



Office of Engineering Technology
Federal Communications Commission
7435 Oakland Mills Road
Columbia, MD 21046

Date: February 19, 2018

Subject: Access Point Elevation Angle Consideration
FCC ID: Q3K-JETDB5X3X

To Whom It May Concern,
Pursuant to the KDB 789033 D02 Section H of the Commission's guidelines following are the Access Point elevation angle installation considerations.

List of investigated access point antenna:

Antenna Type	Model Number	Max. Antenna Gain (dBi)	Tilt Angle (Deg)
Beamforming Integrated 12 Deg	SA0199500	20.5	0
Beamforming Integrated 16 Deg	SA0199500	19.5*	0
Beamforming Integrated 85 Deg	SA0199500	11.0	0

* Investigation not performed with this gain being the mid gain value

Method used to show compliance

The elevation plane radiation patterns are available therefore calculation was used to show compliance.

This method shows how the installation angle is calculated so that the total EIRP would comply with the 125 mW (21 dBm) EIRP limit.

1. The elevation angles range investigated is 30° to 150°. The horizontal plane is defined as 0° angle.
2. The frequency channel investigated is 5200 MHz at each transmission chain (Vertical and Horizontal).
3. Following is the calculation:

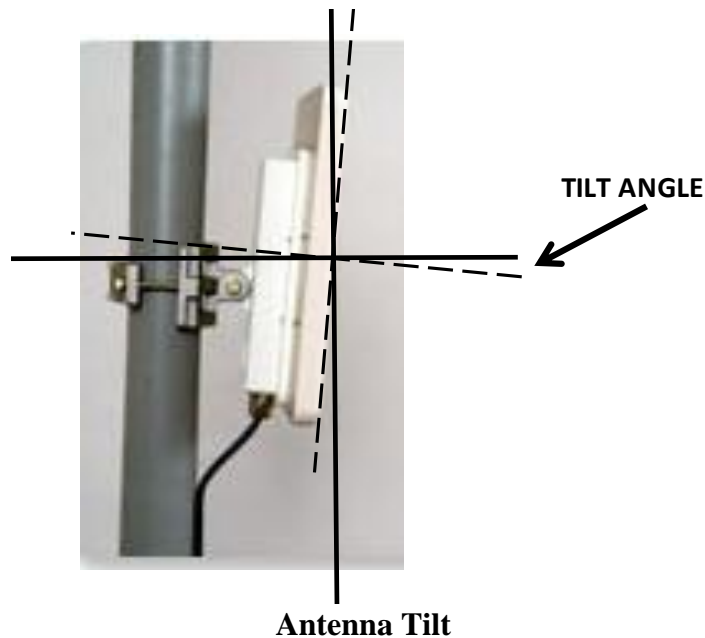
$$\text{EIRP V} = \text{Port V} + \text{Ver. Gain}, \quad \text{EIRP H} = \text{Port H} + \text{Hor. Gain},$$
$$\text{Comb. EIRP} = \text{EIRP V} + \text{EIRP H}$$

4. The total highest output power (Port V, Port H) is taken from the RDWN50-U3 Rev A test report and reduced by the amount in dB that the 11.0 dBi and 20.5 dBi gain exceed 6 dBi (at the highest gain point).
5. **Non- Complying Angles Range:** The angles range in which the **Highest EIRP** violates the 21 dBm limit. This indicates the range that must be outside the 30° to 150° degrees elevation boundaries.

6. **Max Complying EIRP:** Max EIRP that complies with the 21 dBm limit outside the **Non-Complying Angles Range**
7. **Elevation Angle @ Complying EIRP:** The angle at which the **Max Complying EIRP** was detected
8. **Min Tilt:** The minimum tilt angle needed for installation to bring the device into compliance. The tilt angle is relative to horizontal level 0°.
9. Equation for calculating the minimum tilt angle:

$$\text{Min Tilt Angle} = 30 - [\text{Elevation Angle @ Complying EIRP}] - 1$$

Note: Tilt is necessary in case the **Highest EIRP** violates the 21 dBm limit



11.0 dBi and 20.5 dBi

Non-Complying Angles Range	Max Complying EIRP	Elevation Angle @ Complying EIRP	Min Tilt	EIRP Limit	Margin
dBm	dBm	Deg	Deg	dBm	dB
None	19.86	37 and 38	0	21.00	-1.14

Sincerely,

Roni Barshan
RF Department Manager
RADWIN Ltd.

