

TECHNICAL EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
RADIO STATION WUKV  
NEW BOSTON, OHIO  
CH 202B1 1.7 KW 233 M

Technical Narrative

This Technical Exhibit was prepared on behalf of noncommercial, educational FM (NCE-FM) station WUKV. Station WUKV is licensed (BLED-20130530ADB, Facility ID 65508) to operate on Channel 202A (88.3 MHz) at Portsmouth, Ohio, with a nondirectional (ND) antenna maximum ERP of 1.65 kW (circular polarization) and an antenna height above average terrain (HAAT) of 154 meters. In addition, WUKV is authorized by outstanding construction permit (BPED-20171013AGU) to change its city of license from Portsmouth to New Boston, Ohio and to continue to operate on Channel 202A (88.3 MHz) with a ND antenna maximum ERP of 1.65 kW (circular polarization) and an antenna height above average terrain (HAAT) of 154 meters. A license application is pending (BLED-20181011AAB) to implement the city of license change. By means of this instant application, it is proposed to relocate WUKV to an existing tower (ASRN 1027116), change its Class from A to B1 on channel 202 and operate with a ND maximum ERP of 1.7 kW (circular polarization) and an HAAT of 233 meters.<sup>1</sup>

HAAT Calculation

As indicated by Figure 1, the HAAT was calculated to be 233 meters based on the NGDC 3-second terrain database. Furthermore, as discussed below, the distances to all contour locations were based on the NGDC 3-second terrain database.

Minor Change Application

Figure 2 is a map showing the licensed and proposed predicted 60 dBu contours for the WUKV. As indicated, the licensed and proposed 60 dBu contours

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<sup>1</sup> The Class contour distance based on an ERP of 1.7 kW and an HAAT of 233 meters is 31.3 km which exceeds the Class A class contour distance of 28 km.

overlap. Therefore, the instant application is considered a minor change in facilities pursuant to Section 73.3573(a)(1).

#### City Coverage

As also indicated on Figure 2, the proposed 60 dBu will encompass 100% of the New Boston city limits (obtained from the 2010 Census) which comports with Section 73.515.

#### Allocation Study

Figure 3 provides a summary of an allocation study for the proposed facility. There are no intermediate frequency (IF) related facilities in close proximity to the proposed facility. Figure 2 lists the results of a numerical analysis of the potential for contour overlap for all nearby co-channel and first-, second-, and third-adjacent-channel facilities. For the purposes of the numerical study, the maximum HAAT and ERP values were used in calculating the maximum distance to the predicted service and interfering contours.

Figure 4, Sheets 1 and 2, are maps depicting the predicted protected and interfering contours of those stations close enough to warrant further study. This is based on the numerical analysis in Figure 3, where there is an indication of the potential for prohibited overlapping contours. As indicated, the Section 73.509 allocation requirements for the proposed facility are fully met with respect to all pertinent facilities.

#### TV Channel 6 Protection

It is required that noncommercial educational FM facilities provide Interference protection to affected TV channel 6 facilities as defined in Section 73.525. Pursuant to Section 73.525 (a) (1), all TV channel 6 facilities within 257 kilometers of a proposed channel 202 FM facility must be protected. The only TV station on channel 6 that is located within 257 km of the proposed site is the authorized post-transition operation of WOUC-TV at Cambridge, Ohio (LMS File No. 0000033599)

located 212.4 km to the northeast. Therefore, a study of the potential for interference to be caused to WOUC-TV was conducted based on the provisions of Section 73.525(e). Pursuant to Section 73.525(e), the 47 dBu, f(50,50) contour is the protected contour for WOUC-TV. The WUKV interfering contour is the sum of the 47 dBu contour and the pertinent undesired-to-desired (U/D) signal ratio (in dB) obtained from Figure 2 of Section 73.599. For channel 202, the pertinent U/D signal ratio is 3.8 dB and, thus, the resulting WUKV interfering contour is the 50.8 dBu, f(50,10) (47 dBu + 3.8 dB). Figure 5 is a map which depicts the WOUC-TV protected 47 dBu, f(50,50) contour and the proposed WUKV interfering 50.8 dBu, f(50,10) contour. As there is no contour overlap, the proposed WUKV operation complies with the provisions of 73.525(e) with respect to WOUC-TV.

