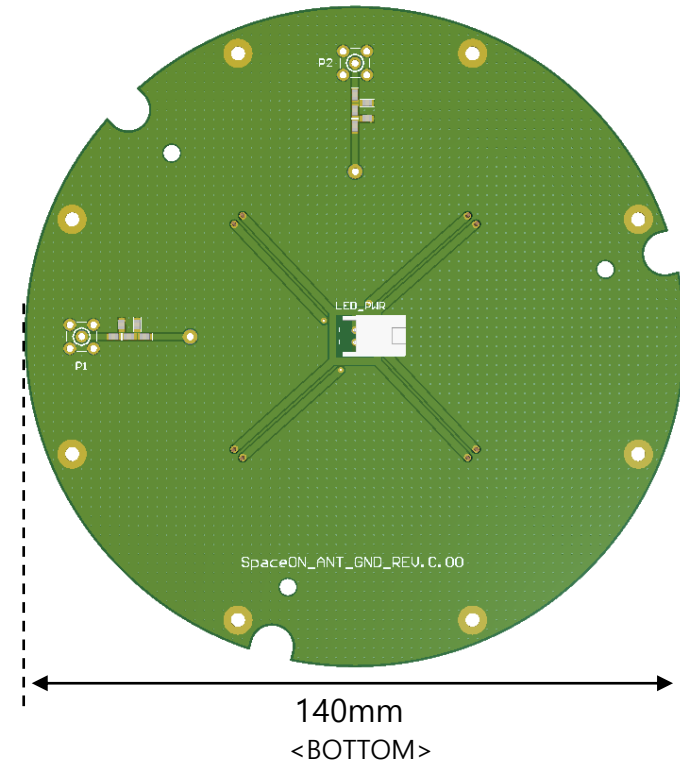
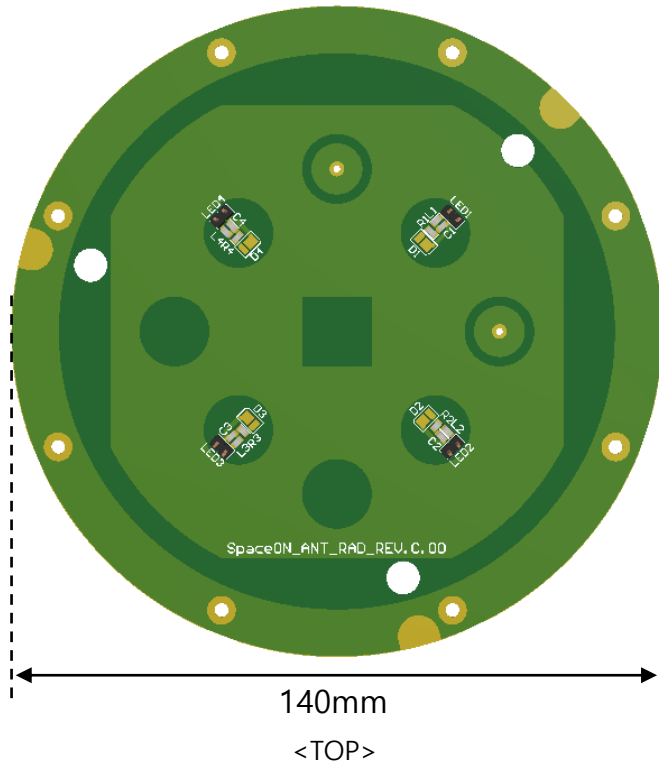
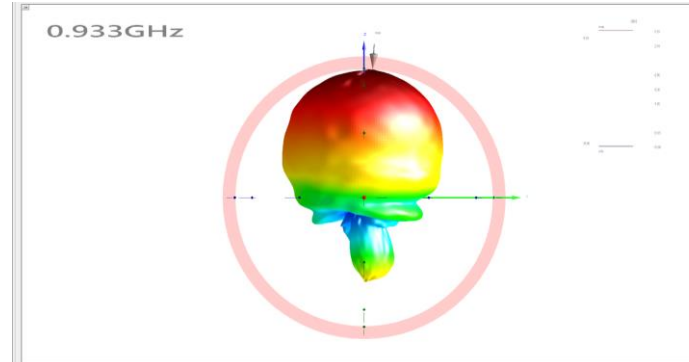
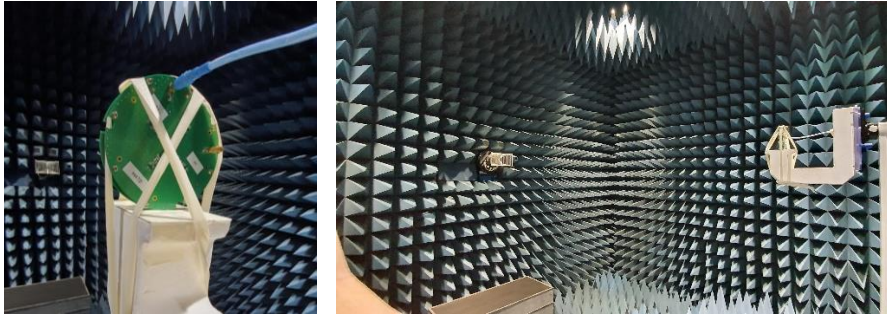


