Antenna Test Report

Product Name: External Antenna	Report No. : RF8230209035-L1-R
Product Model: SSR-2207047	Security Classification: Open
Version：V1	Total Page: 25

HAIYUN Laboratory Report

Antenna Test Report

Equipment:	**External Antenna**
Model:	**SSR-2207047**
Antenna Type	**Dipole**
Model of Router:	**R14**
FCC ID of Router:	**2AF5PR14**
Applicant:	**MTRLC LLC**
Applicant address:	**275 Turnpike Street Suite 101 Canton, MA 02021**
Date of Receipt:	**Feb 22.2023**
Date of Test:	**Feb 22.2023~Mar 14.2023**
Issue Date:	**Mar 15.2023**
Tested by:	**Shenzhen HAIYUN Testing Co., Ltd. Laboratory**

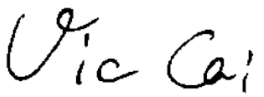
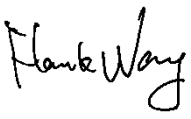
Prepared By:	Checked By:	Approved By:	
Damon Zhang	Vic Cai	Flank Wang	
			

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Table of Contents

1.Purose & Environment

1.1 Purpose

- Meet the electrical performance index;
- Confirm the antenna scheme to meet the design requirements;

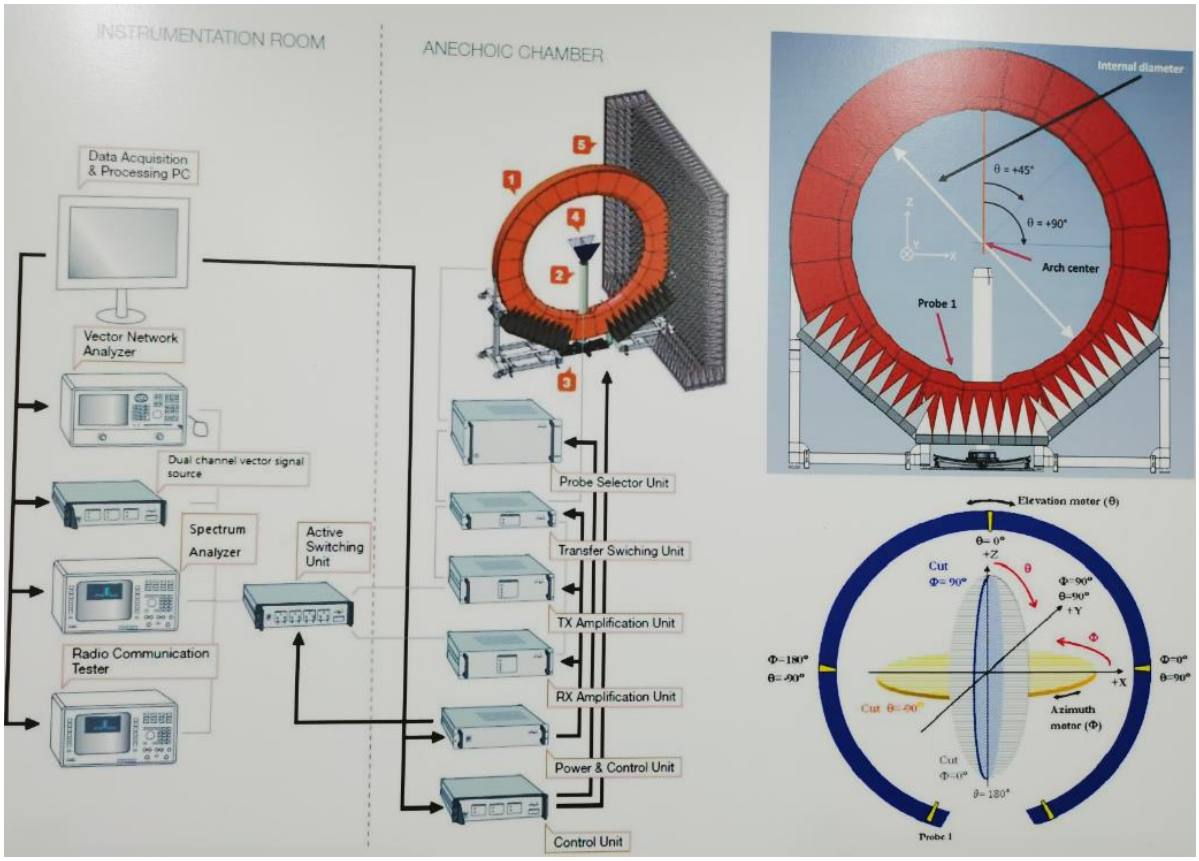
1.2 Environment

- Test Condition: the network analyzer(E5071C) and SATIMO microwave anechoic chamber
- Passive measurement results are presented

2.Test Configuration and Test Method

2.1 Test Configuration

Test configuration: Reference to CITA OTA distributed-axes system configuration.
Chamber: Fully Anechoic Chamber.
Turntable: Phi angle; Multiple antenna loop: Theta angle
Test system configuration diagram



2.2 Test Method

Port 1 of Network analyzer connect to antenna of EUT. Record S21 value every 15 degree from 0 to 345 degree on Theta angle and 0 to 180 on Phi angle . Repeat process to each antenna of EUT.

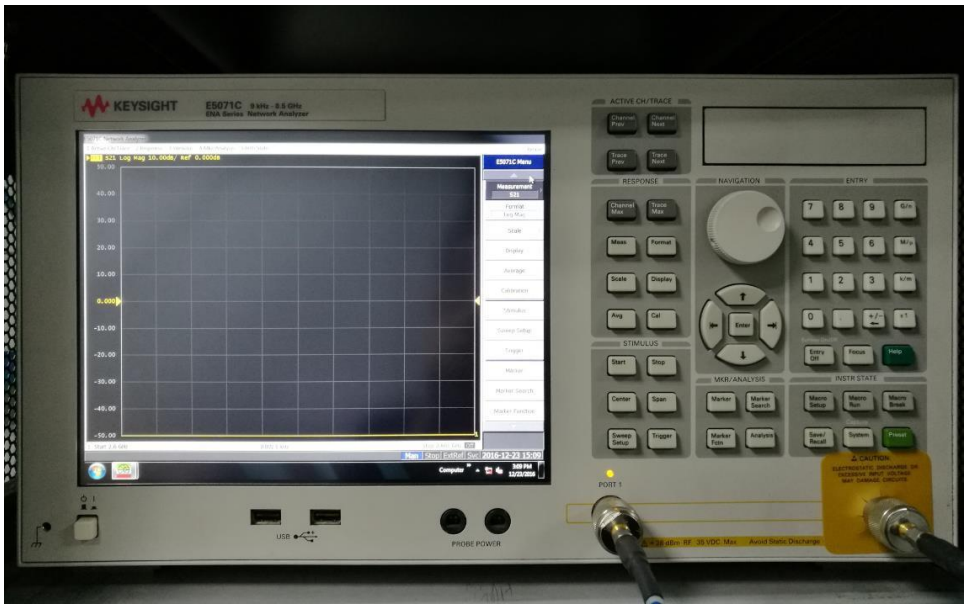
Combination Gain (Directional gain) steps:
1. Each Phi and Theta polarization antenna gain are measured for all test angles.
2. Composite Phi and Theta antenna gain are computed, using formula in KDB662911 D01 d) (ii), for all angles.
3. Composite antenna gain are examined for all angles to determine max gain and Phi/Theta position.

3.Test photos、Test Condition and DUT Antenna

3.1 Test photos

Microwave anechoic chamber

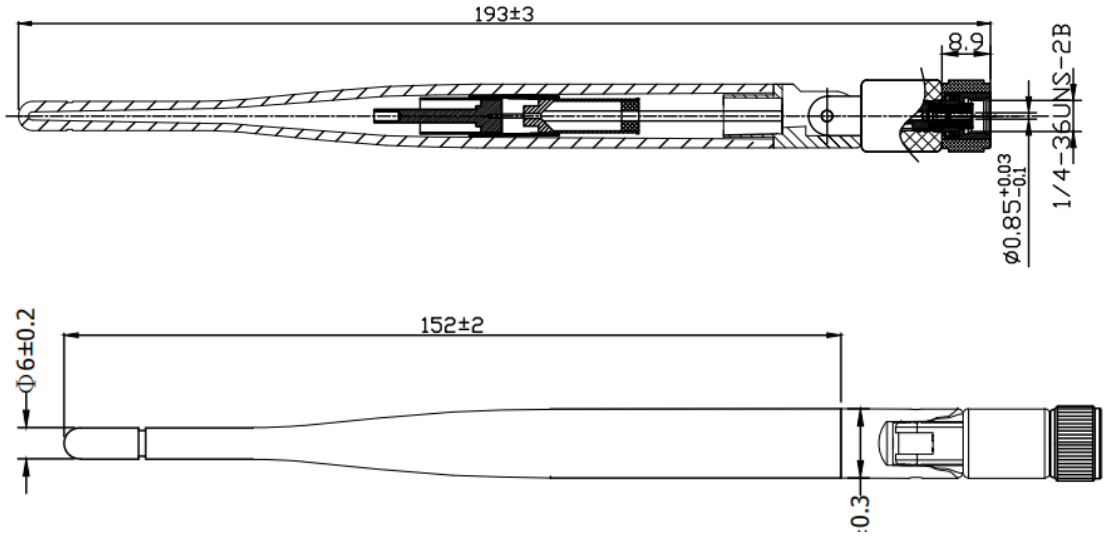
3.2 Test Instruments



Name of Equipment	Manufacturer	Model Number	Serial Number	Calibrated until
Network Analyzer	Agilent	E5071C	MY46523716	2023/10/17
Chamber	MVG	Wave Studio 2.0	/	2023/10/17

Note:
1 The Cal. Interval was one year.

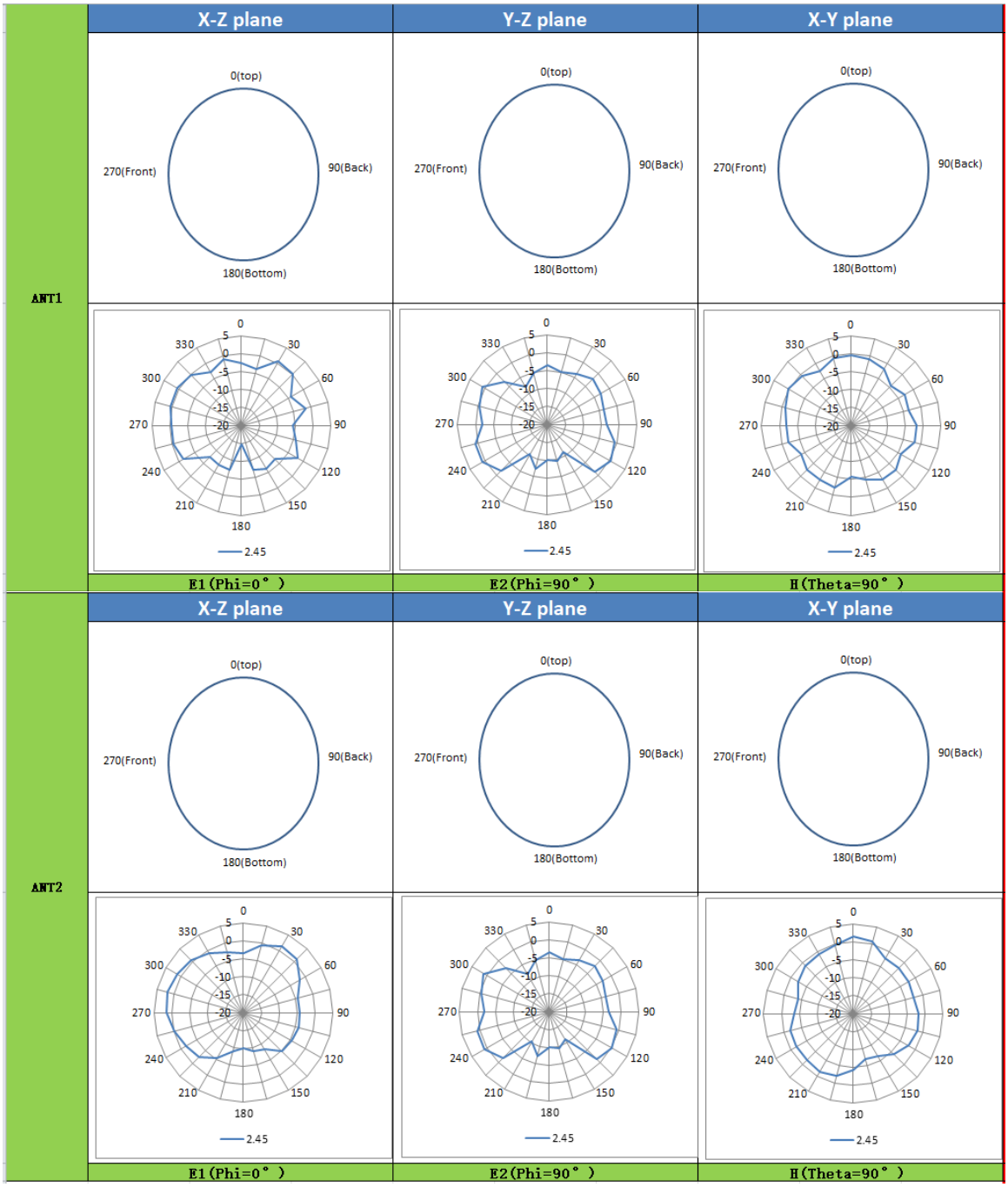
3.3 UT Antenna

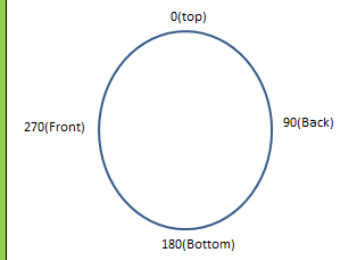
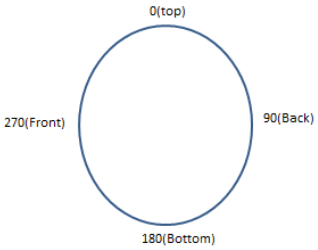
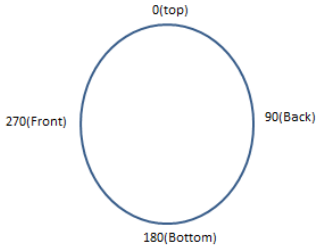
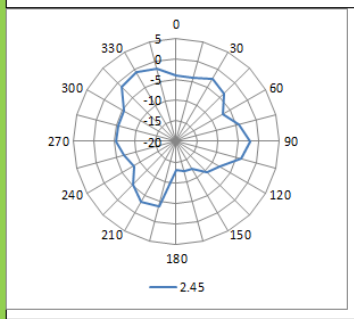
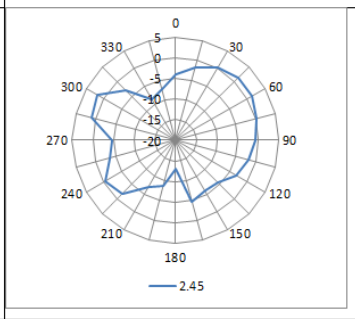
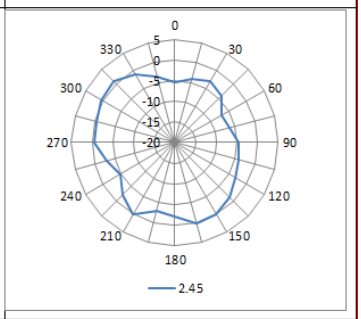
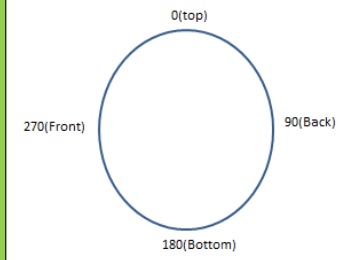
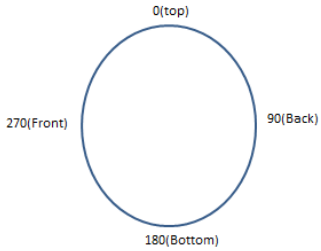
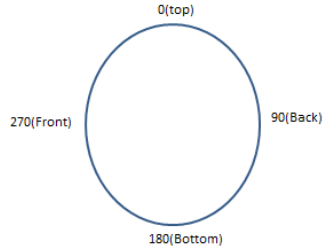
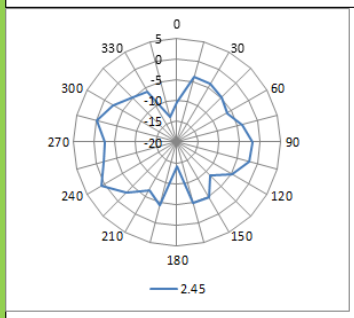
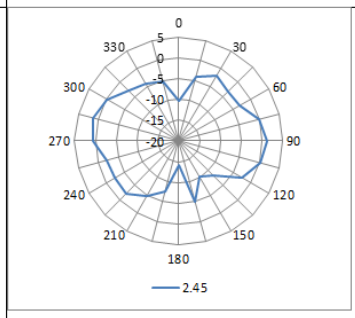
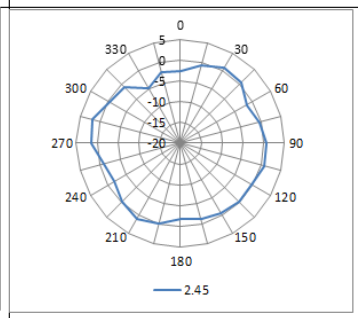