#### Use of NGDC 3-Second Terrain Data for Protected and Interfering Contours

The NGDC 3-second terrain database was used to determine the locations of the protected and interfering contours. The average terrain elevations from 3 to 16 km were derived along 72 equally spaced radials. The overall antenna HAAT was determined according to the provisions of Section 73.313 of the FCC Rules. The antenna radiation center HAAT and ERP in each radial direction were used in conjunction with the propagation prediction curves of Section 73.333 to determine the distances to contours. Figure 6 tabulates the terrain data and distances to contours for each station considered.

#### Environmental Considerations

The proposed WUKV channel 202B1 facilities were evaluated in terms of potential radiofrequency radiation exposure at 2 meters above ground level in accordance with the OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation". This Bulletin provides assistance in determining whether FCC-regulated transmitting facilities, operations or devices comply with limits for human exposure to radiofrequency (RF) electromagnetic fields.

The proposed ERI model 100A-4F-HW, 4-bay, 0.5-wavelength spaced, nondirectional antenna will be mounted at the 140-meter level on the existing tower structure. The calculated power density at 2 meters above ground level at the base of the

tower was calculated using the appropriate equation contained in the Bulletin. Specifically, based on a worst-case vertical relative field value of 1.0 for the proposed nondirectional antenna, the total ERP of 3.4 kW (H+V) and an antenna center of radiation height above ground level of 140 meters, the calculated power density at two meters above ground level at the base of the tower is 5.96 microwatts per square centimeter (uW/cm<sup>2</sup>), or 3% of the Commission's recommended limit applicable to uncontrolled exposure areas (200 uW/cm<sup>2</sup> for FM channel 202).

Access to the tower site will be restricted. Furthermore, the site will be appropriately marked with RFR warning signs. In addition, as this is a multi-user site, procedures will be in effect in the event that workers or other authorized personnel enter the restricted area or climb the tower to ensure that appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such procedures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the station is at reduced power or shut down.



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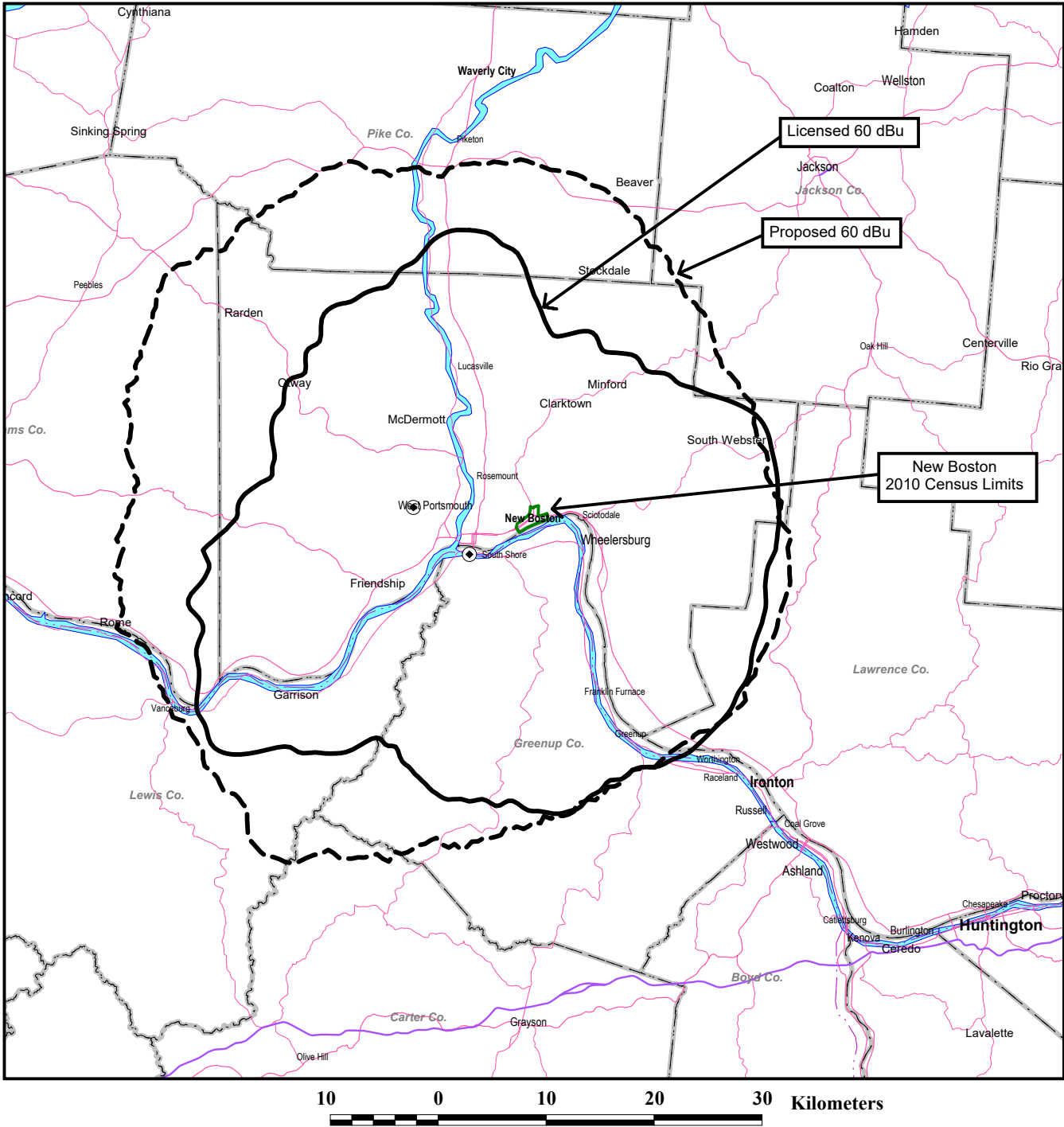
October 29, 2018