Antennas Elevation & Output Power Pattern Data

20.5 dBi

Angle	E _v				E _H				Comb. EIRP
	Port V	Ver. Gain	Port V Reduced by 13.53 dB Output Power*	EIRP Port V	Port H	Hor. Gain	Port H Reduced by 13.53 dB Output Power*	EIRP Port H	
Deg	dBm	dBi	dBm	dBm	dBm	dBi	dBm	dBm	dBm
30	22.64	-5.729	9.11	3.38	25.63	3.634	12.10	15.73	16.75
31	22.64	-3.59	9.11	5.52	25.63	4.438	12.10	16.54	17.64
32	22.64	-2.049	9.11	7.06	25.63	5.072	12.10	17.17	18.35
33	22.64	-0.9457	9.11	8.16	25.63	5.561	12.10	17.66	18.89
34	22.64	-0.1664	9.11	8.94	25.63	5.927	12.10	18.03	19.30
35	22.64	0.3646	9.11	9.47	25.63	6.184	12.10	18.28	19.59
36	22.64	0.697	9.11	9.81	25.63	6.346	12.10	18.45	19.77
37	22.64	0.8643	9.11	9.97	25.63	6.423	12.10	18.52	19.86
38	22.64	0.89	9.11	10.00	25.63	6.421	12.10	18.52	19.86
39	22.64	0.7905	9.11	9.90	25.63	6.348	12.10	18.45	19.79
40	22.64	0.5775	9.11	9.69	25.63	6.208	12.10	18.31	19.64
41	22.64	0.2592	9.11	9.37	25.63	6.006	12.10	18.11	19.42
42	22.64	-0.1584	9.11	8.95	25.63	5.743	12.10	17.84	19.14
43	22.64	-0.6714	9.11	8.44	25.63	5.422	12.10	17.52	18.80
44	22.64	-1.277	9.11	7.83	25.63	5.045	12.10	17.15	18.40
45	22.64	-1.973	9.11	7.14	25.63	4.613	12.10	16.71	17.94
46	22.64	-2.756	9.11	6.35	25.63	4.124	12.10	16.22	17.42
47	22.64	-3.622	9.11	5.49	25.63	3.58	12.10	15.68	16.85
48	22.64	-4.562	9.11	4.55	25.63	2.978	12.10	15.08	16.22
49	22.64	-5.557	9.11	3.55	25.63	2.318	12.10	14.42	15.53
50	22.64	-6.574	9.11	2.54	25.63	1.597	12.10	13.70	14.79
51	22.64	-7.556	9.11	1.55	25.63	0.8104	12.10	12.91	13.99
52	22.64	-8.418	9.11	0.69	25.63	-0.04545	12.10	12.05	13.13
53	22.64	-9.059	9.11	0.05	25.63	-0.9767	12.10	11.12	12.22
54	22.64	-9.394	9.11	-0.28	25.63	-1.991	12.10	10.11	11.26
55	22.64	-9.404	9.11	-0.29	25.63	-3.097	12.10	9.00	10.26
56	22.64	-9.144	9.11	-0.03	25.63	-4.308	12.10	7.79	9.23
57	22.64	-8.712	9.11	0.40	25.63	-5.636	12.10	6.46	8.19
58	22.64	-8.199	9.11	0.91	25.63	-7.096	12.10	5.00	7.20
59	22.64	-7.672	9.11	1.44	25.63	-8.7	12.10	3.40	6.31

