The Measurement SDARS Gain Pattern

This test is on 50*50 mm ground.

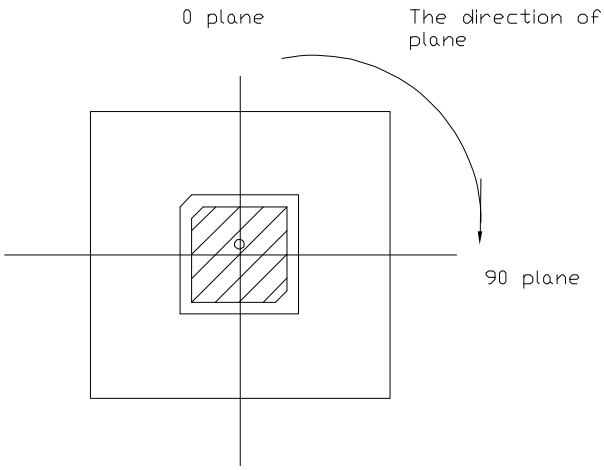


Fig. 1

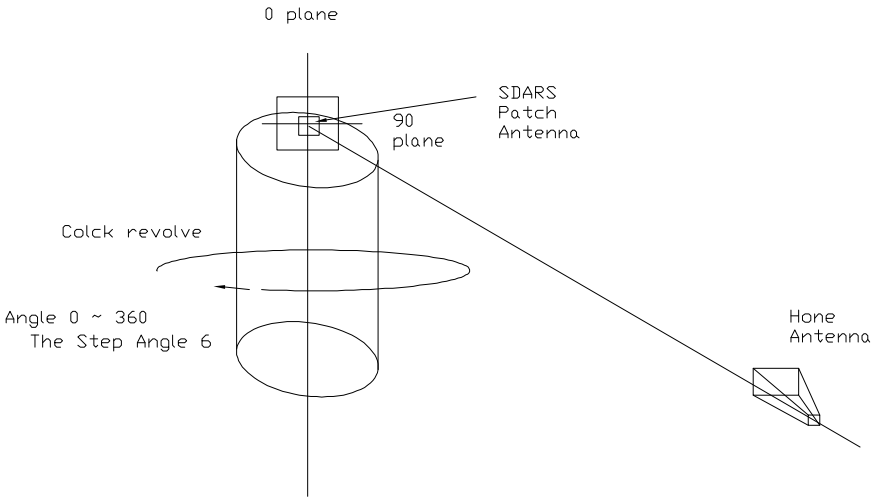
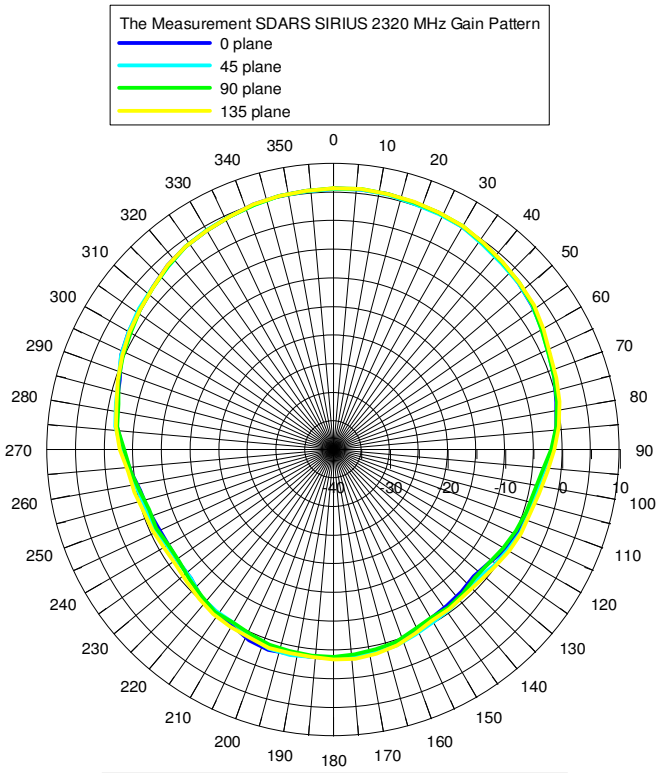


