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段志豪	吳建榮

電 氣 規 格 書

Model: ECW270

5718A0137300

ANT 5GHz 7dBi Omni N-TYPE ASSEMBLY

Test personnel: 吳建榮 Kenny

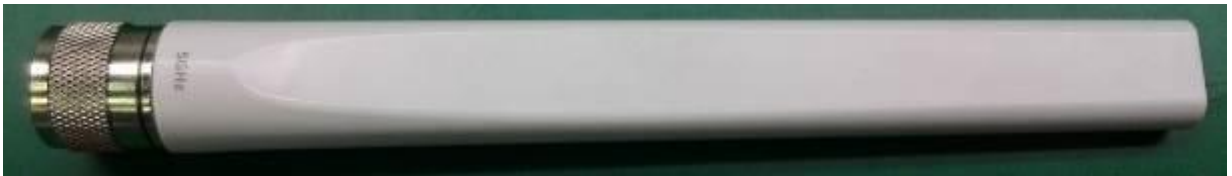
Test date: 2022/09/01

Version: 1.00

Dipole Antenna

5718A0137300

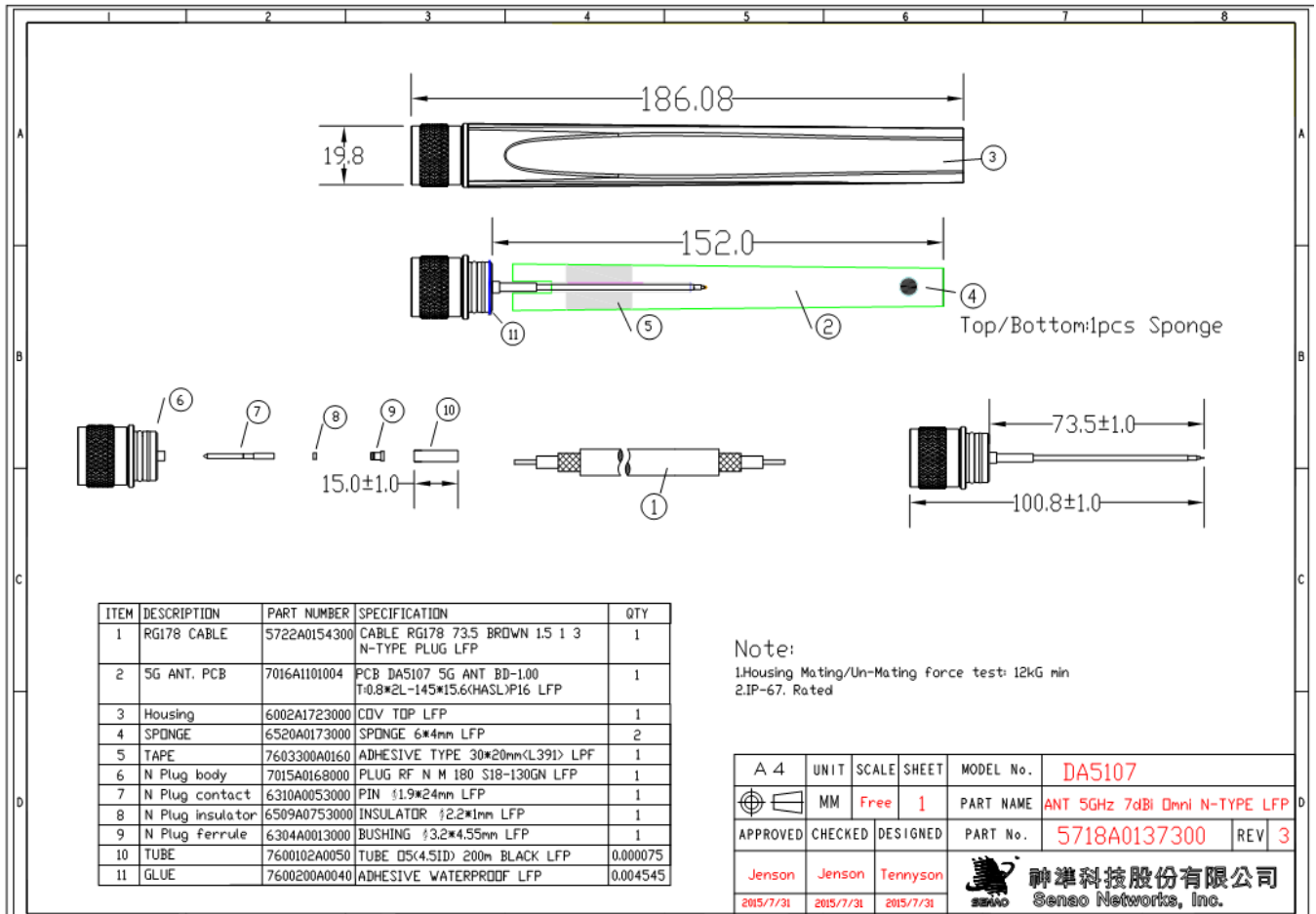
ANT 5GHz 7dBi Omni N-TYPE ASSEM LFP



1. Summary :

Antenna	SPEC.
Frequency (MHz)	4900-6000
Peak Gain (dBi)	7
VSWR	2:1
Connector	N-type Plug
Dimension (mm)	186.0x21.2x21.2

2. Mechanical Specification:



Electrical Specification :

3-1. Frequency Band:

Frequency Band	MHz
WLAN	4900-6000

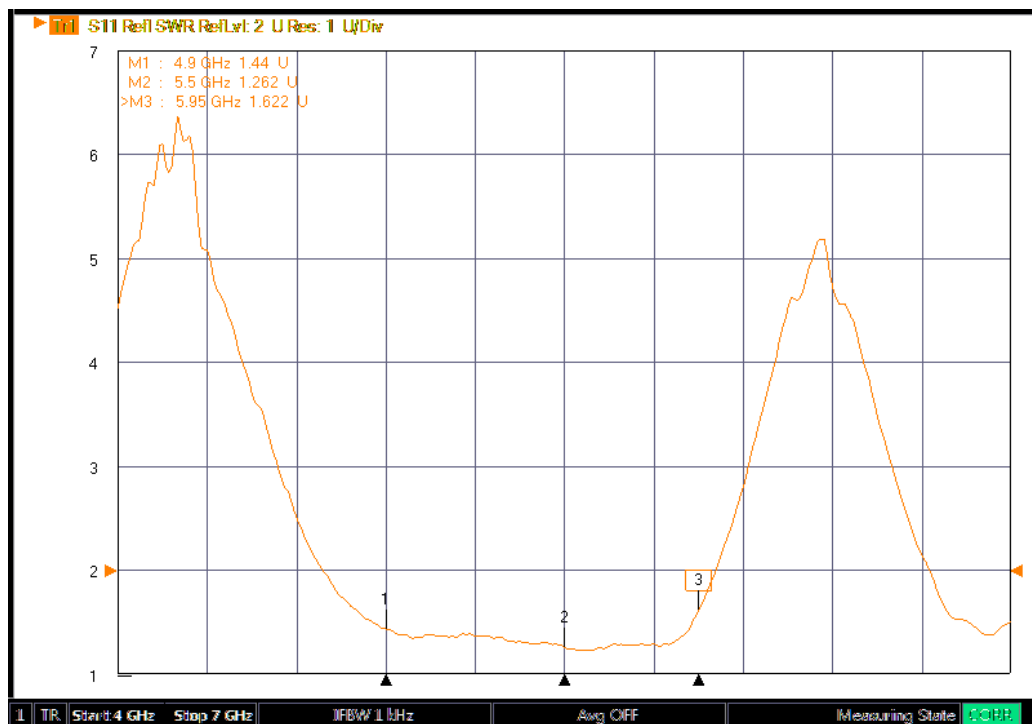
3-2. Impedance

50 ohm nominal

3-3. Matching circuit:

None

3-4. VSWR :



Frequency (MHz)	4900	5500	5950
VSWR	1.44	1.26	1.62

3-5. Gain and Radiation Pattern

3-5.1 Measure method

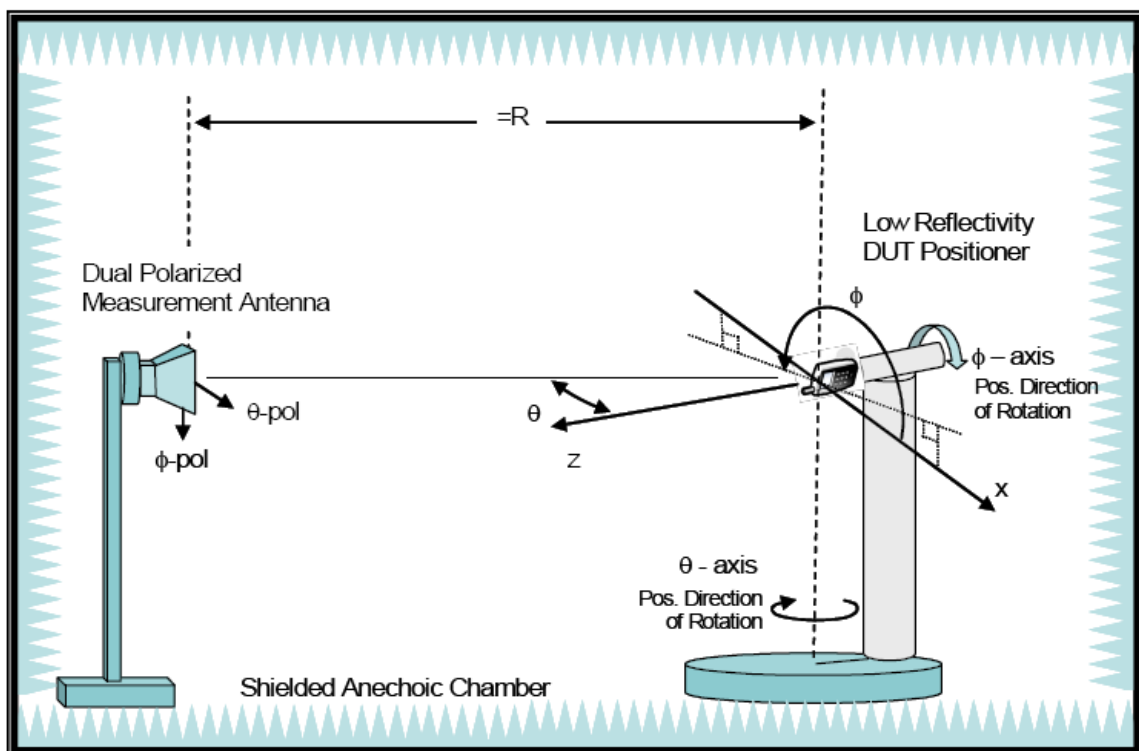
1. Using a low loss coaxial cable to link a standard handset jig
2. Fixed this handset jig on chamber's rotator plane
3. Linking jig into network analyzer port and using a probing horn antenna to collect data.
4. Using another standard gain horn antenna to calibrated those data

Standard gain horn antenna: BWANT SD650 /SD740 /SD900 /SD1150 /SD1575 /SD1800 /SD2140 /SD2450 /SD3200 /SD3600 /SD4550 /SD5400 /HA-0508