4. 2D Radiation pattern

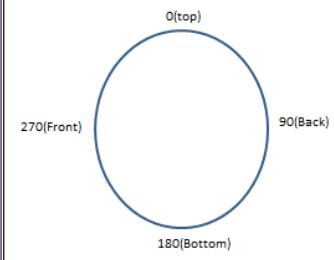
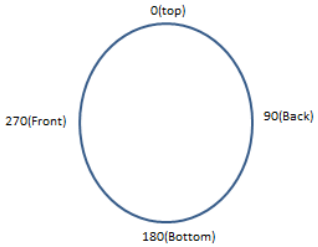
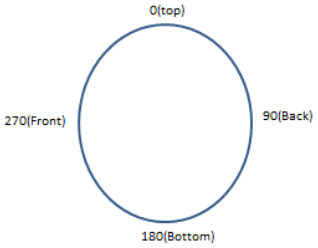
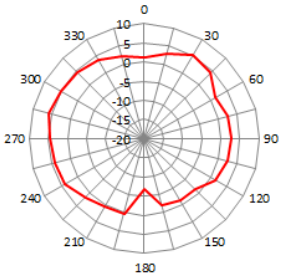
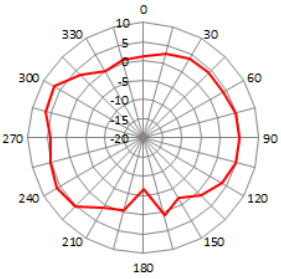
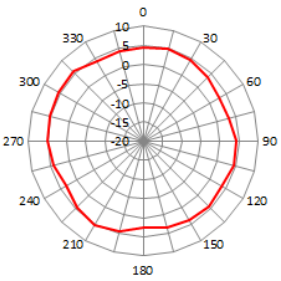
4.1 2.4GHz Radiation pattern test results

Antenna_2.4G_2D

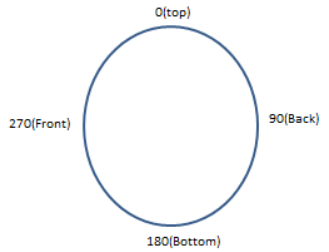
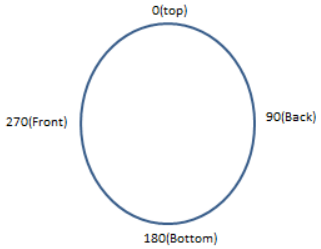
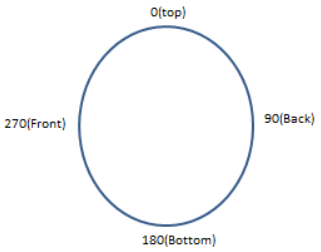
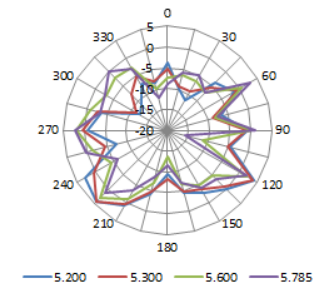
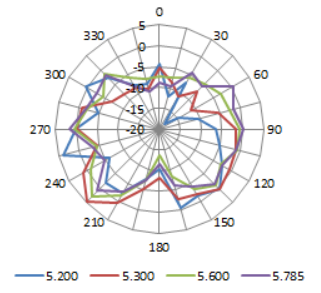
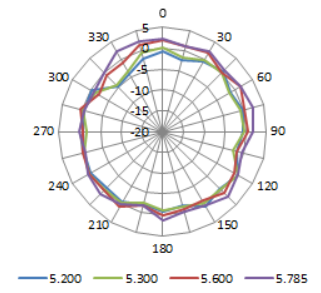
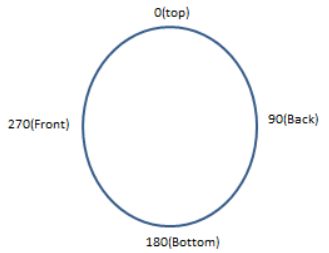
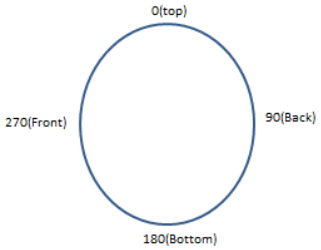
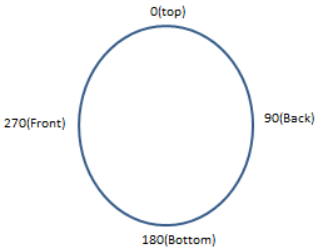
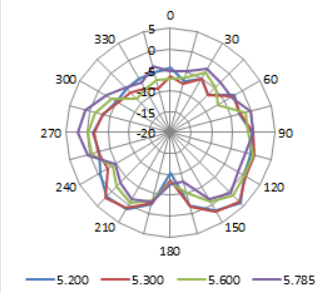
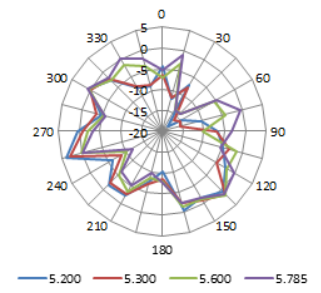
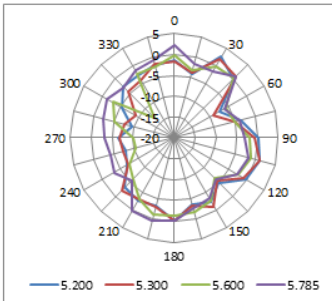


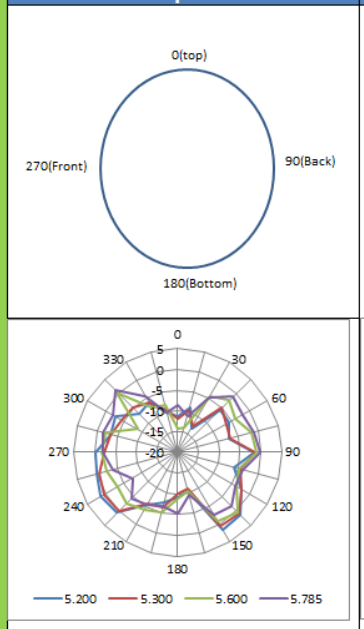
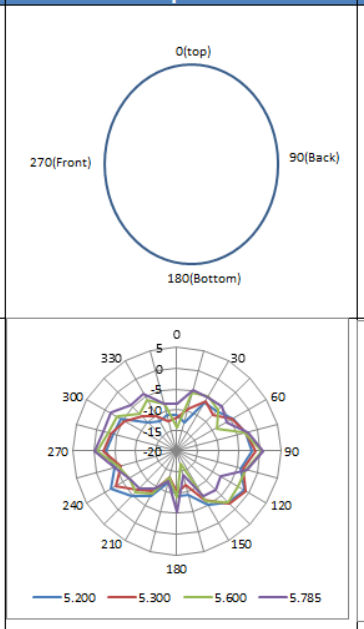
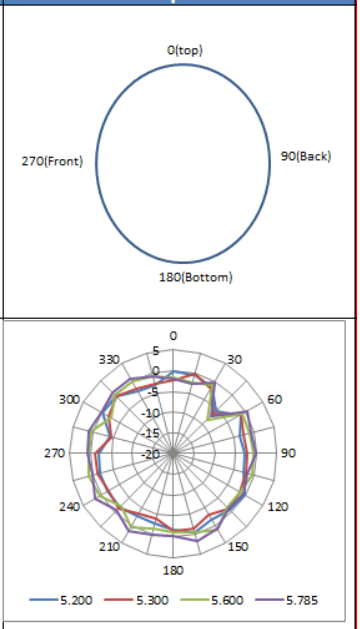
	X-Z plane	Y-Z plane	X-Y plane
ANT3			
			
	E1(Phi=0°)	E2(Phi=90°)	H(Theta=90°)
ANT4			
			
	E1(Phi=0°)	E2(Phi=90°)	H(Theta=90°)

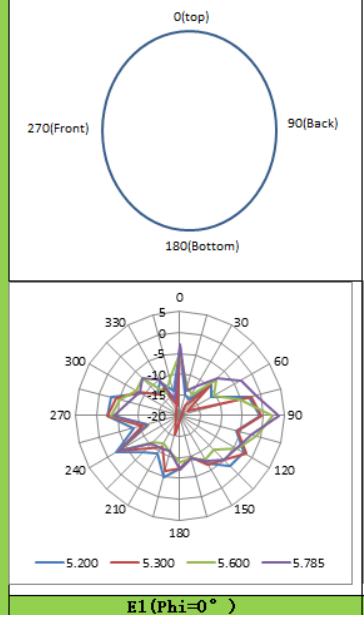
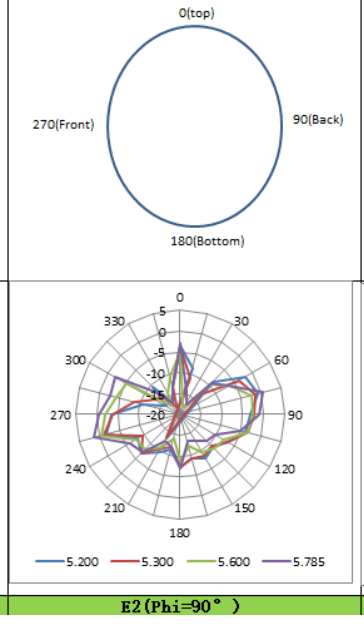
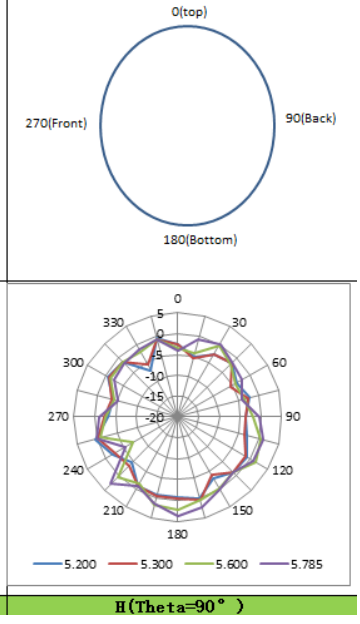
Correlation combination gain graph

	X-Z plane	Y-Z plane	X-Y plane
2450MHz (ANT1+ANT2 +ANT3+ANT4)			
			
	E1(Phi=0°)	E2(Phi=90°)	H(Theta=90°)

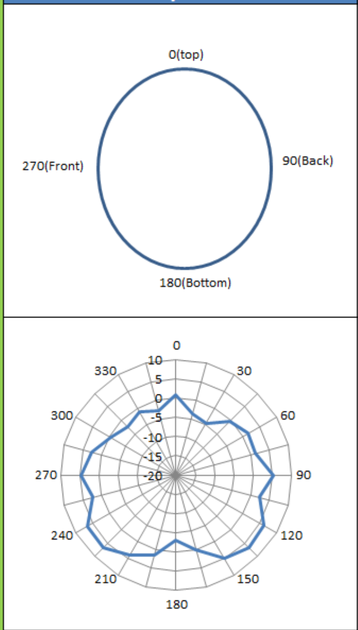
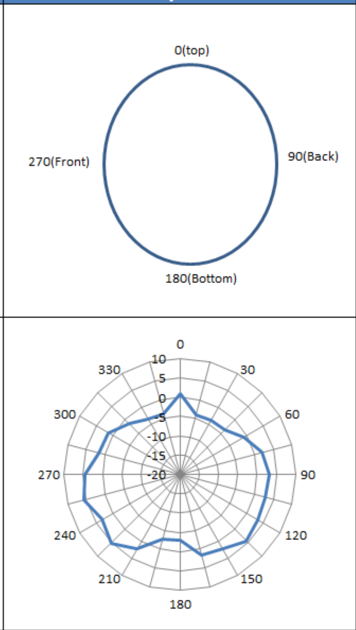
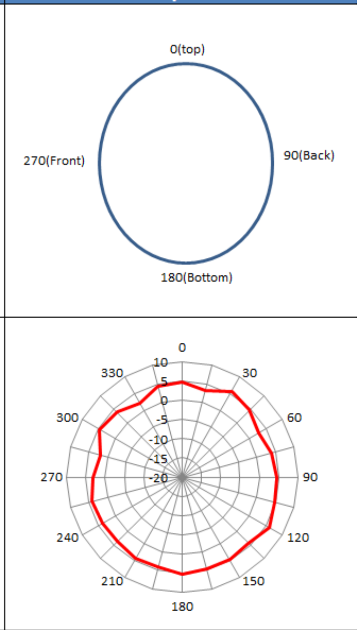
4.2 5GHz Radiation pattern test results

Antenna_5G_2D			
ANT1	X-Z plane	Y-Z plane	X-Y plane
			
			
	E1(Phi=0°)	E2(Phi=90°)	H(Theta=90°)
ANT2	X-Z plane	Y-Z plane	X-Y plane
			
			
	E1(Phi=0°)	E2(Phi=90°)	H(Theta=90°)

	X-Z plane	Y-Z plane	X-Y plane
ANT3			
	E1(Phi=0°)	E2(Phi=90°)	H(Theta=90°)

	X-Z plane	Y-Z plane	X-Y plane
ANT4			
	E1(Phi=0°)	E2(Phi=90°)	H(Theta=90°)

Correlation combination gain graph
(ANT1+ANT2+ANT3+ANT4)

	X-Z plane	Y-Z plane	X-Y plane
5.2			
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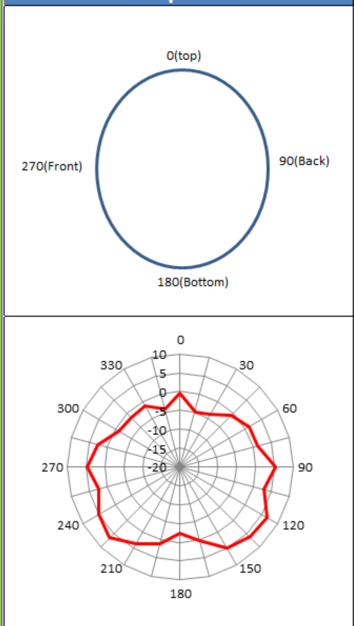
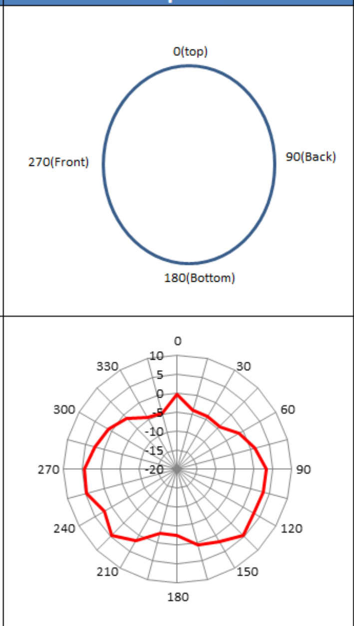
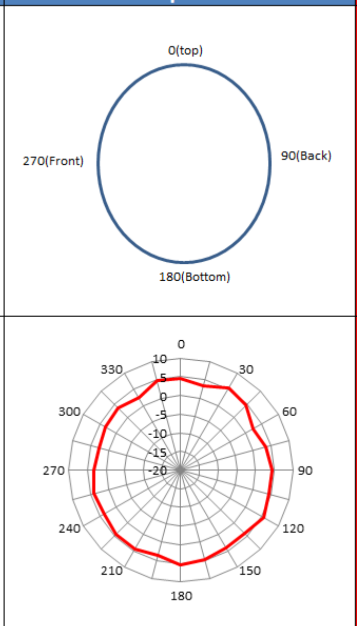
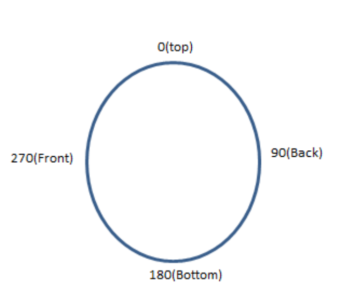
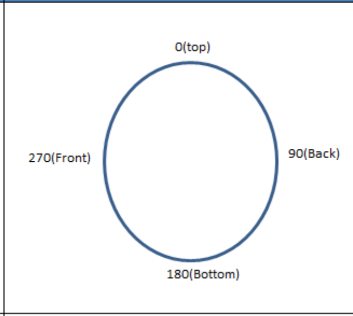
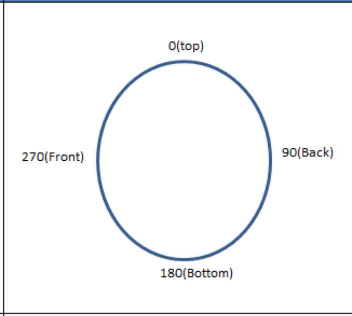
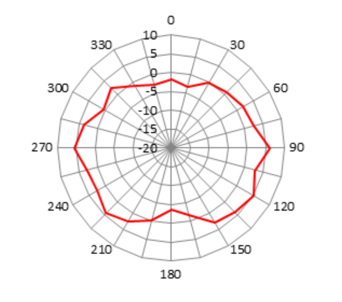
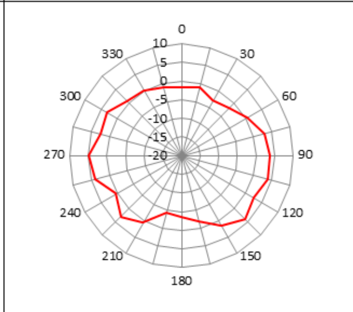
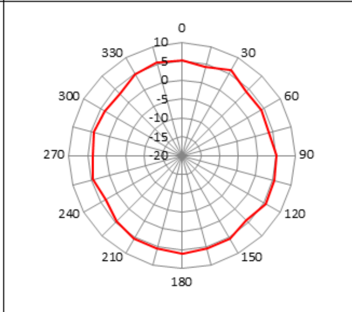
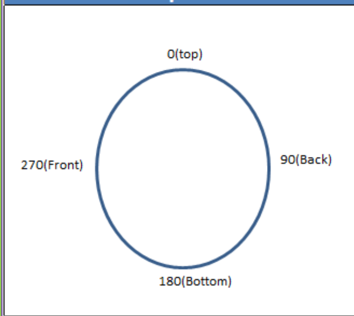
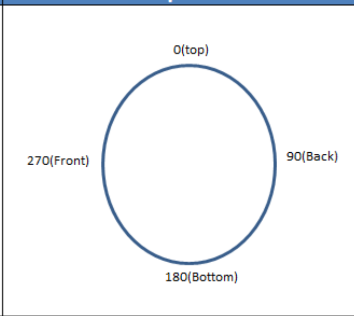
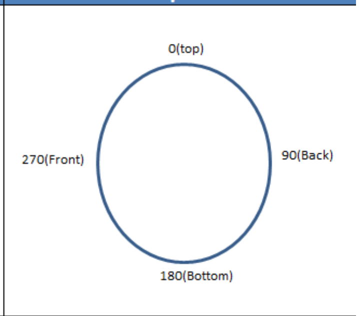
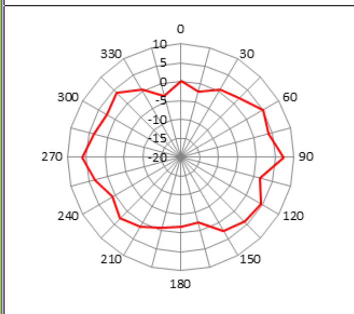
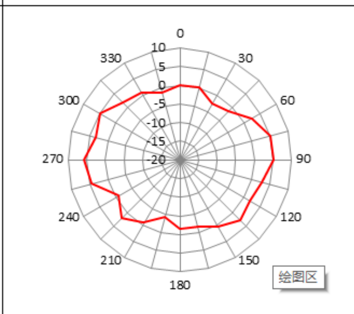
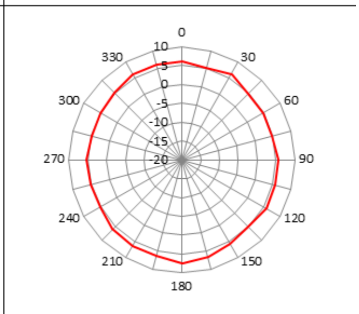
	X-Z plane	Y-Z plane	X-Y plane
5.3			
	E1(Phi=0°)	E2(Phi=90°)	H(Theta=90°)

