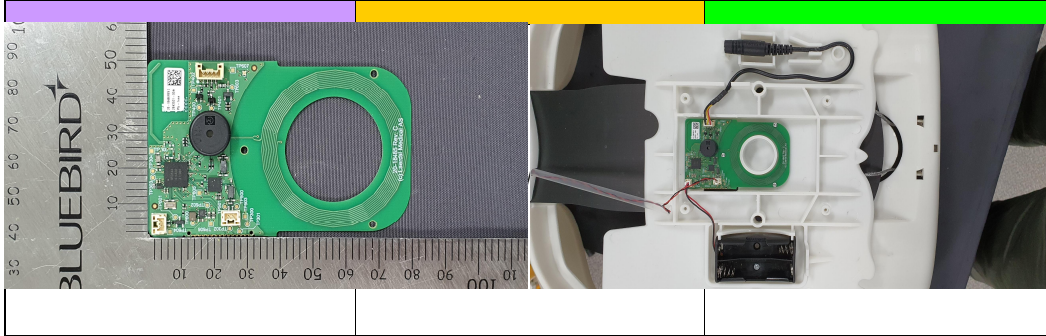


3D Radiation Pattern Measurement Results

1. Informations

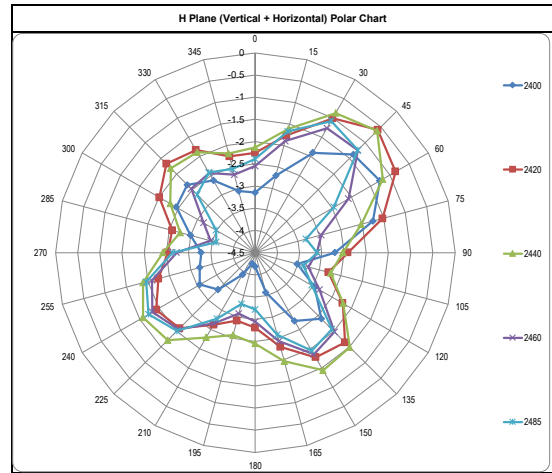
Date	2022-01-20	Test Engineer	백석현
Customer	Laerdal Medical AS	Antenna Version	Little Anne
Model / Revision	LA		
Test Site	KTM Technology Co., Ltd		



