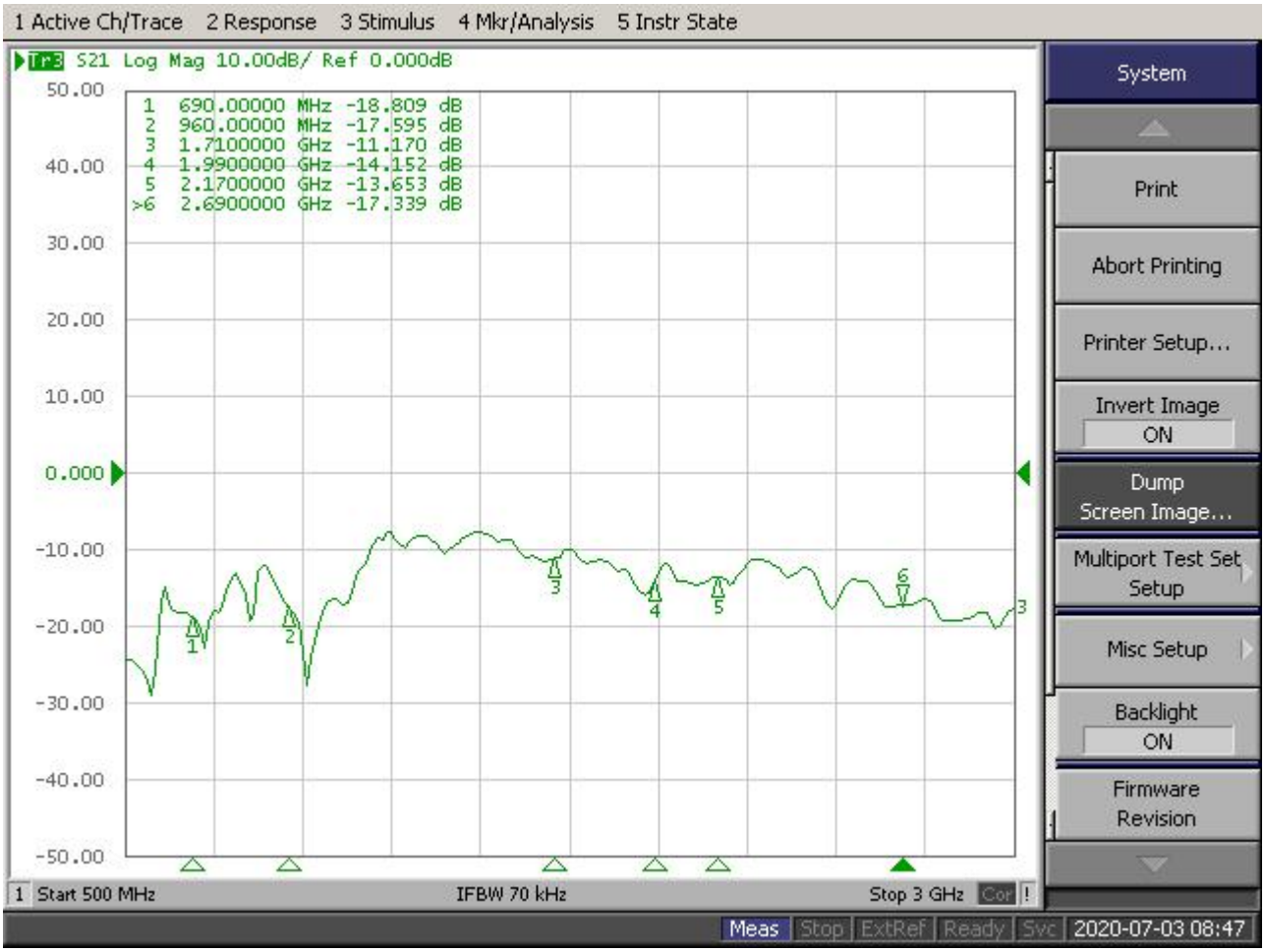
DRAWN BY: LI	CHECKED BY: YS		
DESIGNED BY: De wen	APPROVED BY: YS		
TITLE: WX.0022.L4.GAS 4G/GNSS/WIFI ANTENNA Specification		SPEC REV.	P0