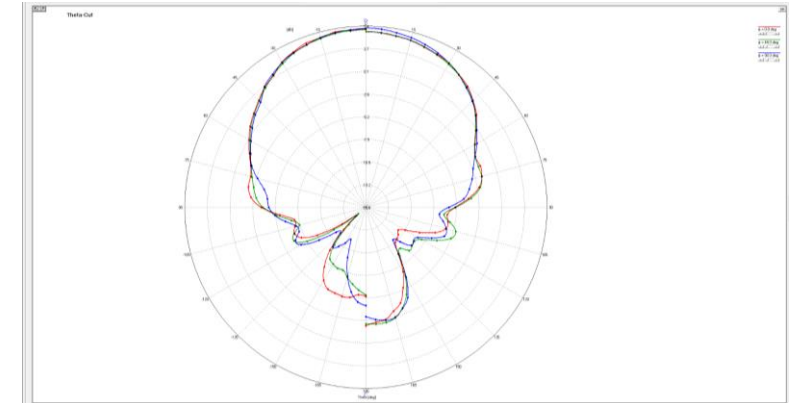
- Revision direction



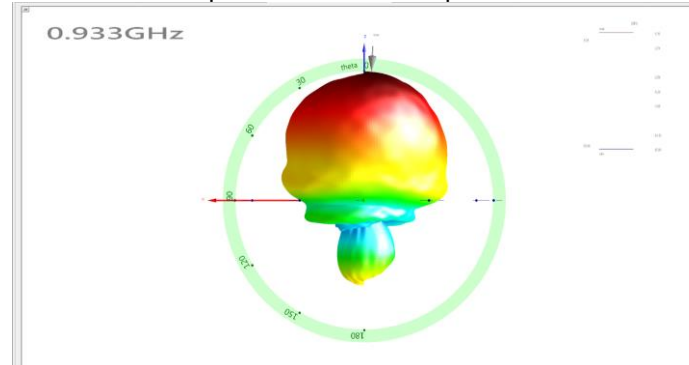
• Antenna gain measurement (ATCODI-port1)



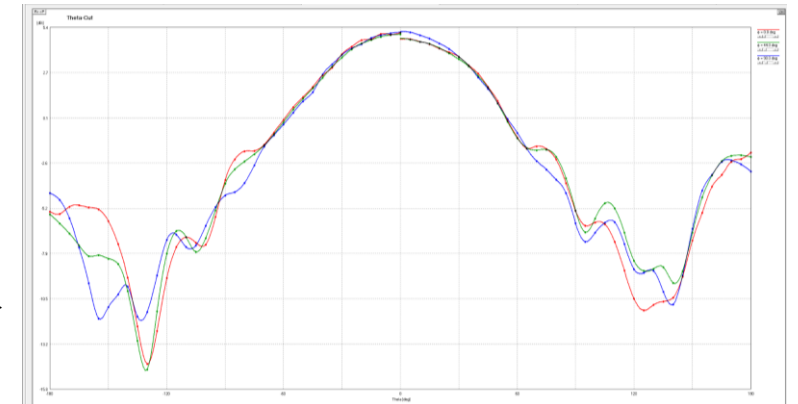
<3D radiation pattern-theta cut(phi=0°) @ 933MHz>



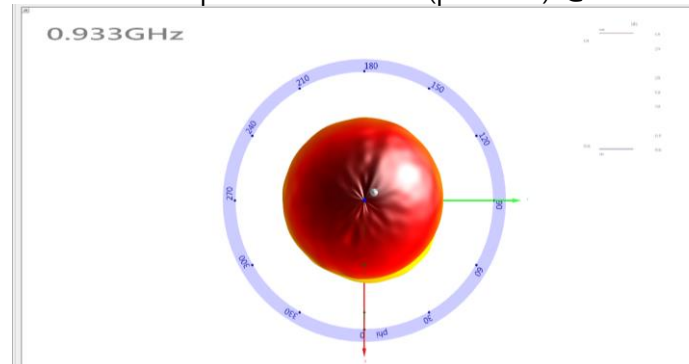
<antenna gain (2D radiation pattern plot)
theta cut(phi=0°, 45°, 90°) @ 933MHz>