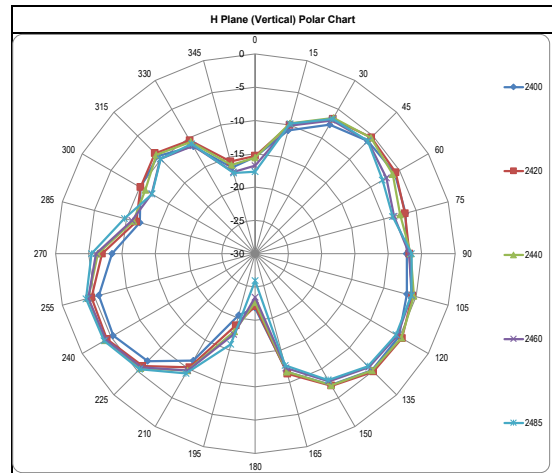
2. Test Results

Horizontal + Vertical								
Frequency	Max Value			Min Value			Avg. Gain	Efficiency
[MHz]	Θ[Deg]	Φ[Deg]	Value[dBi]	Θ[Deg]	Φ[Deg]	Value[dBi]	[dBi]	[%]
2400.000	0	120	2.131	165	345	-13.373	-2.386	57.723
2420.000	0	120	2.998	165	0	-11.851	-1.517	70.522
2440.000	0	120	2.914	165	195	-11.949	-1.466	71.349
2460.000	0	120	2.229	165	195	-12.880	-1.995	63.162
2485.000	0	120	2.097	165	195	-13.419	-1.997	63.143
Vertical								
Frequency	Max Value			Min Value			Avg. Gain	Efficiency
[MHz]	Θ[Deg]	Φ[Deg]	Value[dBi]	Θ[Deg]	Φ[Deg]	Value[dBi]	[dBi]	[%]
2400.000	15	270	1.724	150	165	-37.012	-6.743	21.168
2420.000	15	270	2.575	165	0	-35.570	-5.914	25.622
2440.000	15	270	2.376	165	0	-38.726	-5.927	25.546
2460.000	15	270	1.550	165	0	-32.657	-6.535	22.207
2485.000	0	90	1.474	0	0	-34.693	-6.558	22.089
Horizontal								
Frequency	Max Value			Min Value			Avg. Gain	Efficiency
[MHz]	Θ[Deg]	Φ[Deg]	Value[dBi]	Θ[Deg]	Φ[Deg]	Value[dBi]	[dBi]	[%]
2400.000	0	0	1.676	0	90	-30.361	-4.371	36.555
2420.000	0	0	2.426	0	90	-27.075	-3.478	44.900
2440.000	0	180	2.203	0	90	-25.757	-3.391	45.804
2460.000	0	180	1.534	0	90	-24.126	-3.877	40.955
2485.000	0	0	1.586	0	90	-24.136	-3.866	41.055
RHCP								
Frequency	Max Value			Min Value			Avg. Gain	Efficiency
[MHz]	Θ[Deg]	Φ[Deg]	Value[dBi]	Θ[Deg]	Φ[Deg]	Value[dBi]	[dBi]	[%]
2400.000	30	120	0.028	60	225	-24.343	-5.050	31.263
2420.000	30	120	0.813	60	225	-26.288	-4.212	37.917
2440.000	30	120	0.785	60	225	-31.167	-4.175	38.237
2460.000	30	105	0.176	60	225	-43.433	-4.721	33.721
2485.000	45	105	0.275	60	225	-36.783	-4.738	33.593
LHCP								
Frequency	Max Value			Min Value			Avg. Gain	Efficiency
[MHz]	Θ[Deg]	Φ[Deg]	Value[dBi]	Θ[Deg]	Φ[Deg]	Value[dBi]	[dBi]	[%]
2400.000	45	255	0.270	75	150	-32.315	-5.774	26.461
2420.000	45	255	1.318	60	150	-30.465	-4.867	32.605
2440.000	45	255	1.457	60	150	-28.210	-4.800	33.112
2460.000	45	255	0.879	75	60	-24.479	-5.310	29.441
2485.000	45	255	0.733	75	60	-25.829	-5.294	29.550
AR								
Frequency	Max Value			Min Value				
[MHz]	Θ[Deg]	Φ[Deg]	Value[dBi]	Θ[Deg]	Φ[Deg]	Value[dBi]		
2400.000	150	150	61.703	75	150	0.656		
2420.000	120	0	67.506	60	150	0.687		
2440.000	0	270	64.350	60	225	0.595		
2460.000	45	345	64.086	60	225	0.154		
2485.000	0	225	61.454	60	225	0.331		

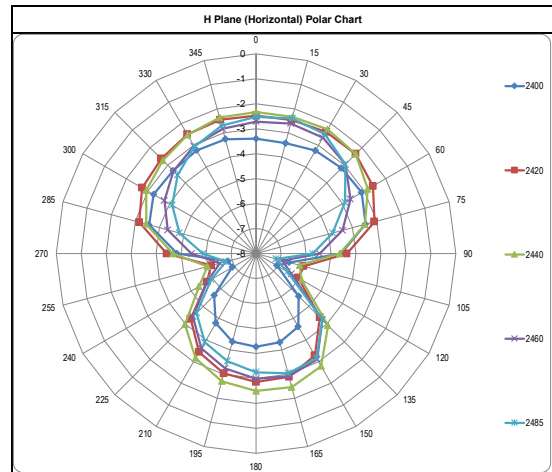
H Plane (Vertical + Horizontal)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value [dB]	Θ [Deg]	Φ [Deg]	Value [dB]		
1	2400	90	60	-1.26	90	195	-4.24	-2.79	52.55
2	2420	90	45	-0.59	90	195	-2.92	-1.98	63.34
3	2440	90	45	-0.62	90	285	-2.75	-1.91	64.42
4	2460	90	45	-1.24	90	285	-3.46	-2.42	57.30
5	2485	90	30	-1.08	90	285	-3.59	-2.47	56.65
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