Figure 1

**WUKV HAAT CACLULATION  
NGDC 3-SECOND TERRAIN DATA**

<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (M)</u>
0	241	235
45	217	259
90	200	276
135	219	257
180	238	238
225	271	205
270	314	162
<u>315</u>	<u>243</u>	<u>233</u>
Average (8 radials)	243	233

Figure 2



**PREDICTED FCC 60 DBU COVERAGE CONTOURS**

STATION WUKV  
NEW BOSTON, OHIO  
CH 202B1 1.7 KW 233 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Figure 3



# FM Contour Study

du Treil, Lundin, & Rackley, Inc., Sarasota, Florida

**Channel:** 202    **Coordinates:** 038-45-42 083-03-41 (NAD 27)    **ERP:** 1.7 kW    **Max. HAAT:** 310 m

**Comment:** Proposed WUKV

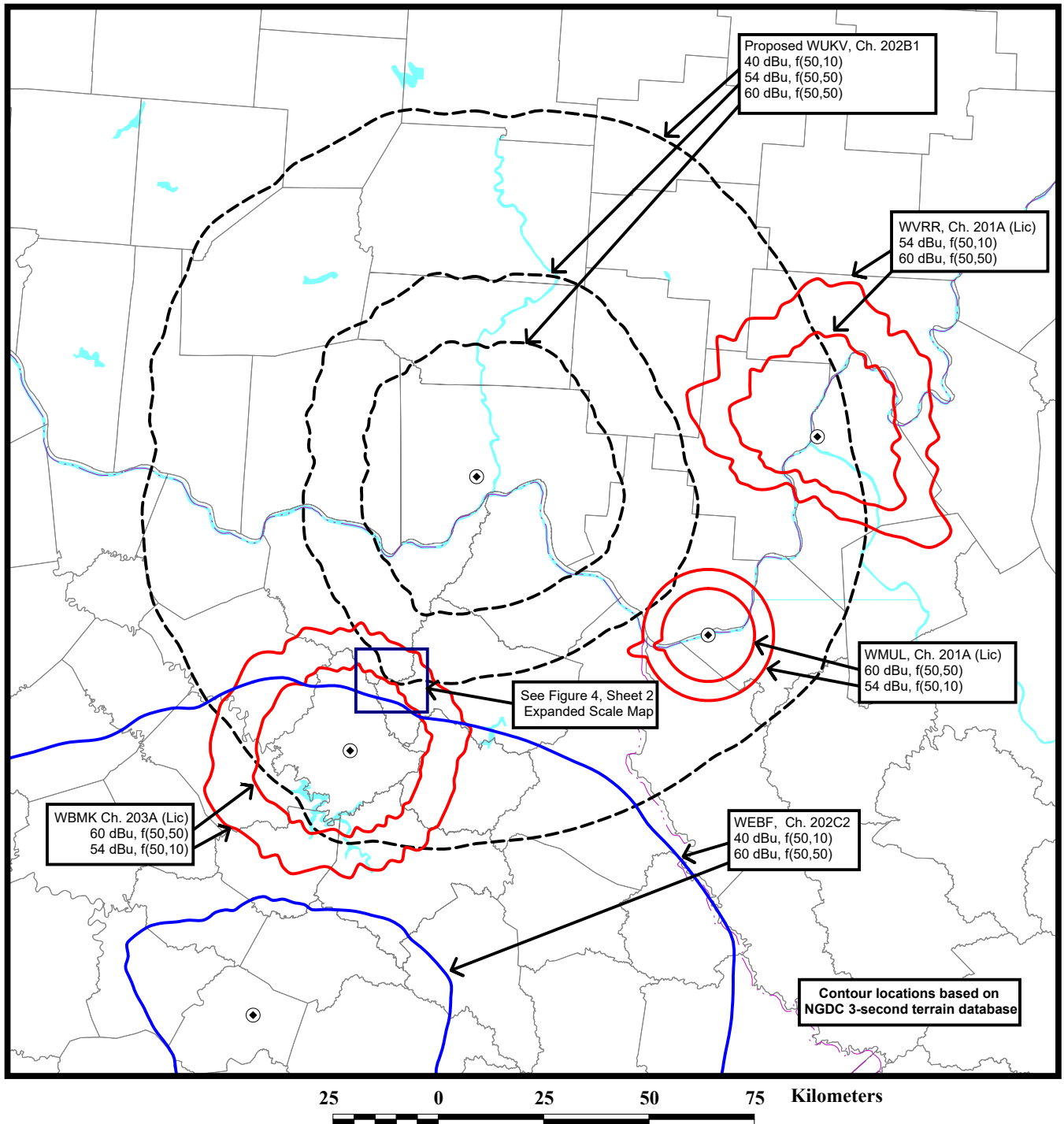
Callsign	Chan.	Service	Status	Freq.	City	State	Co.	Rec.	Latitude	Dist. (km)	Sep. (km)	Spac. (km)
Facility ID	ARN			Class	DA	73.215	ERP (kW)	HAAT (m)	Longitude	Bear. (deg)	Comment	
<b>WMUL</b>	201	FM	LIC	88.1	HUNTINGTON	WV	US	C	38-25-26.5	66.66	68.14	-1.48
66564	BLED	20121018AAX	A	N	N		1.4	-15	082-25-43.3	124.13	<b>SHORT</b>	/1
WMUL 60.0 dBu desired distance: 14.3 km				Proposed 54.0 dBu undesired distance: 53.8 km								
Proposed 60.0 dBu desired distance: 35.9 km				WMUL 54.0 dBu undesired distance: 21.4 km								
<b>WVRR</b>	201	FM	LIC	88.1	POINT PLEASANT	WV	US	C	38-50-49	81.41	80.5	0.91
53094	BLED	20001129AAA	A	D	N		3	88	082-07-50	83	<b>CLOSE</b>	
WVRR 60.0 dBu desired distance: 26.7 km				Proposed 54.0 dBu undesired distance: 53.8 km								