<3D radiation pattern-theta cut(phi=90°) @ 933MHz>



<antenna gain (2D rectangular plot)
theta cut(phi=0°, 45°, 90°) @ 933MHz>



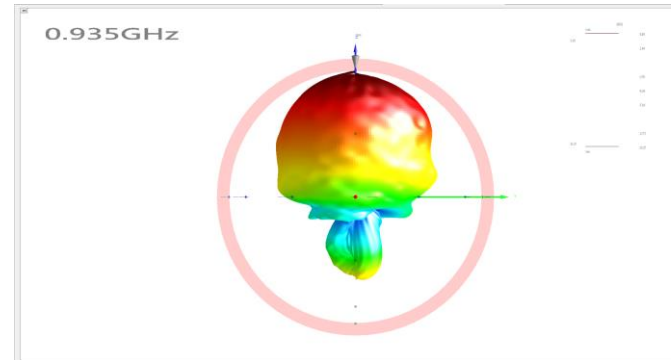
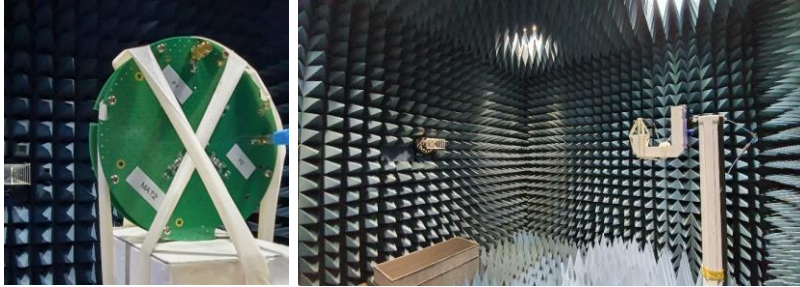
<3D radiation pattern-pi cut(theta=0°) @ 933MHz>