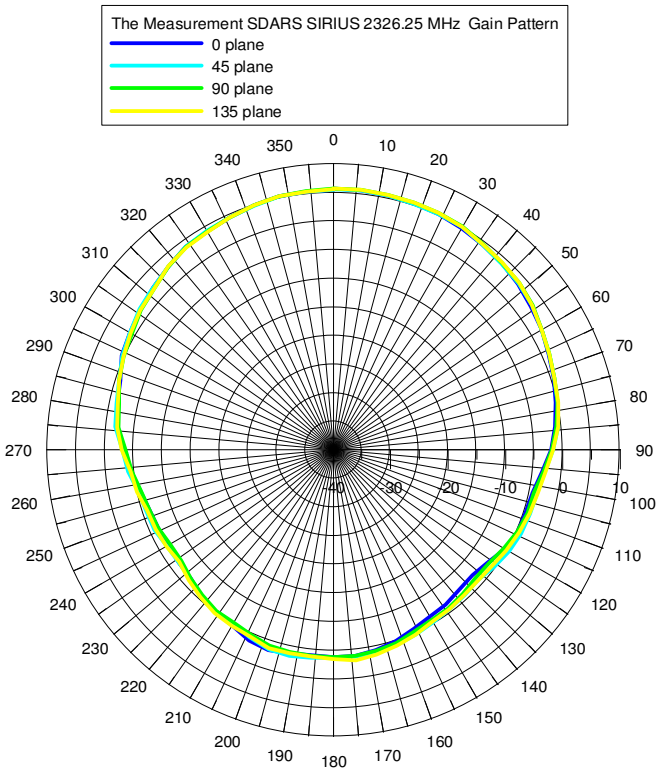
Fig. 2

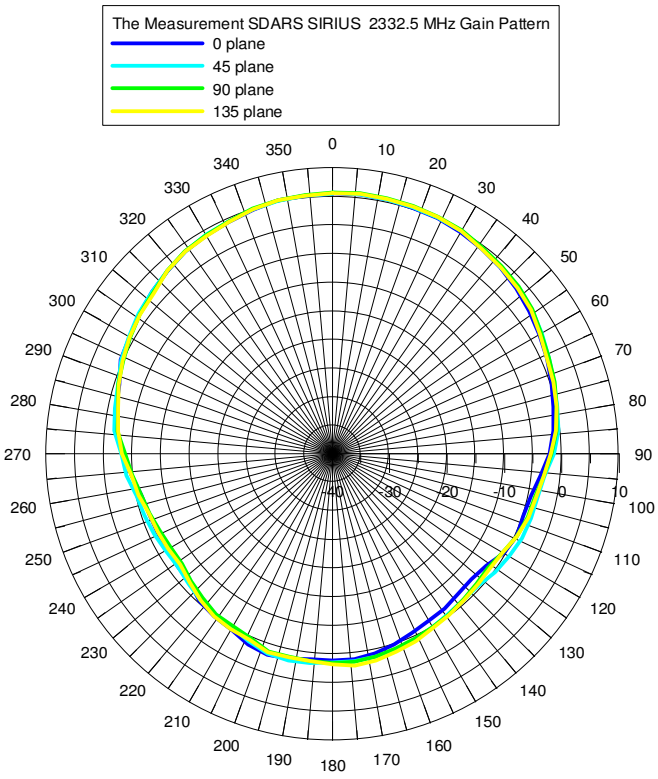
The SDARS Patch Antenna Measurement is Show as Fig.1 and Fig. 2.

We test it at 0 plane, 45 plane, 90 plane, 135 plane by 2D measurement system.