	X-Z plane	Y-Z plane	X-Y plane
5.6			
			
	E1(Phi=0°)	E2(Phi=90°)	H(Theta=90°)

	X-Z plane	Y-Z plane	X-Y plane
5.785			
			
	E1(Phi=0°)	E2(Phi=90°)	H(Theta=90°)

5. Peak Gain

5.1 2.4GHz Test results

ANT	Frequency (GHz)	Peak Gain(dBi)
ANT1	2.45	2.14
ANT2	2.45	2.38
ANT3	2.45	2.77
ANT4	2.45	4.15
Combination Gain (ANT1+ANT2+ANT3+ANT4)	2.45	7.64

Note:

(i) If transmit signals are *correlated*, then

Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}$] dBi [Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

ANT1	
Frequency (GHz)	2.45
Max Gain (dBi)	2.14

Phi\ Theta	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-7.33574	-7.41685	-7.64719	-1.42294	-0.41492	-0.52447	0.44933	0.761539	-0.30759	-2.74454	-0.91128	-2.55789	-3.66134	0.556689	0.114629	-3.96827	-1.44092	-5.64991	-4.42016	-1.88623	-6.65865	-5.99333	-7.29189	-14.7733
15	-6.04561	-6.35194	-7.02401	-3.6259	-0.88649	-0.75927	-0.60061	0.044803	-0.57312	-2.86331	-0.78803	-2.55872	-4.24988	0.204259	0.601066	-0.76134	0.248754	-2.07604	-2.77179	-2.64055	-3.02592	-2.15632	-6.44573	-14.7717
30	-4.76781	-6.55647	-9.27394	-8.13159	-4.62696	-1.92506	-2.19242	-1.75845	-2.16546	-2.81132	-0.88567	-2.55856	-4.79907	-0.7815	0.360941	1.350355	1.120029	-2.65586	-3.60545	-1.16394	-0.10069	-0.36511	-4.76727	-14.7738
45	-3.9189	-4.97997	-15.97	-10.705	-7.03184	-4.55278	-3.37541	-3.62345	-3.54098	-2.5284	-1.21453	-2.55894	-4.86541	-2.39131	-1.21663	-0.07003	0.50189	-2.42867	-4.40497	-1.12746	0.385504	-0.07573	-3.35698	-14.7716
60	-3.56469	-2.65257	-3.86872	-8.18093	-6.22434	-2.94937	-2.26452	-3.0716	-3.55798	-2.58663	-1.7718	-2.55795	-4.3218	-3.7146	-3.11607	-1.8286	-1.09509	-3.90733	-7.59342	-3.24902	-1.0956	-0.998	-2.58295	-14.7715
75	-3.57628	-1.69477	0.03253	-1.40795	-4.87702	-3.45796	-0.83154	-1.13715	-3.37049	-3.63965	-2.52641	-2.55859	-3.52821	-3.76953	-4.44761	-3.04252	-1.05339	-1.90418	-4.62677	-6.72751	-4.79573	-3.11889	-2.48254	-14.7711
90	-3.66522	-1.36999	1.491316	1.707741	-0.02814	-1.90575	-0.00531	0.47214	-1.93318	-4.70283	-3.31218	-2.55789	-2.86144	-3.82588	-5.35579	-5.13515	-2.24475	-1.94825	-3.55702	-6.8325	-6.96556	-5.96676	-2.8944	-14.7733
105	-3.5801	-0.48429	2.069251	1.985721	0.322233	-1.66471	0.432846	1.968832	0.652536	-3.7353	-3.8348	-2.55872	-2.43159	-4.3827	-5.50812	-5.11953	-2.50845	-0.83762	-1.68184	-6.34537	-7.96677	-9.06568	-3.56078	-14.7717
120	-3.48421	-0.02929	1.116568	0.401271	-1.172	-3.9777	-0.56864	2.141981	1.83515	-1.95191	-3.91918	-2.55856	-2.15074	-4.53802	-3.83608	-2.71561	-1.21053	0.33939	0.552506	-3.39518	-11.7299	-12.9453	-4.37227	-14.7738
135	-3.82935	-1.27672	-1.09812	0.607305	0.220387	-2.60858	-0.41732	1.665848	1.583137	-0.72034	-3.67598	-2.55894	-1.88402	-4.06182	-3.28727	-2.96979	-1.92971	-0.56222	0.450741	-1.19764	-7.59165	-16.7784	-5.44169	-14.7716
150	-4.88127	-4.64624	-2.44324	1.523648	-0.1889	-2.62753	0.681616	1.801071	1.069266	0.006513	-3.39764	-2.55795	-1.55552	-3.44161	-3.13984	-3.57805	-3.37915	-2.4564	-2.79705	-2.87568	-7.02896	-16.327	-6.76244	-14.7715
165	-6.41	-8.92892	-3.77829	0.775545	-1.45225	-4.36614	0.506063	0.317537	0.566451	0.454214	-3.3523	-2.55859	-1.19967	-2.93567	-1.54045	-0.79416	-0.74376	-0.73781	-1.88333	-3.10803	-8.66832	-10.9436	-7.69184	-14.7711

ANT2	
Frequency (GHz)	2.45
Max Gain (dBi)	2.38

Phi\ Theta	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-8.92866	-5.40786	-2.66306	-1.49547	-0.19133	1.432314	1.989688	1.412286	0.503178	-0.89296	-2.64606	-3.59182	-0.60959	1.302551	1.016137	-2.00702	-4.34394	-4.36996	-4.12265	-4.42485	-4.8572	-8.14912	-9.01737	-10.2503
15	-7.48939	-3.58909	-0.74664	0.380468	-0.08611	0.668071	1.761777	1.699791	0.891866	-0.7931	-2.60621	-3.59259	-0.80399	0.718157	0.688383	-0.47358	-1.91904	-2.0871	-1.04785	-1.98259	-3.9793	-9.38332	-9.18453	-10.2496
30	-6.65773	-3.56808	-1.40317	-0.23414	-0.94876	-2.20682	-0.63355	0.708077	0.494168	-1.18267	-2.93112	-3.59173	-1.35896	-0.61574	-0.86503	-1.2494	-1.2958	-1.42506	-0.70827	-1.39757	-2.24948	-6.0405	-8.6462	-10.2502
45	-6.43099	-5.06667	-3.54038	-2.49741	-1.81598	-2.08875	-0.99837	-0.26577	-0.54991	-2.02216	-3.55286	-3.59258	-2.18727	-2.13947	-1.74164	-1.99151	-2.09961	-1.89057	-0.15887	-0.77316	-2.54514	-5.51381	-8.15011	-10.2501
60	-6.59708	-7.24095	-3.15867	-1.0334	-0.93096	-2.12351	-0.33032	0.421759	-1.26161	-3.41595	-4.31341	-3.59212	-3.17119	-3.11609	-1.54176	-1.57294	-1.93985	-1.72054	0.431543	0.13638	-2.82594	-7.208	-8.16028	-10.2492
75	-6.91195	-8.80878	-1.76682	0.703963	0.168631	-2.65702	-0.7327	0.708815	-2.28843	-5.61914	-4.95674	-3.59276	-4.16116	-3.5906	-1.84321	-1.84922	-1.96421	-1.82272	0.114281	0.534115	-1.50735	-9.35002	-8.70767	-10.2492
90	-7.22395	-10.3647	-1.83116	0.976788	0.680902	-1.88153	-0.34934	1.077152	-3.06311	-7.81207	-5.14686	-3.59182	-4.94873	-3.62203	-2.0865	-2.77956	-3.62515	-3.41435	-0.51581	0.192946	-1.26863	-11.0672	-9.51796	-10.2503
105	-7.44013	-11.5689	-1.78751	2.044933	1.542564	-1.496	0.54242	1.877415	-2.93581	-7.66824	-4.66503	-3.59259	-5.2707	-3.15123	-1.67147	-2.97269	-4.26825	-4.16043	-1.13972	-1.05766	-3.1651	-13.5529	-10.194	-10.2496
120	-7.46865	-8.70907	-1.81288	2.38137	1.233452	-2.28146	0.212755	0.812613	-4.74795	-5.21439	-3.63868	-3.59173	-5.02742	-2.54089	-0.89509	-1.92213	-2.62022	-2.38426	-1.29129	-2.09123	-5.33079	-13.2816	-10.6388	-10.2502
135	-7.39542	-4.78668	-3.14119	-0.05421	-1.25599	-4.18763	-1.6328	-3.36111	-6.76263	-2.38048	-2.45595	-3.59258	-4.40243	-2.06966	-0.41486	-1.48647	-1.86017	-1.16674	-1.30784	-2.53585	-6.49283	-12.2402	-11.0704	-10.2501
150	-7.56869	-2.99116	-3.63928	-4.95223	-5.69616	-6.26846	-3.53005	-8.98334	-3.3915	-0.21621	-1.45873	-3.59212	-3.66417	-1.67521	-0.00622	-0.22101	-0.52691	-0.82127	-1.5178	-3.43846	-8.05828	-12.0384	-11.2783	-10.2492
165	-8.21561	-3.98071	-3.66041	-9.41143	-13.1757	-7.04706	-5.63853	-6.75699	-0.37215	1.005963	-0.82579	-3.59276	-3.0292	-1.27109	0.186722	0.802746	0.674191	-0.2548	-1.4046	-3.86744	-6.50901	-8.95486	-10.5084	-10.2492

ANT3	
Frequency (GHz)	2.45
Max Gain (dBi)	2.77

Phi\ Theta	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-3.66518	-3.18697	-5.23389	-8.16909	-7.00364	-5.4879	-5.48894	-5.41792	-1.50352	-0.69173	-1.80065	-4.18844	-4.20125	-2.48083	-3.55555	-7.05919	-4.33049	-2.07302	-3.63251	-7.9977	-9.45082	-12.2945	-12.6885	-13.0518
15	-3.99394	-2.91399	-5.04343	-5.66039	-5.75512	-4.20404	-3.27314	-7.57703	-2.27186	-0.84793	-2.14331	-4.18825	-3.27155	-1.93846	-2.13764	-3.61463	-3.84311	-2.98047	-1.15233	-4.30095	-9.0578	-8.44309	-10.0757	-13.0506
30	-5.01121	-4.15928	-1.52668	0.577796	-2.62376	-2.85123	0.261739	-4.24705	-4.09923	-1.66907	-2.91837	-4.18872	-2.36343	-1.16151	-1.48458	-2.19739	-0.92715	0.04187	1.149559	-0.22432	-2.53892	-4.10813	-7.29313	-13.0496
45	-6.37643	-5.95353	0.127708	2.280978	-1.85726	-4.16949	0.988658	-1.20967	-6.11273	-3.64892	-4.1358	-4.18821	-1.69416	-0.11631	-0.47452	-3.21209	-4.00729	-2.24641	-1.83949	-1.45962	-0.98106	-2.28571	-5.38193	-13.0495
60	-7.50565	-7.64281	-0.84183	1.474373	-2.18857	-6.82978	-0.67023	-0.56549	-7.62548	-7.29293	-5.59367	-4.1887	-1.38784	0.681717	0.744889	-1.51602	-4.12265	-4.659	-4.82533	-2.61825	-1.82083	-2.41383	-4.38915	-13.0499
75	-8.08671	-7.93087	-2.17007	0.091894	-2.77964	-6.22521	-0.63077	0.419065	-5.75536	-10.3692	-6.80245	-4.18896	-1.44718	0.848303	1.440471	-0.02901	-1.90535	-2.90363	-3.9206	-4.16315	-4.78639	-4.00849	-4.17814	-13.0511
90	-8.47258	-6.90345	-1.64425	-0.26225	-3.44586	-4.50866	0.926589	1.752234	-2.83081	-8.43066	-7.30104	-4.18844	-1.76224	0.276104	1.323307	1.188756	0.217786	-0.63837	-1.73873	-3.12266	-5.51068	-5.91737	-4.57109	-13.0518
105	-9.03615	-6.52403	-1.01683	-0.11538	-4.09397	-4.00905	1.552686	2.312026	-1.29903	-6.59093	-7.17982	-4.18825	-2.12035	-0.82038	0.184098	0.226013	-0.38761	-0.39361	-0.57525	-1.48304	-3.99001	-7.01832	-5.31247	-13.0506
120	-9.76428	-6.29715	-1.04672	-0.67114	-5.19056	-3.1329	2.165284	2.769496	-0.65631	-5.79916	-6.76275	-4.18872	-2.29786	-1.75761	-0.9094	-0.97969	-0.72411	0.599585	0.621157	-1.46959	-3.78165	-8.13346	-5.93117	-13.0496
135	-10.5827	-5.9285	-1.29591	-1.25503	-4.13326	-1.33518	2.479784	2.407994	-1.29298	-5.24602	-6.22395	-4.18821	-2.21556	-1.89605	-1.13434	-0.69491	0.298184	0.954299	0.241542	-2.17418	-3.91718	-10.1457	-5.83379	-13.0495
150	-11.6628	-6.50245	-2.37519	-1.93101	-2.60287	0.114489	2.5149	1.36035	-2.72256	-4.31251	-5.63216	-4.1887	-1.98835	-1.4198	-0.78475	-0.73622	-0.54542	-0.82884	-1.48725	-3.51851	-5.32433	-10.2342	-4.994	-13.0499
165	-12.9153	-8.86701	-4.12709	-2.92204	-2.57727	0.141785	1.006995	-1.48688	-4.09754	-3.25481	-4.98616	-4.18896	-1.79543	-0.92065	-1.01169	-3.01545	-3.61781	-3.38769	-3.74254	-5.43362	-5.74454	-5.82843	-4.07651	-13.0511

ANT4	
Frequency (GHz)	2.45
Max Gain (dBi)	4.15

Phi\ Theta	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-4.43874	-6.58161	-2.78851	0.800731	-1.92883	-2.7721	0.051443	-2.22198	-4.81297	-5.90967	-13.8255	-10.3504	-3.74327	-3.85141	-4.78665	-6.09615	-3.75057	-1.76672	-2.17829	-4.77359	-8.60462	-4.61276	-4.77081	-14.1533
15	-4.85448	-6.16872	-1.91721	1.616254	-1.90504	-0.716	2.840426	0.630106	-4.64646	-5.31552	-11.6914	-10.3524	-3.68572	-2.69091	-1.87533	-2.17472	-0.43159	-0.14248	-1.60507	-2.73508	-4.09507	-4.40928	-5.21663	-14.1512
30	-5.5179	-4.28394	-3.07229	0.08129	-1.70689	0.944407	4.15415	2.216655	-3.07813	-5.42596	-10.3078	-10.3516	-3.57701	-1.17684	0.906928	0.460695	0.907942	0.858839	-0.57126	-0.49525	-2.61332	-5.04641	-5.69718	-14.1504
45	-6.63912	-3.25837	-4.234	-3.77329	-3.08046	0.741916	2.492115	0.04031	-2.17513	-6.03837	-9.25264	-10.3517	-3.4923	-0.59821	1.576398	1.423811	0.272011	-0.10218	0.69814	0.301434	-3.78102	-6.7223	-6.17563	-14.1526
60	-8.18682	-3.80162	-2.11914	-3.81961	-3.25325	-1.62807	-1.25771	-0.85253	-1.81465	-6.93664	-8.04725	-10.3507	-3.47687	-0.90024	-0.41105	-1.44608	-3.86863	-1.56438	-0.36474	-2.39935	-5.96959	-8.78871	-6.30637	-14.1512
75	-8.95754	-5.00435	-0.64661	-0.32024	-1.43245	-0.44529	1.36203	0.844408	-2.98097	-6.87335	-6.61032	-10.3503	-3.61099	-1.24211	-3.11968	-6.07371	-4.08433	-0.9242	-1.24952	-3.11879	-6.27655	-10.4175	-5.77852	-14.1533
90	-7.4795	-4.68599	-1.9956	-2.29352	-2.04072	0.694592	1.403289	-0.05292	-2.79525	-4.28379	-5.29582	-10.3504	-4.07965	-1.90262	-3.39863	-3.13388	-0.12369	1.283877	0.26664	-2.40924	-8.17398	-10.1488	-4.89762	-14.1533
105	-5.46119	-3.94623	-4.17599	-3.55328	-1.02269	0.832275	0.739757	0.163742	-0.44739	-2.02125	-4.42917	-10.3524	-5.13452	-3.58252	-4.92764	-0.87162	2.049243	1.846877	-0.52537	-5.02189	-8.51995	-7.45762	-4.19401	-14.1512
120	-4.26693	-5.26767	-8.23257	-3.46858	-1.20075	-0.34268	-1.2953	-0.87068	-0.12142	-1.36087	-3.99555	-10.3516	-7.02844	-5.96513	-6.64253	-0.46727	1.424335	-0.46948	-3.45095	-4.69201	-5.83951	-5.68636	-3.86017	-14.1504
135	-3.884	-7.5238	-9.85377	-3.61795	-0.62045	-0.22744	-2.41148	-1.45115	-0.36357	-1.68673	-3.79152	-10.3517	-9.94871	-8.2768	-4.91316	0.627152	1.96	-0.86914	-2.0518	-0.91742	-3.07764	-4.89395	-3.80382	-14.1526
150	-3.98474	-6.98003	-8.89711	-4.88651	-0.78725	-0.74345	-3.45497	-2.89908	-1.37903	-2.50585	-3.71142	-10.3507	-13.6749	-8.87193	-2.94207	0.892249	0.511542	-4.76628	-2.62054	-0.35917	-2.61333	-4.77989	-3.91182	-14.1512
165	-4.33267	-5.48202	-13.5084	-6.29912	-1.31738	-1.20577	-6.2717	-7.84011	-4.12918	-3.48654	-3.72474	-10.3503	-15.6752	-7.33857	-3.31511	-0.90442	-0.8528	-2.31025	-1.44967	-0.96239	-3.76016	-5.42669	-4.13217	-14.1533