60	22.64	-7.172	9.11	1.94	25.63	-10.44	12.10	1.66	5.58
61	22.64	-6.718	9.11	2.39	25.63	-12.27	12.10	-0.17	5.08
62	22.64	-6.32	9.11	2.79	25.63	-14.01	12.10	-1.91	4.83
63	22.64	-5.979	9.11	3.13	25.63	-15.26	12.10	-3.16	4.82
64	22.64	-5.695	9.11	3.42	25.63	-15.58	12.10	-3.48	4.99
65	22.64	-5.464	9.11	3.65	25.63	-15	12.10	-2.90	5.28
66	22.64	-5.283	9.11	3.83	25.63	-13.95	12.10	-1.85	5.64
67	22.64	-5.147	9.11	3.96	25.63	-12.82	12.10	-0.72	6.00
68	22.64	-5.053	9.11	4.06	25.63	-11.78	12.10	0.32	6.36
69	22.64	-4.996	9.11	4.11	25.63	-10.87	12.10	1.23	6.69
70	22.64	-4.974	9.11	4.14	25.63	-10.09	12.10	2.01	6.98
71	22.64	-4.983	9.11	4.13	25.63	-9.441	12.10	2.66	7.24
72	22.64	-5.021	9.11	4.09	25.63	-8.897	12.10	3.20	7.45
73	22.64	-5.084	9.11	4.03	25.63	-8.444	12.10	3.66	7.63
74	22.64	-5.17	9.11	3.94	25.63	-8.069	12.10	4.03	7.77
75	22.64	-5.276	9.11	3.83	25.63	-7.762	12.10	4.34	7.87
76	22.64	-5.402	9.11	3.71	25.63	-7.513	12.10	4.59	7.95
77	22.64	-5.544	9.11	3.57	25.63	-7.315	12.10	4.79	8.00
78	22.64	-5.701	9.11	3.41	25.63	-7.161	12.10	4.94	8.02
79	22.64	-5.872	9.11	3.24	25.63	-7.047	12.10	5.05	8.02
80	22.64	-6.055	9.11	3.06	25.63	-6.967	12.10	5.13	8.00
81	22.64	-6.248	9.11	2.86	25.63	-6.917	12.10	5.18	7.96
82	22.64	-6.451	9.11	2.66	25.63	-6.895	12.10	5.21	7.90
83	22.64	-6.663	9.11	2.45	25.63	-6.897	12.10	5.20	7.82
84	22.64	-6.883	9.11	2.23	25.63	-6.92	12.10	5.18	7.73
85	22.64	-7.109	9.11	2.00	25.63	-6.962	12.10	5.14	7.63
86	22.64	-7.342	9.11	1.77	25.63	-7.021	12.10	5.08	7.51
87	22.64	-7.58	9.11	1.53	25.63	-7.096	12.10	5.00	7.39
88	22.64	-7.825	9.11	1.29	25.63	-7.184	12.10	4.92	7.25
89	22.64	-8.074	9.11	1.04	25.63	-7.285	12.10	4.82	7.10
90	22.64	-8.328	9.11	0.78	25.63	-7.397	12.10	4.70	6.95
91	22.64	-8.588	9.11	0.52	25.63	-7.518	12.10	4.58	6.79
92	22.64	-8.854	9.11	0.26	25.63	-7.649	12.10	4.45	6.62
93	22.64	-9.125	9.11	-0.01	25.63	-7.787	12.10	4.31	6.45
94	22.64	-9.402	9.11	-0.29	25.63	-7.933	12.10	4.17	6.27
95	22.64	-9.686	9.11	-0.58	25.63	-8.085	12.10	4.02	6.08
96	22.64	-9.978	9.11	-0.87	25.63	-8.244	12.10	3.86	5.89
97	22.64	-10.28	9.11	-1.17	25.63	-8.409	12.10	3.69	5.69
98	22.64	-10.59	9.11	-1.48	25.63	-8.579	12.10	3.52	5.48