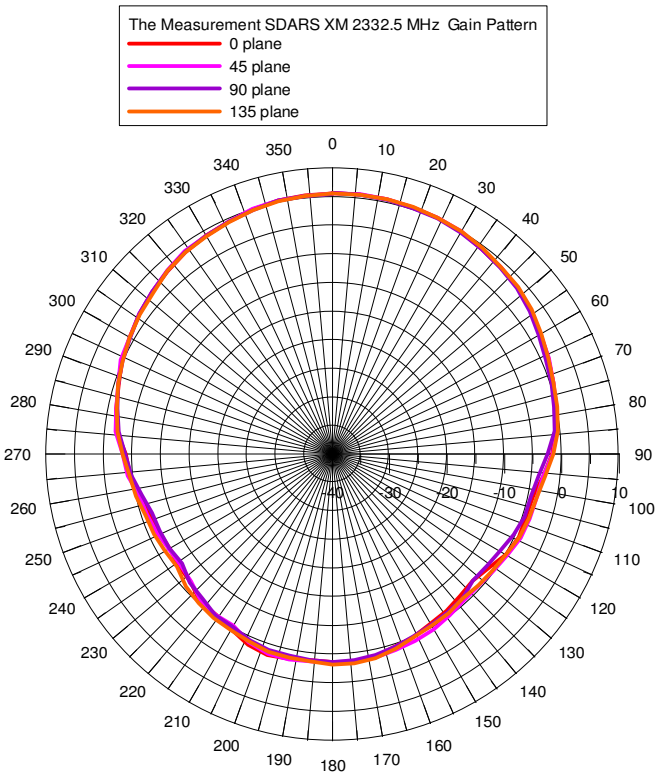
1. SDARS SIRIUS: (Unit : dBi)