2-4. Antenna Isolation

4G Main antenna

Frequency Band(MHz)	690	960	1710	1990	2170	2690
Typical Value:	-18	-17	-11	-14	-13	-17



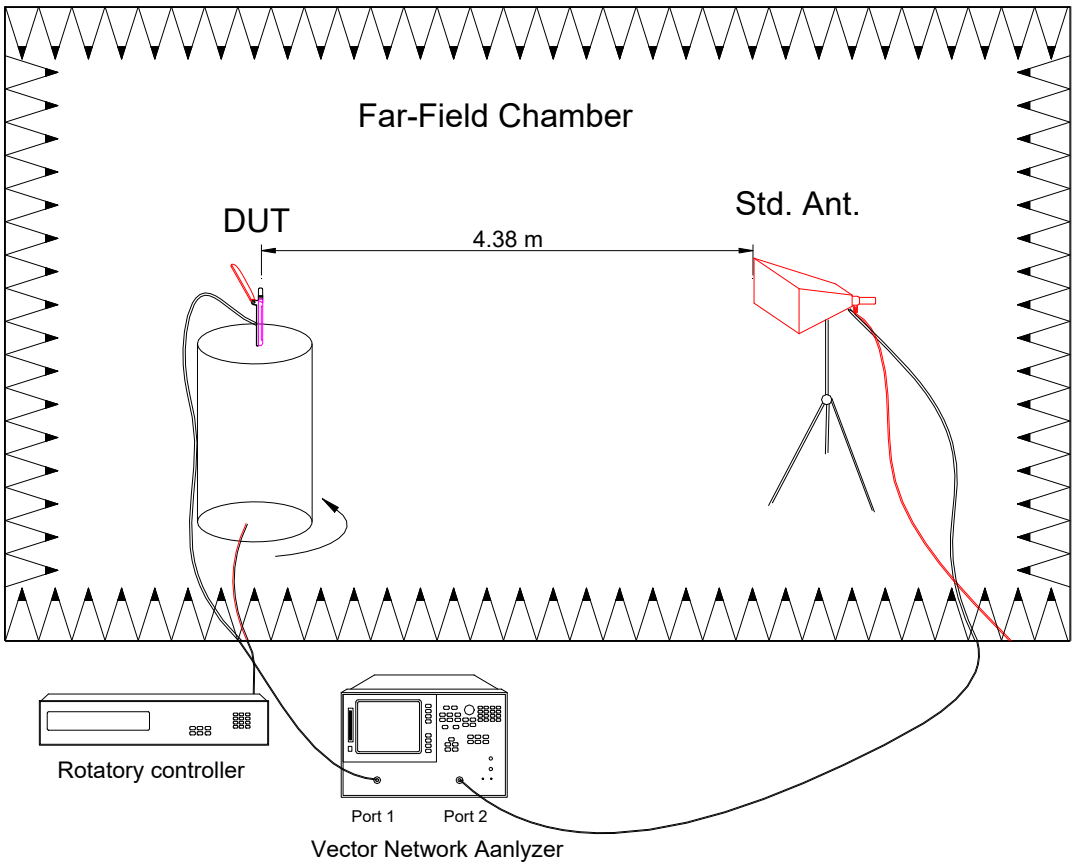
2-4. Antenna Isolation

2-5. Efficiency and Gain

2-5.1 Measure method

1. Using a low loss coaxial cable to link a standard handset jig
2. Fixed this handset jig on chamber's rotator plane
3. Linking jig into network analyzer port and using a probing horn antenna to collect data.
4. Using another standard gain horn antenna to calibrated those data

2-5.2 Chamber definition



1. An anechoic chamber (7mx4mx3m) which satisfied far-field condition was applied to avoid multi-path effect
2. The quite room region is 40cmx40cmx40cm at the center of rotator
3. The distance between DUT and standard antenna is 4.38 m

