

深圳市云希科技有限公司

ShenZhen Yunxi Technology Co.,Ltd.

Antenna test Report

Customer: 维图智联

Project Name: 330 有屏、300无屏 国
内，美版，欧版

RF Engineer: 吴工

Testing Date: 2022-11-5

Operating band: **2.4G+5.8G WIFI+GPS+NFC+LTE**



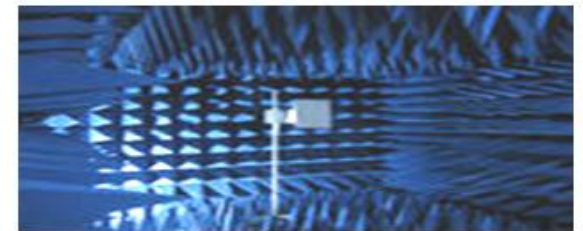
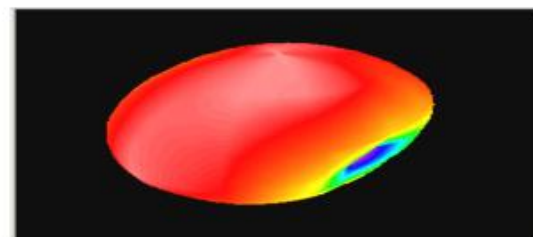
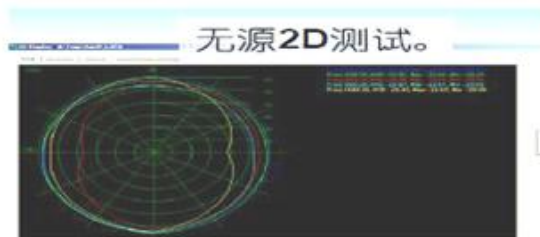
1.Project brief

NO.	ITEMS	DETAILS
1	工作频段 Operating band	2.4G+5.8G WIFI+GPS+NFC+LTE
2	频率范围 Frequency range	(13.56MHz)(2400~2500MHz)(5150~5850MHz)(1575MHz)(690~960MHz)(1710~2690MHz)
3	天线类型 Antenna Type	FPC
4	天线材质及实现形式 material quality	FPC
5	天线料号 Antenna part number	Diversity Antenna: G1807A-1B2-A
	天线料号 Antenna part number	WiFi: F1355A-1B2-A/GPS:S275A-9D23B-060-A/NFC:N070A-1B2-A(无屏)/N071A-1B2-A(有屏)
6	输入阻抗 Input Impedance	50 (Ω)
7	增益 Gain	

RF	吴工
ME	

3.Test system and equipment

	Test Project	device
1. S参数 s-parameter	1. 回波损耗/Return Loss 2. 驻波比/standing-wave ratio	网络分析仪/Device Network Analysis: HP E5071C/Agilent8753D
2. 耦合功率测试 Coupling power measurement Coupling power measurement	1. 发射功率/Transmitting power 2. 接收灵敏度/receiver sensitivity	GSM 测试仪/GSM Tester: Agilent 8960 LTE 测试仪/LTE Tester: CMW500
3. 辐射模式与增 Radiation mode and gain	1.辐射模式/ radiation pattern 2. 天线增益/Antenna gain	1. 实验室/laboratory: 7x4x3 m (ETS-3D) 2.网络分析仪/ network analyzer: HP Agilent8753ES



