

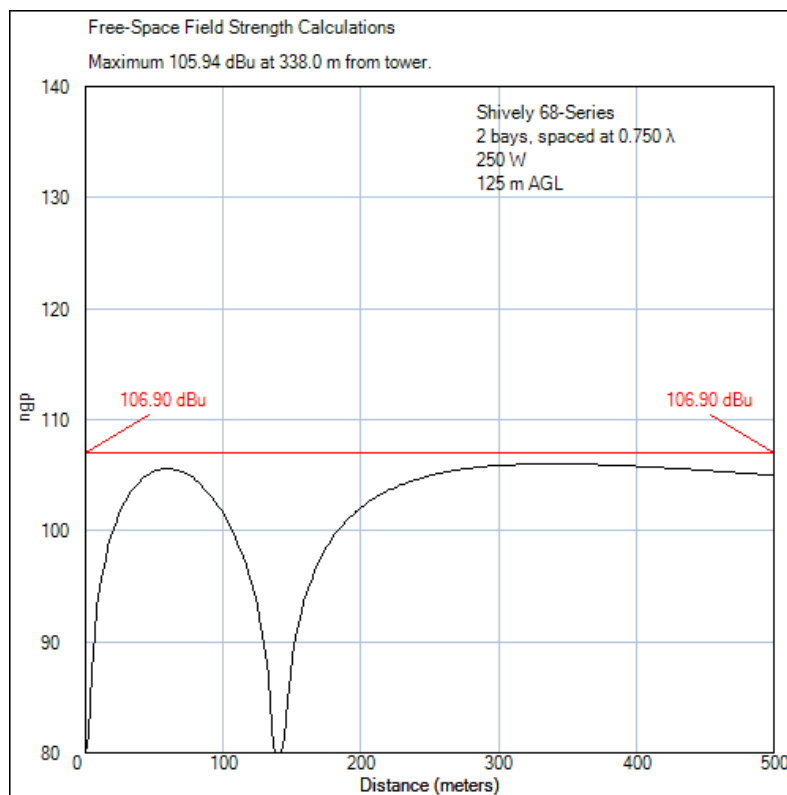
W254BZ

Second Adjacent Channel Interference Study

The proposed site is within the protected 57 dBu f(50,50) contour of Class B1 station WUEZ, FCC Facility ID # 39520. The WUEZ f(50,50) signal at the site is 66.9 dBu, and the permissible interfering signal is 106.9 dBu free-space.

The proposed antenna is a Shively 6812 model with two bays spaced at 0.75λ . The antenna will be centered 125 m above the ground.

As shown on the graph below, the signal never reaches 106.9 dBu:



Supporting tabulations are provided on the following pages.

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The following table shows the calculation of the depression angle, slant range, relative field, power and dBu in five meter increments out to 500 m from the base of the tower:

dist	dangle	srange	hflid	dbk	dBu	dist	dangle	srange	hflid	dbk	dBu	dist	dangle	srange	hflid	dbk	dBu
0	90.00	125.00	0.000	-86.02	38.97	170	36.33	211.00	0.142	-23.00	97.44	340	20.19	362.20	0.647	-9.81	105.94
5	87.71	125.10	0.032	-35.88	89.10	175	35.54	215.10	0.164	-21.72	98.56	345	19.92	366.90	0.655	-9.70	105.94
10	85.43	125.40	0.062	-30.17	94.79	180	34.78	219.10	0.186	-20.62	99.49	350	19.65	371.70	0.663	-9.59	105.93
15	83.16	125.90	0.090	-26.90	98.03	185	34.05	223.30	0.208	-19.67	100.29	355	19.40	376.40	0.671	-9.49	105.93
20	80.91	126.60	0.116	-24.71	100.18	190	33.34	227.40	0.229	-18.82	100.98	360	19.15	381.10	0.678	-9.40	105.91
25	78.69	127.50	0.141	-23.03	101.79	195	32.66	231.60	0.250	-18.06	101.57	365	18.90	385.80	0.685	-9.30	105.90
30	76.50	128.50	0.163	-21.77	102.98	200	32.01	235.80	0.270	-17.39	102.09	370	18.67	390.50	0.692	-9.22	105.88
35	74.36	129.80	0.182	-20.80	103.87	205	31.37	240.10	0.290	-16.78	102.54	375	18.43	395.30	0.699	-9.13	105.86
40	72.26	131.20	0.199	-20.03	104.54	210	30.76	244.40	0.309	-16.22	102.95	380	18.21	400.00	0.705	-9.05	105.84
45	70.20	132.90	0.213	-19.45	105.01	215	30.17	248.70	0.328	-15.71	103.31	385	17.99	404.80	0.712	-8.97	105.81
50	68.20	134.60	0.224	-19.03	105.32	220	29.60	253.00	0.346	-15.24	103.62	390	17.77	409.50	0.718	-8.90	105.78
55	66.25	136.60	0.231	-18.74	105.48	225	29.05	257.40	0.363	-14.81	103.91	395	17.56	414.30	0.724	-8.83	105.76
60	64.36	138.70	0.235	-18.60	105.49	230	28.52	261.80	0.381	-14.41	104.16	400	17.35	419.10	0.730	-8.76	105.73
65	62.53	140.90	0.236	-18.55	105.41	235	28.01	266.20	0.397	-14.04	104.39	405	17.15	423.90	0.735	-8.69	105.69
70	60.75	143.30	0.234	-18.62	105.18	240	27.51	270.60	0.413	-13.70	104.59	410	16.96	428.60	0.741	-8.63	105.66
75	59.04	145.80	0.230	-18.80	104.86	245	27.03	275.00	0.429	-13.37	104.77	415	16.76	433.40	0.746	-8.56	105.63
80	57.38	148.40	0.222	-19.09	104.42	250	26.57	279.50	0.444	-13.07	104.93	420	16.57	438.20	0.751	-8.50	105.59
85	55.78	151.20	0.212	-19.49	103.85	255	26.11	284.00	0.459	-12.79	105.08	425	16.39	443.00	0.756	-8.45	105.56
90	54.25	154.00	0.200	-20.01	103.16	260	25.68	288.50	0.473	-12.52	105.21	430	16.21	447.80	0.761	-8.39	105.52
95	52.77	157.00	0.185	-20.66	102.36	265	25.25	293.00	0.487	-12.27	105.32	435	16.03	452.60	0.766	-8.34	105.48
100	51.34	160.10	0.169	-21.45	101.39	270	24.84	297.50	0.500	-12.04	105.42	440	15.86	457.40	0.771	-8.28	105.44
105	49.97	163.20	0.151	-22.42	100.25	275	24.44	302.10	0.513	-11.82	105.51	445	15.69	462.20	0.775	-8.23	105.40
110	48.65	166.50	0.132	-23.60	98.90	280	24.06	306.60	0.525	-11.61	105.59	450	15.52	467.00	0.779	-8.19	105.36
115	47.39	169.90	0.112	-25.05	97.28	285	23.68	311.20	0.537	-11.41	105.65	455	15.36	471.90	0.783	-8.14	105.31
120	46.17	173.30	0.090	-26.90	95.26	290	23.32	315.80	0.549	-11.23	105.71	460	15.20	476.70	0.788	-8.09	105.27
125	45.00	176.80	0.068	-29.34	92.64	295	22.96	320.40	0.560	-11.05	105.77	465	15.05	481.50	0.792	-8.05	105.23
130	43.88	180.30	0.045	-32.86	88.94	300	22.62	325.00	0.571	-10.88	105.81	470	14.89	486.30	0.795	-8.01	105.18
135	42.80	184.00	0.022	-39.05	82.58	305	22.29	329.60	0.582	-10.73	105.84	475	14.74	491.20	0.799	-7.97	105.14
140	41.76	187.70	0.001	-64.75	56.71	310	21.96	334.30	0.592	-10.58	105.87	480	14.60	496.00	0.803	-7.93	105.09
145	40.76	191.40	0.025	-38.15	83.14	315	21.64	338.90	0.602	-10.43	105.90	485	14.45	500.80	0.806	-7.89	105.05
150	39.81	195.30	0.048	-32.32	88.79	320	21.34	343.50	0.611	-10.30	105.91	490	14.31	505.70	0.810	-7.85	105.00
155	38.88	199.10	0.072	-28.87	92.07	325	21.04	348.20	0.621	-10.17	105.93	495	14.17	510.50	0.813	-7.82	104.95
160	38.00	203.00	0.095	-26.42	94.35	330	20.75	352.90	0.630	-10.04	105.94	500	14.04	515.40	0.817	-7.78	104.91
165	37.15	207.00	0.119	-24.54	96.07	335	20.46	357.60	0.638	-9.92	105.94						