Proposed 60.0 dBu desired distance: 35.9 km				WVRR 54.0 dBu undesired distance: 40.6 km								
<b>WUKV</b>	202	FM	CP	88.3	NEW BOSTON	OH	US	C	38-43-21.2	6.78	124.32	-117.54
65508	BPED	20171013AGU	A	N	N		1.65	154	083-00-05.4	129.92	<b>SHORT</b>	/2
WUKV 60.0 dBu desired distance: 30.1 km				Proposed 40.0 dBu undesired distance: 94.2 km								
Proposed 60.0 dBu desired distance: 35.9 km				WUKV 40.0 dBu undesired distance: 84.5 km								
<b>WUKV</b>	202	FM	LIC	88.3	PORTSMOUTH	OH	US	C	38-43-21.2	6.78	124.32	-117.54
65508	BLED	20130530ADB	A	N	N		1.65	154	083-00-05.4	129.92	<b>SHORT</b>	/3
WUKV 60.0 dBu desired distance: 30.1 km				Proposed 40.0 dBu undesired distance: 94.2 km								
Proposed 60.0 dBu desired distance: 35.9 km				WUKV 40.0 dBu undesired distance: 84.5 km								
<b>WEBF</b>	202	FM	LIC	88.3	LEROSE	KY	US	C	37-36-47	138.25	155.59	-17.34
90101	BLED	20110621AAC	C2	D	N		7.8	282.1	083-40-18	202.86	<b>SHORT</b>	/1
WEBF 60.0 dBu desired distance: 49.6 km				Proposed 40.0 dBu undesired distance: 94.2 km								
Proposed 60.0 dBu desired distance: 35.9 km				WEBF 40.0 dBu undesired distance: 119.7 km								
<b>WBMK</b>	203	FM	LIC	88.5	MOREHEAD	KY	US	C	38-10-38	71.53	78.23	-6.7
91590	BLED	20050511AAY	A	N	N		0.6	159	083-24-24	204.93	<b>SHORT</b>	/1
WBMK 60.0 dBu desired distance: 24.4 km				Proposed 54.0 dBu undesired distance: 53.8 km								
Proposed 60.0 dBu desired distance: 35.9 km				WBMK 54.0 dBu undesired distance: 36.8 km								

