

## **WLBC-FM Auxiliary Antenna**

Channel 281B – 104.1 MHz  
6.8 kW ERP – 341.1 m COR AMSL  
Muncie, Indiana  
August 2022

### **Radiofrequency Radiation Calculation and Environmental Statement**

#### **Radiofrequency Radiation Calculation:**

This radiofrequency radiation study is being conducted to determine whether this proposal for the WLBC-FM auxiliary antenna is in compliance with OET Bulletin Number 65, dated August 1997, regarding human exposure to radiofrequency radiation in the vicinity of broadcast towers. This study considers all nearby contributing stations and utilizes the appropriate formulas contained in the OET Bulletin.

The ERI SHPX-1AE antenna system will be mounted with its center of radiation 50.3 meters above the ground and will operate with an effective radiated power of 6.8 kilowatts (circularly polarized). This is a “best case” EPA Type 3 antenna. At two meters, the height of an average person, above the ground at the base of the tower, this proposal will contribute, best case, 5.84 microwatts/sq. centimeter, which is 2.92% of the allowable ANSI limit. Other areas were examined and it was determined the highest concentration of radiofrequency radiation of 21.67% occurs 48 meters from the tower. See the attached Radiofrequency Radiation Density graph.

The following table shows the radiofrequency radiation contributions of all nearby broadcast stations at 48 meters from of the WLBC-FM auxiliary antenna tower, the location of the greatest radiofrequency radiation contribution.

#### **Nearby Stations**

<b><u>Call Sign</u></b>	<b><u>Power (kW)</u></b>	<b><u>Polarization</u></b>	<b><u>Height (AGL)</u></b>	<b><u>Distance from WLBC-FM Aux.</u></b>	<b><u>RFR Contribution</u></b>
*WERK	6	Circular	101 meters	0 meters	0.614%
*WKMV	0.280	Circular	106 meters	99 meters	0.052%
W278BY	0.013	Vertical	48 meters	93 meters	0.015%

Total Nearby FM Contribution = 0.681%

\* “Best Case” antennas: WERK uses an ERI LPX-2E (EPA Type 3) antenna and WKMV uses an ERI LPX-1E (EPA Type 3) antenna.

Adding the radiofrequency radiation contribution of this proposal of 21.67% to the contribution of 0.681% of the nearby FM stations produces a total of 22.351%. Since this level is below the maximum contribution of 100% defined in the aforementioned bulletin, this proposal is believed to be in compliance with OET Bulletin Number 65 as is required by the Federal Communications Commission. There are no nearby or co-located AM or TV broadcast facilities. All calculations were made in the uncontrolled mode.

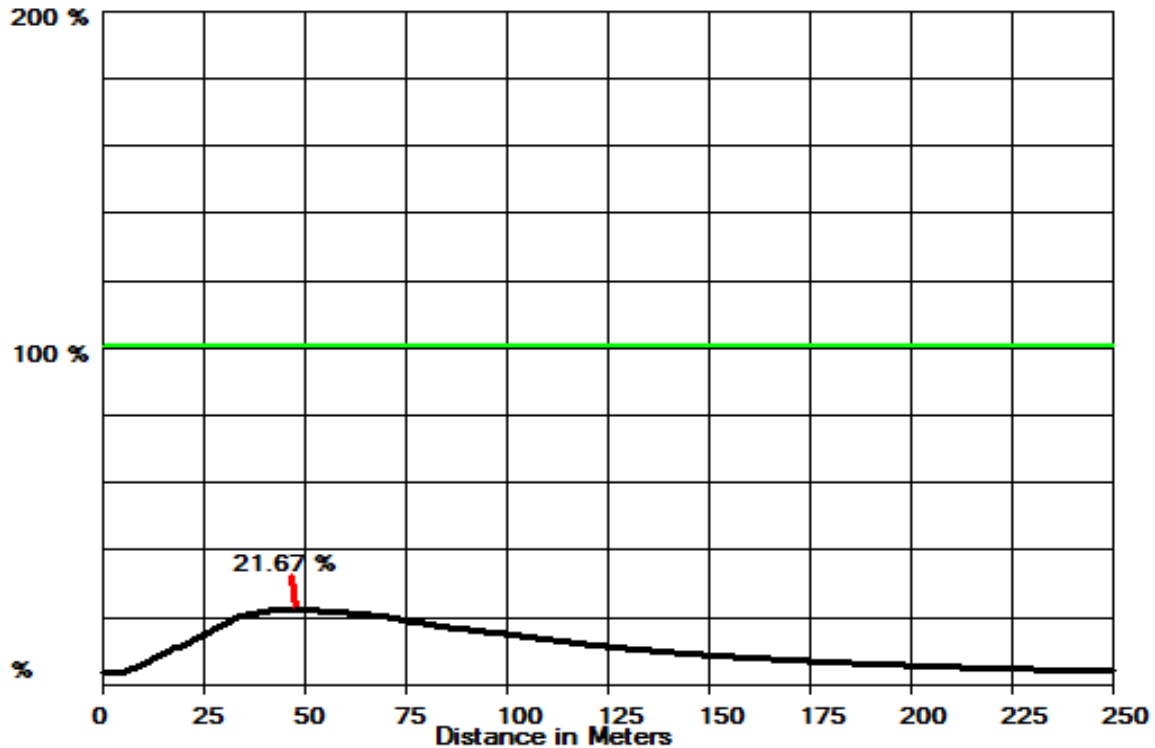
This antenna is also licensed as an auxiliary antenna for WERK (FM). However, the auxiliary facilities for WLBC-FM and WERK (FM) will not be combined or operate simultaneously.