The highest value is 105.94 dBu from 330 to 345 meters. This is below the permissible interfering signal of 106.9 dBu.

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This table shows the manufacturer's pattern calculation:

Antenna Mfg.: Shively Labs

Date: 7/28/2016

Antenna Type: 6812

Station: WFRX Translator

Beam Tilt 0

Frequency: 95.5

Gain (Max) 0.958

-0.187 dB

Channel #: 238

Gain (Horizon) 0.958

-0.187 dB

Figure: Figure 3

Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field
-90	0.000	-44	0.048	0	1.000	46	0.087
-89	0.015	-43	0.027	1	0.999	47	0.105
-88	0.028	-42	0.004	2	0.996	48	0.122
-87	0.042	-41	0.019	3	0.991	49	0.138
-86	0.055	-40	0.043	4	0.984	50	0.152
-85	0.067	-39	0.069	5	0.975	51	0.165
-84	0.080	-38	0.095	6	0.965	52	0.177
-83	0.092	-37	0.123	7	0.952	53	0.188
-82	0.104	-36	0.151	8	0.938	54	0.198
-81	0.116	-35	0.180	9	0.922	55	0.206
-80	0.127	-34	0.209	10	0.904	56	0.214
-79	0.138	-33	0.239	11	0.885	57	0.220
-78	0.148	-32	0.270	12	0.864	58	0.225
-77	0.158	-31	0.302	13	0.842	59	0.230
-76	0.168	-30	0.333	14	0.818	60	0.233
-75	0.177	-29	0.365	15	0.793	61	0.235
-74	0.186	-28	0.398	16	0.767	62	0.236
-73	0.194	-27	0.430	17	0.740	63	0.236
-72	0.201	-26	0.462	18	0.711	64	0.236
-71	0.208	-25	0.495	19	0.682	65	0.234
-70	0.214	-24	0.527	20	0.652	66	0.232
-69	0.220	-23	0.559	21	0.622	67	0.228
-68	0.224	-22	0.591	22	0.591	68	0.224
-67	0.228	-21	0.622	23	0.559	69	0.220
-66	0.232	-20	0.652	24	0.527	70	0.214
-65	0.234	-19	0.682	25	0.495	71	0.208
-64	0.236	-18	0.711	26	0.462	72	0.201
-63	0.236	-17	0.740	27	0.430	73	0.194
-62	0.236	-16	0.767	28	0.398	74	0.186
-61	0.235	-15	0.793	29	0.365	75	0.177
-60	0.233	-14	0.818	30	0.333	76	0.168
-59	0.230	-13	0.842	31	0.302	77	0.158
-58	0.225	-12	0.864	32	0.270	78	0.148
-57	0.220	-11	0.885	33	0.239	79	0.138
-56	0.214	-10	0.904	34	0.209	80	0.127
-55	0.206	-9	0.922	35	0.180	81	0.116
-54	0.198	-8	0.938	36	0.151	82	0.104
-53	0.188	-7	0.952	37	0.123	83	0.092
-52	0.177	-6	0.965	38	0.095	84	0.080
-51	0.165	-5	0.975	39	0.069	85	0.067
-50	0.152	-4	0.984	40	0.043	86	0.055
-49	0.138	-3	0.991	41	0.019	87	0.042
-48	0.122	-2	0.996	42	0.004	88	0.028
-47	0.105	-1	0.999	43	0.027	89	0.015
-46	0.087	0	1.000	44	0.048	90	0.000
-45	0.068			45	0.068		