/1 Proposed operation complies with the contour overlap provisions of Section 73.509. See Technical Narrative and Figure 4.

/2 Authorized WUKV operation which changed the city of license from Portsmouth to New Boston (license application pending, FCC File No. BLED-20181001AAB).

/3 Current WUKV License.

**Figure 4**  
**Sheet 1 of 2**



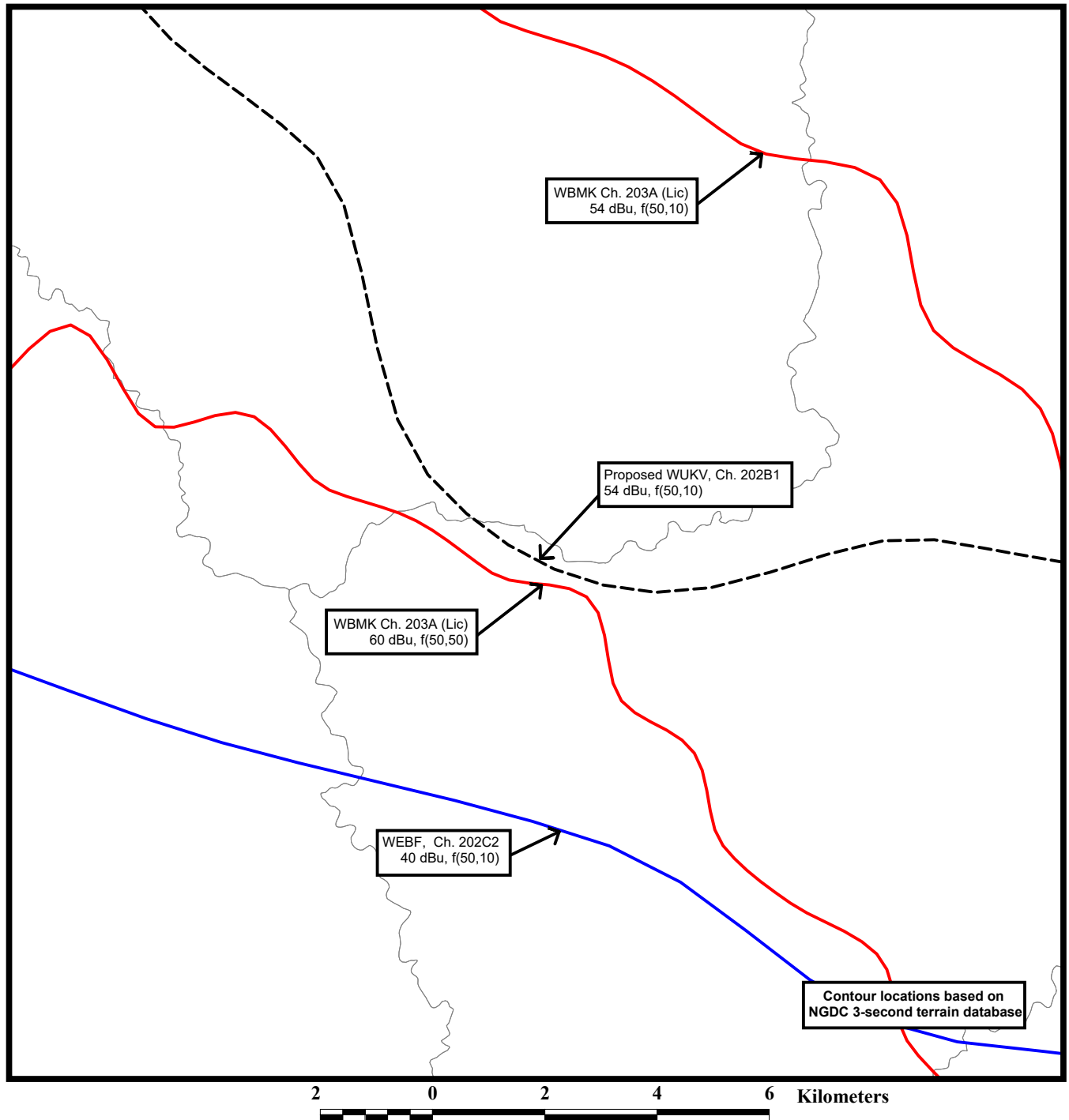
## **SECTION 73.509 COMPLIANCE**

STATION WUKV  
NEW BOSTON, OHIO  
CH 202B1 1.7 KW 233 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