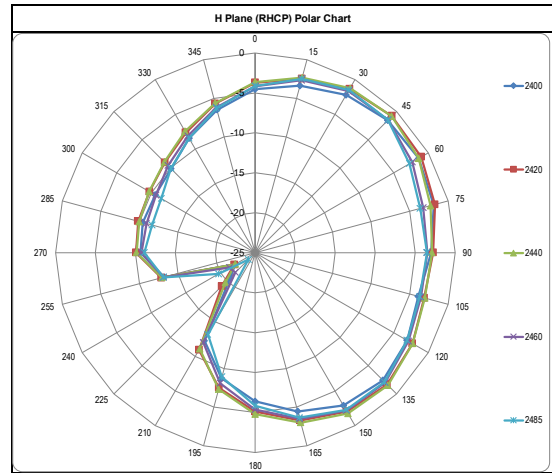
H Plane (Vertical)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value [dB]	Θ [Deg]	Φ [Deg]	Value [dB]		
1	2400	90	120	-5.11	90	180	-21.83	-8.19	15.16
2	2420	90	240	-4.27	90	180	-22.11	-7.52	17.72
3	2440	90	240	-3.93	90	180	-22.65	-7.46	17.96
4	2460	90	255	-4.05	90	180	-23.45	-7.89	16.27
5	2485	90	255	-3.71	90	180	-25.92	-7.74	16.81
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



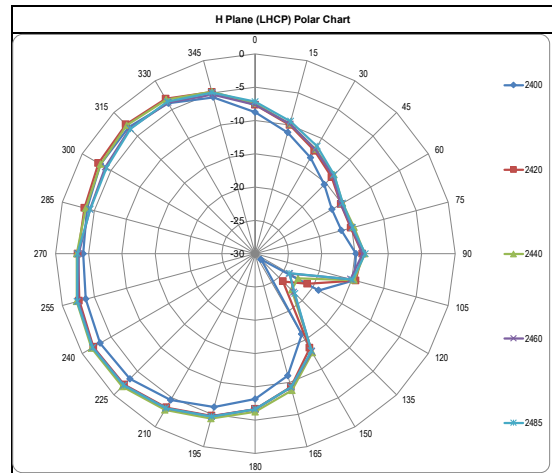
H Plane (Horizontal)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value [dB]	Θ [Deg]	Φ [Deg]	Value [dB]		
1	2400	90	60	-3.12	90	120	-7.03	-4.27	37.39
2	2420	90	45	-2.36	90	255	-6.14	-3.41	45.62
3	2440	90	30	-2.26	90	105	-6.19	-3.33	46.46
4	2460	90	15	-2.61	90	105	-6.91	-3.87	41.03
5	2485	90	15	-2.40	90	105	-7.17	-4.00	39.84
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



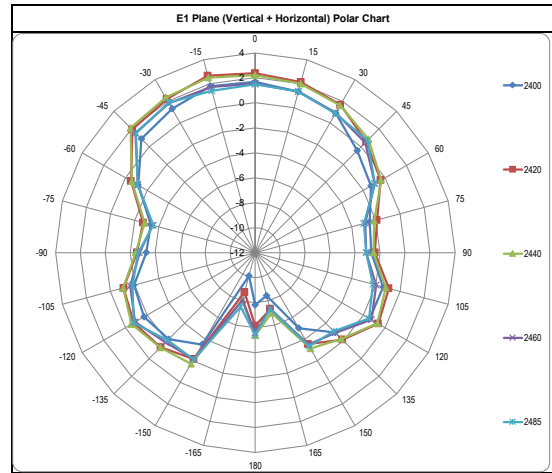
H Plane (RHCP)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	60	-1.39	90	240	-22.11	-5.02	31.45
2	2420	90	45	-0.81	90	240	-21.99	-4.30	37.15
3	2440	90	45	-0.86	90	240	-22.12	-4.29	37.25
4	2460	90	45	-1.50	90	225	-21.49	-4.88	32.49
5	2485	90	30	-1.50	90	225	-23.81	-5.03	31.39
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