3D Result Summary :																		
No	φ-Pol(H)					φ-Pol(V)					Pwr Sum							
	Freq [GHz]	Eff. [%]	Avg. [dB]	Peak [dB]	θ [deg]	φ [deg]	Freq [GHz]	Eff. [%]	Avg. [dB]	Peak [dB]	θ [deg]	φ [deg]	Freq [GHz]	Eff. [%]	Avg. [dB]	Peak [dB]	θ [deg]	φ [deg]
1	0.880	26.03	-5.85	3.47	0.00	90.00	24.49	-6.11	3.48	0.00	0.00	50.52	-2.97	3.63	0.00	120.00		
2	0.885	26.87	-5.71	3.57	0.00	90.00	26.03	-5.85	3.67	0.00	0.00	52.90	-2.77	3.75	0.00	130.00		
3	0.890	23.25	-6.34	2.94	0.00	90.00	22.55	-6.47	2.96	0.00	180.00	45.80	-3.39	3.04	0.00	10.00		
4	0.895	28.33	-5.48	3.82	0.00	90.00	28.66	-5.43	3.84	0.00	180.00	56.99	-2.44	4.00	0.00	130.00		
5	0.900	24.84	-6.05	3.33	0.00	90.00	26.36	-5.79	3.61	0.00	180.00	51.20	-2.91	3.65	0.00	210.00		
6	0.905	19.91	-7.01	2.52	0.00	90.00	21.36	-6.70	2.71	5.00	180.00	41.27	-3.84	2.90	0.00	230.00		
7	0.910	25.59	-5.92	3.75	0.00	90.00	28.24	-5.49	3.85	0.00	180.00	53.83	-2.69	4.14	0.00	210.00		
8	0.913	28.85	-5.40	4.39	0.00	90.00	31.93	-4.96	4.34	0.00	180.00	60.78	-2.16	4.62	0.00	210.00		
9	0.915	29.61	-5.29	4.47	0.00	270.00	32.91	-4.83	4.52	0.00	180.00	62.51	-2.04	4.78	5.00	220.00		
10	0.918	30.11	-5.21	4.53	0.00	90.00	32.78	-4.84	4.59	0.00	180.00	62.89	-2.01	4.79	5.00	210.00		
11	0.920	30.74	-5.12	4.65	0.00	270.00	32.80	-4.84	4.55	0.00	180.00	63.54	-1.97	4.85	0.00	250.00		
12	0.923	31.15	-5.07	4.67	0.00	270.00	33.00	-4.81	4.61	0.00	180.00	64.15	-1.93	4.87	0.00	120.00		
13	0.925	32.01	-4.95	4.78	5.00	270.00	33.53	-4.75	4.70	0.00	180.00	65.54	-1.83	5.01	0.00	120.00		
14	0.928	33.65	-4.73	5.01	0.00	270.00	34.23	-4.66	4.80	0.00	180.00	67.87	-1.68	5.20	0.00	140.00		
15	0.930	34.53	-4.62	5.09	0.00	90.00	34.52	-4.62	4.92	0.00	180.00	69.08	-1.61	5.30	0.00	130.00		
16	0.933	34.76	-4.59	5.08	0.00	90.00	34.51	-4.62	4.97	0.00	180.00	69.27	-1.59	5.39	5.00	130.00		
17	0.935	34.52	-4.62	5.09	0.00	270.00	34.19	-4.66	4.96	0.00	180.00	68.71	-1.63	5.38	0.00	140.00		
18	0.938	34.08	-4.67	4.96	0.00	270.00	33.51	-4.75	4.91	0.00	180.00	67.59	-1.70	5.32	0.00	130.00		
19	0.940	34.04	-4.68	4.93	0.00	270.00	33.08	-4.80	4.87	0.00	180.00	67.12	-1.73	5.28	0.00	140.00		
20	0.943	33.43	-4.76	4.82	0.00	270.00	32.72	-4.85	4.91	0.00	180.00	66.15	-1.79	5.27	0.00	150.00		
21	0.945	31.85	-5.00	4.57	0.00	270.00	31.02	-5.08	4.66	0.00	180.00	62.67	-2.03	5.02	0.00	160.00		
22	0.948	30.27	-5.19	4.34	0.00	270.00	29.29	-5.33	4.47	0.00	180.00	59.56	-2.25	4.79	5.00	150.00		
23	0.950	29.05	-5.37	4.21	0.00	270.00	27.86	-5.55	4.26	0.00	180.00	56.91	-2.45	4.58	0.00	140.00		
24	0.955	27.20	-5.65	3.81	0.00	270.00	25.98	-5.85	4.04	0.00	180.00	53.18	-2.74	4.26	5.00	160.00		
25	0.960	24.51	-6.11	3.37	0.00	280.00	23.15	-6.35	3.51	0.00	180.00	47.66	-3.22	3.69	5.00	160.00		
26	0.965	22.36	-6.50	2.93	5.00	280.00	21.24	-6.73	3.06	0.00	180.00	43.60	-3.61	3.18	0.00	210.00		
27	0.970	18.08	-7.43	2.21	0.00	270.00	17.63	-7.54	2.09	0.00	180.00	35.71	-4.47	2.38	0.00	210.00		
28	0.975	17.82	-7.49	2.18	0.00	270.00	17.74	-7.51	2.12	0.00	190.00	35.56	-4.49	2.36	0.00	210.00		
29	0.980	17.83	-7.49	2.19	0.00	270.00	17.85	-7.48	1.95	0.00	180.00	35.67	-4.48	2.30	0.00	110.00		

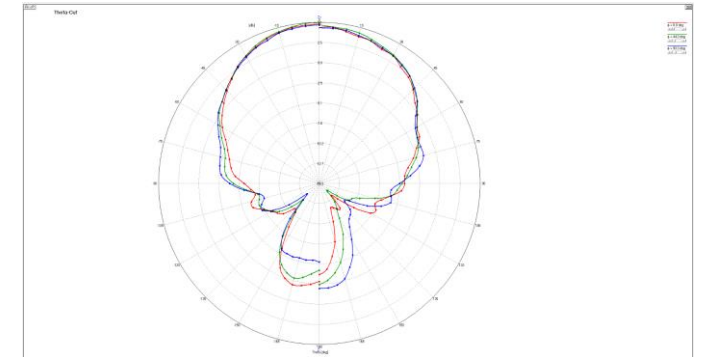
<peak gain : 5.39Bi @ 933MHz>

- Main lobe (max) : 5.39dBi @ theta=5°
- Back lobe (max) : -1.95dBi @ theta=180°

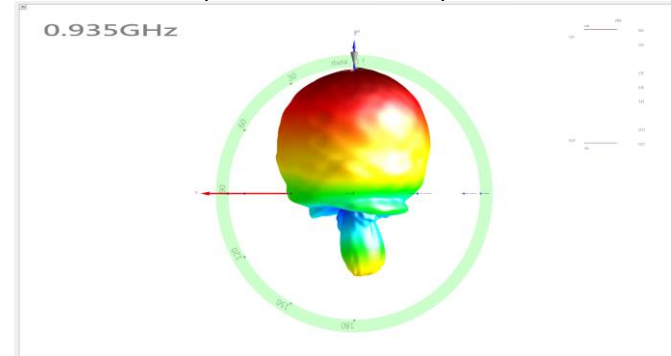
• Antenna gain measurement (ATCODI-port2)