4. Probing antenna (9120D horn antenna) and standard gain horn antenna (BBHA9120 LPF 600MHz ~6GHz)
5.

2-5-3 Efficiency and Gain/

4G Main antenna

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
690	33.23	-6.78	-0.66
700	31.32	-4.46	-0.1
710	29.5	-5.08	-0.24
720	28.92	-5.86	0.99
730	32.53	-4.26	1.05
740	42.64	-2.79	1.75
750	46.92	-4.33	1.89
760	47.44	-5.62	1.16
770	44.66	-4.6	1.64
780	48.64	-3.13	2.66
790	53.45	-2.72	2.36
800	58.84	-2.3	2.25
810	46.74	-3.3	1.74
820	45.79	-3.39	1.82

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
830	33.01	-4.81	-0.21
840	36.71	-5.73	0.44
850	40.56	-5.15	1.5
860	43.06	-4.81	1.5
870	40.15	-3.96	0.36
880	53.18	-2.74	3.22
890	62.7	-1.38	3.02
900	60.29	-1.53	4.25
910	64.17	-1.93	4.19
920	61.12	-2.14	4.29
930	60.83	-2.16	4.37
940	57.36	-2.41	3.52
950	53.68	-2.7	3.95
960	48.41	-3.15	2.94

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1710	41.23	-3.85	1.85
1720	37.73	-4.23	1.59
1730	37.89	-4.21	1.4
1740	43.7	-4.72	1.23
1750	41.33	-3.84	1.92
1760	36.71	-4.35	1.5
1770	45.91	-3.38	2.38

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1780	50.07	-3	2.69
1790	55.72	-2.54	3.34
1800	69.88	-1.56	4.62
1810	60.76	-2.16	4.09
1820	59.9	-2.23	3.43
1830	56.44	-2.48	3.28
1840	49.95	-3.01	2.68

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1850	53.32	-2.73	3.95
1860	48.7	-3.13	3.28
1870	45.82	-3.39	3.01
1880	43.79	-3.59	2.51
1890	41.97	-3.77	2.5
1900	40.13	-3.97	1.99
1910	62.49	-2.04	3.41
1920	64.36	-1.91	3.3
1930	75.29	-1.23	3.8
1940	76.91	-1.14	3.63
1950	61.76	-2.09	2.62
1960	65.53	-1.84	2.82
1970	51	-2.92	1.74
1980	67.53	-1.7	3.46
1990	51.02	-2.92	2.2
2000	54.15	-2.66	2.56
2010	37.29	-4.28	1.08
2020	45.37	-3.43	2.37
2030	48.79	-3.12	2.38
2040	43.94	-3.57	1.64
2050	45.28	-3.44	1.46
2060	40.22	-5.2	0.74
2070	44.79	-4.59	0.93
2080	44.61	-4.61	0.02
2090	45.25	-4.53	0.05
2100	46.26	-4.41	0.7
2110	46.67	-3.31	1.78
2120	45.83	-4.22	1.14
2130	41.98	-3.77	1.49
2140	40.36	-3.94	1.37
2150	38.52	-4.14	1.01
2160	44.11	-4.67	0.69

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2170	39.48	-4.04	1.84
2180	43.67	-4.73	0.83
2190	38.65	-4.13	1.25
2200	42.26	-4.91	0.08
2210	41.38	-3.83	0.58
2220	44.76	-4.59	0.54
2230	47.18	-3.26	1.25
2240	41.84	-3.78	1.5
2250	45.32	-3.44	1.46
2260	49.66	-3.04	1.44
2270	42.64	-3.7	0.92
2280	45.13	-3.46	1.1
2290	43.47	-4.75	0.05
2300	44.32	-4.64	0.57
2310	47.5	-5.61	0.51
2320	46.44	-4.38	1.27
2330	45.92	-4.45	1.05
2340	41.94	-3.77	1.17
2350	43.15	-3.65	0.93
2360	44.47	-3.52	0.63
2370	41.26	-3.84	0.12
2380	41.86	-3.78	0.04
2390	44.71	-4.6	0.23
2400	48.32	-3.16	2.62
2410	59.79	-2.23	4.23
2420	44.42	-3.52	3.32
2430	42.16	-3.75	2.23
2440	39.66	-4.02	0.94
2450	42.26	-3.74	1.32
2460	56.45	-2.48	2.46
2470	51.46	-2.89	1.58
2480	63.99	-1.94	2.38