Correlation gain	
Frequency (GHz)	2.45
Max Gain (dBi)	7.64

Phi\ Theta	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180
0	0.185273	0.522062	1.667742	4.02174	4.025011	4.55535	5.684158	5.05319	4.711793	3.697392	2.457864	1.316709	3.090487	5.156869	4.552073	1.460698	2.639875	2.702901	2.476014	1.514752	-1.1874	-1.29139	-1.96293	-6.85549
15	0.522548	1.398342	2.68531	4.683233	4.114069	4.943328	6.508073	5.377504	4.608563	3.75375	2.592679	1.316018	3.121942	5.209913	5.440968	4.352594	4.672111	4.262585	4.402638	3.146476	1.269849	0.423288	-1.48631	-6.8542
30	0.561743	1.450028	2.720193	4.719936	3.649485	4.639288	6.750074	5.587976	3.98215	3.395839	2.399927	1.316287	3.091198	5.090094	5.802004	5.722789	6.037929	5.329355	5.248607	5.21346	4.209122	2.412099	-0.45465	-6.85441
45	0.25407	1.26199	1.774341	3.491809	2.814223	3.767999	6.068854	4.869254	3.158339	2.59287	1.936839	1.316043	3.046503	4.763828	5.651185	5.239684	4.878104	4.404496	4.803317	5.281545	4.432594	2.76978	0.423914	-6.85438
60	-0.25412	0.951933	3.59917	3.82603	3.081303	2.859676	4.920417	5.094274	2.784398	1.210629	1.383027	1.316491	2.998526	4.438127	5.055192	4.430887	3.358388	3.16141	3.524039	4.088235	3.279916	1.757372	0.909297	-6.85387
75	-0.60963	0.623309	4.927214	5.8212	3.984307	3.065416	5.861806	6.264356	2.515382	-0.27509	0.972353	1.316083	2.897458	4.293371	4.314616	3.540175	3.838211	4.160097	3.815147	3.051534	1.862228	-0.12753	1.025525	-6.85453
90	-0.48776	0.79632	5.152376	6.180857	4.963016	4.31421	6.542857	6.858986	3.375801	-0.09496	0.870569	1.316709	2.691731	3.913387	3.992328	3.872475	4.716355	5.014442	4.751058	3.327516	0.957217	-1.94033	0.869973	-6.85549
105	-0.11619	1.275894	5.083297	6.389145	5.448969	4.604464	6.848786	7.639803	5.110525	1.306735	1.083043	1.316018	2.404919	3.141231	3.357575	4.070759	5.065242	5.390497	5.052736	2.832034	0.427538	-2.90351	0.556849	-6.8542
120	0.127482	1.558762	4.144238	5.931376	4.729198	3.694089	6.247773	7.343221	5.407746	2.655633	1.528974	1.316287	2.123832	2.475214	3.260557	4.542179	5.361499	5.617604	5.281698	3.19577	-0.18433	-3.39036	0.191833	-6.85441
135	0.023554	1.45786	2.799995	5.083689	4.719342	4.054451	5.732984	6.141662	4.810206	3.667772	2.087562	1.316043	1.939432	2.292144	3.761234	4.986671	5.791931	5.649129	5.416566	4.340011	0.943396	-3.94824	-0.13012	-6.85438
150	-0.52981	0.887318	2.049743	3.883583	3.950936	3.962511	5.472293	4.790196	4.588172	4.439271	2.596405	1.316491	1.918702	2.628292	4.407968	5.258888	5.150325	3.945929	3.936079	3.572808	0.51654	-3.82699	-0.29981	-6.85387
165	-1.41295	-0.52654	0.572731	2.379652	2.502946	3.334596	4.058352	2.749494	4.273017	4.943092	2.933797	1.316083	2.125014	3.245642	4.690324	5.146969	5.019299	4.436507	3.951075	2.82878	0.026252	-1.47878	-0.18617	-6.85453

5.2 5GHz Test results

ANT	Max Gain（dBi）	Frequency（GHz）
ANT1	4.94	5.200
	5.07	5.300
	3.73	5.600
	4.28	5.785
ANT2	5.30	5.200
	4.96	5.300
	2.81	5.600
	2.31	5.785
ANT3	4.26	5.200
	3.78	5.300
	2.29	5.600
	2.55	5.785
ANT4	3.81	5.200
	3.21	5.300
	2.28	5.600
	3.66	5.785

	Max Gain（dBi）	Frequency（GHz）
ANT1+ANT2+ANT3+ANT4	7.40	5.200
	7.05	5.300
	6.20	5.600
	7.31	5.785

Note:

(i) If transmit signals are *correlated*, then

Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}$] dBi [Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

ANT	Max Gain (dBi)	Frequency (GHz)
ANT1	4.94	5.200
	5.07	5.300
	3.73	5.600
	4.28	5.785

Fre(GHz)	Phi\Theta	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180
5.20	0	-4.10678	0.880483	4.218249	3.037197	-7.22483	-0.86936	-3.67266	-12.3564	-10.9593	-7.23522	-8.22774	-3.86653	-9.64475	-11.5906	-3.92906	-1.46164	-6.48167	-0.85148	-4.44202	4.025879	-0.0798	-2.7255	-4.39	-9.54988
	15	-4.87019	0.049118	4.494914	2.547506	-4.42971	-2.26278	-2.06749	-8.50567	-9.25367	-5.37819	-7.13924	-3.86644	-9.99686	-12.3354	-5.04327	-2.80932	-14.0951	-1.93801	-7.15526	2.674167	1.686593	-2.78935	-5.32576	-9.551
	30	-6.74428	-0.15889	4.147183	1.813399	-5.40165	-0.55245	-1.19676	-8.61893	-11.595	-6.38809	-6.56552	-3.86585	-8.02339	-7.21652	-7.74763	-2.37221	-3.16542	-0.38976	-8.66952	-2.01422	1.597865	-2.3593	-4.88784	-9.55043
	45	-8.7501	-0.00981	3.518009	2.799454	-3.14502	0.393869	1.092086	-2.47015	-10.643	-7.6696	-7.867	-3.86664	-6.99931	-5.88475	-4.86417	-0.54855	-2.06912	-0.73504	-5.84989	-4.56115	-0.31824	-2.4213	-3.90882	-9.54884
	60	-8.72989	-0.70704	1.844782	1.506141	-2.37876	-1.09135	-1.88663	-3.80434	-7.46396	-6.59863	-10.594	-3.86639	-6.57469	-4.64787	-4.29995	-4.8126	-2.47767	-0.03203	-2.38769	-5.59198	-0.95934	-1.6571	-3.18295	-9.54968
	75	-6.92565	-0.66758	2.594121	-0.04918	-1.25941	0.044639	-0.84321	-7.54607	-6.46158	-6.54297	-10.5084	-3.8664	-7.15846	-5.98779	-5.66	-12.7739	-4.08221	-0.37078	-2.1977	-2.07167	0.307311	-1.28157	-2.84187	-9.55006
	90	-5.1836	0.053773	4.94398	1.466974	-2.37446	-0.76732	-0.43299	-5.09121	-8.9538	-5.45805	-7.37641	-3.86653	-7.49304	-9.87785	-8.45135	-13.1425	-5.29402	-0.71106	-0.62204	-0.96806	1.079142	-1.93975	-2.80217	-9.54988
	105	-3.92705	0.029431	4.625585	2.665685	-1.10953	-1.62359	-10.6058	-12.8028	-12.2808	-3.47994	-5.32354	-3.86644	-7.02534	-5.45345	-8.10143	-4.74069	-1.30062	-0.46429	1.000932	0.445532	0.251978	-3.07509	-3.0632	-9.551
	120	-2.99851	-0.35331	2.73048	1.439831	0.180684	0.908897	-0.74228	-4.15414	-10.8508	-3.76933	-4.82237	-3.86585	-6.52005	-3.15491	-8.3063	-10.395	-2.60603	-0.11044	1.436815	-0.06658	-1.75008	-4.59196	-3.80499	-9.55043
	135	-2.37599	-0.9207	1.509108	-1.08225	-5.39937	-0.62688	-3.01909	-3.37929	-9.13614	-6.32765	-5.39689	-3.86664	-6.46652	-3.72953	-4.27376	-16.3573	-4.48563	-4.85057	0.195318	3.575352	2.015712	-3.82547	-4.85859	-9.54884
	150	-2.30267	-1.54195	-0.59006	-2.79796	-5.33062	0.705329	-4.3202	-0.78383	-6.78134	-9.03132	-6.37011	-3.86639	-6.86527	-5.74808	-2.54137	-10.2841	-5.85582	-4.0181	-4.2832	2.937425	3.015737	-1.23188	-5.1661	-9.54968
	165	-3.02748	-1.92929	-0.66043	1.413787	-6.09571	-1.61263	-7.80687	-0.50899	-7.22121	-8.5065	-7.70422	-3.8664	-7.7848	-7.31829	-6.98256	-6.66744	-1.75442	-1.77471	-6.32208	3.034622	3.072103	0.532724	-4.47012	-9.55006
5.30	0	-4.77121	0.482155	4.373881	0.512928	-4.60603	0.309807	-2.55472	-11.2881	-7.76507	-5.09948	-7.78676	-5.13455	-9.03627	-9.07813	-5.63948	-0.60549	-8.69729	-1.17017	-5.15576	3.767357	-0.65899	-3.79668	-4.69236	-8.1491
	15	-5.7107	0.340336	4.769438	0.711675	-5.2485	-1.61747	-3.24187	-11.333	-8.52772	-5.41972	-6.52355	-5.13374	-9.78119	-9.21497	-5.97196	-1.29566	-11.6928	-2.41336	-7.45695	1.822492	1.86567	-2.88321	-5.35618	-8.15085
	30	-6.60812	0.651909	3.468953	1.295697	-3.77087	-0.22537	-1.3581	-9.83727	-9.17981	-8.16095	-5.91413	-5.13457	-8.87591	-7.01223	-8.10316	-2.81471	-2.10324	-0.18751	-6.81686	-3.15946	0.442409	-2.45115	-4.70866	-8.15048
	45	-7.08442	0.316149	2.573901	2.385412	-4.55435	0.189935	-0.59946	-5.48957	-12.0174	-10.1086	-6.83085	-5.13441	-8.14419	-6.25549	-4.62849	-0.36615	-1.79225	-0.23802	-3.55293	-4.58214	-1.41841	-3.09502	-3.54469	-8.15104
	60	-7.09665	-0.51126	1.691989	1.055116	-3.96457	-1.52219	-2.67654	-5.23479	-7.59882	-9.00513	-9.18418	-5.13416	-8.44244	-7.59834	-3.06425	-4.88193	-3.78668	0.279199	-1.11723	-3.08546	-1.22748	-2.65741	-2.6633	-8.14883
	75	-6.29255	-0.10269	2.418291	-0.31041	-3.40663	-0.60687	-3.08529	-7.05277	-5.75224	-9.42417	-11.5755	-5.13437	-8.88337	-10.4721	-2.84609	-19.3952	-6.30153	-0.48897	-1.25621	-1.84436	-0.34945	-2.02215	-2.34728	-8.15121
	90	-5.00683	0.493631	4.569329	1.259251	-4.48971	-0.2601	-0.66022	-7.0011	-8.17106	-8.64003	-10.1537	-5.13455	-8.52184	-10.8202	-7.27885	-11.2313	-5.40717	-1.76768	-0.82768	-0.49397	0.50445	-1.90899	-2.67552	-8.1491
	105	-3.84203	0.189822	5.074481	2.564579	-0.61277	-2.62904	-6.00366	-8.30995	-9.61885	-4.94652	-7.3276	-5.13374	-7.80282	-3.75076	-9.41531	-6.37449	-2.03718	-0.13817	0.303413	-0.06135	0.198292	-2.78783	-3.69592	-8.15085
	120	-2.99383	-0.33197	3.691775	1.342554	-0.03186	0.820791	-3.93559	-5.88492	-10.2105	-3.49745	-5.99234	-5.13457	-7.39061	-1.2742	-5.95306	-10.901	-5.87307	-1.44616	1.340836	0.754794	-0.4942	-5.64152	-5.3241	-8.15048
	135	-2.54599	-0.79035	1.670304	-0.26531	-4.51613	-0.52256	-2.73813	-3.31579	-12.0274	-5.22727	-6.11576	-5.13441	-7.30927	-2.0979	-2.17559	-13.8909	-4.05649	-4.31857	-1.22772	3.269454	2.02382	-4.34773	-6.43435	-8.15104
	150	-2.652	-1.04138	0.317618	-1.56575	-4.02625	-0.25315	-5.02216	-2.18035	-10.8112	-9.40073	-6.88462	-5.13416	-7.48846	-4.51338	-2.54993	-6.18029	-3.83678	-3.30037	-4.58371	2.185545	3.240418	-0.19116	-5.65057	-8.14883
	165	-3.44781	-1.93191	-1.00449	-0.6312	-8.58705	-1.22376	-13.94	-0.26426	-10.6964	-9.55051	-7.77703	-5.13437	-7.97427	-5.19046	-9.10369	-7.88282	-0.32556	-0.2946	-4.95432	1.518012	3.229768	0.947505	-4.66207	-8.15121
5.60	0	-6.78198	-1.03249	2.967231	-4.30235	-1.38704	1.852399	-0.8111	-3.14767	-2.20633	-2.67647	-9.84515	-7.31647	-6.35299	-6.37792	-7.39865	0.69188	-8.11783	0.164182	-11.29	2.0631	-4.50649	-4.82935	-6.64604	-13.6374
	15	-7.00005	-0.90188	2.530484	-2.57132	-1.67406	1.307192	-2.14807	-5.53737	-3.26121	-3.81668	-9.98593	-7.31714	-6.61884	-5.52408	-5.54794	1.401663	-6.32739	-1.61909	-7.89167	1.022847	-0.25271	-6.64096	-7.11778	-13.6388
	30	-7.72182	-1.59334	2.319085	-3.2224	-1.41107	1.980083	-1.41293	-4.78245	-2.55075	-5.58474	-9.19966	-7.31571	-7.30194	-6.32872	-3.55695	-3.02181	-1.04353	0.7226	-3.93988	-5.81604	-0.12261	-5.53563	-6.89003	-13.6368
	45	-8.56779	-2.03345	2.333294	-2.84759	-1.52042	-0.13321	-3.21778	-7.15931	-2.52213	-5.47638	-8.47984	-7.31719	-7.80089	-6.76395	-0.40284	-3.22499	-0.93484	0.035321	-2.61624	-6.64416	-3.23438	-5.95006	-6.5918	-13.6381
	60	-8.76195	-2.46662	1.098169	-3.04986	-1.50173	1.424322	-1.59989	-8.69734	-4.67561	-6.2598	-8.14419	-7.31794	-7.7137	-9.77233	0.693749	-7.15026	-2.89575	0.421953	-0.29762	-3.69477	-3.14164	-4.05723	-6.60416	-13.6383
	75	-8.05765	-2.27768	0.891319	-4.11399	-4.3955	0.380976	-2.18058	-5.81095	-3.96621	-7.46047	-8.0487	-7.31589	-7.32496	-15.029	-1.18375	-3.94229	-3.78377	-0.24718	-0.20361	-3.16744	-1.5782	-2.38321	-7.08476	-13.6379
	90	-7.11794	-1.7065	3.025286	-0.86871	-4.32817	0.556577	-1.87402	-4.2692	-1.32989	-5.87781	-7.6211	-7.31647	-7.26959	-5.6648	-4.654	-2.84888	-2.50042	-0.83979	-0.78912	-3.0077	-0.89424	-3.28146	-8.17805	-13.6374
	105	-6.36648	-1.58261	3.727114	1.66095	-4.3468	-1.48656	-2.35913	-4.45571	-0.40568	-2.86296	-6.53113	-7.31714	-7.95845	-1.76899	-3.16881	-4.99994	-2.32802	0.462304	1.108628	-0.42205	-1.03652	-6.58825	-9.55128	-13.6388
	120	-5.81204	-2.10316	1.700507	0.297427	-0.7591	-0.30582	-4.30408	-5.55238	-3.20941	-1.17954	-5.47752	-7.31571	-8.72948	-1.53859	-1.01394	-4.32493	-3.42922	-2.20032	-0.37456	-0.21339	-1.46984	-7.70454	-10.106	-13.6368
	135	-5.43328	-2.79693	0.246667	-0.76856	-3.36825	0.832557	-1.80262	-0.97655	-6.79872	-1.47028	-5.21889	-7.31719	-8.46101	-3.01741	-1.36453	-2.43929	-2.89019	-0.87335	-2.3897	0.653089	1.371223	-4.63026	-9.31215	-13.6381
	150	-5.3623	-2.9238	-1.9146	-2.77694	-4.2235	-0.74689	-5.28774	-0.70287	-12.8363	-3.85189	-5.7428	-7.31794	-8.07484	-3.2355	-2.80418	-3.17772	-0.8468	-0.93916	-6.94383	0.035824	1.791987	-3.14801	-8.06404	-13.6383
	165	-5.80829	-2.73067	-2.92905	-1.49928	-12.2755	-0.54561	-14.1068	2.56912	-7.93081	-6.90748	-6.26959	-7.31589	-8.69997	-2.73495	-3.54512	-6.57727	-0.52643	1.630136	-3.04494	-0.659	1.879045	-2.24386	-7.14538	-13.6379
5.785	0	-8.43922	-3.4861	1.050007	-6.26809	0.358245	2.133415	-3.1287	-2.52388	-0.12765	-2.8975	-11.8032	-8.84339	-5.64554	-4.65672	-7.08255	2.941084	-7.64217	1.216767	-15.4612	1.800702	-3.44367	-3.99934	-6.79309	-11.5162
	15	-8.21967	-2.85987	1.086935	-2.37621	-0.94985	1.283283	-2.48256	-2.56023	0.184952	-3.42603	-10.7711	-8.84248	-6.25581	-4.61384	-5.74902	2.509978	-3.92353	-1.57093	-7.71281	0.79198	-0.53434	-5.353	-6.88337	-11.5142
	30	-8.54104	-2.28351	0.63626	-3.70814	-0.04516	2.37451	-0.79244	-1.56022	0.885631	-3.59716	-9.09368	-8.84263	-7.09393	-5.2987	-3.48367	-0.75293	-0.00776	0.267436	-3.43659	-5.72858	-0.62291	-5.26962	-6.46932	-11.5157
	45	-9.07156	-2.64211	0.558953	-2.1925	-3.20478	1.038643	-1.90426	-1.76636	0.419934	-2.77057	-8.50892	-8.84282	-7.88491	-7.42442	-0.44304	-3.90577	-0.35883	1.17651	0.141963	-5.99007	-3.88546	-5.76527	-5.99226	-11.5154
	60	-8.95966	-3.70361	-1.39677	-1.91984	-0.808	1.433247	-3.38496	-4.33844	-2.17858	-3.35076	-9.1078	-8.84437	-8.29999	-10.3506	0.97111	-4.86194	-1.1799	0.724889	0.644504	-3.35436	-4.21308	-4.78524	-5.68007	-11.5159
	75	-8.10896	-3.61575	-2.32894	-6.9506	-1.07971	2.422766	-0.9252	-5.28838	-4.50123	-5.86979	-10.4489	-8.84398	-8.62897	-9.16271	-1.28511	-0.83125	-2.70784	-0.73839	-0.43061	-2.51451	-2.13803	-3.63513	-5.63355	-11.5167
	90	-7.38347	-2.57478	1.044055	-4.74133	-3.25809	1.642717	-1.61578	-2.81628	-1.68771	-8.15966	-10.6993	-8.84339	-9.37276	-4.44975	-5.35856	0.527925	-1.67614	0.091483	-0.8336	-2.44607	-1.21177	-4.10006	-6.09177	-11.5162
	105	-7.07062	-2.3228	2.683756	0.364309	-6.51221	-0.35754	-1.27265	-0.17769	1.010699	-3.4707	-8.22292	-8.84248	-10.395	-2.62394	-3.61627	-2.57465	-2.88915	-0.30658	1.35891	-0.92223	-2.52815	-5.97822	-7.39493	-11.5142
	120	-6.85422	-3.16845	0.614173	0.113011	-1.19242	0.731693	-2.36857	-6.19967	-1.60003	-0.6954	-5.66507	-8.84263	-10.3792	-3.25689	-0.17462	-2.51312	-1.84925	-0.89891	-0.69956	-1.40703	-2.58223	-6.55999	-9.70103	-11.5157
	135	-6.49981	-4.00992	-1.1752	-2.1129	-1.4685	2.265125	-0.18955	0.823638	-5.67792	-0.68446	-4.4606	-8.84282	-9.3269	-4.02941	-0.10223	-0.55422	-2.11136	0.023882	-3.12668	0.799405	0.909893	-4.75469	-11.7029	-11.5154
	150	-6.23529	-3.97957	-2.34562	-3.87152	-6.46381	0.341231	-4.06544	1.55426	-9.96306	-2.29947	-4.46655	-8.84437	-9.09338	-3.42766	-1.36299	-1.7621	0.726024	2.163969	-3.79511	-2.05357	0.602667	-3.68099	-10.9552	-11.5159
	165	-6.37394	-3.21481	-3.15231	-2.5021	-12.211	-0.13697	-8.2926	4.284215	-5.80446	-3.89507	-5.05565	-8.84398	-10.3748	-3.08647	-0.919	-2.76798	-2.04482	2.368309	-0.08307	-3.53976	0.76752	-3.47087	-9.34533	-11.5167