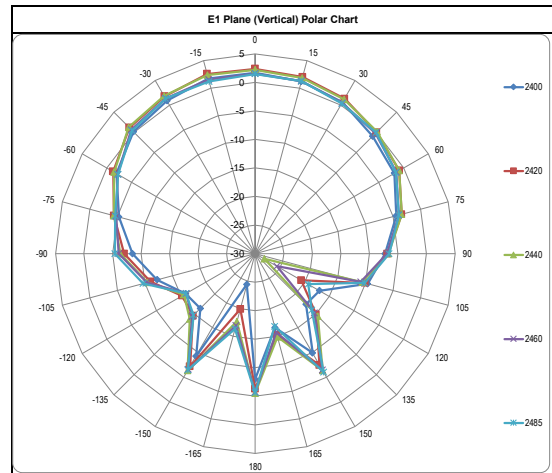
H Plane (LHCP)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	240	-3.11	90	135	-28.76	-6.76	21.10
2	2420	90	240	-1.97	90	135	-24.09	-5.82	26.19
3	2440	90	240	-1.62	90	120	-22.99	-5.66	27.18
4	2460	90	240	-1.88	90	120	-24.01	-6.05	24.81
5	2485	90	240	-1.80	90	120	-24.10	-5.97	25.27
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



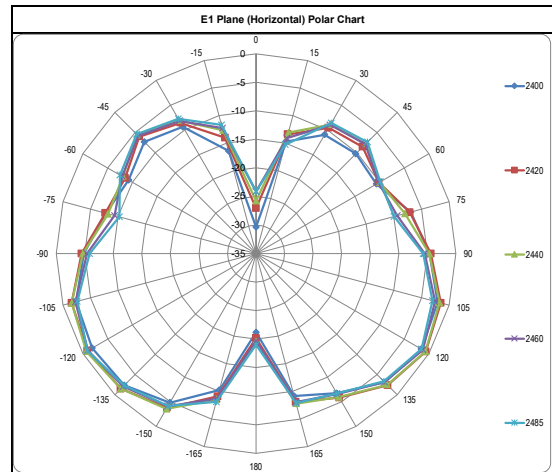
E1 Plane (Vertical + Horizontal)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	-15	1.79	90	-165	-10.08	-1.34	73.45
2	2420	90	-15	2.67	90	-165	-8.73	-0.50	89.17
3	2440	90	-15	2.51	90	-165	-8.03	-0.47	89.68
4	2460	90	-30	1.81	90	-165	-8.09	-1.05	78.60
5	2485	90	-30	1.87	90	-165	-7.50	-1.08	77.93
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



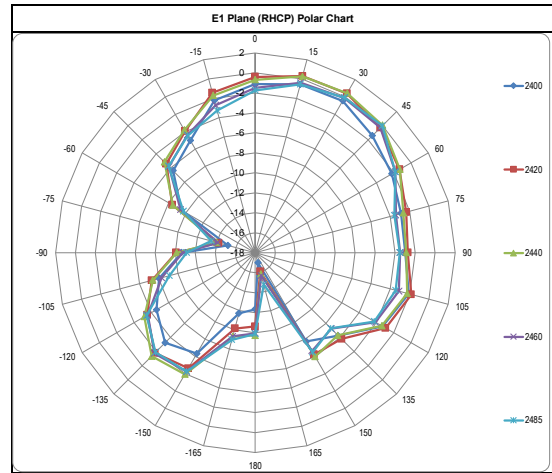
E1 Plane (Vertical)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	-15	1.72	90	-165	-24.39	-3.21	47.79
2	2420	90	-15	2.57	90	120	-20.68	-2.33	58.43
3	2440	90	-15	2.38	90	120	-28.15	-2.31	58.69
4	2460	90	-15	1.55	90	120	-25.62	-2.90	51.28
5	2485	90	0	1.47	90	120	-19.29	-2.91	51.16
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