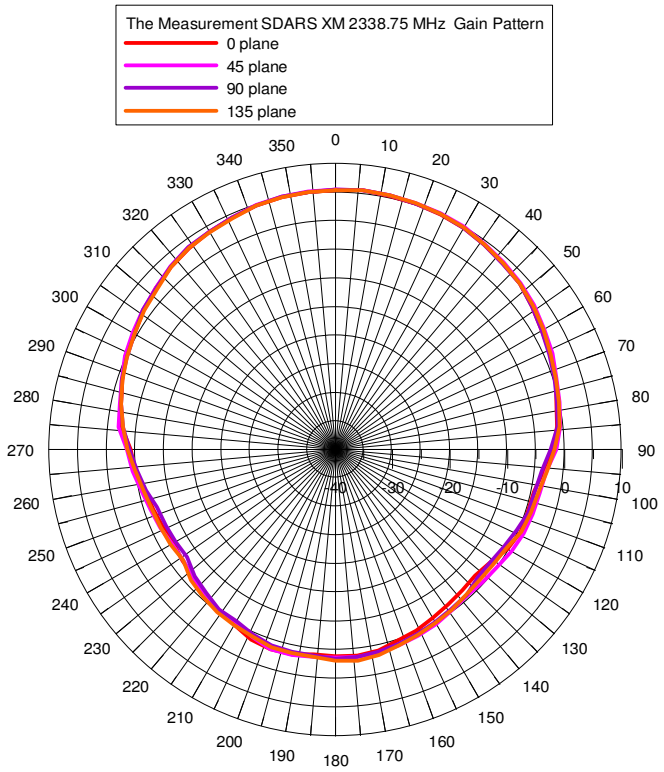


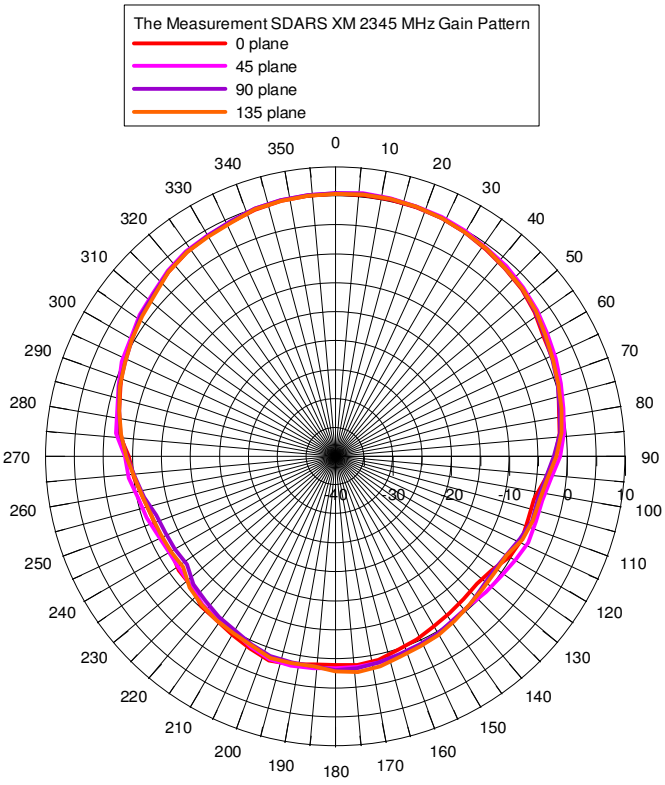




2. SDARS XM: (Unit : dBi)




The Measurement SDARS XM 2338.75 MHz Gain Pattern
0 plane
45 plane
90 plane
135 plane
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320
330
340
350
-40
-30
-20
-10
0
10


The Measurement SDARS XM 2345 MHz Gain Pattern
0 plane
45 plane
90 plane
135 plane
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320
330
340
350
-40
-30
-20
-10
0
10

3. The Measurement Gain Data Table: (Unit : dBi)

	SDARS SIRIUS 2320 MHz			
Angle	0	45	90	135
0	5.564117	5.465916	5.625547	5.60791
6	5.638897	5.609419	5.710244	5.743969
12	5.507328	5.443414	5.548526	5.662335
18	5.350025	5.190862	5.382264	5.544231
24	5.166004	5.064203	5.250799	5.319412
30	4.894101	4.893525	4.99893	5.073369
36	4.428866	4.276202	4.447303	4.570932
42	4.04051	3.759593	3.992893	4.175903
48	3.453489	3.392114	3.580286	3.677821
54	2.763951	2.859711	2.94812	3.141281
60	2.062254	1.888367	1.859245	2.214147
66	1.208245	1.064355	1.038989	1.314802
72	0.570504	0.482439	0.459526	0.843496
78	-0.1839	-0.01869	-0.08681	0.332278
84	-0.81556	-0.66056	-0.93301	-0.44225
90	-1.76154	-1.80091	-1.99947	-1.37718
270	-3.33808	-3.11036	-3.48018	-2.72764
276	-2.01754	-1.74683	-2.16015	-1.83291
282	-1.34084	-1.18505	-1.64853	-1.32373
288	-0.84207	-0.58588	-0.56968	-0.48635
294	0.594511	0.451509	0.249434	0.268544
300	1.121148	1.132468	0.755791	1.023727
306	1.723476	1.866797	1.698085	1.712577
312	2.422737	2.427937	2.263348	2.270426
318	3.21441	3.052825	3.113827	3.231419
324	3.870227	3.84787	3.846662	3.845178
330	4.128103	4.194232	4.168661	4.099255
336	4.514699	4.518655	4.461301	4.525085
342	5.043104	4.925253	4.947984	5.002166
348	5.307917	5.246205	5.297563	5.284935
354	5.352615	5.332875	5.373627	5.412041
360	5.483857	5.448679	5.522254	5.602756

	SDARS SIRIUS 2326.25 MHz			
Angle	0	45	90	135
0	5.529447	5.459575	5.599204	5.588652
6	5.543402	5.531287	5.670019	5.609618
12	5.388973	5.356758	5.49583	5.502346
18	5.237923	5.168853	5.358008	5.384504
24	5.042543	5.051574	5.213226	5.189517
30	4.747161	4.868628	4.970541	4.929676
36	4.302332	4.287948	4.412656	4.336642
42	3.872525	3.746009	3.979478	4.003367
48	3.268778	3.388056	3.60299	3.505849
54	2.575736	2.870771	2.961371	2.917454
60	1.890625	1.980452	1.920131	1.906336
66	1.051199	1.16878	1.13398	1.119808
72	0.417709	0.507548	0.531502	0.629634
78	-0.39973	-0.01133	-0.0379	0.094753
84	-1.06739	-0.53703	-0.81223	-0.61037
90	-2.00425	-1.62147	-1.86894	-1.67253
270	-3.56001	-3.2089	-3.77178	-3.07611
276	-2.08836	-1.75477	-2.29997	-2.14585
282	-1.4483	-1.31158	-1.74495	-1.58515
288	-0.93052	-0.7274	-0.78772	-0.69415
294	0.403726	0.288354	0.028056	0.064486
300	0.937437	0.969749	0.560005	0.882325
306	1.594296	1.750829	1.534996	1.571476
312	2.297254	2.358343	2.098686	2.078096
318	3.091629	3.021986	3.011324	3.126063
324	3.781757	3.770374	3.728521	3.675138
330	4.057657	4.144143	4.040662	3.963625
336	4.376756	4.429971	4.416381	4.371449
342	4.898452	4.864503	4.89078	4.917154
348	5.213276	5.165181	5.228732	5.181025
354	5.290436	5.275214	5.346272	5.333147
360	5.405894	5.389834	5.526393	5.473485