ANT	Max Gain (dBi)	Frequency (GHz)
ANT2	5.30	5.200
	4.96	5.300
	2.81	5.600
	2.31	5.785

Fre (GHz)	Phi\Theta	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180
5.20	0	-2.2519	1.196066	1.700523	-0.42043	-2.21592	-1.40217	-3.20763	-4.93313	-4.93553	-5.04089	-5.07826	-4.29254	-7.20145	-5.0966	-7.4044	-2.24743	-2.7483	-0.28881	-0.11746	0.41172	3.896914	1.528427	-1.92876	-10.4687
	15	-2.44685	-0.66887	1.448984	2.306412	0.049103	-4.03564	-2.60051	-1.46117	-3.76605	-4.33438	-4.4058	-4.29297	-9.20302	-7.99779	-8.38398	-8.00739	-3.41337	-3.21539	-1.18196	0.839888	3.292714	2.521496	-0.8013	-10.4679
	30	-2.9209	-1.98579	1.175304	2.671517	3.382555	2.454232	-0.58557	-5.5618	-4.8165	-8.92559	-5.694	-4.29259	-11.0734	-10.6115	-10.8133	-7.76232	-6.2652	-2.66036	-3.43013	-2.74189	-1.87485	1.987864	-0.1538	-10.4687
	45	-3.5123	-1.44272	0.370765	-0.03866	-2.07442	0.037975	2.273258	0.136225	-7.90494	-6.30927	-8.56603	-4.29292	-12.9012	-18.319	-12.5879	-13.4214	-11.1744	-3.23398	0.160938	-3.40961	-3.89235	1.386128	0.151211	-10.4692
	60	-4.42188	-1.1475	-0.20817	0.47291	-0.88111	-7.47714	-1.17466	0.865365	-5.89195	-4.57098	-10.1824	-4.29228	-14.2173	-11.2927	-9.99112	-10.7172	-10.0747	-6.69889	-3.05806	-1.16122	-0.7052	0.314134	0.139017	-10.4696
	75	-5.81552	-0.52212	-1.07095	-0.24169	2.438299	-3.3843	-2.60627	0.618214	-2.94975	-5.71987	-9.54609	-4.29226	-13.8912	-10.0344	-8.94402	-11.2293	-10.3895	-7.79501	-4.21351	-3.1346	0.321263	-0.81644	-0.11559	-10.4689
	90	-7.63077	-2.23463	-1.80569	-6.03025	4.044697	0.27306	-4.92464	0.52512	-2.58369	-7.96902	-8.86651	-4.29254	-11.9884	-7.05944	-18.1186	-14.6762	-10.2814	-6.55336	-5.01146	-2.50055	0.564915	-1.48474	-0.40672	-10.4687
	105	-8.70149	-5.02332	0.350405	-10.5472	5.304832	1.167853	-1.50196	0.690914	-1.25338	-8.07496	-7.28072	-4.29297	-10.1971	-2.87091	-10.6934	-11.9065	-7.57889	-9.39163	-12.675	1.641447	-1.22648	-1.60295	-0.59111	-10.4679
	120	-7.88866	-4.31432	1.115553	-1.88718	4.335573	-0.17458	-0.11445	-4.29624	-1.21806	-4.84069	-5.27328	-4.29259	-9.68597	-1.79164	-5.28559	-7.60452	-9.70881	-5.3452	1.794595	3.736993	-3.79459	-1.39416	-0.7824	-10.4687
	135	-6.66662	-3.97257	-0.56664	-5.8498	2.289467	-4.88357	-1.82645	-4.43977	-4.01502	-3.68382	-4.28207	-4.29292	-10.0116	-3.13142	-4.62718	-5.24846	-5.71067	-2.59565	1.163382	-1.21658	-3.43922	-0.86015	-1.22004	-10.4692
	150	-5.34704	-2.86444	-3.19876	-2.07274	-5.1134	-2.19603	-4.78086	-0.12046	-8.88024	-5.66942	-4.49791	-4.29228	-9.40969	-5.42463	-6.65946	-7.86025	-7.63707	-2.68627	-1.13064	-1.49386	-2.2634	-0.11877	-1.88253	-10.4696
	165	-3.5908	-0.89456	2.279885	1.194775	-3.36767	-3.4308	-2.62262	-1.64518	-13.0949	-5.02666	-5.54705	-4.29226	-7.20471	-7.99371	-7.40606	-5.48146	-2.92249	-1.98166	-0.71818	-2.14061	-0.65111	0.497828	-2.26104	-10.4689
5.30	0	-2.6151	0.9937	1.968421	-2.80561	-2.001	-1.60065	-3.06235	-5.34502	-6.24477	-7.70876	-9.03099	-6.5393	-7.99435	-5.00215	-7.24592	-2.49124	-2.45555	-0.15563	1.003674	0.907798	3.481384	1.879284	-1.5662	-8.6409
	15	-2.94376	-0.12965	1.47685	2.393926	-0.98049	-3.87514	-1.72277	-1.82826	-3.98029	-4.38276	-7.23934	-6.53915	-9.01591	-6.56904	-9.9527	-8.25112	-2.6635	-2.93358	-2.97191	0.644946	2.174858	1.747557	-1.38708	-8.64202
	30	-3.52283	-2.83447	0.393197	2.825371	3.557706	1.884506	-2.121	-5.0762	-3.9606	-6.7676	-7.28188	-6.53958	-9.66245	-11.7394	-10.9415	-9.33939	-9.62279	-3.13228	-3.04579	-3.57991	-2.73757	1.032277	-1.50446	-8.64094
	45	-4.09166	-2.70159	0.544115	-0.4714	-1.53036	0.932375	2.590748	-1.17281	-6.05902	-6.10485	-8.98705	-6.53963	-11.1535	-16.1841	-11.3853	-12.2061	-10.5698	-2.1411	0.914787	-2.25893	-2.57848	0.600787	-1.48198	-8.63999
	60	-4.82083	-2.18727	-0.19727	-0.50891	-1.7951	-9.17331	-0.31402	1.335631	-8.67804	-4.58476	-10.5763	-6.53943	-13.0063	-8.08268	-10.6209	-9.98383	-15.7347	-7.13379	-3.34809	-2.63469	0.60459	-0.39121	-1.56661	-8.64129
	75	-5.80458	-1.44844	-0.97812	-1.66311	1.534863	-5.04839	-1.30806	0.506121	-3.25553	-5.67935	-10.3075	-6.53935	-13.1335	-7.70652	-9.93649	-13.2948	-14.0586	-7.3933	-2.55507	-3.71653	1.103149	-0.79638	-1.91809	-8.64071
	90	-6.79324	-2.54819	-2.37043	-8.60323	3.089958	-0.71662	-3.73686	0.062549	-2.0337	-7.46661	-8.61655	-6.5393	-11.4778	-7.73979	-16.0546	-15.0828	-15.645	-6.8765	-3.30769	-4.85731	1.357524	-1.04423	-2.22774	-8.6409
	105	-7.19294	-4.74432	-0.88271	-9.73991	4.95532	1.082002	-1.51204	0.06688	-1.18082	-5.80136	-6.27627	-6.53915	-10.1064	-4.08048	-10.6898	-8.34778	-6.20529	-7.52078	-13.8403	-0.09705	0.846343	-2.1928	-2.11329	-8.64202
	120	-6.81641	-4.73725	-0.35548	-2.44597	4.140723	-0.89914	-0.87527	-4.61645	-2.27739	-2.79761	-4.65366	-6.53958	-10.1576	-2.69515	-6.96288	-7.05938	-8.29453	-9.10519	-1.83103	3.826931	-1.26952	-2.56129	-1.7728	-8.64094
	135	-6.03556	-4.66538	-1.0371	-6.07825	1.563239	-5.41774	-1.42706	-3.75511	-6.12106	-3.22046	-4.35691	-6.53963	-11.3626	-3.71755	-6.47938	-8.22084	-7.96334	-4.20453	1.634833	0.0177	-3.54874	-1.31829	-1.74856	-8.63999
	150	-4.50466	-3.63655	-3.24313	-2.74285	-3.72651	-1.04997	-4.77964	-0.58892	-10.0227	-6.41659	-5.11495	-6.53943	-12.213	-5.58272	-5.60303	-8.27948	-10.2475	-3.85657	-1.8506	-1.2816	-1.88188	-0.64821	-2.15896	-8.64129
	165	-2.65811	-0.61219	2.678183	1.192599	-4.20338	-3.0856	-2.54186	-1.31763	-9.9394	-4.53196	-6.43472	-6.53935	-11.3687	-9.61355	-10.7069	-6.64707	-2.06968	-1.67122	-0.44696	-1.75271	-2.15295	-0.47449	-2.51341	-8.64071
5.60	0	-3.17089	-0.68253	-1.55549	-3.91137	-0.39961	-0.07665	-1.45051	-3.77859	-8.3581	-7.89676	-6.92418	-6.96545	-6.19629	-3.33359	-4.85942	-6.69708	-1.18736	-1.34234	0.530536	0.451874	1.362105	-0.75499	-5.09109	-7.97186
	15	-4.31173	-1.04487	1.313537	0.820753	-2.2879	-3.05168	-0.74166	-2.28142	-2.22905	-8.26161	-9.44848	-6.96549	-6.8733	-5.68214	-6.95238	-2.86136	-1.53273	-0.91104	-3.6472	-0.26343	0.684396	-0.03372	-5.66447	-7.97275
	30	-5.67902	-3.1631	-1.40365	1.900652	2.426992	-0.29432	-3.60579	-2.76604	-2.70688	-5.0586	-8.90646	-6.96602	-7.59579	-7.22014	-4.68221	-7.8235	-8.37943	-2.95966	-0.84986	-2.33041	-3.05554	0.498711	-3.55623	-7.97246
	45	-6.39669	-4.36364	-1.58219	0.156353	-1.59634	0.229951	0.845947	-4.37945	-2.58451	-3.94829	-7.11042	-6.96512	-6.25864	-2.48772	-2.93645	-2.9354	-8.03799	-5.93253	1.37412	1.404162	-0.13197	-0.42381	-1.54001	-7.97254
	60	-6.87324	-3.29168	-2.5745	-2.58608	-7.3223	-5.85647	1.544692	0.619695	-8.69923	-1.44616	-6.00317	-6.96445	-4.47116	-2.61251	-5.00489	-2.61585	-2.18419	-7.5744	-2.5766	-1.17624	0.153805	-1.53398	-0.63641	-7.97233
	75	-7.652	-2.22473	-4.29773	-3.82593	-2.38401	-5.02193	-0.40509	0.10115	-4.787	-0.98606	-4.92939	-6.96545	-3.49046	-6.55868	-10.3448	-3.81412	-3.72973	-10.5299	-1.69326	-2.63412	0.332139	-1.71242	-0.61485	-7.97262
	90	-8.48719	-3.45184	-5.19298	-10.1428	0.233988	-1.95626	-5.29658	0.385927	-2.56616	-1.61413	-3.7893	-6.96545	-3.16873	-13.9009	-14.1201	-5.82667	-4.39722	-10.2477	-1.55168	-2.18903	1.57687	-1.29033	-1.24764	-7.97186
	105	-9.07297	-6.43904	-2.2547	-11.9084	2.813072	-1.04937	-2.3086	-1.16239	-3.01919	-2.01294	-3.12161	-6.96549	-3.45298	-10.5888	-11.0929	-5.19144	-3.51984	-5.12211	-0.871	-5.10491	1.493335	-1.27347	-2.32767	-7.97275
	120	-8.90756	-7.03175	-3.45336	-4.91903	2.641146	-2.29585	-0.92389	-3.30963	-4.22341	-3.27396	-3.37662	-6.96602	-4.49331	-5.25692	-8.53289	-1.37128	-1.52068	-2.85344	-8.86134	0.133783	1.341662	-2.35669	-3.38106	-7.97246
	135	-6.96161	-7.40735	-4.88129	-9.46915	-0.90233	-6.4969	-1.72735	-1.41679	-8.36236	-4.96195	-4.56007	-6.96512	-5.8036	-2.29699	-8.0811	-3.40257	-3.16297	-13.1273	-1.08733	2.462335	-1.69022	-3.75227	-3.68981	-7.97254
	150	-4.73852	-3.8221	-2.12089	-1.28422	-3.9581	-2.76055	-6.56548	-0.21335	-4.95747	-4.54392	-5.95562	-6.96445	-5.92989	-2.38993	-3.47915	-5.78312	-7.24997	-2.27806	-0.85503	-1.59723	-2.09859	-2.18086	-3.26755	-7.97233
	165	-4.04813	-1.60183	0.869808	-1.73639	-6.15769	-1.66038	-1.31462	-1.57009	-3.75452	-4.51123	-6.34814	-6.96545	-5.60503	-3.9003	-5.34609	-9.47517	-6.5289	-2.26597	-0.97897	-0.79229	-2.30786	-1.19755	-2.88152	-7.97262
5.785	0	-2.71369	-1.52431	-3.07939	-4.75505	0.499166	2.306067	1.026067	-2.1503	-4.9027	-6.08715	-3.60969	-5.19047	-4.70277	-2.25153	-2.96742	-2.96369	0.106429	-0.23446	-1.40715	-1.18038	0.485027	-1.43151	-7.88543	-7.78399
	15	-3.81129	-2.28849	-0.67491	-0.42165	-2.78262	-1.65313	-0.17432	-0.92519	-0.72742	-4.78625	-4.42787	-5.19011	-5.8127	-4.94444	-2.81744	-0.46889	-0.3712	0.547031	-1.49501	-0.79115	-0.6708	-1.31701	-6.91814	-7.78354
	30	-6.50086	-4.72371	-1.35419	0.453535	0.886231	-1.4883	-1.15967	0.39096	-0.50682	-2.61473	-4.49398	-5.18959	-5.48221	-2.76083	-0.76123	-2.24984	-2.11466	0.111857	0.672775	-1.22212	-2.07521	-0.51405	-3.59859	-7.78444
	45	-9.05164	-6.09929	-3.63626	-0.59211	-1.60943	0.7812	1.760722	-2.70308	0.04132	-2.48619	-4.07565	-5.18981	-3.45417	-0.29982	-1.27808	0.010969	-2.34325	-5.47343	0.591757	1.716727	0.702133	-0.91026	-1.71522	-7.78421
	60	-9.62197	-5.18983	-4.21218	-4.07022	-7.06497	-6.14846	1.484664	0.361198	-2.72253	-0.15883	-3.60438	-5.18999	-1.83052	-1.53103	-3.92047	-0.15669	0.137759	-3.43849	-4.69763	0.007861	0.102333	-1.40959	-1.17275	-7.78352
	75	-9.47336	-3.74967	-4.99936	-4.6185	-3.44598	-3.84853	-2.0786	0.818371	-2.9156	0.672943	-2.84562	-5.19045	-1.00727	-6.24552	-7.934	-1.13039	-0.90975	-4.05377	-3.10975	0.012396	-0.03152	-1.61963	-1.42847	-7.78482
	90	-9.61489	-4.99118	-6.19558	-11.7042	-0.29131	-3.18769	-5.80118	0.725059	-1.63023	0.274351	-2.05824	-5.19047	-0.86684	-14.0274	-13.9258	-4.94192	-0.55156	-3.3235	-5.43544	-0.17446	1.105856	-1.48623	-2.13295	-7.78399
	105	-9.99276	-6.64513	-4.43788	-11.3196	1.8679	-1.72624	-0.99086	0.234773	-0.73455	-0.7355	-1.82851	-5.19011	-1.57295	-12.3393	-10.4194	-4.09374	-0.73486	-2.15758	0.045254	-0.47477	1.511937	-1.54525	-3.12649	-7.78354
	120	-9.04697	-6.9751	-5.47104	-5.01111	0.726999	-2.43279	0.507836	-1.33661	-3.78376	-1.8896	-2.47985	-5.18959	-3.29793	-7.93662	-7.00973	-0.89662	-0.985	-1.25985	-2.16354	-0.46928	1.101188	-2.23623	-4.34948	-7.78444
	135	-6.64481	-7.32533	-7.07418	-12.9567	-1.29949	-5.96422	-1.17141	0.193006	-3.11751	-3.24583	-3.69182	-5.18981	-5.10784	-3.79126	-5.12533	-1.66074	-0.25189	-2.81606	-1.43984	2.305743	-0.37355	-3.0665	-5.42079	-7.78421
	150	-5.23079	-5.22896	-3.28679	-2.6178	-4.15605	-3.18183	-5.12682	1.101834	-2.45226	-2.71156	-4.34164	-5.18999	-4.67245	-1.86912	-1.48917	-2.38651	-2.48556	-1.25892	0.169369	-0.4939	-3.24676	-4.5567	-5.01728	-7.78352
	165	-5.8093	-3.27186	-0.67927	-3.12907	-6.23275	-2.46795	0.670094	-0.29831	-1.95084	-1.62973	-4.26479	-5.19045	-3.49977	-2.32383	-2.79275	-4.14663	-4.98065	-0.84546	0.800983	0.387839	-2.2509	-3.51037	-3.41169	-7.78482