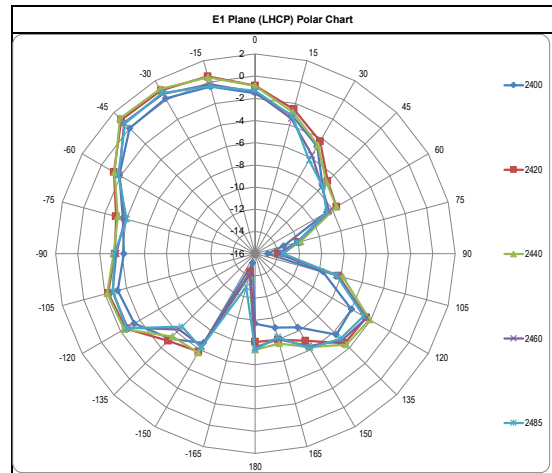
E1 Plane (Horizontal)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	120	-1.54	90	0	-30.36	-5.91	25.66
2	2420	90	120	-0.66	90	0	-27.68	-5.12	30.74
3	2440	90	-120	-0.69	90	0	-25.76	-5.09	30.99
4	2460	90	-120	-1.03	90	0	-24.13	-5.64	27.32
5	2485	90	-120	-0.90	90	0	-24.14	-5.72	26.77
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



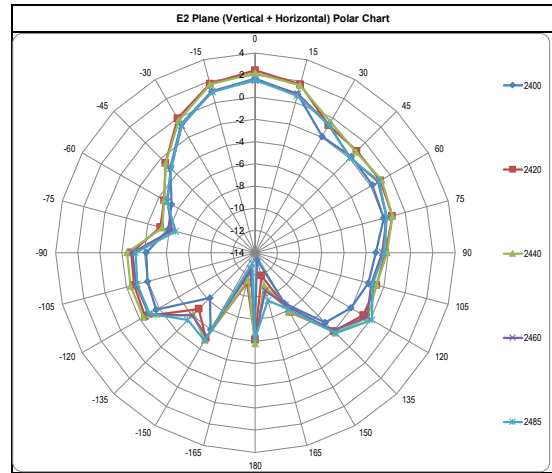
E1 Plane (RHCP)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	30	-0.45	90	165	-16.94	-4.35	36.74
2	2420	90	30	0.39	90	165	-16.05	-3.53	44.41
3	2440	90	30	0.44	90	165	-15.78	-3.53	44.40
4	2460	90	30	-0.12	90	165	-15.63	-4.15	38.50
5	2485	90	45	-0.01	90	165	-14.71	-4.22	37.88
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



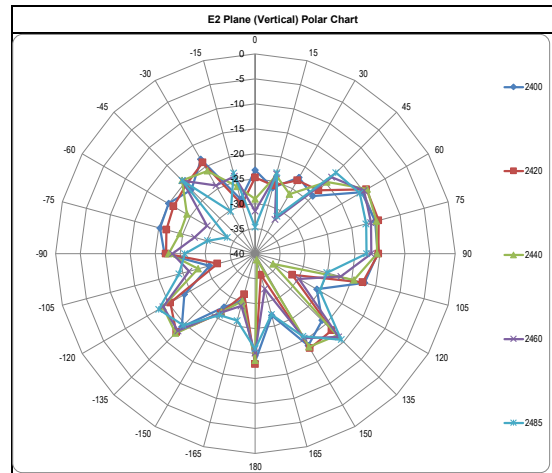
E1 Plane (LHCP)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	-30	0.14	90	-165	-15.11	-4.35	36.71
2	2420	90	-45	1.05	90	-165	-14.28	-3.49	44.77
3	2440	90	-45	1.23	90	-165	-13.93	-3.44	45.28
4	2460	90	-45	0.68	90	-165	-14.13	-3.97	40.10
5	2485	90	-30	0.73	90	90	-13.49	-3.97	40.05
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