99	22.64	-10.91	9.11	-1.80	25.63	-8.754	12.10	3.35	5.27
100	22.64	-11.24	9.11	-2.13	25.63	-8.935	12.10	3.17	5.06
101	22.64	-11.58	9.11	-2.47	25.63	-9.121	12.10	2.98	4.84
102	22.64	-11.94	9.11	-2.83	25.63	-9.312	12.10	2.79	4.61
103	22.64	-12.32	9.11	-3.21	25.63	-9.508	12.10	2.59	4.38
104	22.64	-12.7	9.11	-3.59	25.63	-9.71	12.10	2.39	4.14
105	22.64	-13.11	9.11	-4.00	25.63	-9.917	12.10	2.18	3.89
106	22.64	-13.52	9.11	-4.41	25.63	-10.13	12.10	1.97	3.64
107	22.64	-13.95	9.11	-4.84	25.63	-10.35	12.10	1.75	3.38
108	22.64	-14.38	9.11	-5.27	25.63	-10.57	12.10	1.53	3.12
109	22.64	-14.81	9.11	-5.70	25.63	-10.8	12.10	1.30	2.86
110	22.64	-15.23	9.11	-6.12	25.63	-11.04	12.10	1.06	2.59
111	22.64	-15.62	9.11	-6.51	25.63	-11.28	12.10	0.82	2.33
112	22.64	-15.96	9.11	-6.85	25.63	-11.53	12.10	0.57	2.06
113	22.64	-16.23	9.11	-7.12	25.63	-11.78	12.10	0.32	1.81
114	22.64	-16.39	9.11	-7.28	25.63	-12.04	12.10	0.06	1.57
115	22.64	-16.44	9.11	-7.33	25.63	-12.29	12.10	-0.19	1.35
116	22.64	-16.35	9.11	-7.24	25.63	-12.55	12.10	-0.45	1.15
117	22.64	-16.13	9.11	-7.02	25.63	-12.8	12.10	-0.70	0.98
118	22.64	-15.8	9.11	-6.69	25.63	-13.05	12.10	-0.95	0.85
119	22.64	-15.38	9.11	-6.27	25.63	-13.29	12.10	-1.19	0.75
120	22.64	-14.89	9.11	-5.78	25.63	-13.51	12.10	-1.41	0.71
121	22.64	-14.37	9.11	-5.26	25.63	-13.72	12.10	-1.62	0.71
122	22.64	-13.83	9.11	-4.72	25.63	-13.91	12.10	-1.81	0.75
123	22.64	-13.3	9.11	-4.19	25.63	-14.07	12.10	-1.97	0.84
124	22.64	-12.8	9.11	-3.69	25.63	-14.21	12.10	-2.11	0.95
125	22.64	-12.32	9.11	-3.21	25.63	-14.32	12.10	-2.22	1.09
126	22.64	-11.89	9.11	-2.78	25.63	-14.4	12.10	-2.30	1.25
127	22.64	-11.5	9.11	-2.39	25.63	-14.45	12.10	-2.35	1.41
128	22.64	-11.17	9.11	-2.06	25.63	-14.48	12.10	-2.38	1.56
129	22.64	-10.88	9.11	-1.77	25.63	-14.48	12.10	-2.38	1.72
130	22.64	-10.66	9.11	-1.55	25.63	-14.48	12.10	-2.38	1.84
131	22.64	-10.5	9.11	-1.39	25.63	-14.46	12.10	-2.36	1.93
132	22.64	-10.4	9.11	-1.29	25.63	-14.45	12.10	-2.35	1.99
133	22.64	-10.38	9.11	-1.27	25.63	-14.44	12.10	-2.34	2.01
134	22.64	-10.43	9.11	-1.32	25.63	-14.45	12.10	-2.35	1.98
135	22.64	-10.57	9.11	-1.46	25.63	-14.48	12.10	-2.38	1.88
136	22.64	-10.79	9.11	-1.68	25.63	-14.54	12.10	-2.44	1.74
137	22.64	-11.12	9.11	-2.01	25.63	-14.63	12.10	-2.53	1.52

138	22.64	-11.56	9.11	-2.45	25.63	-14.77	12.10	-2.67	1.22
139	22.64	-12.12	9.11	-3.01	25.63	-14.95	12.10	-2.85	0.85
140	22.64	-12.83	9.11	-3.72	25.63	-15.18	12.10	-3.08	0.39
141	22.64	-13.71	9.11	-4.60	25.63	-15.47	12.10	-3.37	-0.16
142	22.64	-14.78	9.11	-5.67	25.63	-15.82	12.10	-3.72	-0.81
143	22.64	-16.06	9.11	-6.95	25.63	-16.24	12.10	-4.14	-1.54
144	22.64	-17.54	9.11	-8.43	25.63	-16.73	12.10	-4.63	-2.35
145	22.64	-19.07	9.11	-9.96	25.63	-17.28	12.10	-5.18	-3.16
146	22.64	-20.24	9.11	-11.13	25.63	-17.9	12.10	-5.80	-3.91
147	22.64	-20.35	9.11	-11.24	25.63	-18.58	12.10	-6.48	-4.46
148	22.64	-19.24	9.11	-10.13	25.63	-19.3	12.10	-7.20	-4.64
149	22.64	-17.55	9.11	-8.44	25.63	-20.04	12.10	-7.94	-4.40
150	22.64	-15.84	9.11	-6.73	25.63	-20.74	12.10	-8.64	-3.80