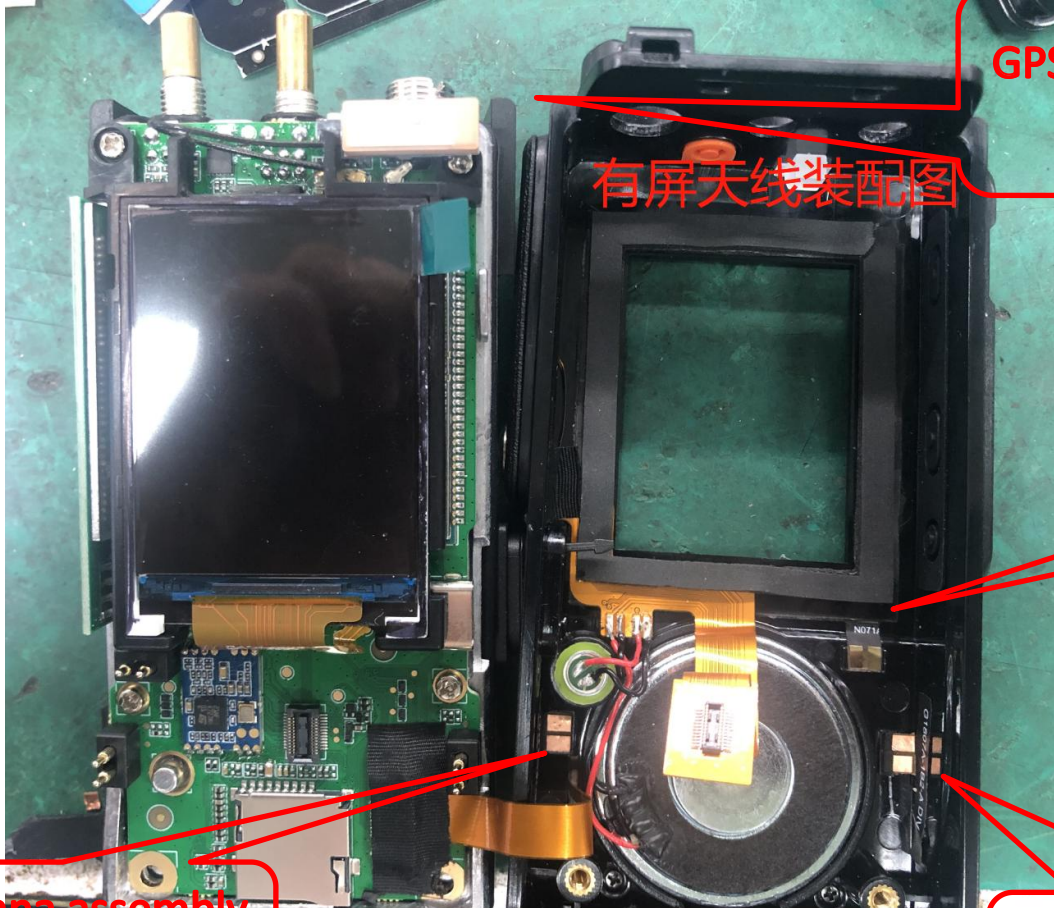
Matching Circuits

NFC天线装配图



Description		Tay	Value
Type A (1)	公交卡 Transportation card		
Type A (2)	线圈天线 coil antenna		25MM
Type B	身份证 identity card		