Calibration date: 2022/10/27

Test software: BWANT 3D Passive

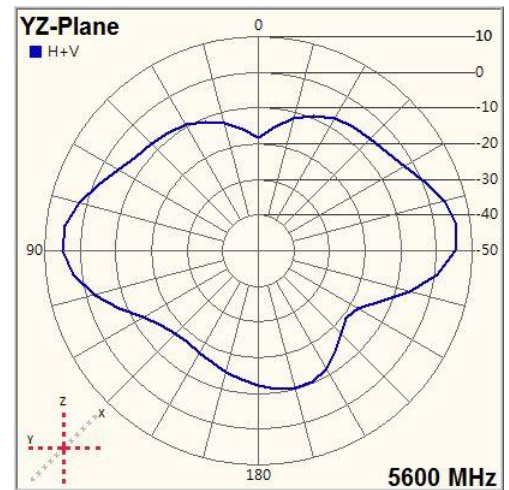
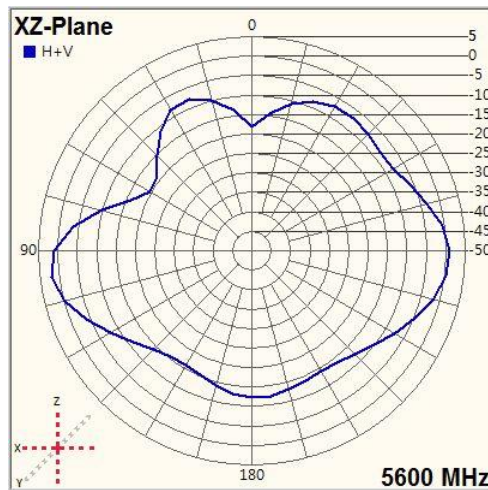
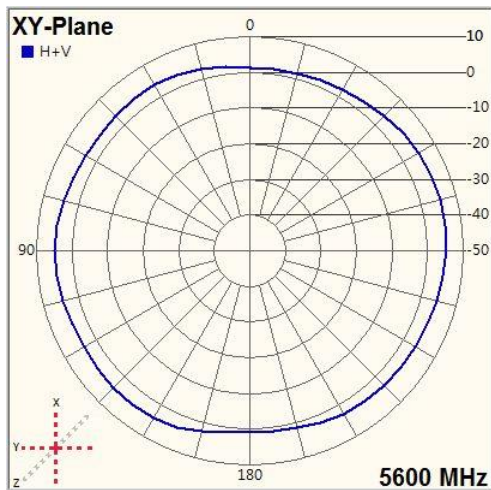
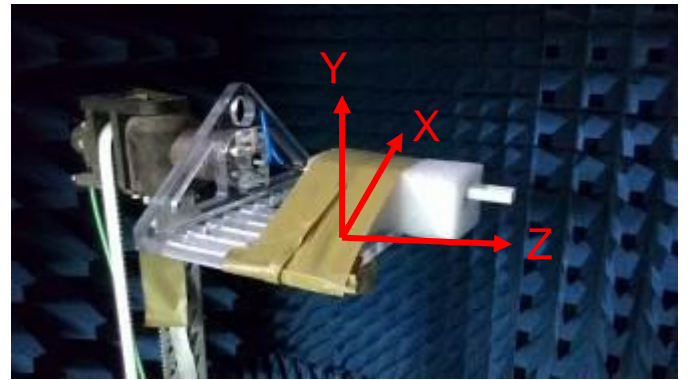
3-5.2 Chamber definition



1. An anechoic chamber (8x4mx4) which satisfied far-field condition was applied to avoid multi-path effect
2. The quiet zone region is 40cmx40cmx40cm at the center of rotator
3. The distance between DUT and standard antenna is 4.38 m
4. Standard gain horn antenna (700MHz ~10GHz BWANT HAD_0710)

3-5.3 Gain data and radiation pattern

Antenna gain is marked [dBi] and is based on STANDARD HORN antenna.
 The data shows Peak-Gain and Average-Gain.



Frequency (MHz)	4900	5150	5250	5350	5500	5600	5725	5850	5925
Peak Gain (dBi)	6.5	6.8	7.0	6.2	5.9	6.1	6.3	5.8	5.8
Efficiency (%)	82.6	84.6	85.8	77.4	75.2	74.4	79.5	75.1	74.5

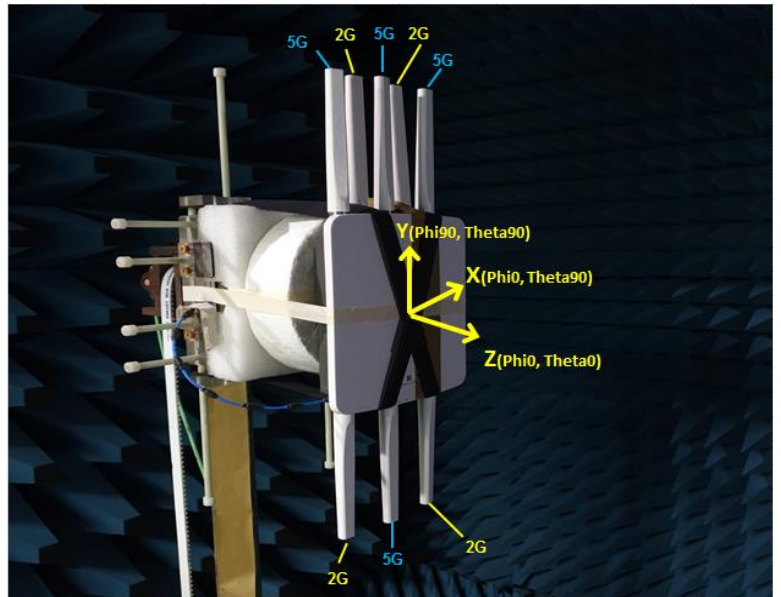
Change history

Change history			
Date	Subject/Comment	Old	New
2022/09/01	Initial Release	N/A	1.00

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5150 MHz

Angle	Theta = 90° Co-Polar	Phi = 0° Co-Polar	Phi = 90° Co-Polar
0	3.80	5.20	5.20
1	3.69	5.16	4.96
2	3.58	5.12	4.73
3	3.47	5.09	4.49
4	3.36	5.05	4.26
5	3.25	5.01	4.02
6	3.14	4.98	3.79
7	3.03	4.94	3.55
8	2.91	4.90	3.32
9	2.80	4.86	3.08
10	2.69	4.83	2.84
11	2.58	4.79	2.61
12	2.47	4.75	2.37
13	2.36	4.72	2.14
14	2.25	4.68	1.90
15	2.14	4.64	1.67
16	1.33	4.53	0.81
17	0.53	4.42	-0.05
18	-0.28	4.30	-0.91
19	-1.08	4.19	-1.77
20	-1.89	4.08	-2.63
21	-2.69	3.97	-3.49
22	-3.50	3.85	-4.35
23	-4.30	3.74	-5.22
24	-5.11	3.63	-6.08
25	-5.92	3.52	-6.94
26	-6.72	3.40	-7.80
27	-7.53	3.29	-8.66
28	-8.33	3.18	-9.52
29	-9.14	3.07	-10.38
30	-9.94	2.96	-11.24
31	-9.78	2.97	-10.60
32	-9.63	2.99	-9.95
33	-9.47	3.01	-9.31
34	-9.31	3.02	-8.67
35	-9.15	3.04	-8.02
36	-8.99	3.06	-7.38
37	-8.84	3.07	-6.74
38	-8.68	3.09	-6.10
39	-8.52	3.11	-5.45
40	-8.36	3.12	-4.81
41	-8.20	3.14	-4.17
42	-8.05	3.16	-3.52
43	-7.89	3.17	-2.88
44	-7.73	3.19	-2.24