* Calculated by deducting the highest measured antenna gain exceeding 6 dBi from the measured conducted output power.

11.0 dBi

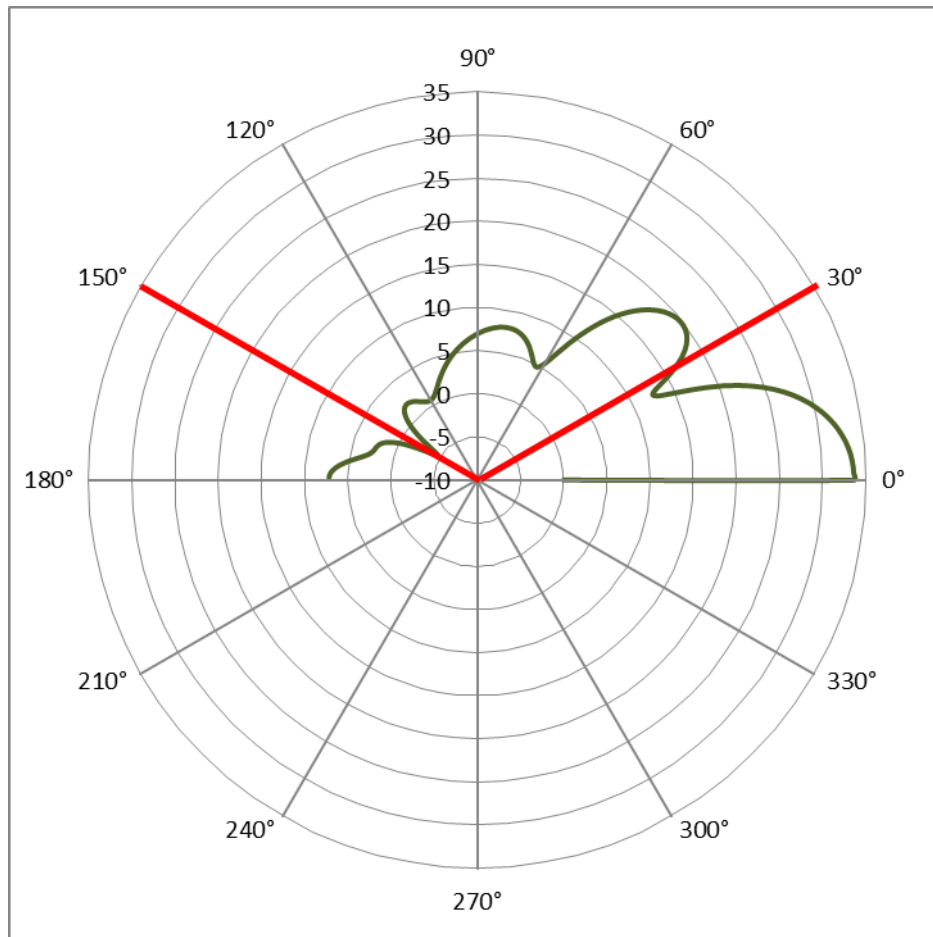
Angle	E _V				E _H				Comb. EIRP
	Port V	Ver. Gain	Port V Reduced by 4.03 dB Output Power*	EIRP Port V	Port H	Hor. Gain	Port H Reduced by 4.03 dB Output Power*	EIRP Port H	
Deg	dBm	dBi	dBm	dBm	dBm	dBi	dBm	dBm	dBm
30	22.64	-15.229	18.61	3.38	25.63	-5.866	21.60	15.73	16.75
31	22.64	-13.09	18.61	5.52	25.63	-5.062	21.60	16.54	17.64
32	22.64	-11.549	18.61	7.06	25.63	-4.428	21.60	17.17	18.35
33	22.64	-10.4457	18.61	8.16	25.63	-3.939	21.60	17.66	18.89
34	22.64	-9.6664	18.61	8.94	25.63	-3.573	21.60	18.03	19.30
35	22.64	-9.1354	18.61	9.47	25.63	-3.316	21.60	18.28	19.59
36	22.64	-8.803	18.61	9.81	25.63	-3.154	21.60	18.45	19.77
37	22.64	-8.6357	18.61	9.97	25.63	-3.077	21.60	18.52	19.86
38	22.64	-8.61	18.61	10.00	25.63	-3.079	21.60	18.52	19.86
39	22.64	-8.7095	18.61	9.90	25.63	-3.152	21.60	18.45	19.79
40	22.64	-8.9225	18.61	9.69	25.63	-3.292	21.60	18.31	19.64
41	22.64	-9.2408	18.61	9.37	25.63	-3.494	21.60	18.11	19.42
42	22.64	-9.6584	18.61	8.95	25.63	-3.757	21.60	17.84	19.14
43	22.64	-10.1714	18.61	8.44	25.63	-4.078	21.60	17.52	18.80
44	22.64	-10.777	18.61	7.83	25.63	-4.455	21.60	17.15	18.40
45	22.64	-11.473	18.61	7.14	25.63	-4.887	21.60	16.71	17.94
46	22.64	-12.256	18.61	6.35	25.63	-5.376	21.60	16.22	17.42
47	22.64	-13.122	18.61	5.49	25.63	-5.92	21.60	15.68	16.85
48	22.64	-14.062	18.61	4.55	25.63	-6.522	21.60	15.08	16.22
49	22.64	-15.057	18.61	3.55	25.63	-7.182	21.60	14.42	15.53
50	22.64	-16.074	18.61	2.54	25.63	-7.903	21.60	13.70	14.79
51	22.64	-17.056	18.61	1.55	25.63	-8.6896	21.60	12.91	13.99
52	22.64	-17.918	18.61	0.69	25.63	-9.54545	21.60	12.05	13.13
53	22.64	-18.559	18.61	0.05	25.63	-10.4767	21.60	11.12	12.22
54	22.64	-18.894	18.61	-0.28	25.63	-11.491	21.60	10.11	11.26
55	22.64	-18.904	18.61	-0.29	25.63	-12.597	21.60	9.00	10.26
56	22.64	-18.644	18.61	-0.03	25.63	-13.808	21.60	7.79	9.23
57	22.64	-18.212	18.61	0.40	25.63	-15.136	21.60	6.46	8.19
58	22.64	-17.699	18.61	0.91	25.63	-16.596	21.60	5.00	7.20
59	22.64	-17.172	18.61	1.44	25.63	-18.2	21.60	3.40	6.31
60	22.64	-16.672	18.61	1.94	25.63	-19.94	21.60	1.66	5.58
61	22.64	-16.218	18.61	2.39	25.63	-21.77	21.60	-0.17	5.08