ANT	Max Gain（dBi）	Frequency（GHz）
ANT3	4.26	5.200
	3.78	5.300
	2.29	5.600
	2.55	5.785

Fre（GHz）	Phi\Theta	195	210	225	240	255	270	285	300	315	330	345	-15	0	15	30	45	60	75	90	105	120	135	150	165	180
5.20	0	-9.00548	-7.57017	-5.24406	0.608396	1.343195	0.091276	-0.29212	-3.2753	-2.82784	-6.82744	-6.11942	-10.0545	-11.439	-8.79909	-13.4433	-5.46913	-5.88224	-7.357	-1.77196	-5.83574	-2.19522	1.110517	1.660434	-10.3499	-9.00548
	15	-9.00552	-8.70403	-6.15188	-0.55613	-2.66078	-7.3466	-0.25134	-3.51561	-0.80868	-7.42901	-4.914	-11.9636	-11.441	-9.14172	-8.75679	-6.11255	-5.97749	-5.77321	-2.41965	-0.65716	-0.89391	0.784618	0.729293	-7.65754	-9.00552
	30	-9.00547	-7.52105	-4.83602	-3.15717	-4.0061	-6.59008	-1.47796	-2.10258	-1.36046	-6.33352	-7.84553	-14.8862	-11.4397	-8.69262	-6.84091	-5.97174	-7.0874	-4.0256	-2.73361	0.420193	-0.74667	1.279782	1.378353	-6.20755	-9.00547
	45	-9.00472	-7.00084	-3.12353	-0.92964	-3.47942	-3.32545	-5.6763	-4.11509	-3.00533	-9.74221	-7.34601	-15.4072	-11.4405	-7.73098	-8.21717	-4.96212	-9.70551	-6.50678	-1.59635	-2.19242	-2.99667	1.890012	1.864729	-7.24149	-9.00472
	60	-9.00497	-7.64104	-0.89866	0.302756	-4.30494	-16.4366	-1.26674	-1.10225	-7.31394	-10.4796	-11.0556	-12.8336	-11.4407	-7.64914	-5.40966	-5.13123	-7.37753	-2.4135	-1.65853	-1.25318	-6.40213	2.578168	0.449999	-11.0998	-9.00497
	75	-9.00493	-9.48021	-1.32445	-1.0173	0.09501	-2.28385	-3.36316	-3.95318	-3.46737	-15.3851	-16.415	-11.0449	-11.4396	-9.44269	-5.55414	-6.89938	-5.52655	-2.91138	-1.77057	-3.61503	-0.1351	2.520056	-3.34455	-12.4141	-9.00493
	90	-9.00548	-12.1867	-7.43864	-4.85717	-1.64319	-4.35552	-2.81025	-4.19865	-4.25179	-10.1898	-11.7831	-11.1377	-11.439	-12.9476	-6.54519	-6.39533	-4.19098	-2.76802	-1.96829	-3.99608	-1.2035	-2.58895	-5.13066	-8.94289	-9.00548
	105	-9.00552	-12.5305	-4.03952	0.884442	-6.49928	-4.59479	-2.45396	-4.01339	-3.33875	-5.53854	-7.38465	-13.1825	-11.441	-13.1236	-10.1257	-15.2175	-11.2407	-7.30666	-4.28052	-3.68676	-3.86083	-0.43224	-1.16717	-5.46413	-9.00552
	120	-9.00547	-10.2096	1.340189	4.257988	-4.21536	-3.38402	-0.20436	-6.12352	-11.9579	-4.45071	-7.05077	-14.9113	-11.4397	-9.84975	-7.94075	-9.58296	-9.09011	-1.33147	-0.18775	-0.21425	1.602125	2.514417	0.086133	-2.60923	-9.00547
	135	-9.00472	-8.9575	3.734484	3.813068	-2.48277	-0.44961	-0.75497	-3.87192	-5.90203	-12.882	-8.05871	-12.304	-11.4405	-8.23639	-14.2413	-13.0403	-10.1838	-2.76486	-0.65301	-2.00631	0.11458	1.758713	0.209982	-1.37722	-9.00472
	150	-9.00497	-9.57747	3.860641	0.575236	1.288213	-0.56064	-1.73547	-1.47533	-7.00472	-5.57018	-9.47521	-9.62626	-11.4407	-8.19379	-11.5757	-11.6656	-4.96115	-5.12096	-2.55361	-3.35699	1.304294	-0.29402	-0.36284	-1.9788	-9.00497
	165	-9.00493	-11.1045	3.091245	-0.97553	-0.6715	-0.74145	-0.42994	-3.50864	-5.94029	-8.14415	-11.2012	-8.62056	-11.4396	-8.93641	-8.44287	-6.41294	-8.64314	-1.6487	-2.85657	-4.31928	1.520532	0.415244	-1.9819	-4.29036	-9.00493
5.30	0	-10.0913	-6.32091	-5.81037	-0.1781	0.464593	-0.4925	-2.17638	-3.35108	-4.48958	-4.85042	-6.09871	-9.49983	-11.8395	-9.50628	-12.7912	-4.92046	-6.55003	-6.94927	-1.35061	-4.29522	-2.22768	1.034728	0.643437	-10.8308	-10.0913
	15	-10.0925	-7.70311	-7.75916	-0.93734	-2.40928	-5.58731	-0.18241	-4.06047	-0.51807	-7.51198	-5.02796	-11.1676	-11.8389	-10.33	-7.31443	-4.56047	-3.32501	-7.39011	-3.7191	-0.11697	-0.27398	-0.09276	0.521286	-8.20028	-10.0925
	30	-10.0928	-7.02505	-6.33497	-3.89381	-4.30569	-5.53986	-1.82239	-2.98158	-1.68459	-6.6397	-7.72824	-13.0845	-11.8386	-9.01393	-5.77374	-7.04435	-6.30425	-4.66681	-3.29584	-0.65321	-0.31489	-0.54518	1.269369	-6.15953	-10.0928
	45	-10.0921	-6.17935	-3.90095	-1.32873	-3.8974	-3.67947	-6.49489	-2.85902	-3.14581	-12.8283	-6.32934	-15.3268	-11.8389	-7.25359	-6.81541	-6.1223	-8.45722	-6.54781	-1.27808	-1.08016	-2.68634	0.529124	1.627182	-6.33045	-10.0921
	60	-10.0932	-6.38632	-1.21816	-0.10976	-4.99245	-12.7306	-1.3165	-1.86437	-6.80289	-12.893	-10.3828	-17.7712	-11.8397	-6.66765	-6.37355	-5.95961	-5.3874	-1.27579	-1.83348	-1.79148	-7.39629	1.489277	0.525685	-9.38603	-10.0932
	75	-10.0923	-8.56476	-2.16457	-1.41722	-0.68103	-4.69227	-2.52532	-3.78749	-3.71503	-11.2248	-12.6274	-15.0165	-11.8381	-7.50057	-7.51229	-8.28321	-7.02804	-2.42076	-1.10591	-3.49471	-1.94673	2.170581	-2.51913	-14.3476	-10.0923
	90	-10.0913	-13.5243	-8.72251	-6.85062	-3.15336	-5.92894	-2.16648	-3.42072	-5.33208	-8.22647	-10.1546	-12.5034	-11.8395	-9.29868	-6.11918	-7.55193	-4.53795	-2.73849	-1.0695	-3.58545	-0.79685	-2.08045	-6.58079	-11.5446	-10.0913
	105	-10.0925	-15.4419	-3.67731	0.445668	-6.95949	-4.26892	-1.97193	-2.88316	-6.37045	-5.01968	-7.77881	-12.3793	-11.8389	-10.6961	-8.83257	-17.9929	-12.3679	-8.62909	-4.55566	-4.46488	-4.59032	-1.96791	-3.0133	-6.79482	-10.0925
	120	-10.0928	-11.0018	1.475123	3.781376	-5.31349	-4.20049	-1.37468	-7.73544	-7.80169	-6.39568	-7.45209	-11.9773	-11.8386	-9.56455	-10.213	-11.2708	-10.4419	-2.98705	-1.93492	-0.54909	1.430125	1.629728	-0.66099	-3.38302	-10.0928
	135	-10.0921	-8.74061	3.480071	2.861414	-3.22095	-0.5623	-1.30952	-3.11327	-7.23898	-14.274	-8.03826	-9.80807	-11.8389	-7.9011	-16.2217	-13.579	-11.0147	-2.38557	-0.54356	-0.9832	0.495994	1.426217	-0.00159	-1.74829	-10.0921
	150	-10.0932	-8.78359	2.975199	0.512803	0.500336	-1.94585	-2.78739	-3.32254	-7.56864	-5.08924	-10.8161	-8.27074	-11.8397	-7.49876	-11.9337	-10.2346	-3.29088	-4.32172	-2.0472	-3.13227	0.696537	-0.5288	-0.59321	-1.94352	-10.0932
	165	-10.0923	-10.4364	1.752842	-0.84613	-1.1621	-0.87308	-1.25542	-6.77615	-5.31483	-7.09048	-15.3014	-8.27269	-11.8381	-8.20499	-7.95963	-5.51429	-10.6684	-0.45246	-2.55978	-5.00264	0.950551	-0.53938	-2.30266	-3.71995	-10.0923
5.60	0	-8.94688	-4.99707	-4.14062	-2.56789	-3.3041	-2.32841	-1.55886	-1.83678	-8.82018	0.599029	-7.46216	-8.09422	-14.2752	-13.7163	-4.33322	-2.36596	-4.06732	-1.52795	-0.92839	-4.81778	-3.50721	0.549794	-0.87779	-10.2617	-8.94688
	15	-8.94524	-6.29468	-7.85409	-3.42491	-1.92816	-6.45648	-2.12342	-0.87825	-2.59955	-2.36346	-5.55769	-7.32241	-14.2738	-11.069	-4.96246	-3.41638	-2.27841	-7.07951	-1.40665	0.354524	-2.38668	0.407642	-1.13551	-10.2502	-8.94524
	30	-8.94506	-6.55903	-8.85564	-4.79468	-2.52264	-0.68107	-1.07558	-0.54786	-3.68798	-4.126	-5.7483	-6.64893	-14.2765	-8.57927	-6.16726	-4.06456	-6.57179	-5.22783	0.673997	-1.05091	-1.85387	-2.30902	-0.96954	-8.12993	-8.94506
	45	-8.94668	-6.43812	-6.86126	-2.64802	-2.28597	-1.58488	-8.44792	-2.55002	-7.13334	-6.82721	-4.68457	-6.72061	-14.2746	-8.34345	-6.54223	-5.51154	-5.36377	-3.9645	-2.03553	-1.55957	-3.108	-2.34296	-1.30551	-6.20902	-8.94668
	60	-8.94491	-7.94788	-6.21244	-4.07585	-6.45664	-11.7209	-0.73293	-1.76449	-2.61108	-9.47525	-7.70132	-7.79739	-14.275	-9.4198	-6.21261	-7.22537	-5.89772	-2.74259	0.384162	-0.38072	-3.06503	-6.73841	-2.23828	-6.18255	-8.94491
	75	-8.94547	-12.6666	-10.2764	-7.38772	-5.73748	-9.43827	-1.09163	-1.11624	-3.23546	-5.60883	-8.44445	-8.656	-14.2768	-7.82575	-7.34879	-6.74949	-9.58544	-4.75864	1.062981	-0.09682	-6.14082	-1.18842	-2.47667	-9.19565	-8.94547
	90	-8.94688	-13.3372	-8.01635	-6.10626	-6.98353	-5.51641	-0.82375	-2.7949	-3.29184	-7.41614	-5.82117	-8.08507	-14.2752	-5.40187	-4.87325	-5.78815	-8.98963	-3.07074	0.485941	-2.95691	-3.09472	-2.71942	-6.14672	-16.7657	-8.94688
	105	-8.94524	-8.31718	-3.43552	-0.42709	-11.1373	-3.02829	-0.34244	-3.08043	-10.2314	-4.78873	-4.49578	-7.58777	-14.2738	-5.38716	-4.43511	-2.57535	-1.9914	0.516322	0.500242	-1.54985	-4.81823	-3.44218	-5.54776	-12.2245	-8.94524
	120	-8.94506	-6.19539	0.281856	0.51295	-13.884	-1.83586	-1.59885	-0.52372	-4.53679	-5.21592	-8.42195	-7.76545	-14.2765	-7.74688	-3.06952	-3.10719	-7.11912	-5.93393	-2.55531	-3.61361	-1.76299	-1.27537	-4.73533	-7.32733	-8.94506
	135	-8.94668	-5.9948	0.637946	-1.15682	-3.77405	-1.92053	-1.71547	-1.66728	-3.98677	-4.35806	-7.58282	-7.98	-14.2746	-10.1465	-5.06019	-4.30387	-6.09538	-3.91933	-0.2356	-0.1257	0.403212	-0.73127	-3.32474	-4.98264	-8.94668
	150	-8.94491	-7.10475	-0.75675	0.780728	-1.54879	-1.76341	1.122418	-1.91348	-4.99547	-2.26293	-10.3208	-8.8295	-14.275	-9.78486	-5.61427	-6.99323	-5.02727	-0.39223	0.003408	-1.08713	1.572666	-1.24975	-2.56839	-3.96382	-8.94491
	165	-8.94547	-8.8112	-1.05318	0.289183	-4.5408	2.293863	-0.46934	-6.30954	-1.74841	-1.51888	-6.42601	-11.3309	-14.2768	-8.80961	-5.84678	-2.58227	-3.9827	0.575426	-0.62013	-5.94315	-0.92302	-1.76367	-2.60963	-4.00103	-8.94547
5.785	0	-5.28782	-6.68855	-5.36075	-4.10801	-7.35821	-3.76726	-1.89909	-1.26637	-2.05557	1.243341	-4.55797	-10.0295	-8.5877	-10.9644	-4.82282	-1.06718	-1.8336	-1.05351	-0.06407	-3.68346	-4.01704	-1.64172	-2.68105	-9.48025	-5.28782
	15	-5.28876	-7.48091	-8.66649	-5.18604	-2.56844	-5.84042	-2.6453	1.57082	-0.60567	-0.89799	-2.60924	-8.95212	-8.58805	-9.95077	-5.93474	-1.81085	-0.10866	-5.61436	0.14025	2.548025	-4.68451	-1.49642	-3.64729	-9.74045	-5.28876
	30	-5.28825	-6.53709	-11.0264	-6.13773	-3.16336	-0.57099	-0.20878	1.431542	-2.90721	-2.08654	-3.19203	-7.57455	-8.58646	-8.63525	-6.5659	-2.36565	-0.63994	-0.19694	1.601565	0.583426	-5.09346	-2.26956	-3.33191	-8.68095	-5.28825
	45	-5.28875	-5.79171	-8.87429	-6.34859	-6.6088	-3.55656	-7.38453	-2.32581	-3.89807	-4.17442	-3.20766	-6.76038	-8.58709	-8.69263	-7.33851	-2.81387	-1.08146	-0.10551	-0.67664	-0.65859	-4.14509	-5.76277	-2.16489	-7.23825	-5.28875
	60	-5.28847	-6.97398	-8.14519	-6.67352	-7.13271	-8.16799	0.530197	-1.86325	-2.12336	-4.19156	-5.5704	-6.79644	-8.58703	-9.32037	-7.69502	-3.28822	-3.26233	-0.91769	1.817567	0.301708	-3.32492	-5.41614	-4.4713	-6.71156	-5.28847
	75	-5.28771	-10.8519	-12.2361	-11.2662	-6.26797	-9.04665	-0.70385	-0.13658	-5.14156	-2.94734	-6.32092	-7.29206	-8.588	-7.14119	-6.53089	-7.61047	-5.77399	-4.5261	0.308058	-0.9814	-6.6011	-4.50733	-4.61387	-8.45809	-5.28771
	90	-5.28782	-12.4773	-9.47868	-7.09383	-6.93043	-4.47809	-0.18384	-1.62618	-1.48302	-4.44729	-4.11768	-8.08388	-8.5877	-4.76852	-4.98351	-4.74715	-5.93113	-2.23311	0.697352	-2.51131	-7.97752	-6.96338	-7.49509	-14.0762	-5.28782
	105	-5.28876	-8.01383	-4.76232	-1.21964	-7.36526	-3.50095	-1.64034	-1.76087	-3.86874	-4.05155	-4.91026	-9.27302	-8.58805	-4.63485	-5.27456	-2.7194	-2.88464	0.178086	1.143275	-1.54872	-4.95798	-4.44208	-6.88628	-13.9611	-5.28876
	120	-5.28825	-5.47841	-0.24466	-1.40613	-9.54284	-0.22644	-0.49558	0.13619	-6.32322	-4.37421	-6.48479	-9.45512	-8.58646	-6.2627	-1.57251	-1.00645	-1.71908	-0.70405	-0.04263	-2.4754	-3.89786	-3.02087	-2.16489	-7.23825	-5.28825
	135	-5.28875	-5.01375	-0.40824	-0.82866	-4.67873	-1.5771	-1.1525	-1.97339	-0.57458	-2.03662	-4.51261	-8.39161	-8.58709	-8.04955	-2.40864	0.558523	-2.17857	-2.32713	0.900852	-0.58867	-1.63355	-2.38834	-5.5736	-5.95598	-5.28875
	150	-5.28847	-6.09552	-1.36309	-0.62806	-1.4394	-0.6716	1.02778	-0.63413	-2.39796	-1.19694	-7.16297	-8.38875	-8.58703	-9.20406	-3.32834	-3.03325	-3.48318	1.556609	0.981927	-0.20285	1.349639	-2.57039	-5.145	-5.10957	-5.28847
	165	-5.28771	-7.95889	-2.13799	-1.13557	-3.36717	2.20634	1.970854	-1.85548	-0.54917	-0.64839	-5.53347	-9.81263	-8.588	-10.0423	-4.39928	-1.74266	-0.48167	1.102999	-0.70683	-5.95359	-2.32225	-3.96648	-4.56476	-5.45544	-5.28771