45	-7.57	3.21	-1.60
46	-7.78	3.19	-1.79
47	-7.98	3.17	-1.99
48	-8.18	3.14	-2.18
49	-8.39	3.12	-2.38
50	-8.59	3.10	-2.57
51	-8.79	3.08	-2.77
52	-9.00	3.06	-2.96
53	-9.20	3.04	-3.16
54	-9.40	3.02	-3.35
55	-9.61	3.00	-3.55
56	-9.81	2.98	-3.74
57	-10.01	2.96	-3.94
58	-10.21	2.94	-4.13
59	-10.42	2.92	-4.33
60	-10.62	2.90	-4.52
61	-10.74	3.01	-4.93
62	-10.86	3.12	-5.33
63	-10.98	3.23	-5.74
64	-11.11	3.34	-6.15
65	-11.23	3.46	-6.55
66	-11.35	3.57	-6.96
67	-11.47	3.68	-7.37
68	-11.59	3.79	-7.77
69	-11.71	3.90	-8.18
70	-11.83	4.01	-8.59
71	-11.95	4.13	-8.99
72	-12.07	4.24	-9.40
73	-12.20	4.35	-9.81
74	-12.32	4.46	-10.21
75	-12.44	4.57	-10.62
76	-12.63	4.52	-10.94
77	-12.83	4.47	-11.25
78	-13.02	4.42	-11.57
79	-13.22	4.37	-11.88
80	-13.41	4.32	-12.20
81	-13.61	4.26	-12.52
82	-13.80	4.21	-12.83
83	-14.00	4.16	-13.15
84	-14.19	4.11	-13.46
85	-14.39	4.06	-13.78
86	-14.58	4.01	-14.10
87	-14.78	3.96	-14.41
88	-14.97	3.91	-14.73
89	-15.17	3.86	-15.04
90	-15.36	3.80	-15.36
91	-15.25	3.75	-15.09
92	-15.15	3.69	-14.82
93	-15.04	3.63	-14.55

94	-14.93	3.57	-14.28
95	-14.82	3.52	-14.02
96	-14.71	3.46	-13.75
97	-14.61	3.40	-13.48
98	-14.50	3.35	-13.21
99	-14.39	3.29	-12.94
100	-14.28	3.23	-12.67
101	-14.18	3.17	-12.40
102	-14.07	3.12	-12.13
103	-13.96	3.06	-11.86
104	-13.85	3.00	-11.59
105	-13.74	2.94	-11.33
106	-13.47	2.96	-10.90
107	-13.20	2.97	-10.47
108	-12.93	2.98	-10.05
109	-12.66	2.99	-9.62
110	-12.39	3.00	-9.19
111	-12.12	3.02	-8.77
112	-11.85	3.03	-8.34
113	-11.58	3.04	-7.91
114	-11.31	3.05	-7.49
115	-11.03	3.06	-7.06
116	-10.76	3.08	-6.63
117	-10.49	3.09	-6.21
118	-10.22	3.10	-5.78
119	-9.95	3.11	-5.35
120	-9.68	3.12	-4.93
121	-9.73	2.94	-4.67
122	-9.78	2.76	-4.41
123	-9.83	2.59	-4.16
124	-9.88	2.41	-3.90
125	-9.94	2.23	-3.64
126	-9.99	2.05	-3.39
127	-10.04	1.87	-3.13
128	-10.09	1.69	-2.88
129	-10.14	1.51	-2.62
130	-10.19	1.33	-2.36
131	-10.24	1.15	-2.11
132	-10.29	0.97	-1.85
133	-10.34	0.79	-1.59
134	-10.40	0.61	-1.34
135	-10.45	0.44	-1.08
136	-10.29	0.69	-1.87
137	-10.12	0.94	-2.66
138	-9.96	1.19	-3.44
139	-9.80	1.45	-4.23
140	-9.64	1.70	-5.02
141	-9.48	1.95	-5.81
142	-9.32	2.21	-6.60