Antenna assembly environment processing diagram



GPS Antenna assembly
position

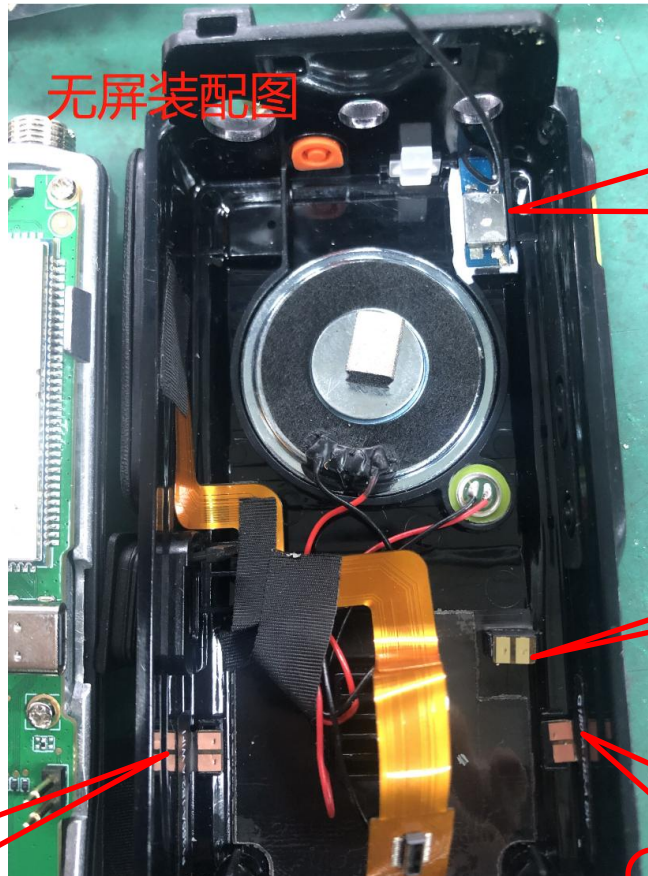
有屏天线装配图

NFC Antenna assembly
position

WIFI Antenna assembly
position

4G Assembly position
of diversity antenna

Antenna assembly environment processing diagram



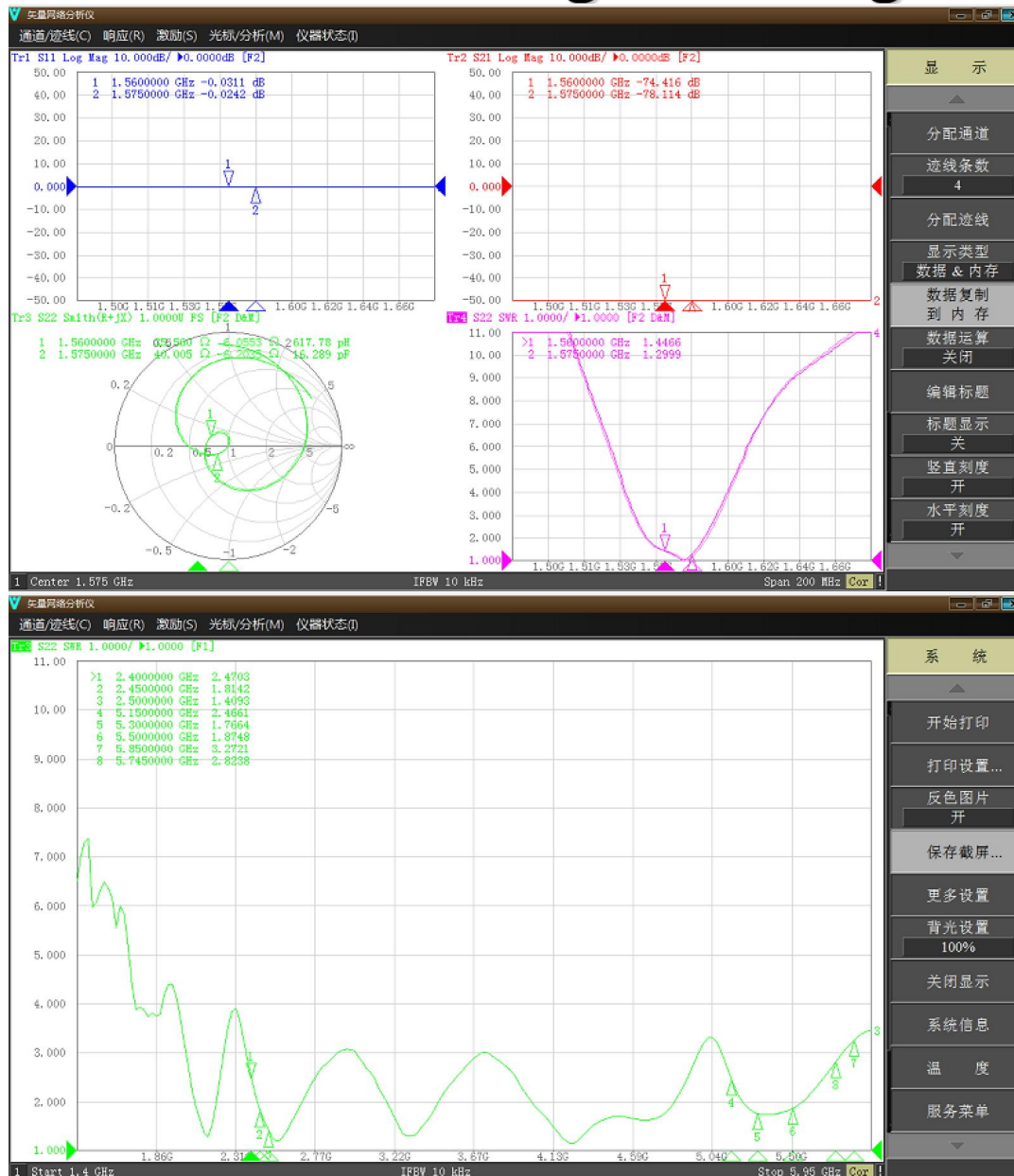
GPS Antenna assembly
position, pay attention
to coaxial direction