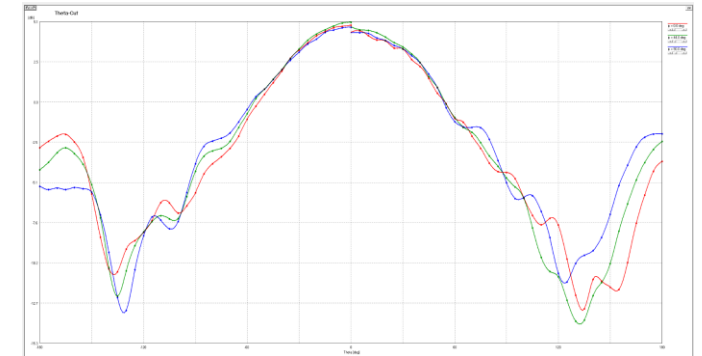
<3D radiation pattern-theta cut(phi=0°) @ 935MHz>



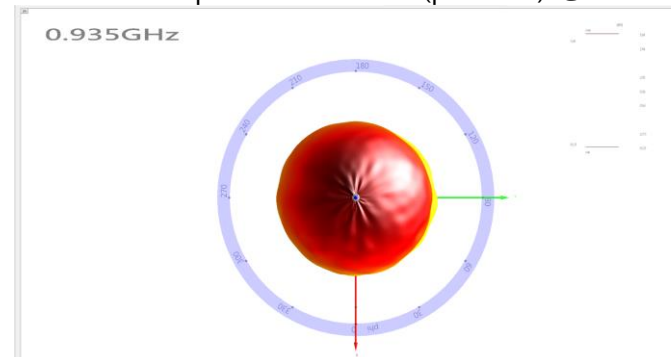
<antenna gain (2D radiation pattern plot)
theta cut(phi=0°, 45°, 90°) @ 935MHz>



<3D radiation pattern-theta cut(phi=90°) @ 935MHz>



<antenna gain (2D rectangular plot)
theta cut(phi=0°, 45°, 90°) @ 935MHz>



<3D radiation pattern-pi cut(theta=0°) @ 935MHz>

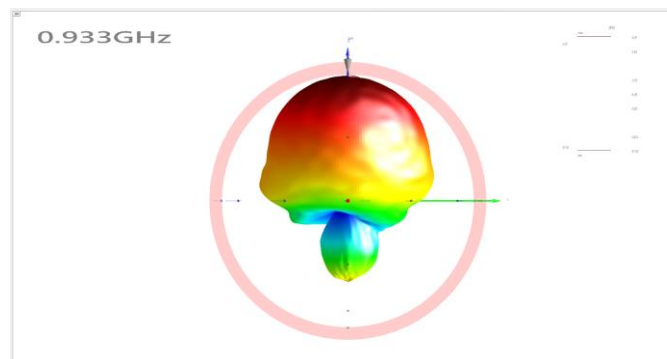
3D Result Summary :