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2490	67.63	-1.7	2.24
2500	61.09	-2.14	1.61
2510	40.31	-3.95	0.2
2520	43.4	-4.76	0.47
2530	45.6	-4.49	0.35
2540	43.45	-4.76	0.62
2550	39.68	-5.27	0.27
2560	41.98	-6.58	0.13
2570	39.57	-5.29	0.28
2580	44.79	-6.06	0.88
2590	46.29	-5.8	0.78

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2600	45.12	-6	0.51
2610	41.41	-6.69	1.13
2620	42.44	-4.89	0.54
2630	37.12	-5.67	0.83
2640	38.87	-5.4	0.27
2650	46.32	-5.8	2.17
2660	45.69	-4.47	0.83
2670	44.81	-4.58	0.39
2680	39.74	-5.27	0.46
2690	38.29	-5.48	-0.17

4G Diversity antenna

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1710	57.18	-2.43	1.99
1720	59.27	-2.27	2.55
1730	55.43	-2.56	2.89
1740	65.94	-1.81	4.37
1750	56.88	-2.45	2.57
1760	50.39	-2.98	2.36
1770	54.28	-2.65	2.56
1780	75.45	-1.22	4.12
1790	69.76	-1.56	3.64

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1800	59.43	-2.26	2.98
1810	52.35	-2.81	2.45
1820	41.12	-3.86	1.22
1830	52.28	-2.82	2.26
1840	38.92	-4.1	1.05
1850	52.09	-2.83	2.12
1860	55.09	-2.59	2.4
1870	63.88	-1.95	3.83
1880	67.91	-1.68	4.33

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1890	67.64	-1.7	3.88
1900	72.56	-1.39	3.74
1910	80.84	-0.92	4.03
1920	81.24	-0.9	3.82
1930	64.39	-1.91	3.42
1940	66.57	-1.77	3.54
1950	58.94	-2.3	3.14
1960	59.21	-2.28	3.32
1970	56.75	-2.46	2.77
1980	69.08	-1.61	3.5
1990	73.6	-1.33	3.73
2000	71.49	-1.46	3.38
2010	49.21	-3.08	1.45
2020	47.61	-3.22	1.71
2030	50.67	-2.95	2.21
2040	46.76	-3.3	1.9
2050	48.56	-3.14	2.07
2060	41.39	-3.83	1.9
2070	43.19	-3.65	2.01
2080	56.07	-2.51	3.17
2090	50.69	-2.95	2.22
2100	51.58	-2.88	2.43
2110	62.88	-2.01	3.03
2120	44.2	-3.55	1.45
2130	51.98	-2.84	2.16
2140	39.81	-4	1.31
2150	42.36	-3.73	2.2
2160	36.61	-4.36	1.43
2170	46.29	-3.35	2.14
2180	39.54	-4.03	0.75
2190	42.65	-3.7	1.63

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2200	38.96	-4.09	1.12
2210	44.67	-3.5	2.1
2220	41.34	-3.84	2.16
2230	51.51	-2.88	3.35
2240	46.85	-3.29	3.14
2250	46.67	-3.31	3.26
2260	42.54	-3.71	2.57
2270	45.92	-3.38	2.77
2280	48.32	-3.16	2.73
2290	44.08	-3.56	2.11
2300	40.13	-3.97	1.17
2310	31.44	-5.03	-0.2
2320	38.41	-4.16	1.06
2330	38.13	-5.51	0.05
2340	41.76	-4.98	1.02
2350	37.28	-5.64	0.38
2360	44.61	-4.61	1.26
2370	36.37	-4.39	0.89
2380	38.02	-4.2	0.74
2390	44.02	-4.68	0.09
2400	44.21	-3.55	1.06
2410	61.4	-2.12	3.55
2420	39.27	-4.06	2.3
2430	41.64	-3.8	2.25
2440	42.11	-4.93	0.73
2450	38.09	-4.19	0.72
2460	44.19	-3.55	0.94
2470	36.29	-4.4	0.05
2480	50.63	-2.96	1.71
2490	52.14	-2.83	2.13
2500	59.9	-2.23	2.99