NFC Antenna assembly
position

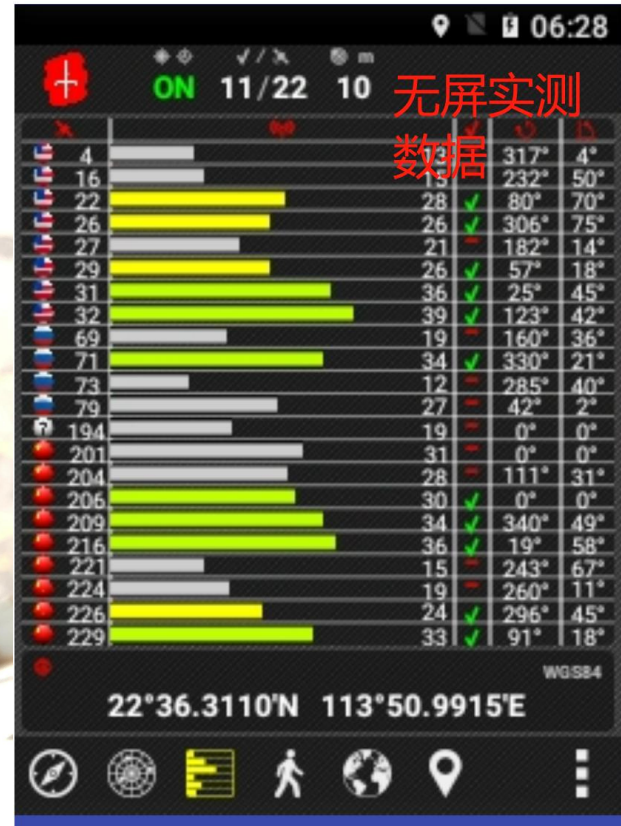
WiFi Antenna assembly
position

4G Assembly position
of diversity antenna

Antenna standing waves diagram



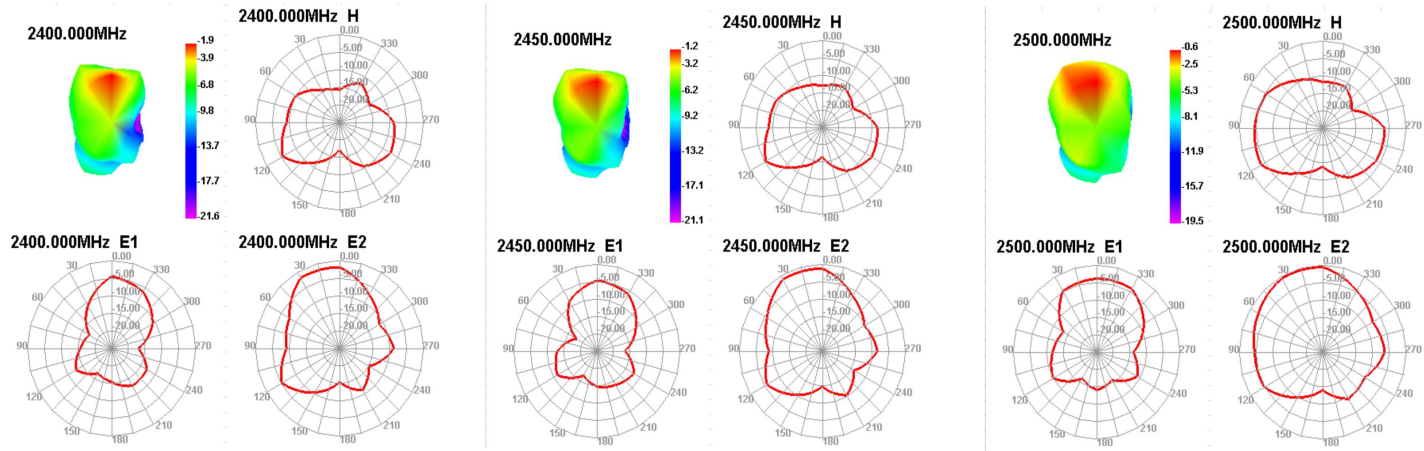
GPS and WiFi measurement



Note: GPS is data tested using passive ceramics

Antenna efficiency and gain

Passive Test For WIFI2.4										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	20.97	-6.79	-1.88	-1.08	8.57	12.395	-1.88	-21.07	48.17	48.27
2410	27.56	-5.6	-0.55	0.04	11.456	16.105	-0.55	-19.52	48.82	48.98
2420	33.5	-4.75	0.41	0.86	14.147	19.354	0.41	-18.32	49.21	49.73
2430	23.73	-6.25	-1.13	-0.76	10.246	13.483	-1.13	-19.42	47.85	48.18
2440	21.57	-6.66	-1.63	-1.31	9.496	12.071	-1.63	-19.26	47.45	47.61
2450	23.57	-6.28	-1.23	-0.99	10.633	12.934	-1.23	-18.63	47.52	47.61
2460	34.9	-4.57	0.41	0.71	15.896	19.007	0.41	-17.27	49.2	49.47
2470	28.2	-5.5	-0.61	-0.3	13.045	15.153	-0.61	-19.09	48.51	48.69
2480	25.42	-5.95	-1.12	-0.8	11.799	13.619	-1.12	-20.55	47.62	47.62
2490	26.38	-5.79	-1.26	-0.59	12.356	14.019	-1.26	-22.3	47.76	47.65
2500	34.28	-4.65	-0.56	0.69	16.013	18.269	-0.56	-23.35	48.93	48.83