The applicant will post warning signs in the vicinity of the tower warning of potential radiofrequency radiation hazards at the site. In addition, the applicant will reduce the power of the proposed facility or cease operation, as necessary, to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.

**Environmental Statement:**

This proposal is to locate the WLBC-FM auxiliary antenna on an existing tower (Antenna Structure Registration Number 1030912). Since no change is being made to the supporting structure, this proposal is believed to be in compliance with the Nationwide Programmatic Agreement and NHPA Section 106.

EPA Type 3: Opposed "U" dipole, 1 Bay, Spac= 1, H=6.8 kW, V=6.8 kW, 50.3 M AG



HORZ. DISTANCE FROM FM RADIATOR VS POWER DENSITY (Microwatt/Square cm)  
 Dist(Meters) PD (H) PD (V) Total(uW/cm2) Percent Max.(200)

Dist(Meters)	PD (H)	PD (V)	Total(uW/cm2)	Percent Max.(200)
0	2.92	2.92	5.84	2.9
1	2.92	2.92	5.84	2.9
2	2.92	2.92	5.83	2.9
3	2.91	2.91	5.82	2.9
4	2.90	2.90	5.80	2.9
5	3.20	3.20	6.41	3.2
6	3.62	3.62	7.23	3.6
7	4.04	4.04	8.09	4.0
8	4.49	4.49	8.98	4.5
9	5.07	4.90	9.97	5.0
10	5.81	5.27	11.08	5.5
11	6.59	5.64	12.23	6.1
12	7.40	6.01	13.41	6.7
13	8.21	6.40	14.60	7.3
14	8.68	7.05	15.73	7.9
15	9.15	7.72	16.87	8.4
16	9.61	8.39	18.00	9.0
17	10.06	9.07	19.13	9.6
18	10.54	9.75	20.29	10.1
19	11.06	10.44	21.50	10.8
20	11.57	11.12	22.70	11.3
21	12.07	11.79	23.87	11.9
22	12.55	12.46	25.01	12.5
23	13.17	13.05	26.22	13.1
24	13.95	13.55	27.51	13.8
25	14.71	14.04	28.76	14.4

Dist(Meters)	PD (H)	PD (V)	Total(uW/cm2)	Percent Max.
26	15.46	14.51	29.97	15.0
27	16.18	14.96	31.14	15.6
28	16.89	15.41	32.29	16.1
29	17.65	15.96	33.61	16.8
30	18.38	16.49	34.87	17.4
31	19.08	17.00	36.08	18.0
32	19.76	17.49	37.24	18.6
33	20.40	17.94	38.35	19.2
34	20.98	18.34	39.32	19.7
35	21.34	18.57	39.91	20.0
36	21.67	18.77	40.44	20.2
37	21.98	18.95	40.93	20.5
38	22.26	19.11	41.37	20.7
39	22.52	19.25	41.77	20.9
40	22.75	19.37	42.12	21.1
41	22.99	19.42	42.42	21.2
42	23.25	19.40	42.65	21.3
43	23.49	19.36	42.85	21.4
44	23.70	19.31	43.01	21.5
45	23.89	19.25	43.14	21.6
46	24.05	19.18	43.23	21.6
47	24.19	19.11	43.30	21.6
48	24.31	19.02	43.33	21.7
49	24.23	19.06	43.28	21.6
50	24.05	19.14	43.19	21.6
51	23.87	19.20	43.07	21.5
52	23.68	19.25	42.93	21.5
53	23.48	19.29	42.77	21.4
54	23.28	19.32	42.60	21.3
55	23.07	19.33	42.40	21.2
56	22.86	19.33	42.20	21.1
57	22.65	19.32	41.97	21.0
58	22.45	19.33	41.78	20.9
59	22.25	19.38	41.63	20.8
60	22.05	19.41	41.46	20.7
61	21.85	19.42	41.28	20.6
62	21.65	19.43	41.08	20.5
63	21.44	19.43	40.87	20.4
64	21.23	19.41	40.65	20.3
65	21.02	19.39	40.42	20.2
66	20.81	19.36	40.18	20.1
67	20.60	19.32	39.93	20.0
68	20.39	19.28	39.67	19.8
69	20.18	19.22	39.40	19.7
70	19.84	19.13	38.97	19.5
71	19.50	19.04	38.54	19.3
72	19.18	18.94	38.11	19.1
73	18.86	18.83	37.69	18.8
74	18.54	18.72	37.27	18.6
75	18.24	18.61	36.85	18.4
76	17.94	18.49	36.43	18.2
77	17.64	18.38	36.02	18.0