	SDARS SIRIUS 2332.5 MHz			
Angle	0	45	90	135
0	5.523366	5.562727	5.653252	5.491603
6	5.551971	5.587657	5.749081	5.656802
12	5.395571	5.402684	5.594374	5.479421
18	5.255062	5.26233	5.48692	5.363767
24	5.059464	5.119157	5.360641	5.208762
30	4.739331	4.912744	5.084048	4.909382
36	4.249519	4.38402	4.511286	4.315386
42	3.802728	3.90933	4.099584	3.903572
48	3.210282	3.514581	3.737065	3.404716
54	2.476887	2.973672	3.040868	2.829072
60	1.690361	2.144571	2.02775	1.800057
66	0.973067	1.363225	1.350836	1.012745
72	0.259027	0.70521	0.73649	0.575795
78	-0.52825	0.069788	0.00289	-0.0107
84	-1.15484	-0.3777	-0.66488	-0.76643
90	-2.13458	-1.33335	-1.69702	-1.8746
270	-3.69356	-3.21217	-3.82788	-3.35483
276	-2.1786	-1.68439	-2.34195	-2.47863
282	-1.50743	-1.29513	-1.85898	-1.86926
288	-0.89929	-0.69063	-0.75708	-0.83438
294	0.413677	0.32694	-0.01883	-0.00123
300	0.84571	0.996204	0.672914	0.870452
306	1.558398	1.762826	1.538614	1.473785
312	2.259739	2.342375	2.075132	1.977292
318	3.022111	3.057686	3.049324	3.114821
324	3.704679	3.729777	3.744093	3.704755
330	4.031177	4.134341	4.100527	3.914006
336	4.362262	4.419482	4.443606	4.307983
342	4.876443	4.907254	5.039055	4.942419
348	5.200827	5.173597	5.346229	5.214751
354	5.306732	5.309735	5.450587	5.350981
360	5.415757	5.429297	5.5825	5.477599

	SDARS XM 2332.5 MHz			
Angle	0	45	90	135
0	5.570032	5.520192	5.567422	5.518796
6	5.570962	5.653591	5.577144	5.583338
12	5.456231	5.45643	5.399846	5.497077
18	5.31089	5.307091	5.222461	5.402768
24	5.189983	5.120928	5.094492	5.193329
30	4.844686	4.908223	4.789088	4.931251
36	4.343574	4.333522	4.278011	4.450616
42	3.843196	3.916124	3.716703	3.97808
48	3.432315	3.439241	3.349259	3.538345
54	2.721722	2.87082	2.572279	2.93136
60	1.883825	1.932196	1.628541	2.087693
66	1.217111	1.319901	0.738521	1.272314
72	0.602948	0.567916	0.229653	0.611355
78	-0.34075	-0.03077	-0.44898	0.092684
84	-0.90802	-0.56342	-1.04991	-0.47159
90	-1.68192	-1.58275	-2.48894	-1.45784
270	-3.9015	-3.46302	-3.88682	-3.41263
276	-2.26167	-1.99409	-2.54561	-2.3058
282	-1.49289	-1.39744	-1.6418	-1.57066
288	-0.86931	-0.79252	-0.72736	-0.68579
294	0.244522	0.421918	0.047212	0.014956
300	0.770186	0.921095	0.675384	0.800461
306	1.568247	1.649107	1.640014	1.531525
312	2.280395	2.27255	2.245521	2.094439
318	3.001547	3.149971	3.07165	3.068824
324	3.618859	3.76492	3.716644	3.613234
330	4.100439	4.057076	4.068505	3.929971
336	4.428827	4.40556	4.407291	4.291284
342	4.968217	5.008075	4.887975	4.845331
348	5.218913	5.225454	5.211066	5.136004
354	5.35945	5.330084	5.329312	5.31676
360	5.458885	5.459742	5.422662	5.470596