ANT	Max Gain (dBi)	Frequency (GHz)
ANT4	3.81	5.200
	3.21	5.300
	2.28	5.600
	3.66	5.785

Fre(GHz)	Phi\Theta	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180
5.20	0	-4.68793	-9.39033	-7.8145	-2.32164	-8.40065	-2.50167	-3.04957	-9.24724	-12.5096	-10.6525	-13.786	-3.38324	-14.8835	-15.5726	-9.3613	-11.2928	-2.92389	-0.61364	-5.96505	-2.30549	-2.77982	-6.9256	-9.79515	-7.36988
	15	-8.0275	-10.1061	-7.02521	-6.17321	-5.53365	-5.01936	-9.184	-5.46086	-7.98889	-10.6129	-17.825	-3.38377	-14.3164	-13.3789	-13.398	-4.04082	-1.17905	-0.57155	-3.2786	-1.45832	-6.27685	-10.8803	-14.1643	-7.36987
	30	-11.7184	-12.8663	-6.46713	-4.00119	-6.13783	-2.69071	-12.2509	-6.72749	-7.12317	-9.84216	-12.9396	-3.38324	-14.0716	-16.0064	-14.5272	-10.6729	-3.75839	-0.76223	-2.75807	1.659204	-2.14134	-15.081	-10.1496	-7.37051
	45	-12.7815	-14.4962	-7.91276	-3.18316	-1.87831	-1.57082	-7.72844	-6.36906	-9.61813	-9.96403	-9.15557	-3.38359	-12.3506	-14.1188	-10.4324	-1.46841	1.039071	-4.51879	0.577217	3.80579	-4.36486	-10.8172	-9.73513	-7.36976
	60	-13.2159	-10.0906	-10.8312	-1.21967	1.031835	-3.77138	-7.38982	-5.00003	-12.2203	-11.6556	-8.25012	-3.3842	-9.7622	-12.2652	-8.76853	-4.60283	-2.08706	-1.94839	0.199297	2.393082	-7.94114	-7.41229	-12.9639	-7.36986
	75	-13.7396	-16.415	-2.93699	-0.33036	0.236958	-2.07259	-8.80304	-6.48156	-10.5879	-12.2094	-9.94042	-3.38332	-8.47662	-15.2276	-10.4246	-8.34295	-0.18749	0.471797	-1.62876	-3.79982	-5.04276	-15.6725	-15.4677	-7.37068
	90	-11.0987	-9.61218	-6.93436	-8.34006	-1.54014	-3.59953	-10.7704	-16.0641	-10.7374	-16.6671	-13.0958	-3.38324	-8.62557	-26.7733	-9.01269	-1.95361	-0.52315	-3.07006	-3.71928	-6.98875	-9.09771	-7.86874	-9.10308	-7.36988
	105	-7.09558	-5.55953	-9.60386	-3.22507	-3.71451	-2.74952	-7.91666	-10.8798	-12.5373	-12.9345	-10.0106	-3.38377	-9.4064	-10.1235	-7.19935	-3.38093	-4.15836	-3.79434	-5.88811	-5.89782	-5.84031	-14.2981	-5.91022	-7.36987
	120	-3.24468	-8.12514	-5.19545	-2.58136	-0.10915	-0.86267	-9.19721	-6.73398	-9.32172	-11.1515	-6.34456	-3.38324	-9.40268	-7.98862	-7.13117	-6.21764	-6.94055	-0.62409	-8.32638	-11.8809	-5.12665	-10.6662	-4.46286	-7.37051
	135	-0.93163	1.741088	-0.18424	-0.45919	-1.53796	-1.26993	-5.39033	-6.12958	-10.6605	-11.1294	-5.36436	-3.38359	-8.93566	-6.07016	-7.88694	-3.11122	-1.28455	-1.31402	-11.1699	-6.06611	-1.80985	-1.4974	-3.20766	-7.36976
	150	-0.87116	2.450338	0.933101	0.075114	-3.86649	-2.93365	-6.90883	-8.62052	-4.52707	-9.54575	-6.93038	-3.3842	-9.19882	-6.17568	-7.91257	-3.13909	0.878088	-7.08274	-6.39096	-1.80237	-1.05374	-0.99457	-2.38428	-7.36986
	165	-3.50823	-5.79976	-2.91186	-3.65136	-2.32523	0.182663	-7.0459	-10.8339	-14.9379	-14.2192	-11.0497	-3.38332	-10.5908	-15.8578	-8.93351	-11.5386	-3.15554	-0.31239	-5.93804	-0.65463	-2.66011	-8.18884	-2.78846	-7.37068
5.30	0	-6.20583	-11.4495	-8.86035	-2.86888	-10.5993	-2.48021	-4.12059	-8.80843	-12.8174	-12.3258	-17.5017	-3.82249	-24.5571	-17.2861	-9.80175	-17.9173	-2.17686	-0.32947	-5.55846	-1.61092	-5.15799	-6.59112	-9.73227	-7.41456
	15	-9.70769	-10.9009	-8.35734	-5.84231	-6.18532	-5.38431	-9.16027	-5.35301	-7.61012	-13.515	-16.7681	-3.82157	-19.3265	-16.4083	-13.3302	-3.89108	-2.52325	-0.50185	-3.22519	-2.6404	-5.09738	-12.1103	-16.7609	-7.4152
	30	-13.6807	-17.8378	-5.72136	-4.16412	-4.99691	-2.69602	-10.0917	-5.09936	-9.01753	-14.1441	-12.6894	-3.82201	-16.7272	-19.9388	-12.6493	-8.27485	-1.61078	-0.70925	-2.62751	0.4029	-2.4719	-16.4461	-14.2284	-7.4161
	45	-15.967	-15.19	-7.08677	-2.86135	-1.58903	-1.81848	-7.94216	-5.93208	-9.75555	-12.9495	-10.2308	-3.8226	-14.6197	-18.5677	-17.4455	-3.15554	0.543921	-3.33824	-1.52622	3.206468	-5.02414	-10.4342	-12.1023	-7.41607
	60	-18.2905	-11.6192	-10.3343	-1.37947	0.737467	-5.42254	-5.23879	-5.10718	-14.0014	-13.4421	-9.90266	-3.82178	-12.4622	-13.9151	-7.98021	-3.58663	-1.34997	-2.51112	-0.65286	1.912724	-8.78159	-7.17512	-13.3835	-7.4153
	75	-17.4646	-14.0432	-3.44237	-1.3548	-0.19113	-2.5968	-9.04996	-8.11386	-10.3849	-15.3178	-11.6147	-3.82226	-11.4518	-15.9723	-13.6635	-8.78738	-1.20261	-0.04305	-1.657	-3.4426	-4.91245	-17.6427	-14.1918	-7.41575
	90	-11.8185	-10.7091	-6.71867	-9.50213	-0.92968	-3.80278	-8.43821	-13.1276	-13.7273	-18.0429	-12.7853	-3.82249	-11.1164	-26.2825	-13.1024	-3.63266	-1.34036	-2.16696	-3.27213	-6.85809	-9.36193	-8.392	-9.06339	-7.41456
	105	-7.98737	-4.56268	-11.6926	-2.83008	-4.1701	-3.33323	-7.27993	-9.52927	-12.0546	-13.2242	-9.91272	-3.82157	-10.2976	-11.3577	-7.56801	-3.34139	-4.23918	-3.45493	-5.39824	-5.86477	-6.77524	-13.4554	-6.26072	-7.4152
	120	-4.77076	-8.06762	-7.5917	-3.73218	-0.12902	-1.10036	-10.1297	-6.31154	-11.7674	-13.3989	-7.49781	-3.82201	-9.03693	-11.6443	-10.3391	-5.28878	-5.56738	-0.94017	-6.69075	-10.5512	-5.61014	-11.2526	-5.24147	-7.4161
	135	-2.51795	1.303604	0.099242	-1.26563	-1.28992	-1.40548	-7.16004	-5.20184	-7.10192	-12.3573	-7.1393	-3.8226	-8.50296	-6.18179	-9.61196	-4.3633	-1.51133	-1.41169	-10.4694	-6.73993	-2.34994	-2.08692	-4.31298	-7.41607
	150	-2.24064	2.072845	0.570086	-0.30203	-3.09106	-3.93612	-11.226	-5.40943	-3.04056	-8.77223	-9.13802	-3.82178	-9.63152	-4.6197	-8.83999	-3.81469	0.233771	-5.36698	-8.88035	-3.3988	-1.54393	-1.71351	-3.6052	-7.4153
	165	-4.46325	-6.35158	-5.60131	-5.94457	-0.97523	0.627293	-6.11284	-4.9136	-15.3116	-12.9974	-14.5315	-3.82226	-12.912	-12.3926	-10.5596	-12.636	-4.22405	-0.65883	-6.4376	-2.01586	-3.03226	-9.85146	-4.12471	-7.41575
5.60	0	-10.9304	-12.1713	-10.9747	-2.8374	-12.237	-3.5041	-5.17984	-7.97506	-7.15035	-13.6108	-10.703	-4.87558	-13.1153	-14.2142	-7.54732	-10.6625	-4.90295	2.171181	-0.93853	-4.13962	-8.58041	-7.86034	-9.48626	-8.77304
	15	-17.2741	-10.1863	-11.0436	-6.56154	-5.97564	-4.28302	-6.84767	-3.9865	-5.37375	-16.9157	-12.4848	-4.8759	-18.1415	-22.1797	-9.94785	-8.03463	-0.2007	1.763129	-3.39492	-5.55431	-6.69733	-9.77368	-13.8512	-8.77158
	30	-21.014	-20.318	-7.87346	-6.87954	-1.11379	-0.21074	-6.24137	-2.10379	-8.61924	-20.0632	-13.3733	-4.87534	-17.9097	-17.4038	-4.21207	-1.22953	-0.68053	-1.53623	-1.71391	-0.59362	-6.77813	-11.9075	-17.3556	-8.77238
	45	-20.7126	-14.6305	-5.54234	-2.49981	-0.34236	-2.16857	-2.43069	-0.62983	-8.85791	-14.9124	-13.8713	-4.87539	-15.1864	-14.3867	-10.88	-3.8011	-0.85354	0.303942	-4.99455	1.477328	-5.94189	-11.2739	-16.2719	-8.77238
	60	-20.204	-15.7318	-7.09804	-1.3612	0.581665	-4.11861	-2.06428	-4.50312	-13.3716	-15.4018	-13.6297	-4.87624	-14.8469	-14.6455	-6.9396	-2.56404	-0.0557	-7.65959	-3.4617	0.707652	-7.55043	-12.2386	-16.9413	-8.77158
	75	-17.4612	-17.4603	-5.65986	-1.35101	-0.66377	-3.39211	-3.73128	-6.37323	-8.23669	-13.0196	-11.7983	-4.87658	-16.6048	-13.0395	-8.41706	-4.80417	0.362721	-0.7444	-0.99356	-2.29825	-6.8174	-13.7238	-17.3577	-8.77236
	90	-13.9096	-10.8562	-8.01757	-7.78263	-0.26207	-2.00912	-4.04494	-5.15417	-17.2683	-14.0157	-10.2509	-4.87558	-17.9351	-18.062	-9.71297	-5.97015	-2.21162	-2.49208	-3.25442	-7.91243	-8.3644	-9.56484	-12.0365	-8.77304
	105	-11.1064	-6.57449	-15.2364	-3.34403	-1.34942	0.539465	-3.63699	-10.8706	-5.57694	-11.4133	-10.1054	-4.8759	-14.8464	-11.67	-7.42205	-3.62658	-4.91272	-4.07953	-6.90061	-8.10852	-8.99295	-14.1814	-8.70941	-8.77158
	120	-8.28818	-13.8373	-7.67485	-0.31529	-0.00509	1.436212	-8.4016	-3.38383	-13.6774	-13.1582	-10.9555	-4.87534	-10.303	-7.29677	-16.3185	-2.63891	-4.38763	-1.3207	-7.68294	-12.6929	-7.44064	-14.5692	-7.01305	-8.77238
	135	-5.98986	-2.05618	1.1092	-1.90097	-0.13687	-1.3227	-1.27537	-0.80317	-5.11748	-8.18696	-10.741	-4.87539	-7.54171	-0.26952	-3.5449	-1.93355	-3.06039	-1.45543	-10.8516	-7.09319	-3.2827	-5.06462	-5.78937	-8.77238
	150	-5.31823	-1.82801	1.275397	-4.65825	2.279705	-0.05055	-7.41455	0.543688	-2.01691	-5.05872	-9.58758	-4.87624	-7.0908	-1.3552	-3.85501	-3.14658	-0.14585	-1.80745	-8.72759	-2.94212	-3.11501	-4.63081	-5.44117	-8.77158
	165	-6.54455	-11.822	-8.7288	-3.46511	-3.06268	0.604194	-7.81093	-2.3234	-11.1915	-10.2614	-10.0615	-4.87658	-8.49856	-15.2578	-10.4198	-5.51448	-5.93307	-0.58299	-2.83078	-1.7681	-4.85014	-14.5076	-6.9484	-8.77236
5.785	0	-11.3613	-10.9493	-10.4347	-2.91038	-12.0069	-3.95843	-7.19235	-8.78075	-7.35215	-9.85182	-15.8928	-2.8387	-13.7712	-11.8165	-7.1157	-3.07603	-1.11899	3.660053	-2.07297	-4.35235	-4.89174	-7.48944	-9.27557	-6.98681
	15	-17.5463	-12.6619	-11.3158	-5.44751	-6.03586	-0.84508	-6.1662	-3.71904	-4.09001	-15.2198	-20.5996	-2.83896	-16.711	-24.4477	-8.17297	-3.13687	0.39823	1.511715	-0.96013	-7.34535	-7.57039	-9.17747	-14.4093	-6.9881
	30	-25.0827	-21.195	-8.25442	-8.34923	-1.12992	0.252303	-3.27349	-0.01806	-7.05778	-14.2298	-19.258	-2.83981	-18.9364	-12.9364	-4.19094	-2.72179	-1.24068	-0.70079	-0.50475	-2.25866	-5.14959	-11.4798	-25.0417	-6.98756
	45	-33.7207	-17.8148	-5.71113	-3.41145	0.639024	-1.52066	-0.25271	1.122852	-5.63333	-11.6046	-17.0006	-2.83926	-20.0158	-19.1285	-8.71427	-2.43802	0.910975	2.796554	-3.49318	-0.16837	-6.11609	-13.8728	-25.0366	-6.98852
	60	-21.5065	-14.389	-7.71134	-1.46614	0.723738	-2.14118	-1.08121	-3.0252	-10.8788	-12.1183	-15.2062	-2.8395	-19.0742	-13.3261	-4.05734	-0.01055	1.864019	-5.53406	-8.20589	-2.19247	-6.61398	-18.0422	-23.1202	-6.98711
	75	-15.3738	-15.3181	-7.3228	-2.15142	-0.52903	-4.07817	-3.3375	-2.33638	-4.63824	-11.2848	-13.7953	-2.83945	-17.2251	-14.4759	-7.6165	-2.65469	2.024024	0.315778	-2.43087	-4.57753	-8.84249	-15.2389	-19.6291	-6.98678
	90	-11.8141	-12.6398	-7.09847	-6.08083	1.339019	-0.41106	-2.48301	-1.80067	-12.7461	-16.7465	-12.8301	-2.8387	-14.5124	-17.1057	-9.29268	-6.44388	0.553628	-0.95771	-5.09591	-10.2882	-10.8538	-12.6744	-13.404	-6.98681
	105	-9.538	-7.61725	-10.8779	-1.99502	-1.13899	1.323117	-2.54998	-4.461	-4.59129	-10.3446	-11.4688	-2.83896	-11.1675	-8.03256	-8.31521	-5.73025	-5.60987	-5.11418	-7.16444	-8.07399	-7.76458	-20.235	-8.89991	-6.9881
	120	-7.85839	-11.8586	-12.2362	-0.20237	-0.15443	1.054594	-5.20361	-0.29575	-12.8842	-14.2407	-10.2536	-2.83981	-7.39628	-10.2063	-17.2221	-3.0719	-3.43705	-2.21391	-8.08081	-10.5496	-7.46759	-15.204	-6.24765	-6.98756
	135	-6.46724	-2.69615	0.557358	-1.4989	-0.05222	-1.0914	-0.52542	0.798134	-3.23289	-5.81154	-9.87625	-2.83926	-5.1818	1.654169	0.300783	-0.86506	-3.08902	-1.76867	-11.7208	-9.16752	-3.84394	-5.93676	-5.09973	-6.98852
	150	-5.90372	-1.87062	1.139854	-3.38187	1.484167	0.063622	-0.48833	1.343351	-1.53164	-6.64038	-10.0977	-2.8395	-5.68027	1.019213	-0.56693	-1.95828	-0.16921	-1.32524	-8.33615	-2.66581	-4.38057	-5.32743	-5.37421	-6.98711
	165	-6.73087	-9.56963	-7.46537	-6.30499	0.253886	2.582975	-7.22219	-0.96656	-6.80665	-17.2831	-11.2282	-2.83945	-9.29357	-12.0899	-8.49919	-4.74909	-6.20598	-0.8012	-1.46516	-2.84707	-5.56495	-18.971	-7.34149	-6.98678