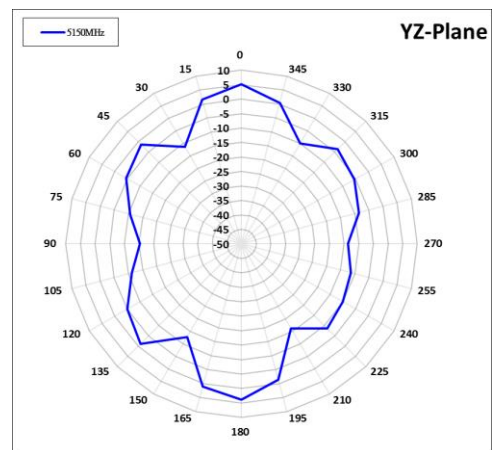
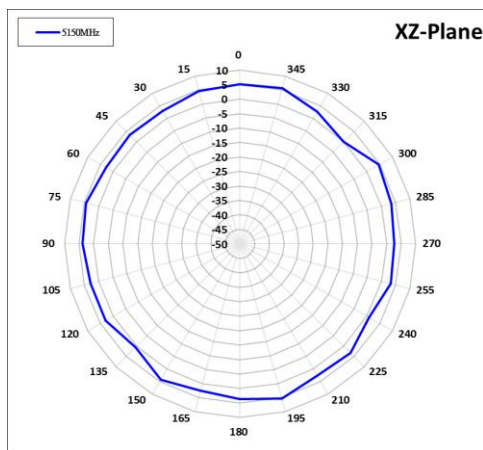
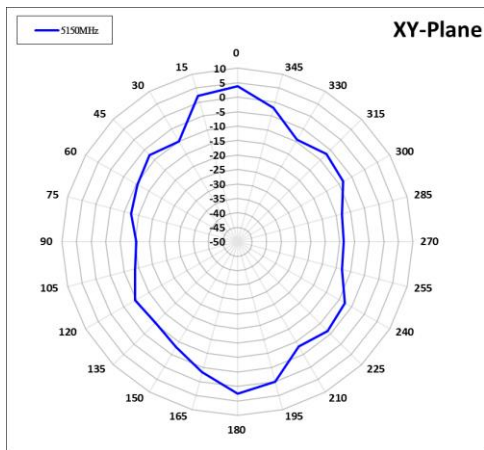
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144	-8.99	2.71	-8.17
145	-8.83	2.97	-8.96
146	-8.67	3.22	-9.75
147	-8.51	3.47	-10.54
148	-8.35	3.73	-11.32
149	-8.18	3.98	-12.11
150	-8.02	4.23	-12.90
151	-7.71	4.11	-11.97
152	-7.40	3.99	-11.04
153	-7.08	3.87	-10.11
154	-6.77	3.75	-9.18
155	-6.45	3.63	-8.24
156	-6.14	3.51	-7.31
157	-5.83	3.39	-6.38
158	-5.51	3.27	-5.45
159	-5.20	3.16	-4.52
160	-4.89	3.04	-3.59
161	-4.57	2.92	-2.66
162	-4.26	2.80	-1.73
163	-3.94	2.68	-0.80
164	-3.63	2.56	0.13
165	-3.32	2.44	1.07
166	-2.92	2.52	1.25
167	-2.53	2.61	1.42
168	-2.14	2.70	1.60
169	-1.75	2.79	1.78
170	-1.35	2.88	1.96
171	-0.96	2.96	2.14
172	-0.57	3.05	2.32
173	-0.17	3.14	2.50
174	0.22	3.23	2.68
175	0.61	3.31	2.86
176	1.01	3.40	3.04
177	1.40	3.49	3.21
178	1.79	3.58	3.39
179	2.18	3.66	3.57
180	2.58	3.75	3.75
181	2.41	3.86	3.42
182	2.24	3.97	3.08
183	2.07	4.08	2.74
184	1.91	4.19	2.40
185	1.74	4.30	2.07
186	1.57	4.41	1.73
187	1.41	4.52	1.39
188	1.24	4.63	1.06
189	1.07	4.73	0.72
190	0.90	4.84	0.38
191	0.74	4.95	0.05

192	0.57	5.06	-0.29
193	0.40	5.17	-0.63
194	0.23	5.28	-0.96
195	0.07	5.39	-1.30
196	-0.49	5.20	-2.30
197	-1.05	5.02	-3.30
198	-1.60	4.83	-4.30
199	-2.16	4.65	-5.29
200	-2.71	4.46	-6.29
201	-3.27	4.28	-7.29
202	-3.83	4.09	-8.29
203	-4.38	3.91	-9.29
204	-4.94	3.72	-10.29
205	-5.49	3.54	-11.28
206	-6.05	3.35	-12.28
207	-6.61	3.17	-13.28
208	-7.16	2.98	-14.28
209	-7.72	2.80	-15.28
210	-8.28	2.61	-16.28
211	-8.15	2.66	-15.77
212	-8.03	2.72	-15.26
213	-7.91	2.77	-14.75
214	-7.78	2.82	-14.24
215	-7.66	2.88	-13.73
216	-7.54	2.93	-13.22
217	-7.42	2.99	-12.71
218	-7.29	3.04	-12.21
219	-7.17	3.09	-11.70
220	-7.05	3.15	-11.19
221	-6.92	3.20	-10.68
222	-6.80	3.25	-10.17
223	-6.68	3.31	-9.66
224	-6.56	3.36	-9.15
225	-6.43	3.41	-8.64
226	-6.52	3.25	-8.74
227	-6.61	3.08	-8.83
228	-6.69	2.91	-8.93
229	-6.78	2.74	-9.02
230	-6.87	2.57	-9.12
231	-6.95	2.40	-9.21
232	-7.04	2.24	-9.30
233	-7.13	2.07	-9.40
234	-7.21	1.90	-9.49
235	-7.30	1.73	-9.59
236	-7.39	1.56	-9.68
237	-7.47	1.40	-9.78
238	-7.56	1.23	-9.87
239	-7.65	1.06	-9.96
240	-7.73	0.89	-10.06

241	-8.08	1.05	-10.15
242	-8.43	1.20	-10.23
243	-8.77	1.35	-10.32
244	-9.12	1.51	-10.41
245	-9.46	1.66	-10.50
246	-9.81	1.82	-10.59
247	-10.16	1.97	-10.67
248	-10.50	2.13	-10.76
249	-10.85	2.28	-10.85
250	-11.19	2.44	-10.94
251	-11.54	2.59	-11.02
252	-11.89	2.75	-11.11
253	-12.23	2.90	-11.20
254	-12.58	3.05	-11.29
255	-12.92	3.21	-11.38
256	-12.97	3.17	-11.52
257	-13.02	3.12	-11.67
258	-13.06	3.08	-11.82
259	-13.11	3.04	-11.97
260	-13.15	3.00	-12.12
261	-13.20	2.96	-12.27
262	-13.24	2.91	-12.42
263	-13.29	2.87	-12.57
264	-13.34	2.83	-12.72
265	-13.38	2.79	-12.86
266	-13.43	2.75	-13.01
267	-13.47	2.70	-13.16
268	-13.52	2.66	-13.31
269	-13.56	2.62	-13.46
270	-13.61	2.58	-13.61
271	-13.57	2.63	-13.27
272	-13.53	2.69	-12.93
273	-13.49	2.75	-12.59
274	-13.45	2.81	-12.25
275	-13.41	2.86	-11.91
276	-13.37	2.92	-11.58
277	-13.33	2.98	-11.24
278	-13.29	3.04	-10.90
279	-13.24	3.09	-10.56
280	-13.20	3.15	-10.22
281	-13.16	3.21	-9.88
282	-13.12	3.27	-9.54
283	-13.08	3.32	-9.20
284	-13.04	3.38	-8.86
285	-13.00	3.44	-8.52
286	-12.69	3.52	-8.32
287	-12.38	3.60	-8.12
288	-12.07	3.68	-7.91
289	-11.76	3.77	-7.71