	SDARS XM 2338.75 MHz			
Angle	0	45	90	135
0	5.327566	5.41761	5.386466	5.332729
6	5.434284	5.533647	5.49801	5.482004
12	5.312484	5.38476	5.369089	5.369072
18	5.164774	5.262417	5.162794	5.254672
24	4.979578	5.10255	5.022587	5.068638
30	4.694796	4.860307	4.676198	4.755019
36	4.156562	4.311649	4.169946	4.257091
42	3.687592	3.916407	3.653811	3.763123
48	3.283667	3.446624	3.296393	3.330765
54	2.506565	2.880776	2.479689	2.694894
60	1.621551	2.031932	1.621286	1.875081
66	1.051531	1.393309	0.823786	1.069261
72	0.373469	0.622567	0.265311	0.407755
78	-0.57459	-0.0156	-0.43907	-0.13611
84	-1.1299	-0.52477	-1.03843	-0.72325
90	-1.95818	-1.4681	-2.455	-1.75446
270	-4.27901	-3.69809	-4.13497	-3.77972
276	-2.54377	-2.00487	-2.70997	-2.7195
282	-1.79158	-1.556	-1.87633	-1.88587
288	-0.97637	-0.84585	-0.8684	-0.96061
294	0.056481	0.211471	-0.16984	-0.28066
300	0.531479	0.780577	0.45502	0.536267
306	1.420309	1.530435	1.450108	1.258186
312	2.120107	2.147996	2.046296	1.879285
318	2.834217	3.073958	2.953903	2.858198
324	3.446862	3.640443	3.63326	3.484691
330	3.924924	3.969999	3.94468	3.790616
336	4.253937	4.310227	4.330495	4.138491
342	4.773008	4.892737	4.809794	4.746758
348	5.05827	5.145836	5.153603	5.03075
354	5.196246	5.258831	5.246597	5.205431
360	5.302305	5.3855	5.345758	5.30798

	SDARS XM 2345 MHz			
Angle	0	45	90	135
0	5.326589	5.517884	5.428802	5.3453
6	5.431755	5.646468	5.531253	5.471828
12	5.303571	5.549059	5.428295	5.392789
18	5.172106	5.396746	5.259697	5.278749
24	5.003231	5.218188	5.075187	5.061682
30	4.681334	4.926363	4.744075	4.717828
36	4.122228	4.496104	4.257047	4.232596
42	3.664794	4.113936	3.72399	3.722545
48	3.230539	3.560271	3.346626	3.277679
54	2.45237	2.992586	2.525237	2.669371
60	1.516635	2.252814	1.691992	1.76417
66	1.034188	1.626508	0.963945	1.063364
72	0.371209	0.880589	0.332892	0.417582
78	-0.64177	0.107561	-0.42824	-0.17042
84	-1.20477	-0.36424	-0.97943	-0.7926
90	-2.11687	-1.2288	-2.3338	-1.90526
270	-4.32033	-3.67691	-4.12891	-3.95207
276	-2.59475	-1.94177	-2.69348	-2.79655
282	-1.91576	-1.51238	-1.85643	-1.95289
288	-1.06773	-0.70365	-0.82082	-0.95689
294	-0.01715	0.265899	-0.24552	-0.30393
300	0.515184	0.815252	0.481645	0.510467
306	1.412022	1.65077	1.501631	1.251265
312	2.161237	2.232089	2.09195	1.858385
318	2.914097	3.170534	3.034186	2.906871
324	3.553719	3.788701	3.686389	3.522166
330	3.941957	4.077873	4.001681	3.756256
336	4.312119	4.399216	4.408077	4.170007
342	4.784343	4.975662	4.896039	4.805666
348	5.096977	5.196776	5.24259	5.106929
354	5.216681	5.329612	5.31704	5.205021
360	5.331042	5.475858	5.407047	5.332148