Figure 4  
Sheet 2 of 2

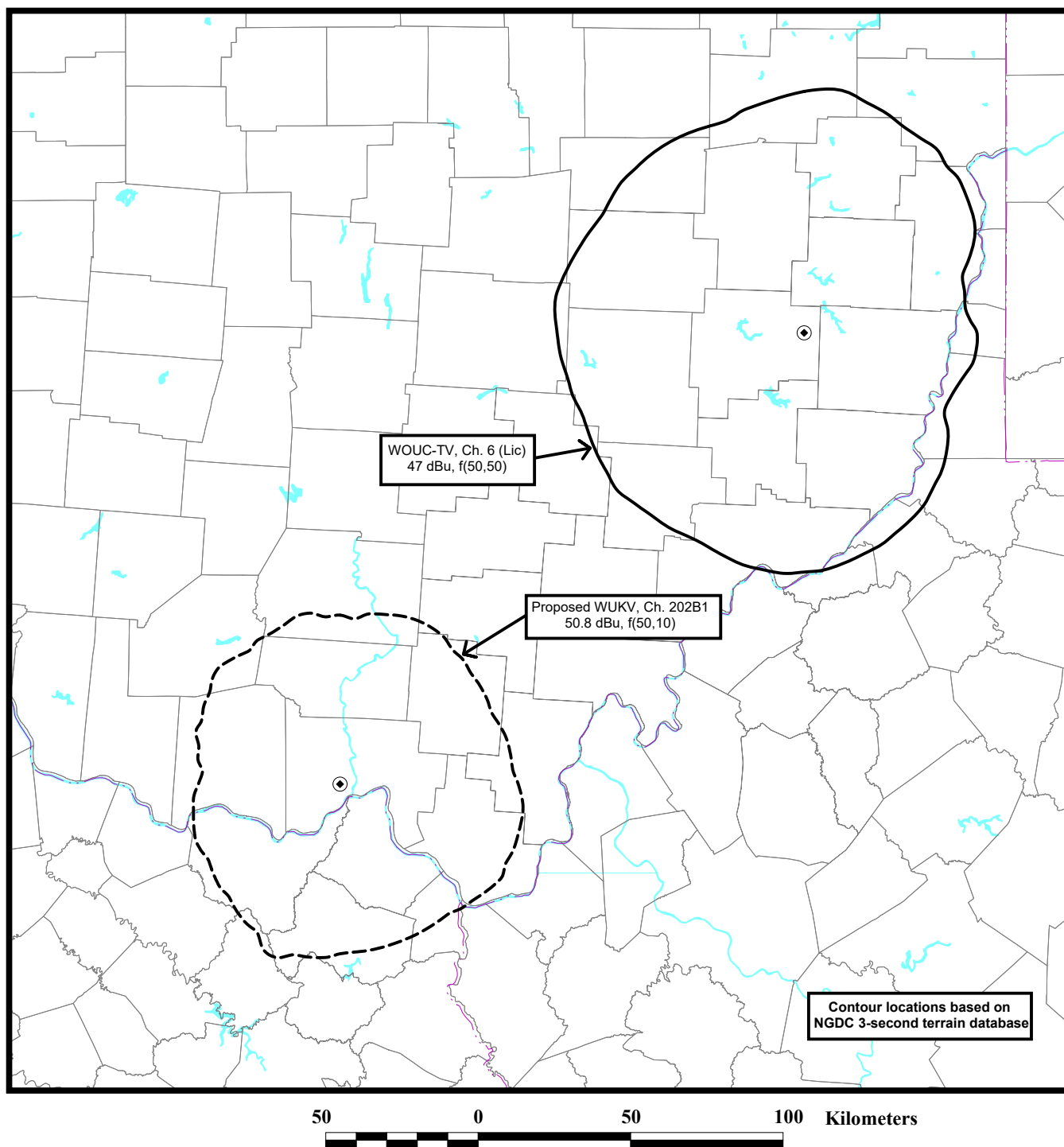


**SECTION 73.509 COMPLIANCE  
[EXPANDED SCALE MAP]**

STATION WUKV  
NEW BOSTON, OHIO  
CH 202B1 1.7 KW 233 M

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Figure 5



## **SECTION 73.525 COMPLIANCE**

STATION WUKV  
NEW BOSTON, OHIO  
CH 202B1 1.7 KW 233 M

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Figure 6  
Sheet 1 of 10

Proposed WUKV 3-second Data				60 dBu, f(50,50)	54 dBu, f(50,10)	50.8 dBu, f(50,10)	40 dBu, f(50,10)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>	<u>Distance (km)</u>	<u>Distance (km)</u>	<u>Distance (km)</u>
0	240	236	1.7	31.5	47.5	55.4	86.8
5	251	225	1.7	30.8	46.5	54.4	85.6
10	226	250	1.7	32.4	48.8	56.7	88.2
15	217	259	1.7	33.0	49.6	57.6	89.2
20	204	272	1.7	33.7	50.7	58.7	90.4
25	196	280	1.7	34.2	51.3	59.4	91.2
30	195	281	1.7	34.3	51.5	59.5	91.3
35	198	278	1.7	34.1	51.1	59.2	91.0
40	216	260	1.7	33.0	49.7	57.6	89.3
45	217	259	1.7	33.0	49.6	57.6	89.2
50	229	247	1.7	32.2	48.6	56.5	88.0
55	230	246	1.7	32.2	48.5	56.4	87.9
60	234	242	1.7	31.9	48.1	56.0	87.5
65	241	235	1.7	31.4	47.4	55.3	86.7
70	231	245	1.7	32.1	48.4	56.3	87.8
75	222	254	1.7	32.7	49.2	57.1	88.7