290	-11.44	3.85	-7.51
291	-11.13	3.93	-7.30
292	-10.82	4.01	-7.10
293	-10.51	4.09	-6.90
294	-10.20	4.18	-6.69
295	-9.89	4.26	-6.49
296	-9.57	4.34	-6.29
297	-9.26	4.42	-6.08
298	-8.95	4.50	-5.88
299	-8.64	4.58	-5.68
300	-8.33	4.67	-5.47
301	-8.25	4.35	-5.35
302	-8.17	4.03	-5.24
303	-8.09	3.72	-5.12
304	-8.01	3.40	-5.00
305	-7.93	3.09	-4.88
306	-7.85	2.77	-4.77
307	-7.77	2.46	-4.65
308	-7.69	2.14	-4.53
309	-7.61	1.83	-4.41
310	-7.53	1.51	-4.30
311	-7.45	1.19	-4.18
312	-7.37	0.88	-4.06
313	-7.29	0.56	-3.94
314	-7.21	0.25	-3.83
315	-7.14	-0.07	-3.71
316	-7.28	0.11	-4.13
317	-7.42	0.30	-4.54
318	-7.56	0.48	-4.96
319	-7.70	0.66	-5.38
320	-7.85	0.85	-5.80
321	-7.99	1.03	-6.21
322	-8.13	1.21	-6.63
323	-8.27	1.40	-7.05
324	-8.41	1.58	-7.46
325	-8.56	1.76	-7.88
326	-8.70	1.95	-8.30
327	-8.84	2.13	-8.72
328	-8.98	2.31	-9.13
329	-9.12	2.50	-9.55
330	-9.27	2.68	-9.97
331	-8.79	2.87	-9.28
332	-8.32	3.07	-8.59
333	-7.84	3.26	-7.90
334	-7.36	3.46	-7.21
335	-6.89	3.65	-6.52
336	-6.41	3.85	-5.83
337	-5.94	4.04	-5.14
338	-5.46	4.23	-4.45

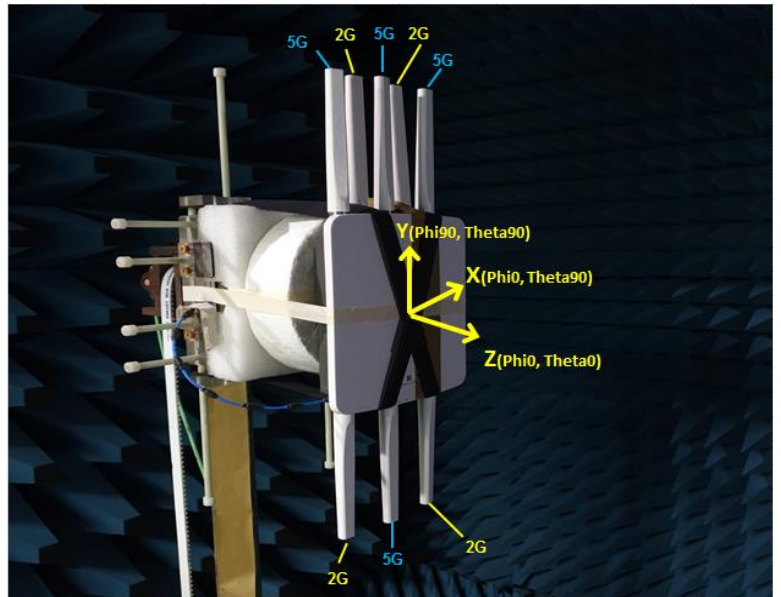
339	-4.99	4.43	-3.76
340	-4.51	4.62	-3.07
341	-4.03	4.82	-2.38
342	-3.56	5.01	-1.69
343	-3.08	5.21	-1.00
344	-2.61	5.40	-0.31
345	-2.13	5.59	0.38
346	-1.74	5.57	0.70
347	-1.34	5.54	1.02
348	-0.94	5.51	1.34
349	-0.55	5.49	1.66
350	-0.15	5.46	1.98
351	0.24	5.44	2.30
352	0.64	5.41	2.63
353	1.03	5.38	2.95
354	1.43	5.36	3.27
355	1.83	5.33	3.59
356	2.22	5.30	3.91
357	2.62	5.28	4.23
358	3.01	5.25	4.56
359	3.41	5.22	4.88
	3.80	5.20	5.20



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5250 MHz

Angle	Theta = 90° Co-Polar	Phi = 0° Co-Polar	Phi = 90° Co-Polar
0	3.80	4.96	4.96
1	3.62	5.01	4.59
2	3.45	5.07	4.22
3	3.27	5.12	3.85
4	3.09	5.17	3.49
5	2.91	5.23	3.12
6	2.73	5.28	2.75
7	2.55	5.34	2.38
8	2.37	5.39	2.01
9	2.19	5.44	1.64
10	2.02	5.50	1.28
11	1.84	5.55	0.91
12	1.66	5.60	0.54
13	1.48	5.66	0.17
14	1.30	5.71	-0.20
15	1.12	5.77	-0.57
16	0.38	5.61	-1.49
17	-0.36	5.45	-2.42
18	-1.11	5.29	-3.34
19	-1.85	5.13	-4.26
20	-2.59	4.98	-5.19
21	-3.34	4.82	-6.11
22	-4.08	4.66	-7.04
23	-4.82	4.50	-7.96
24	-5.57	4.34	-8.89
25	-6.31	4.18	-9.81
26	-7.05	4.03	-10.74
27	-7.80	3.87	-11.66
28	-8.54	3.71	-12.59
29	-9.28	3.55	-13.51
30	-10.03	3.39	-14.44
31	-9.68	3.44	-13.71
32	-9.34	3.49	-12.98
33	-9.00	3.54	-12.25
34	-8.65	3.58	-11.52
35	-8.31	3.63	-10.79
36	-7.97	3.68	-10.06
37	-7.62	3.73	-9.33
38	-7.28	3.78	-8.60
39	-6.94	3.82	-7.87
40	-6.59	3.87	-7.14
41	-6.25	3.92	-6.41
42	-5.91	3.97	-5.68
43	-5.56	4.01	-4.95
44	-5.22	4.06	-4.22