Combination Gain	Max Gain（dBi）	Frequency（GHz）
ANT1+ANT2+ANT3+ANT4	7.40	5.200
	7.05	5.300
	6.20	5.600
	7.31	5.785

Fre (GHz)	Phi\Theta	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180
5.20	0	1.569453	3.918825	6.690556	6.656927	2.281607	4.791897	2.722324	-0.56172	-2.2577	-1.00178	-2.71063	0.812533	-3.68036	-4.44675	-0.28417	1.575166	1.385161	5.156369	2.279478	6.406489	6.886973	5.06739	0.136335	-3.00354
	15	0.379275	2.723127	6.532313	5.738997	2.158483	3.321489	2.089628	2.493797	-0.83562	0.035241	-2.95994	0.812042	-4.40506	-4.29989	-1.67609	1.030439	1.061224	4.038324	3.299767	6.464428	6.557931	4.699167	0.271155	-3.00365
	30	-0.65562	2.204743	5.860769	5.696889	3.448079	5.670621	3.030865	0.882125	-1.10923	-2.13348	-3.13309	0.812634	-4.13827	-3.45436	-3.17028	-0.42258	1.793026	4.449845	2.983837	5.226309	5.907118	4.525443	1.40918	-3.00386
	45	-1.36686	2.709744	5.674111	5.434416	3.438103	4.623149	4.777325	3.393878	-3.39885	-1.70268	-3.77225	0.812109	-3.47376	-4.33388	-1.55782	1.302861	2.490503	3.621073	4.542978	4.922301	4.73814	4.753501	1.640017	-3.00318
	60	-1.93632	3.558584	4.949116	5.398385	3.348788	2.974572	3.481698	2.744736	-2.64448	-1.93814	-4.29349	0.812147	-3.07809	-1.73339	-0.70351	-0.52771	2.309379	3.761682	4.484806	4.071191	5.017771	4.460288	0.878033	-3.00354
	75	-2.47681	3.159253	5.653866	5.890626	5.989177	3.943219	2.429816	2.405721	-1.6554	-3.19329	-4.22085	0.81256	-3.38384	-2.39696	-1.76975	-2.99792	2.34949	4.182883	3.169226	3.848823	5.954942	2.33913	0.488614	-3.00373
	90	-2.55412	2.058005	5.10758	3.20906	5.568326	4.432707	1.67253	1.543877	-1.41524	-3.49605	-3.82991	0.812533	-3.9498	-3.87037	-3.50891	-0.81617	2.001982	3.200791	2.845954	3.411855	4.330145	2.281694	1.533867	-3.00354
	105	-1.50615	2.669432	6.408314	2.98177	5.940138	4.750769	0.70083	1.132146	-0.56762	-1.32278	-2.445	0.812042	-3.6499	-0.55719	-3.77233	-0.98787	1.324887	2.090089	1.994849	4.631719	4.505382	2.280165	2.530743	-3.00365
	120	0.45797	3.884514	7.40087	4.463214	6.715541	5.96093	2.753284	-0.25273	0.410706	-0.2568	-1.01107	0.812634	-2.73107	1.246021	-1.41042	-2.16503	1.494267	4.703199	5.502662	5.992763	4.489393	2.74691	3.221012	-3.00386
	135	1.867335	6.6316	7.341067	3.786074	5.167807	4.299608	2.589644	1.131012	-2.50359	-0.86665	-0.31032	0.812109	-2.29473	0.169637	-0.79752	-1.37527	2.621816	3.809331	4.180093	5.776698	5.956492	4.648736	3.478643	-3.00318
	150	2.089751	6.930988	5.593638	5.298408	2.524606	4.592255	1.868488	2.661312	-0.27249	-2.25162	-0.64672	0.812147	-2.33677	-0.8845	-0.56494	-0.12167	2.230678	2.114823	2.435239	6.483631	6.103094	5.355366	3.266372	-3.00354
	165	1.263974	5.209268	5.656674	5.815442	3.099474	4.804003	1.055607	2.152531	-4.23983	-3.06019	-1.98828	0.81256	-2.51484	-3.29615	-1.36413	-1.773	3.676478	4.338127	1.995496	6.685999	6.313649	4.370111	2.619978	-3.00373
5.30	0	1.175473	3.399823	6.545603	5.004637	2.354351	4.603812	2.766771	-1.0504	-1.42685	-1.38569	-4.22356	-0.33392	-4.83993	-3.87754	-0.68804	1.141313	1.39616	5.284481	2.959817	6.562849	6.232299	4.691752	0.134159	-2.49932
	15	-0.13257	2.66923	6.437766	5.274749	1.78368	3.485285	1.880687	2.155974	-0.70288	-0.39498	-3.55702	-0.33326	-5.26441	-3.1132	-1.78851	2.174857	0.712982	3.711828	2.955016	6.058208	6.170394	4.217774	-0.32575	-2.50047
	30	-0.98159	1.619745	5.328046	5.514473	4.203768	5.484502	2.480127	1.058823	-0.90999	-2.7538	-3.14585	-0.33372	-4.51928	-3.60901	-3.38402	-0.29116	2.042739	4.301424	3.005751	4.529845	4.794502	4.050405	0.460522	-2.50042
	45	-1.32654	2.218299	5.366778	5.155997	3.2808	4.659815	4.611882	2.300552	-3.72788	-2.41125	-3.80876	-0.33392	-3.82178	-4.32172	-2.58668	1.127016	2.427523	4.345926	4.853986	4.963264	4.12593	4.293432	0.979643	-2.50019
	60	-1.84673	3.081828	4.821807	4.831516	2.817582	2.218699	3.674565	2.689751	-4.35571	-2.73452	-5.25344	-0.33363	-3.71289	-2.54022	-0.447	0.367257	2.040097	3.611579	4.351412	3.841505	4.838852	4.062139	0.524481	-2.49994
	75	-2.47495	2.961583	5.429349	5.034717	4.684537	3.466721	2.146191	2.106464	-1.0109	-3.99213	-5.94218	-0.33362	-3.9494	-3.7995	-1.76676	-4.94012	1.250659	4.210848	3.822242	3.324364	5.906769	2.22565	-0.21138	-2.50037
	90	-2.57674	1.805132	4.530045	2.1369	4.678725	4.391699	2.379055	0.889655	-1.03494	-4.22906	-4.82155	-0.33392	-3.99559	-4.14643	-4.21898	-1.40217	1.169567	3.32355	3.34731	3.175553	4.496616	2.071729	0.529066	-2.49932
	105	-1.68619	3.068533	6.041957	3.045817	5.870525	4.479511	1.907767	0.851434	0.060528	-1.38541	-2.64167	-0.33326	-3.62839	-0.41519	-4.62178	-0.99294	1.078955	2.505021	1.48899	3.751548	4.560552	1.661595	1.515318	-2.50047
	120	0.102894	3.868718	6.951099	3.848139	6.462844	5.426146	1.068316	-0.05913	-0.84358	0.13372	-1.10791	-0.33372	-2.95422	0.696748	-2.32788	-2.08489	0.543663	3.212017	4.553796	6.277718	4.957731	1.824225	2.216689	-2.50042
	135	1.433921	6.344943	7.045884	3.582933	5.083833	4.050314	2.656099	1.272875	-3.22647	-0.55851	-0.61644	-0.33392	-2.61683	0.351267	-0.94988	-2.63514	2.367925	3.561802	4.264647	5.972935	5.730023	4.221384	2.673046	-2.50019
	150	1.828472	6.491765	5.698309	5.079806	2.860458	4.132516	0.400753	2.500764	-0.60855	-2.68227	-1.19607	-0.33363	-2.98066	-0.17007	-0.26711	0.849881	2.230505	2.458877	1.78057	5.81982	6.097285	5.252032	2.802279	-2.49994
	165	1.242834	4.704098	5.305458	4.751507	2.880927	4.885302	-0.44433	3.345072	-4.26552	-3.59466	-2.74148	-0.33362	-3.84668	-2.37911	-2.6824	-3.12922	4.389924	4.769274	2.12342	5.83795	5.747024	3.948105	2.302165	-2.50037
5.60	0	-0.0051	2.540345	4.270277	2.449928	2.974291	5.419788	3.854869	0.443394	2.50353	-1.06169	-2.74564	-1.70825	-3.10868	-0.1622	0.745038	1.814119	2.517191	6.146711	2.945526	5.130004	4.089775	2.918487	-1.59714	-3.55253
	15	-1.53133	1.946551	4.750987	3.844655	2.182305	4.243774	3.686661	2.512543	2.800917	-1.40798	-3.59822	-1.70838	-3.58655	-1.45328	-0.13109	3.694548	2.736473	5.588567	2.855156	4.563943	5.017861	2.489076	-2.66353	-3.55218
	30	-2.5566	-0.06827	3.908459	3.905592	5.969746	6.197463	3.33585	2.743301	1.834582	-1.41424	-3.19181	-1.70828	-3.426	-2.24459	1.900934	1.761708	2.735399	5.38225	4.21466	3.574762	3.269853	2.721937	-1.70156	-3.55195
	45	-2.97247	0.154073	4.627273	4.236166	4.776213	3.997207	4.3344	1.628697	1.240139	-0.31025	-2.60633	-1.70821	-2.78996	-0.57616	1.881602	2.238427	3.028254	4.443578	4.375083	4.923632	3.352686	2.245372	-0.22623	-3.55262
	60	-3.63479	0.381856	3.362294	2.850482	2.279835	4.161327	5.180021	2.851418	-2.49026	-0.37782	-2.45098	-1.70856	-2.33725	-1.21374	2.042549	1.693278	4.128429	3.308205	4.449227	4.387552	2.258652	1.875921	0.128621	-3.55189
	75	-4.60925	-0.07125	2.497088	2.408118	2.367377	3.985108	4.250686	2.584282	0.511844	-0.36399	-1.99785	-1.70863	-1.65324	-3.74735	0.067972	0.774862	3.282867	4.395635	5.297631	2.585665	4.085472	2.072645	-0.64684	-3.55227
	90	-4.19421	0.738925	3.103794	0.305612	3.904232	5.026751	2.612981	3.209785	0.688499	0.212273	-1.09181	-1.70825	-0.95814	-2.98507	-1.81748	0.381533	3.015202	3.589023	3.941572	2.23518	4.120791	1.483866	-1.66313	-3.55253
	105	-2.5303	1.771045	4.691156	1.664507	4.985136	5.470019	3.191534	0.288032	2.80746	1.500143	-0.44812	-1.70838	-0.95958	-0.12122	0.596095	2.165271	3.696597	4.332942	4.426014	1.852866	3.815067	0.237207	-1.36282	-3.55218
	120	-1.18014	1.820264	4.512195	2.82587	6.193836	5.448003	3.014981	1.873101	0.263608	0.660601	-0.43432	-1.70828	-1.52774	1.999129	0.490879	2.412607	2.350857	3.807445	1.550568	3.635395	4.348049	-0.26071	-0.60178	-3.55195
	135	-0.05708	3.568971	5.130512	2.614707	4.521381	4.226262	4.404849	4.314737	-0.00322	0.892416	-0.77491	-1.70821	-1.82606	3.527788	2.018405	2.693671	2.771185	3.357921	3.269607	5.790158	5.102343	1.854928	0.31198	-3.55262
	150	0.433441	3.764433	5.660904	3.552204	4.519941	5.523441	0.991185	4.923157	1.425344	0.414603	-1.34314	-1.70856	-1.58638	3.008841	1.877701	1.812723	4.297719	4.809348	2.293237	5.453835	5.054927	2.937177	1.022037	-3.55189
	165	-0.11725	2.619626	4.133817	3.299464	2.736368	5.539695	-0.23264	5.487263	0.690952	-0.76962	-2.19903	-1.70863	-1.77491	0.218111	1.020695	-0.14407	3.482153	5.672794	2.996865	4.995615	4.600157	2.18562	0.973367	-3.55227
5.785	0	-0.70777	1.331769	2.778526	0.860582	3.522812	6.064101	3.874061	2.54755	3.90947	0.530266	-3.14461	0.020345	-1.98268	0.776967	1.862206	5.166444	4.060878	7.310606	1.80208	4.451458	3.882775	2.397307	-2.26846	-1.59188
	15	-2.00224	0.379417	3.169495	3.496844	2.384792	5.179091	4.663609	4.158119	4.779523	0.685822	-3.47786	0.020451	-2.71684	-1.31635	1.730533	5.94853	3.988402	6.247654	4.835002	3.581898	3.879316	1.598083	-2.97607	-1.5921
	30	-3.26082	-1.32283	2.958343	2.870586	5.837648	6.366789	5.232386	5.093601	4.299093	1.167555	-2.65011	0.020552	-2.75195	-0.14833	3.418471	4.477014	5.171534	6.380453	5.498845	2.648999	3.639929	1.712172	-2.15989	-1.59226
	45	-4.1622	-1.30091	2.683592	3.086876	4.250842	4.830592	5.492993	4.415116	4.070215	1.698998	-1.93082	0.020541	-2.25492	-0.30218	3.23754	4.289722	5.624268	5.982422	5.303034	4.406343	2.712586	1.57379	-0.85249	-1.59257
	60	-4.30152	-0.98618	1.373132	2.645714	3.020963	4.901763	4.992649	3.913368	1.627239	1.713645	-1.71456	0.020136	-1.6826	-1.06079	3.712825	4.188006	6.08135	4.91444	3.760033	3.916396	2.380287	0.626284	-0.33073	-1.59201
	75	-4.53773	-1.28588	0.133216	1.22673	3.074608	4.88861	4.484174	3.405767	2.308692	1.382501	-1.63342	0.019918	-0.73404	-2.52308	0.407474	3.630481	4.833446	5.150435	4.34899	2.947699	2.717429	1.018489	-0.66237	-1.59211
	90	-4.06617	-0.55818	1.942663	-0.98272	4.65505	5.652076	3.297961	4.775841	1.875723	0.791652	-1.39446	0.020345	0.045719	-2.49315	-1.60356	2.31279	5.11048	5.277098	2.761061	1.726219	2.736797	0.509472	-1.4646	-1.59188
	105	-2.55376	0.924615	3.853566	2.067736	4.237846	5.510576	4.396901	4.20652	4.241005	1.803462	-0.87158	0.020451	-0.0023	-0.34419	0.32348	2.285776	4.030238	4.713206	4.734705	2.940761	3.36493	-0.49426	-1.49434	-1.5921
	120	-1.18967	1.473822	2.609612	3.182335	5.835521	5.83901	4.574814	2.911922	1.251082	1.5677	-0.37108	0.020552	-0.44639	0.951502	1.778861	4.009438	4.340128	4.951549	3.071944	2.712555	3.543554	-0.41555	-0.92701	-1.59226
	135	-0.10978	2.758899	4.327585	1.706148	4.943411	5.005622	5.082055	6.349081	2.60267	2.668839	-0.2046	0.020541	-0.70705	4.197636	5.211528	4.729545	4.140083	5.227405	2.73062	5.04984	4.786834	1.260098	-0.65216	-1.59257
	150	0.162923	3.049333	4.907215	3.242126	4.100784	5.725337	3.680581	6.561915	2.864072	1.595215	-0.45487	0.020136	-0.90779	4.314093	4.452438	3.648104	6.053764	6.290351	3.595688	5.196627	3.828225	1.367121	-0.27155	-1.59201
	165	-0.66254	1.906464	3.290761	2.311393	3.670941	6.725291	2.632945	6.921719	2.594579	0.559683	-1.06891	0.019918	-1.78247	1.279441	2.980467	3.144252	3.459877	6.13801	4.699788	4.07391	3.592252	0.180302	-0.09065	-1.59211

Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Testing Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

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（END OF REPORT）