No	Freq [GHz]	Eff. [%]	Avg. [dB]	Peak [dB]	θ(deg)	φ(deg)	Eff. [%]	Avg. [dB]	Peak [dB]	θ(deg)	φ(deg)	Pwr Sum	Eff. [%]	Avg. [dB]	Peak [dB]	θ(deg)	φ(deg)
1	0.880	23.40	-6.31	2.84	0.00	180.00	21.99	-6.58	3.06	0.00	80.00	45.40	-3.43	3.22	0.00	50.00	0.00
2	0.885	24.46	-6.12	2.98	0.00	180.00	23.44	-6.30	3.23	0.00	90.00	47.90	-3.20	3.33	0.00	50.00	0.00
3	0.890	20.98	-6.78	2.30	0.00	0.00	20.01	-6.99	2.44	0.00	90.00	40.99	-3.87	2.52	0.00	100.00	0.00
4	0.895	25.75	-5.89	3.28	0.00	0.00	25.53	-5.93	3.40	0.00	260.00	51.27	-2.90	3.54	0.00	310.00	0.00
5	0.900	22.52	-6.47	2.97	0.00	0.00	23.37	-6.31	3.07	0.00	270.00	45.89	-3.38	3.20	0.00	280.00	0.00
6	0.905	17.89	-7.47	2.21	0.00	0.00	18.45	-7.34	2.11	0.00	260.00	36.34	-4.40	2.47	0.00	310.00	0.00
7	0.910	23.09	-6.37	3.47	10.00	350.00	24.71	-6.07	3.39	0.00	270.00	47.80	-3.21	3.80	0.00	310.00	0.00
8	0.913	26.24	-5.81	3.95	10.00	350.00	28.49	-5.45	3.99	0.00	270.00	54.74	-2.62	4.34	0.00	310.00	0.00
9	0.915	26.87	-5.71	4.04	10.00	350.00	29.56	-5.29	4.07	0.00	270.00	56.43	-2.49	4.51	0.00	310.00	0.00
10	0.918	27.13	-5.66	4.10	10.00	350.00	29.61	-5.29	4.09	5.00	270.00	56.75	-2.46	4.49	0.00	310.00	0.00
11	0.920	27.54	-5.60	4.13	10.00	350.00	29.73	-5.27	4.11	0.00	270.00	57.27	-2.42	4.55	0.00	310.00	0.00
12	0.923	27.75	-5.57	4.17	0.00	180.00	30.12	-5.21	4.20	0.00	270.00	57.87	-2.38	4.58	0.00	310.00	0.00
13	0.925	28.40	-5.47	4.32	0.00	180.00	30.86	-5.11	4.33	0.00	270.00	59.25	-2.27	4.58	0.00	310.00	0.00
14	0.928	29.90	-5.24	4.53	0.00	180.00	31.91	-4.96	4.49	0.00	270.00	61.82	-2.09	4.73	5.00	220.00	0.00
15	0.930	30.87	-5.10	4.71	0.00	180.00	32.52	-4.88	4.59	0.00	270.00	63.40	-1.98	4.92	0.00	210.00	0.00
16	0.933	31.18	-5.06	4.64	0.00	180.00	32.93	-4.82	4.66	0.00	270.00	64.11	-1.93	5.03	0.00	220.00	0.00
17	0.935	31.52	-5.01	4.77	0.00	180.00	33.03	-4.81	4.70	0.00	270.00	64.55	-1.90	5.09	0.00	210.00	0.00
18	0.938	31.53	-5.01	4.72	0.00	180.00	32.59	-4.87	4.68	0.00	270.00	64.12	-1.93	5.06	0.00	220.00	0.00
19	0.940	31.82	-4.97	4.75	0.00	180.00	32.26	-4.91	4.69	0.00	270.00	64.08	-1.93	5.08	0.00	210.00	0.00
20	0.943	32.05	-4.94	4.67	0.00	180.00	32.43	-4.89	4.71	0.00	270.00	64.48	-1.91	5.05	0.00	220.00	0.00
21	0.945	31.48	-5.02	4.60	0.00	180.00	31.58	-5.01	4.73	0.00	270.00	63.06	-2.00	4.98	0.00	230.00	0.00
22	0.948	30.87	-5.10	4.44	5.00	180.00	30.49	-5.16	4.57	0.00	260.00	61.36	-2.12	4.84	5.00	210.00	0.00
23	0.950	30.20	-5.20	4.33	0.00	180.00	29.44	-5.31	4.47	0.00	270.00	59.65	-2.24	4.68	0.00	210.00	0.00
24	0.955	28.83	-5.40	4.18	0.00	0.00	27.67	-5.58	4.26	5.00	260.00	56.50	-2.48	4.42	0.00	310.00	0.00
25	0.960	26.28	-5.80	3.79	0.00	0.00	24.84	-6.05	3.83	5.00	260.00	51.12	-2.91	4.03	0.00	310.00	0.00
26	0.965	24.02	-6.20	3.43	0.00	0.00	22.86	-6.41	3.42	0.00	270.00	46.87	-3.29	3.62	0.00	310.00	0.00
27	0.970	19.92	-7.01	2.81	10.00	350.00	19.33	-7.14	2.65	5.00	270.00	39.26	-4.06	3.05	0.00	310.00	0.00
28	0.975	19.54	-7.09	3.02	10.00	350.00	19.31	-7.14	2.57	0.00	270.00	38.85	-4.11	3.13	0.00	310.00	0.00
29	0.980	19.14	-7.18	2.63	10.00	350.00	19.17	-7.17	2.38	5.00	270.00	38.31	-4.17	2.87	5.00	310.00	0.00

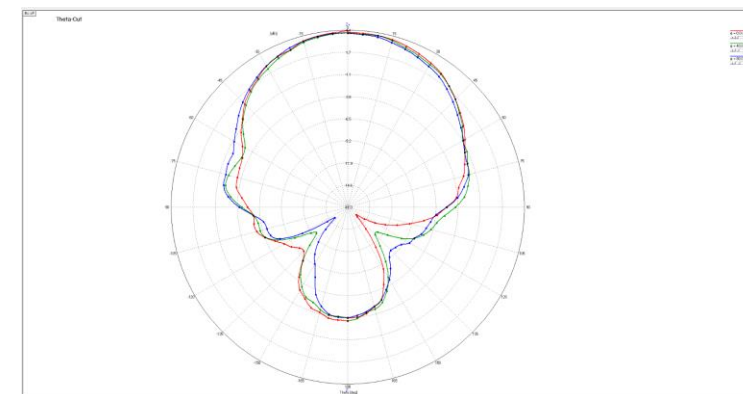
<peak gain : 5.09dBi @ 935MHz>

- Main lobe (max) : 5.09dBi @ theta=0°
- Back lobe (max) : -1.87dBi @ theta=180°

• Antenna gain measurement (ATCODI-divider)