45	-4.88	4.11	-3.49
46	-5.19	4.11	-3.50
47	-5.51	4.10	-3.52
48	-5.82	4.10	-3.54
49	-6.14	4.09	-3.55
50	-6.46	4.09	-3.57
51	-6.77	4.08	-3.58
52	-7.09	4.08	-3.60
53	-7.41	4.07	-3.62
54	-7.72	4.07	-3.63
55	-8.04	4.06	-3.65
56	-8.36	4.06	-3.67
57	-8.67	4.05	-3.68
58	-8.99	4.05	-3.70
59	-9.31	4.04	-3.72
60	-9.62	4.04	-3.73
61	-9.78	4.11	-4.06
62	-9.95	4.18	-4.38
63	-10.11	4.25	-4.71
64	-10.27	4.32	-5.03
65	-10.43	4.38	-5.36
66	-10.59	4.45	-5.68
67	-10.75	4.52	-6.01
68	-10.91	4.59	-6.33
69	-11.07	4.66	-6.66
70	-11.23	4.73	-6.98
71	-11.39	4.80	-7.31
72	-11.56	4.87	-7.63
73	-11.72	4.94	-7.96
74	-11.88	5.01	-8.28
75	-12.04	5.07	-8.61
76	-12.38	4.99	-9.17
77	-12.72	4.90	-9.74
78	-13.05	4.82	-10.31
79	-13.39	4.74	-10.88
80	-13.73	4.65	-11.44
81	-14.07	4.57	-12.01
82	-14.41	4.48	-12.58
83	-14.75	4.40	-13.15
84	-15.09	4.31	-13.71
85	-15.42	4.23	-14.28
86	-15.76	4.14	-14.85
87	-16.10	4.06	-15.42
88	-16.44	3.97	-15.98
89	-16.78	3.89	-16.55
90	-17.12	3.80	-17.12
91	-16.91	3.76	-16.80
92	-16.71	3.71	-16.47
93	-16.51	3.66	-16.15

94	-16.30	3.62	-15.83
95	-16.10	3.57	-15.51
96	-15.90	3.52	-15.19
97	-15.69	3.48	-14.87
98	-15.49	3.43	-14.55
99	-15.29	3.39	-14.23
100	-15.08	3.34	-13.91
101	-14.88	3.29	-13.58
102	-14.67	3.25	-13.26
103	-14.47	3.20	-12.94
104	-14.27	3.15	-12.62
105	-14.06	3.11	-12.30
106	-13.81	3.10	-11.85
107	-13.55	3.10	-11.40
108	-13.29	3.10	-10.96
109	-13.03	3.09	-10.51
110	-12.77	3.09	-10.06
111	-12.51	3.09	-9.62
112	-12.25	3.09	-9.17
113	-11.99	3.08	-8.72
114	-11.74	3.08	-8.27
115	-11.48	3.08	-7.83
116	-11.22	3.07	-7.38
117	-10.96	3.07	-6.93
118	-10.70	3.07	-6.49
119	-10.44	3.06	-6.04
120	-10.18	3.06	-5.59
121	-9.94	2.97	-5.38
122	-9.70	2.89	-5.17
123	-9.46	2.80	-4.95
124	-9.21	2.71	-4.74
125	-8.97	2.62	-4.53
126	-8.73	2.54	-4.32
127	-8.49	2.45	-4.10
128	-8.24	2.36	-3.89
129	-8.00	2.27	-3.68
130	-7.76	2.19	-3.47
131	-7.52	2.10	-3.25
132	-7.27	2.01	-3.04
133	-7.03	1.92	-2.83
134	-6.79	1.84	-2.62
135	-6.55	1.75	-2.40
136	-6.57	1.95	-3.12
137	-6.59	2.14	-3.84
138	-6.61	2.34	-4.56
139	-6.63	2.54	-5.28
140	-6.65	2.74	-5.99
141	-6.67	2.93	-6.71
142	-6.69	3.13	-7.43

143	-6.71	3.33	-8.15
144	-6.73	3.53	-8.87
145	-6.76	3.73	-9.58
146	-6.78	3.92	-10.30
147	-6.80	4.12	-11.02
148	-6.82	4.32	-11.74
149	-6.84	4.52	-12.46
150	-6.86	4.71	-13.17
151	-6.70	4.56	-12.24
152	-6.55	4.41	-11.31
153	-6.39	4.26	-10.37
154	-6.23	4.11	-9.44
155	-6.07	3.95	-8.51
156	-5.92	3.80	-7.57
157	-5.76	3.65	-6.64
158	-5.60	3.50	-5.71
159	-5.44	3.35	-4.77
160	-5.28	3.19	-3.84
161	-5.13	3.04	-2.91
162	-4.97	2.89	-1.97
163	-4.81	2.74	-1.04
164	-4.65	2.59	-0.11
165	-4.50	2.43	0.82
166	-3.98	2.45	0.95
167	-3.46	2.47	1.07
168	-2.95	2.48	1.20
169	-2.43	2.50	1.32
170	-1.91	2.52	1.45
171	-1.40	2.53	1.57
172	-0.88	2.55	1.69
173	-0.36	2.57	1.82
174	0.15	2.59	1.94
175	0.67	2.60	2.07
176	1.19	2.62	2.19
177	1.70	2.64	2.31
178	2.22	2.65	2.44
179	2.73	2.67	2.56
180	3.25	2.69	2.69
181	3.04	2.87	2.41
182	2.83	3.05	2.14
183	2.61	3.23	1.87
184	2.40	3.41	1.60
185	2.19	3.59	1.33
186	1.98	3.77	1.05
187	1.76	3.95	0.78
188	1.55	4.13	0.51
189	1.34	4.31	0.24
190	1.13	4.49	-0.04
191	0.91	4.67	-0.31