62	22.64	-15.82	18.61	2.79	25.63	-23.51	21.60	-1.91	4.83
63	22.64	-15.479	18.61	3.13	25.63	-24.76	21.60	-3.16	4.82
64	22.64	-15.195	18.61	3.42	25.63	-25.08	21.60	-3.48	4.99
65	22.64	-14.964	18.61	3.65	25.63	-24.5	21.60	-2.90	5.28
66	22.64	-14.783	18.61	3.83	25.63	-23.45	21.60	-1.85	5.64
67	22.64	-14.647	18.61	3.96	25.63	-22.32	21.60	-0.72	6.00
68	22.64	-14.553	18.61	4.06	25.63	-21.28	21.60	0.32	6.36
69	22.64	-14.496	18.61	4.11	25.63	-20.37	21.60	1.23	6.69
70	22.64	-14.474	18.61	4.14	25.63	-19.59	21.60	2.01	6.98
71	22.64	-14.483	18.61	4.13	25.63	-18.941	21.60	2.66	7.24
72	22.64	-14.521	18.61	4.09	25.63	-18.397	21.60	3.20	7.45
73	22.64	-14.584	18.61	4.03	25.63	-17.944	21.60	3.66	7.63
74	22.64	-14.67	18.61	3.94	25.63	-17.569	21.60	4.03	7.77
75	22.64	-14.776	18.61	3.83	25.63	-17.262	21.60	4.34	7.87
76	22.64	-14.902	18.61	3.71	25.63	-17.013	21.60	4.59	7.95
77	22.64	-15.044	18.61	3.57	25.63	-16.815	21.60	4.79	8.00
78	22.64	-15.201	18.61	3.41	25.63	-16.661	21.60	4.94	8.02
79	22.64	-15.372	18.61	3.24	25.63	-16.547	21.60	5.05	8.02
80	22.64	-15.555	18.61	3.06	25.63	-16.467	21.60	5.13	8.00
81	22.64	-15.748	18.61	2.86	25.63	-16.417	21.60	5.18	7.96
82	22.64	-15.951	18.61	2.66	25.63	-16.395	21.60	5.21	7.90
83	22.64	-16.163	18.61	2.45	25.63	-16.397	21.60	5.20	7.82
84	22.64	-16.383	18.61	2.23	25.63	-16.42	21.60	5.18	7.73
85	22.64	-16.609	18.61	2.00	25.63	-16.462	21.60	5.14	7.63
86	22.64	-16.842	18.61	1.77	25.63	-16.521	21.60	5.08	7.51
87	22.64	-17.08	18.61	1.53	25.63	-16.596	21.60	5.00	7.39
88	22.64	-17.325	18.61	1.29	25.63	-16.684	21.60	4.92	7.25
89	22.64	-17.574	18.61	1.04	25.63	-16.785	21.60	4.82	7.10
90	22.64	-17.828	18.61	0.78	25.63	-16.897	21.60	4.70	6.95
91	22.64	-18.088	18.61	0.52	25.63	-17.018	21.60	4.58	6.79
92	22.64	-18.354	18.61	0.26	25.63	-17.149	21.60	4.45	6.62
93	22.64	-18.625	18.61	-0.02	25.63	-17.287	21.60	4.31	6.45
94	22.64	-18.902	18.61	-0.29	25.63	-17.433	21.60	4.17	6.27
95	22.64	-19.186	18.61	-0.58	25.63	-17.585	21.60	4.02	6.08
96	22.64	-19.478	18.61	-0.87	25.63	-17.744	21.60	3.86	5.89
97	22.64	-19.78	18.61	-1.17	25.63	-17.909	21.60	3.69	5.69
98	22.64	-20.09	18.61	-1.48	25.63	-18.079	21.60	3.52	5.48
99	22.64	-20.41	18.61	-1.80	25.63	-18.254	21.60	3.35	5.27
100	22.64	-20.74	18.61	-2.13	25.63	-18.435	21.60	3.17	5.06