Dist(Meters)	PD (H)	PD (V)	Total(uW/cm2)	Percent Max.
78	17.35	18.25	35.61	17.8
79	17.07	18.13	35.20	17.6
80	16.79	18.00	34.80	17.4
81	16.52	17.88	34.40	17.2
82	16.25	17.75	34.00	17.0
83	15.99	17.62	33.61	16.8
84	15.76	17.50	33.26	16.6
85	15.56	17.42	32.97	16.5
86	15.36	17.33	32.69	16.3
87	15.17	17.24	32.41	16.2
88	14.98	17.14	32.13	16.1
89	14.80	17.05	31.84	15.9
90	14.61	16.95	31.56	15.8
91	14.43	16.85	31.28	15.6
92	14.25	16.75	31.00	15.5
93	14.07	16.64	30.72	15.4
94	13.90	16.54	30.44	15.2
95	13.73	16.43	30.16	15.1
96	13.56	16.33	29.88	14.9
97	13.39	16.22	29.61	14.8
98	13.23	16.11	29.33	14.7
99	13.06	16.00	29.06	14.5
100	12.90	15.88	28.79	14.4
101	12.75	15.77	28.52	14.3
102	12.59	15.66	28.25	14.1
103	12.44	15.55	27.98	14.0
104	12.30	15.38	27.68	13.8
105	12.17	15.16	27.33	13.7
106	12.05	14.93	26.99	13.5
107	11.93	14.72	26.65	13.3
108	11.81	14.50	26.31	13.2
109	11.69	14.30	25.99	13.0
110	11.57	14.09	25.66	12.8
111	11.46	13.89	25.35	12.7
112	11.34	13.69	25.03	12.5
113	11.23	13.50	24.73	12.4
114	11.11	13.31	24.43	12.2
115	11.00	13.13	24.13	12.1
116	10.89	12.94	23.84	11.9
117	10.78	12.76	23.55	11.8
118	10.68	12.59	23.27	11.6
119	10.57	12.42	22.99	11.5
120	10.46	12.25	22.71	11.4
121	10.36	12.08	22.44	11.2
122	10.26	11.92	22.18	11.1
123	10.16	11.76	21.92	11.0
124	10.05	11.61	21.66	10.8
125	9.95	11.45	21.41	10.7
126	9.86	11.30	21.16	10.6
127	9.76	11.16	20.92	10.5
128	9.66	11.01	20.68	10.3
129	9.57	10.87	20.44	10.2