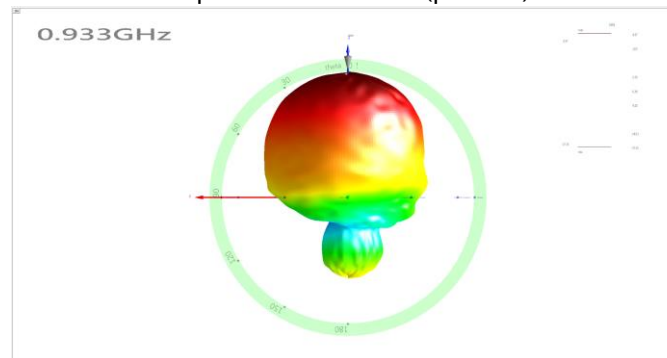
<3D radiation pattern-theta cut(phi=0°) @ 933MHz>



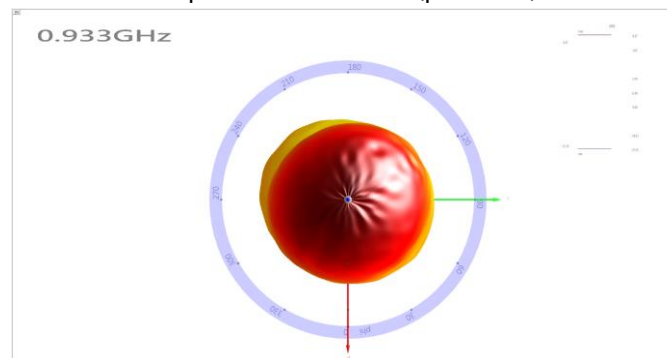
<antenna gain (2D radiation pattern plot)
theta cut(phi=0°, 45°, 90°) @ 933MHz>