101	22.64	-21.08	18.61	-2.47	25.63	-18.621	21.60	2.98	4.84
102	22.64	-21.44	18.61	-2.83	25.63	-18.812	21.60	2.79	4.61
103	22.64	-21.82	18.61	-3.21	25.63	-19.008	21.60	2.59	4.38
104	22.64	-22.2	18.61	-3.59	25.63	-19.21	21.60	2.39	4.14
105	22.64	-22.61	18.61	-4.00	25.63	-19.417	21.60	2.18	3.89
106	22.64	-23.02	18.61	-4.41	25.63	-19.63	21.60	1.97	3.64
107	22.64	-23.45	18.61	-4.84	25.63	-19.85	21.60	1.75	3.38
108	22.64	-23.88	18.61	-5.27	25.63	-20.07	21.60	1.53	3.12
109	22.64	-24.31	18.61	-5.70	25.63	-20.3	21.60	1.30	2.86
110	22.64	-24.73	18.61	-6.12	25.63	-20.54	21.60	1.06	2.59
111	22.64	-25.12	18.61	-6.51	25.63	-20.78	21.60	0.82	2.33
112	22.64	-25.46	18.61	-6.85	25.63	-21.03	21.60	0.57	2.06
113	22.64	-25.73	18.61	-7.12	25.63	-21.28	21.60	0.32	1.81
114	22.64	-25.89	18.61	-7.28	25.63	-21.54	21.60	0.06	1.57
115	22.64	-25.94	18.61	-7.33	25.63	-21.79	21.60	-0.19	1.35
116	22.64	-25.85	18.61	-7.24	25.63	-22.05	21.60	-0.45	1.15
117	22.64	-25.63	18.61	-7.02	25.63	-22.3	21.60	-0.70	0.98
118	22.64	-25.3	18.61	-6.69	25.63	-22.55	21.60	-0.95	0.85
119	22.64	-24.88	18.61	-6.27	25.63	-22.79	21.60	-1.19	0.75
120	22.64	-24.39	18.61	-5.78	25.63	-23.01	21.60	-1.41	0.71
121	22.64	-23.87	18.61	-5.26	25.63	-23.22	21.60	-1.62	0.71
122	22.64	-23.33	18.61	-4.72	25.63	-23.41	21.60	-1.81	0.75
123	22.64	-22.8	18.61	-4.19	25.63	-23.57	21.60	-1.97	0.84
124	22.64	-22.3	18.61	-3.69	25.63	-23.71	21.60	-2.11	0.95
125	22.64	-21.82	18.61	-3.21	25.63	-23.82	21.60	-2.22	1.09
126	22.64	-21.39	18.61	-2.78	25.63	-23.9	21.60	-2.30	1.25
127	22.64	-21	18.61	-2.39	25.63	-23.95	21.60	-2.35	1.41
128	22.64	-20.67	18.61	-2.06	25.63	-23.98	21.60	-2.38	1.56
129	22.64	-20.38	18.61	-1.77	25.63	-23.98	21.60	-2.38	1.72
130	22.64	-20.16	18.61	-1.55	25.63	-23.98	21.60	-2.38	1.84
131	22.64	-20	18.61	-1.39	25.63	-23.96	21.60	-2.36	1.93
132	22.64	-19.9	18.61	-1.29	25.63	-23.95	21.60	-2.35	1.99
133	22.64	-19.88	18.61	-1.27	25.63	-23.94	21.60	-2.34	2.01
134	22.64	-19.93	18.61	-1.32	25.63	-23.95	21.60	-2.35	1.98
135	22.64	-20.07	18.61	-1.46	25.63	-23.98	21.60	-2.38	1.88
136	22.64	-20.29	18.61	-1.68	25.63	-24.04	21.60	-2.44	1.74
137	22.64	-20.62	18.61	-2.01	25.63	-24.13	21.60	-2.53	1.52
138	22.64	-21.06	18.61	-2.45	25.63	-24.27	21.60	-2.67	1.22
139	22.64	-21.62	18.61	-3.01	25.63	-24.45	21.60	-2.85	0.85