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2510	43.31	-4.77	0.59
2520	41.04	-5.08	0.4
2530	44.57	-4.61	0.74
2540	47.23	-4.29	1.44
2550	44.84	-4.58	0.92
2560	38.98	-5.38	0.26
2570	40.08	-3.97	2
2580	45.66	-4.48	1.36
2590	46.79	-4.34	1.34
2600	44.2	-4.66	1.03

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2610	41.6	-5	0.75
2620	45.67	-4.48	1.54
2630	44.36	-4.64	1.49
2640	39.76	-5.26	0.61
2650	36.04	-5.84	0.41
2660	43.47	-4.75	1.24
2670	40.43	-5.17	0.91
2680	39.03	-5.37	0.65
2690	43.32	-5.63	0.27

WIFI antenna

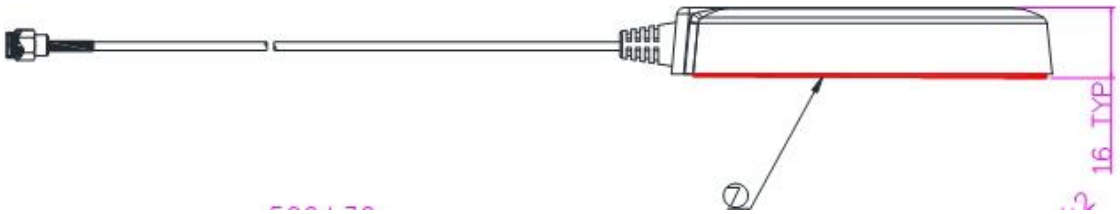
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	63.74	-1.96	2.71
2410	56.91	-1.14	3.27
2420	63.17	-2	2.81
2430	63.37	-1.34	3.93
2440	49.72	-3.03	2.66
2450	57.53	-2.4	3.74
2460	45.6	-3.41	3.18
2470	49.01	-3.1	3.27
2480	49.83	-3.02	2.8
2490	57.42	-2.41	2.4
2500	62.79	-2.02	2.65

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5150	42.57	-4.87	1.8
5200	45.71	-5.9	1.32
5250	46.17	-5.82	1.33
5300	48.82	-4.11	3.05
5350	47.2	-4.3	2.25
5400	50.55	-2.96	3.23
5450	69.13	-1.6	4.71
5500	51.4	-2.89	4.08
5550	48.12	-3.18	3.62
5600	41.97	-3.77	3.61
5650	54.93	-2.6	4.74
5700	51.83	-2.85	4.47
5750	41.75	-3.79	2.46
5800	48.04	-3.18	3.78
5850	47.68	-3.22	3.22

3. Mechanical Specification:

3-1. Mechanical Configuration (Unit: mm)

The appearance of the antenna is according to drawing



ITEM NO	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	QTY PER	UNIT
⑧	下盖	外壳下盖 黑色	1	PCS
⑦	3M	3M双面胶 红色离型纸 厚1 mm	1	PCS
⑥	接头	SMA公头公针 镀金	4	PCS
⑤	热缩套管	热缩套管 带频段印字	4	PCS
④	线材	RG174黑色线材 L=500	4	PCS
③	SR	SR黑色束线扣 四出线	1	PCS
②	PCB	RF4 绿色油墨白色字码	1	PCS
①	上壳	圆形黑色上盖 φ81.5	1	PCS

3-2. Connector appearance: SMA PLUG

3-3.Product Image：

4 .Packaging specification：

Product number： xxx

Product model： xxx

一、Label requirements：

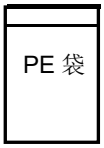
Customer	**xxx**		
supplier	**xxxxx**		
Material coding	**xx**		
Product model	**xx**		
Number	**XXX PCS**	**Factory date**	**X X X**
Remarks			

二、Boxing：

Job description：

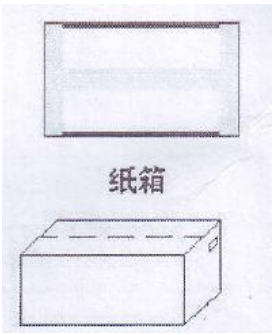
1. Inner packaging：

XXpcs A bag



2. External packaging：

Xx PCS ；



3. Matters needing attention：

a. Whether to add partition and pearl cotton；

b. Label attachments, such as ROHS, etc.；