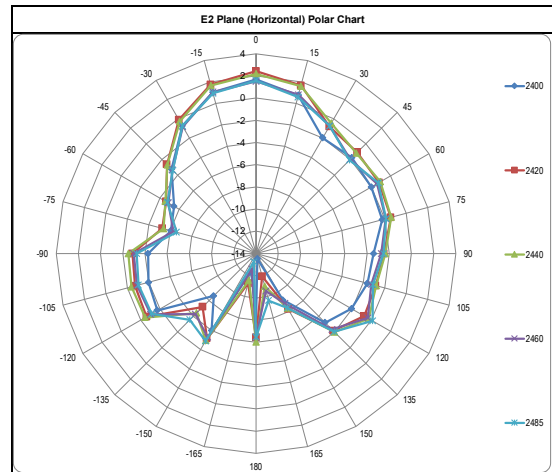
E2 Plane (Vertical + Horizontal)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	0	1.69	90	165	-13.32	-2.98	50.40
2	2420	90	0	2.43	90	165	-11.85	-2.09	61.83
3	2440	90	0	2.19	90	-165	-11.45	-2.04	62.54
4	2460	90	0	1.51	90	-165	-12.46	-2.56	55.42
5	2485	90	0	1.59	90	-165	-13.00	-2.82	55.95
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



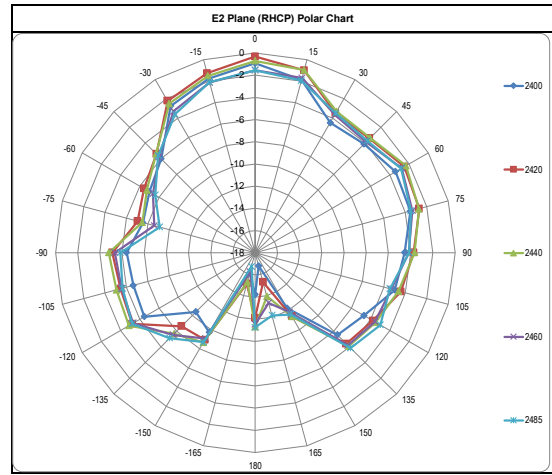
E2 Plane (Vertical)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	75	-15.16	90	-105	-30.53	-20.14	0.97
2	2420	90	60	-14.30	90	165	-35.57	-19.70	1.07
3	2440	90	60	-14.12	90	165	-38.73	-19.84	1.04
4	2460	90	60	-14.85	90	165	-32.66	-20.58	0.88
5	2485	90	135	-15.62	90	0	-34.69	-20.83	0.83
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



E2 Plane (Horizontal)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	0	1.68	90	165	-13.50	-3.06	49.43
2	2420	90	0	2.43	90	165	-11.87	-2.16	60.76
3	2440	90	0	2.18	90	-165	-11.51	-2.11	61.50
4	2460	90	0	1.51	90	-165	-12.55	-2.63	54.55
5	2485	90	0	1.59	90	-165	-13.22	-2.59	55.12
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



E2 Plane (RHCP)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	0	-0.93	90	165	-16.76	-5.35	29.15
2	2420	90	0	-0.33	90	165	-15.26	-4.55	35.08
3	2440	90	0	-0.72	90	-165	-15.26	-4.54	35.18
4	2460	90	0	-1.55	90	-165	-16.23	-5.08	31.02
5	2485	90	0	-1.56	90	-165	-16.71	-5.08	31.02
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									



E2 Plane (LHCP)									
No	Frequency [MHz]	Maximum Value			Minimum Value			Avg. Gain [dB]	Efficiency [%]
		Θ [Deg]	Φ [Deg]	Value[dB]	Θ [Deg]	Φ [Deg]	Value[dB]		
1	2400	90	0	-1.75	90	165	-15.94	-6.73	21.25
2	2420	90	0	-0.84	90	165	-14.49	-5.73	26.75
3	2440	90	0	-0.93	90	165	-13.98	-5.63	27.35
4	2460	90	0	-1.45	90	-165	-14.82	-6.13	24.40
5	2485	90	0	-1.29	90	-165	-15.41	-6.03	24.93
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