140	22.64	-22.33	18.61	-3.72	25.63	-24.68	21.60	-3.08	0.39
141	22.64	-23.21	18.61	-4.60	25.63	-24.97	21.60	-3.37	-0.16
142	22.64	-24.28	18.61	-5.67	25.63	-25.32	21.60	-3.72	-0.81
143	22.64	-25.56	18.61	-6.95	25.63	-25.74	21.60	-4.14	-1.54
144	22.64	-27.04	18.61	-8.43	25.63	-26.23	21.60	-4.63	-2.35
145	22.64	-28.57	18.61	-9.96	25.63	-26.78	21.60	-5.18	-3.16
146	22.64	-29.74	18.61	-11.13	25.63	-27.4	21.60	-5.80	-3.91
147	22.64	-29.85	18.61	-11.24	25.63	-28.08	21.60	-6.48	-4.46
148	22.64	-28.74	18.61	-10.13	25.63	-28.8	21.60	-7.20	-4.64
149	22.64	-27.05	18.61	-8.44	25.63	-29.54	21.60	-7.94	-4.40
150	22.64	-25.34	18.61	-6.73	25.63	-30.24	21.60	-8.64	-3.80

* Calculated by deducting the highest measured antenna gain exceeding 6 dBi from the measured conducted output power.



11.0 and 20.5 dBi Antenna Elevation & Output Power Radiation Pattern (30° to 150°)