192	0.70	4.85	-0.58
193	0.49	5.03	-0.85
194	0.28	5.21	-1.13
195	0.06	5.39	-1.40
196	-0.57	5.23	-2.48
197	-1.21	5.07	-3.56
198	-1.85	4.90	-4.63
199	-2.49	4.74	-5.71
200	-3.13	4.58	-6.79
201	-3.77	4.42	-7.87
202	-4.41	4.25	-8.95
203	-5.05	4.09	-10.03
204	-5.69	3.93	-11.10
205	-6.32	3.77	-12.18
206	-6.96	3.60	-13.26
207	-7.60	3.44	-14.34
208	-8.24	3.28	-15.42
209	-8.88	3.12	-16.50
210	-9.52	2.95	-17.58
211	-9.19	2.83	-16.94
212	-8.86	2.71	-16.31
213	-8.53	2.59	-15.68
214	-8.21	2.46	-15.04
215	-7.88	2.34	-14.41
216	-7.55	2.22	-13.78
217	-7.22	2.10	-13.14
218	-6.90	1.97	-12.51
219	-6.57	1.85	-11.88
220	-6.24	1.73	-11.25
221	-5.91	1.60	-10.61
222	-5.59	1.48	-9.98
223	-5.26	1.36	-9.35
224	-4.93	1.24	-8.71
225	-4.60	1.11	-8.08
226	-4.90	1.20	-8.29
227	-5.20	1.29	-8.49
228	-5.50	1.38	-8.70
229	-5.80	1.46	-8.91
230	-6.11	1.55	-9.11
231	-6.41	1.64	-9.32
232	-6.71	1.72	-9.52
233	-7.01	1.81	-9.73
234	-7.31	1.90	-9.94
235	-7.61	1.99	-10.14
236	-7.91	2.07	-10.35
237	-8.21	2.16	-10.56
238	-8.51	2.25	-10.76
239	-8.81	2.33	-10.97
240	-9.11	2.42	-11.17

241	-9.22	2.54	-11.31
242	-9.32	2.65	-11.44
243	-9.42	2.77	-11.57
244	-9.52	2.89	-11.70
245	-9.62	3.00	-11.83
246	-9.73	3.12	-11.96
247	-9.83	3.24	-12.09
248	-9.93	3.35	-12.23
249	-10.03	3.47	-12.36
250	-10.14	3.58	-12.49
251	-10.24	3.70	-12.62
252	-10.34	3.82	-12.75
253	-10.44	3.93	-12.88
254	-10.54	4.05	-13.01
255	-10.65	4.17	-13.15
256	-10.74	4.11	-13.07
257	-10.84	4.04	-13.00
258	-10.93	3.98	-12.93
259	-11.03	3.92	-12.86
260	-11.12	3.86	-12.79
261	-11.22	3.80	-12.71
262	-11.31	3.74	-12.64
263	-11.40	3.68	-12.57
264	-11.50	3.62	-12.50
265	-11.59	3.56	-12.43
266	-11.69	3.50	-12.35
267	-11.78	3.43	-12.28
268	-11.88	3.37	-12.21
269	-11.97	3.31	-12.14
270	-12.07	3.25	-12.07
271	-12.22	3.28	-11.92
272	-12.37	3.30	-11.78
273	-12.52	3.33	-11.63
274	-12.66	3.35	-11.49
275	-12.81	3.38	-11.34
276	-12.96	3.40	-11.20
277	-13.11	3.43	-11.05
278	-13.26	3.45	-10.90
279	-13.41	3.48	-10.76
280	-13.56	3.50	-10.61
281	-13.71	3.53	-10.47
282	-13.86	3.55	-10.32
283	-14.01	3.58	-10.18
284	-14.16	3.60	-10.03
285	-14.31	3.63	-9.89
286	-13.96	3.70	-9.60
287	-13.62	3.77	-9.32
288	-13.27	3.85	-9.04
289	-12.93	3.92	-8.76

290	-12.58	4.00	-8.48
291	-12.24	4.07	-8.19
292	-11.89	4.15	-7.91
293	-11.55	4.22	-7.63
294	-11.20	4.30	-7.35
295	-10.86	4.37	-7.06
296	-10.51	4.45	-6.78
297	-10.17	4.52	-6.50
298	-9.82	4.60	-6.22
299	-9.48	4.67	-5.93
300	-9.13	4.75	-5.65
301	-8.92	4.60	-5.47
302	-8.71	4.46	-5.29
303	-8.50	4.31	-5.11
304	-8.29	4.17	-4.94
305	-8.08	4.02	-4.76
306	-7.87	3.88	-4.58
307	-7.66	3.74	-4.40
308	-7.45	3.59	-4.22
309	-7.24	3.45	-4.04
310	-7.03	3.30	-3.86
311	-6.82	3.16	-3.68
312	-6.61	3.01	-3.50
313	-6.40	2.87	-3.32
314	-6.19	2.73	-3.15
315	-5.98	2.58	-2.97
316	-6.12	2.69	-3.49
317	-6.26	2.79	-4.02
318	-6.39	2.89	-4.55
319	-6.53	3.00	-5.07
320	-6.67	3.10	-5.60
321	-6.80	3.20	-6.13
322	-6.94	3.31	-6.66
323	-7.07	3.41	-7.18
324	-7.21	3.51	-7.71
325	-7.35	3.62	-8.24
326	-7.48	3.72	-8.76
327	-7.62	3.82	-9.29
328	-7.75	3.93	-9.82
329	-7.89	4.03	-10.34
330	-8.03	4.13	-10.87
331	-7.62	4.17	-10.12
332	-7.20	4.21	-9.37
333	-6.79	4.24	-8.63
334	-6.38	4.28	-7.88
335	-5.97	4.31	-7.13
336	-5.56	4.35	-6.38
337	-5.15	4.39	-5.63
338	-4.74	4.42	-4.88

339	-4.33	4.46	-4.14
340	-3.92	4.50	-3.39
341	-3.50	4.53	-2.64
342	-3.09	4.57	-1.89
343	-2.68	4.61	-1.14
344	-2.27	4.64	-0.40
345	-1.86	4.68	0.35
346	-1.48	4.70	0.66
347	-1.10	4.72	0.97
348	-0.73	4.73	1.27
349	-0.35	4.75	1.58
350	0.03	4.77	1.89
351	0.41	4.79	2.20
352	0.78	4.81	2.50
353	1.16	4.83	2.81
354	1.54	4.85	3.12
355	1.92	4.87	3.42
356	2.29	4.88	3.73
357	2.67	4.90	4.04
358	3.05	4.92	4.34
359	3.43	4.94	4.65
	3.80	4.96	4.96