Antenna efficiency and gain

Passive Test For WIFI5.8										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
5150	31.03	-5.08	1.77	-0.38	18.092	12.939	1.77	-22.08	58.72	58.81
5160	28.12	-5.51	1.3	-0.85	16.355	11.764	1.3	-23.5	58.38	58.77
5170	24.4	-6.13	0.69	-1.46	14.237	10.167	0.69	-24.56	57.8	58.09
5180	28.06	-5.52	1.21	-0.94	16.47	11.586	1.21	-24.2	58.45	58.84
5190	29.64	-5.28	1.35	-0.8	17.441	12.197	1.35	-25.4	58.64	59.01
5200	30.91	-5.1	1.43	-0.72	18.329	12.582	1.43	-26.08	58.9	58.97
5210	28.12	-5.51	0.98	-1.17	16.701	11.416	0.98	-27.77	57.85	58.37
5220	30.26	-5.19	1.23	-0.92	18.199	12.056	1.23	-27.13	58.8	58.71
5230	35.43	-4.51	2.03	-0.12	21.257	14.175	2.03	-25.93	58.81	59.14
5240	35.1	-4.55	1.97	-0.18	21.134	13.963	1.97	-25.05	59.03	59.28
5250	30.58	-5.15	1.48	-0.67	18.469	12.114	1.48	-25.57	58.66	58.81
5260	30.66	-5.13	1.49	-0.66	18.526	12.134	1.49	-24.97	58.29	58.88
5270	33.86	-4.7	1.9	-0.25	20.539	13.32	1.9	-23.94	58.85	59.16
5280	35.49	-4.5	2.12	-0.03	21.455	14.032	2.12	-23.11	58.82	59.47
5290	30.83	-5.11	1.43	-0.72	18.671	12.158	1.43	-23.23	58.78	59.21
5300	27.6	-5.59	0.89	-1.26	16.753	10.851	0.89	-23.49	58.38	59.04
5310	31.31	-5.04	1.41	-0.74	18.946	12.366	1.41	-22.79	58.44	59.13
5320	36.61	-4.36	2.04	-0.11	22.242	14.365	2.04	-21.43	59.05	59.5
5330	31.93	-4.96	1.46	-0.69	19.481	12.448	1.46	-22.4	58.83	59.46
5340	30.24	-5.19	1.24	-0.91	18.497	11.74	1.24	-22.25	58.48	58.93
5350	31.13	-5.07	1.32	-0.83	19.001	12.13	1.32	-21.7	58.25	58.91
5360	38.96	-4.09	2.26	0.11	23.823	15.141	2.26	-21.13	59.21	59.5
5370	33.26	-4.78	1.63	-0.52	20.313	12.947	1.63	-23.13	58.37	59.23
5380	28.13	-5.51	0.94	-1.21	17.152	10.977	0.94	-23.52	57.43	58.02
5390	27.54	-5.6	0.78	-1.37	16.801	10.734	0.78	-23.82	57.58	58.02
5400	37.37	-4.28	2.25	0.1	22.719	14.647	2.25	-24.85	58.35	59.27
5410	35.3	-4.52	1.93	-0.22	21.53	13.772	1.93	-23.98	58.31	58.87
5420	28.75	-5.41	1.13	-1.02	17.447	11.302	1.13	-25.32	56.92	57.95
5430	26.55	-5.76	0.72	-1.43	16.139	10.407	0.72	-24.49	57.23	57.98
5440	26.47	-5.77	0.73	-1.42	16.023	10.452	0.73	-25.14	56.97	57.79
5450	31.25	-5.05	1.37	-0.78	18.921	12.331	1.37	-23.29	57.96	58.9
5460	30	-5.23	1.23	-0.92	18.054	11.949	1.23	-23.63	57.72	58.73
5470	26.4	-5.78	0.75	-1.4	15.942	10.46	0.75	-23.13	57.42	58.33
5480	27.74	-5.57	1.11	-1.04	16.694	11.043	1.11	-22.95	57.82	58.72