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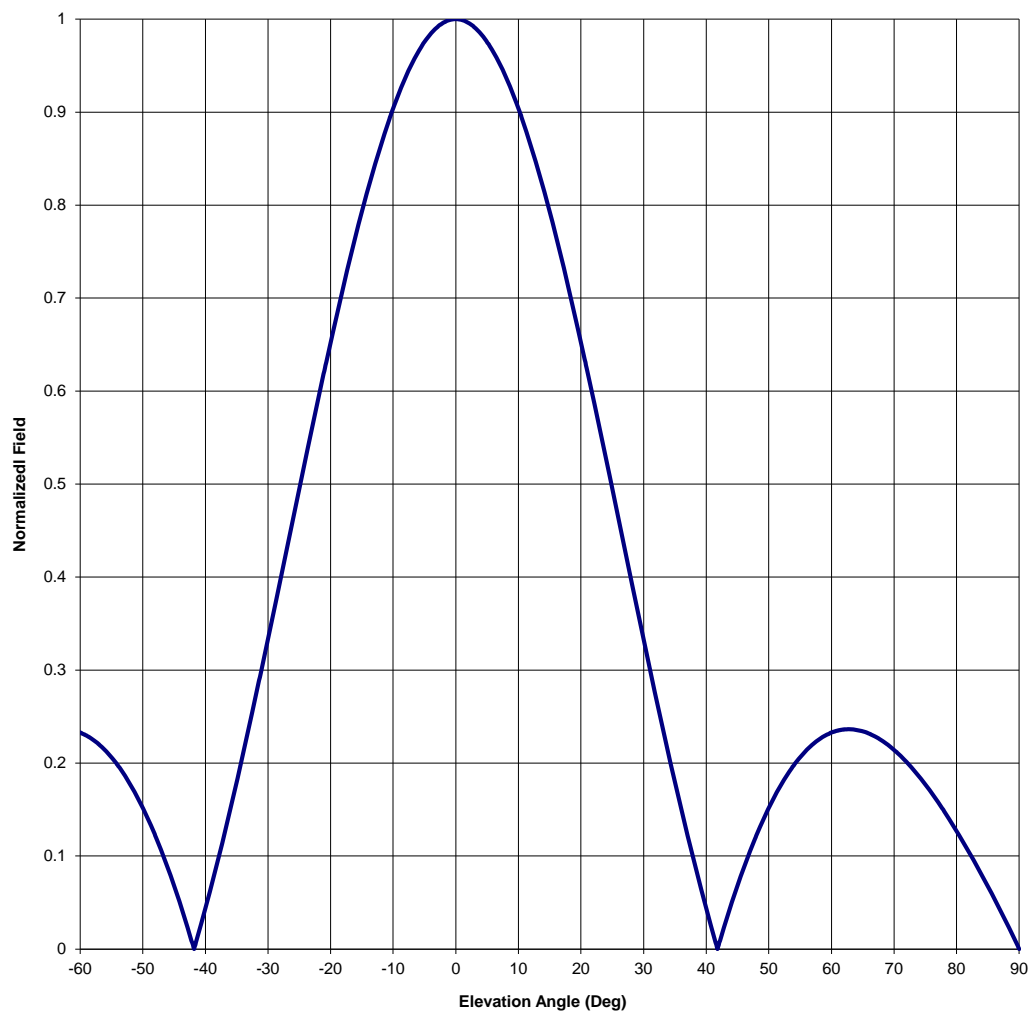
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Antenna Mfg.: Shively Labs
Antenna Type: 6812
Station: WFRX Translator
Frequency: 95.5
Channel #: 238
Figure: Figure 3

Date: 7/28/2016

Beam Tilt	0	
Gain (Max)	0.958	-0.187 dB
Gain (Horizon)	0.958	-0.187 dB



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