No	Freq[GHz]	Φ-Pol(H)				Φ-Pol(V)				Pwr Sum	Φ-Pol(V)					
		Eff[%]	Avg[dB]	Peak[dB]	φ[deg]	Eff[%]	Avg[dB]	Peak[dB]	φ[deg]		Eff[%]	Avg[dB]	Peak[dB]	φ[deg]		
1	0.880	15.87	-7.99	1.29	5.00	310.00	15.35	-8.14	1.49	0.00	50.00	31.22	-5.06	1.62	5.00	340.00
2	0.885	15.16	-8.19	1.12	5.00	310.00	14.99	-8.24	1.42	0.00	40.00	30.15	-5.21	1.49	0.00	0.00
3	0.890	18.10	-7.42	1.83	10.00	320.00	17.72	-7.52	1.94	5.00	40.00	35.82	-4.46	1.99	5.00	20.00
4	0.895	18.17	-7.41	1.91	0.00	130.00	18.31	-7.37	1.99	0.00	40.00	36.47	-4.38	2.07	0.00	280.00
5	0.900	18.71	-7.28	1.98	5.00	310.00	19.76	-7.04	2.33	0.00	40.00	38.47	-4.15	2.34	0.00	40.00
6	0.905	23.97	-6.20	3.33	5.00	310.00	25.23	-5.98	3.26	0.00	40.00	49.20	-3.08	3.53	0.00	270.00
7	0.910	26.10	-5.83	3.91	0.00	140.00	27.99	-5.53	3.89	0.00	220.00	54.08	-2.67	4.03	0.00	260.00
8	0.913	25.45	-5.94	3.82	0.00	130.00	27.54	-5.60	3.74	0.00	220.00	52.99	-2.76	3.92	0.00	260.00
9	0.915	26.11	-5.83	3.87	0.00	130.00	28.49	-5.45	3.86	0.00	220.00	54.00	-2.63	3.98	0.00	260.00
10	0.918	27.14	-5.66	4.07	0.00	130.00	29.15	-5.35	3.92	0.00	220.00	56.30	-2.50	4.11	0.00	130.00
11	0.920	27.05	-5.58	4.11	0.00	130.00	29.18	-5.35	3.87	0.00	220.00	56.82	-2.45	4.14	0.00	130.00
12	0.923	27.97	-5.53	4.11	0.00	130.00	29.43	-5.31	3.87	0.00	220.00	57.40	-2.41	4.16	0.00	300.00
13	0.925	28.19	-5.50	4.11	0.00	130.00	29.35	-5.32	3.88	0.00	220.00	57.55	-2.40	4.14	0.00	130.00
14	0.928	28.83	-5.40	4.16	0.00	140.00	29.35	-5.32	3.95	0.00	220.00	58.18	-2.35	4.21	0.00	140.00
15	0.930	29.55	-5.29	4.23	0.00	140.00	29.37	-5.32	3.99	0.00	220.00	58.91	-2.30	4.28	0.00	140.00
16	0.933	29.71	-5.27	4.28	0.00	140.00	29.36	-5.32	3.94	0.00	40.00	59.07	-2.29	4.37	0.00	150.00
17	0.935	29.64	-5.28	4.17	0.00	140.00	29.10	-5.36	4.03	0.00	220.00	58.74	-2.31	4.30	0.00	180.00
18	0.938	29.47	-5.31	4.16	0.00	140.00	28.56	-5.44	3.98	0.00	220.00	58.03	-2.36	4.23	0.00	170.00
19	0.940	29.21	-5.35	4.04	0.00	140.00	28.00	-5.53	3.82	0.00	230.00	57.21	-2.43	4.18	0.00	160.00
20	0.943	29.08	-5.36	4.03	0.00	140.00	27.87	-5.55	3.85	0.00	220.00	56.95	-2.45	4.15	0.00	170.00
21	0.945	28.97	-5.38	4.00	0.00	140.00	27.70	-5.58	3.87	0.00	220.00	56.66	-2.47	4.08	0.00	160.00
22	0.948	29.55	-5.29	4.03	0.00	140.00	27.88	-5.55	3.94	0.00	230.00	57.43	-2.41	4.18	0.00	180.00
23	0.950	30.28	-5.19	4.13	0.00	140.00	28.25	-5.49	4.02	0.00	230.00	58.53	-2.33	4.25	0.00	150.00
24	0.955	30.99	-5.09	4.20	0.00	140.00	28.51	-5.45	4.19	0.00	230.00	59.49	-2.26	4.34	0.00	150.00
25	0.960	29.55	-5.29	4.00	0.00	140.00	26.91	-5.70	3.90	0.00	230.00	56.45	-2.48	4.08	0.00	150.00
26	0.965	27.37	-5.63	3.60	0.00	140.00	25.32	-5.97	3.64	0.00	230.00	52.69	-2.78	3.75	0.00	240.00
27	0.970	27.80	-5.56	3.63	0.00	140.00	26.58	-5.75	3.68	0.00	230.00	54.38	-2.65	3.81	0.00	260.00
28	0.975	22.20	-6.54	2.68	5.00	320.00	21.75	-6.63	2.70	0.00	230.00	43.95	-3.57	2.91	5.00	290.00
29	0.980	18.59	-7.31	2.07	10.00	320.00	18.57	-7.31	1.90	5.00	230.00	37.16	-4.30	2.18	5.00	300.00

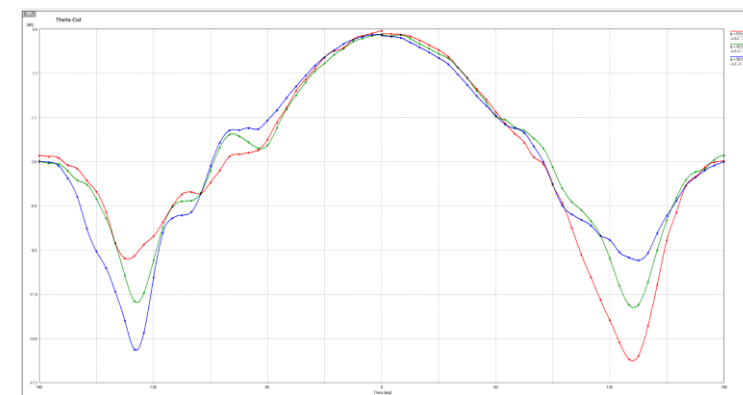
<peak gain : 4.37Bi @ 933MHz>



<3D radiation pattern-theta cut(phi=90°) @ 933MHz>



<3D radiation pattern-pi cut(theta=0°) @ 933MHz>



<antenna gain (2D rectangular plot)
theta cut(phi=0°, 45°, 90°) @ 933MHz>

- Main lobe (max) : 4.37dBi @ theta=0°
- Back lobe (max) : -3.38dBi @ theta=180°

• Divider loss

(Incidence port : 1, P1 : 2, P2 : 3)

S21 : -3.48dB, S31 : -3.5dB