Antenna efficiency and gain

5490	30.43	-5.17	1.6	-0.55	18.294	12.131	1.6	-21.18	57.97	59.19
5500	26.98	-5.69	1.11	-1.04	16.186	10.79	1.11	-21.48	58.2	59.03
5510	24.44	-6.12	0.81	-1.34	14.711	9.725	0.81	-24.24	57.86	59.12
5520	28.02	-5.52	1.54	-0.61	16.931	11.092	1.54	-23.62	58.78	59.76
5530	31.9	-4.96	2.13	-0.02	19.274	12.628	2.13	-23.39	59.46	60.53
5540	32.69	-4.86	2.38	0.23	19.85	12.836	2.38	-23.85	59.64	61.1
5550	26.35	-5.79	1.56	-0.59	16.023	10.326	1.56	-24.38	59.13	60.31
5560	24.56	-6.1	1.3	-0.85	14.929	9.626	1.3	-26.53	58.64	60.26
5570	31.69	-4.99	2.3	0.15	19.296	12.396	2.3	-24.63	60.39	61.24
5580	32.21	-4.92	2.42	0.27	19.694	12.511	2.42	-24.83	60.62	61.76
5590	26.84	-5.71	1.73	-0.42	16.367	10.468	1.73	-27	60.04	61.34
5600	23.76	-6.24	1.09	-1.06	14.452	9.309	1.09	-29.73	59.59	61
5610	30.82	-5.11	2.27	0.12	18.77	12.05	2.27	-30.95	60.43	61.84
5620	34.95	-4.57	2.79	0.64	21.251	13.697	2.79	-27.94	61.61	62.53
5630	29.18	-5.35	1.97	-0.18	17.642	11.536	1.97	-26.12	60.89	61.96
5640	24.44	-6.12	1.07	-1.08	14.717	9.719	1.07	-24.48	60.05	60.8
5650	30.92	-5.1	1.99	-0.16	18.628	12.296	1.99	-21.18	60.49	61.45
5660	40	-3.98	3.03	0.88	24.052	15.949	3.03	-18.43	61.73	62.8
5670	29.55	-5.29	1.72	-0.43	17.756	11.795	1.72	-19.21	60.63	61.44
5680	24.86	-6.04	0.81	-1.34	14.867	9.996	0.81	-20.21	59.87	60.86
5690	24.53	-6.1	0.46	-1.69	14.739	9.789	0.46	-19.72	59.96	60.6
5700	35.61	-4.48	2.06	-0.09	21.395	14.212	2.06	-18.04	60.87	61.93
5710	31.42	-5.03	1.39	-0.76	18.861	12.558	1.39	-18.11	60.39	61.3
5720	25.74	-5.89	0.37	-1.78	15.445	10.299	0.37	-19.38	59.81	60.78
5730	22.79	-6.42	-0.16	-2.31	13.67	9.116	-0.16	-19.9	59.64	60.35
5740	31.33	-5.04	1.15	-1	18.693	12.637	1.15	-19.98	61.02	61.8
5750	34.24	-4.65	1.61	-0.54	20.46	13.78	1.61	-21.01	60.81	61.78
5760	30.58	-5.15	1.07	-1.08	18.22	12.363	1.07	-21.05	60.27	61.29
5770	27.75	-5.57	0.68	-1.47	16.551	11.201	0.68	-20.94	60.05	61.18
5780	31.77	-4.98	1.19	-0.96	19.009	12.764	1.19	-19.82	60.92	61.62
5790	34.04	-4.68	1.65	-0.5	20.372	13.671	1.65	-18.1	61.13	62.05
5800	32.26	-4.91	1.31	-0.84	19.323	12.937	1.31	-17.91	61.15	62.13
5810	28.14	-5.51	0.73	-1.42	16.955	11.182	0.73	-18.69	61.04	61.73
5820	35.66	-4.48	1.75	-0.4	21.439	14.223	1.75	-17.86	61.81	62.68
5830	34.6	-4.61	1.6	-0.55	20.857	13.746	1.6	-18.18	62.07	62.87
5840	36.45	-4.38	1.88	-0.27	21.979	14.47	1.88	-18.2	62.67	63.67
5850	31.49	-5.02	1.11	-1.04	18.928	12.558	1.11	-18.29	62.18	63.1

Antenna efficiency and gain