Dist(Meters)	PD (H)	PD (V)	Total(uW/cm2)	Percent Max.
130	9.48	10.73	20.21	10.1
131	9.38	10.59	19.98	10.0
132	9.29	10.46	19.75	9.9
133	9.20	10.33	19.53	9.8
134	9.10	10.22	19.32	9.7
135	9.01	10.10	19.11	9.6
136	8.91	9.99	18.90	9.5
137	8.82	9.88	18.70	9.4
138	8.73	9.77	18.50	9.3
139	8.64	9.67	18.30	9.2
140	8.55	9.56	18.11	9.1
141	8.46	9.46	17.92	9.0
142	8.37	9.36	17.73	8.9
143	8.29	9.26	17.55	8.8
144	8.20	9.16	17.36	8.7
145	8.12	9.06	17.18	8.6
146	8.04	8.97	17.00	8.5
147	7.96	8.87	16.83	8.4
148	7.88	8.78	16.66	8.3
149	7.80	8.69	16.49	8.2
150	7.72	8.60	16.32	8.2
151	7.64	8.51	16.15	8.1
152	7.57	8.42	15.99	8.0
153	7.49	8.33	15.83	7.9
154	7.42	8.25	15.67	7.8
155	7.35	8.16	15.51	7.8
156	7.28	8.08	15.36	7.7
157	7.21	8.00	15.21	7.6
158	7.14	7.92	15.06	7.5
159	7.07	7.84	14.91	7.5
160	7.00	7.76	14.76	7.4
161	6.93	7.69	14.62	7.3
162	6.87	7.61	14.48	7.2
163	6.80	7.53	14.34	7.2
164	6.74	7.46	14.20	7.1
165	6.68	7.39	14.06	7.0
166	6.61	7.32	13.93	7.0
167	6.55	7.25	13.80	6.9
168	6.49	7.18	13.67	6.8
169	6.43	7.11	13.54	6.8
170	6.37	7.04	13.41	6.7
171	6.31	6.97	13.28	6.6
172	6.26	6.91	13.16	6.6
173	6.20	6.84	13.04	6.5
174	6.14	6.78	12.92	6.5
175	6.09	6.71	12.80	6.4
176	6.03	6.65	12.68	6.3
177	5.98	6.59	12.57	6.3
178	5.92	6.53	12.45	6.2
179	5.87	6.47	12.34	6.2
180	5.82	6.41	12.23	6.1
181	5.76	6.35	12.11	6.1

Dist(Meters)	PD (H)	PD (V)	Total(uW/cm2)	Percent Max.
182	5.71	6.29	12.00	6.0
183	5.66	6.23	11.88	5.9
184	5.60	6.17	11.77	5.9
185	5.55	6.11	11.66	5.8
186	5.50	6.05	11.55	5.8
187	5.45	5.99	11.44	5.7
188	5.39	5.94	11.33	5.7
189	5.34	5.88	11.23	5.6
190	5.30	5.83	11.12	5.6
191	5.25	5.77	11.02	5.5
192	5.20	5.72	10.92	5.5
193	5.15	5.67	10.82	5.4
194	5.10	5.62	10.72	5.4
195	5.06	5.57	10.62	5.3
196	5.01	5.51	10.53	5.3
197	4.97	5.46	10.43	5.2
198	4.92	5.42	10.34	5.2
199	4.88	5.37	10.25	5.1
200	4.84	5.32	10.16	5.1
201	4.79	5.27	10.07	5.0
202	4.75	5.23	9.98	5.0
203	4.71	5.18	9.89	4.9
204	4.67	5.13	9.80	4.9
205	4.63	5.09	9.72	4.9
206	4.59	5.05	9.64	4.8
207	4.55	5.00	9.55	4.8
208	4.51	4.96	9.47	4.7
209	4.47	4.92	9.39	4.7
210	4.43	4.87	9.31	4.7
211	4.40	4.83	9.23	4.6
212	4.36	4.79	9.15	4.6
213	4.32	4.75	9.07	4.5
214	4.29	4.71	9.00	4.5
215	4.25	4.67	8.92	4.5
216	4.22	4.63	8.85	4.4
217	4.18	4.59	8.78	4.4
218	4.15	4.56	8.70	4.4
219	4.11	4.52	8.63	4.3
220	4.08	4.48	8.56	4.3
221	4.05	4.45	8.49	4.2
222	4.01	4.41	8.42	4.2
223	3.98	4.37	8.35	4.2
224	3.95	4.34	8.29	4.1
225	3.92	4.30	8.22	4.1
226	3.89	4.27	8.15	4.1
227	3.85	4.23	8.09	4.0
228	3.82	4.20	8.02	4.0
229	3.79	4.17	7.96	4.0
230	3.76	4.13	7.90	3.9
231	3.73	4.10	7.84	3.9
232	3.71	4.07	7.77	3.9
233	3.68	4.04	7.71	3.9

Dist(Meters)	PD (H)	PD (V)	Total(uW/cm2)	Percent Max.
234	3.65	4.01	7.65	3.8
235	3.62	3.97	7.59	3.8
236	3.59	3.94	7.54	3.8
237	3.56	3.91	7.48	3.7
238	3.54	3.88	7.42	3.7
239	3.51	3.85	7.36	3.7
240	3.48	3.82	7.31	3.7
241	3.46	3.80	7.25	3.6
242	3.43	3.77	7.20	3.6
243	3.41	3.74	7.14	3.6
244	3.38	3.71	7.09	3.5
245	3.35	3.68	7.04	3.5
246	3.33	3.66	6.98	3.5
247	3.30	3.63	6.93	3.5
248	3.28	3.60	6.88	3.4
249	3.26	3.57	6.83	3.4
250	3.23	3.55	6.78	3.4