80	220	256	1.7	32.8	49.3	57.3	88.8
85	219	257	1.7	32.8	49.4	57.4	89.0
90	200	276	1.7	34.0	51.1	59.1	90.9
95	182	294	1.7	35.0	52.5	60.7	92.6
100	175	301	1.7	35.4	53.1	61.3	93.3
105	175	301	1.7	35.4	53.0	61.3	93.3
110	174	302	1.7	35.4	53.1	61.4	93.4
115	181	295	1.7	35.1	52.6	60.8	92.7
120	171	305	1.7	35.6	53.4	61.7	93.7
125	188	288	1.7	34.7	52.0	60.2	92.0
130	206	270	1.7	33.6	50.5	58.5	90.2
135	219	257	1.7	32.8	49.4	57.4	89.0
140	237	239	1.7	31.7	47.8	55.7	87.1
145	239	237	1.7	31.6	47.7	55.6	86.9
150	240	236	1.7	31.5	47.6	55.5	86.8
155	241	235	1.7	31.4	47.5	55.4	86.7
160	242	234	1.7	31.4	47.4	55.3	86.6
165	241	235	1.7	31.4	47.4	55.3	86.7
170	241	235	1.7	31.4	47.4	55.3	86.7
175	242	234	1.7	31.4	47.4	55.3	86.6
180	238	238	1.7	31.6	47.7	55.6	87.0
185	222	254	1.7	32.7	49.2	57.1	88.6
190	216	260	1.7	33.0	49.7	57.6	89.2
195	213	263	1.7	33.2	50.0	57.9	89.6
200	184	292	1.7	34.9	52.4	60.5	92.4
205	189	287	1.7	34.6	52.0	60.1	92.0
210	237	239	1.7	31.7	47.8	55.7	87.1
215	243	233	1.7	31.3	47.2	55.1	86.5
220	256	220	1.7	30.4	45.9	53.8	85.0
225	271	205	1.7	29.3	44.3	52.2	83.3
230	270	206	1.7	29.4	44.3	52.3	83.3
235	279	197	1.7	28.8	43.4	51.3	82.3
240	287	189	1.7	28.2	42.5	50.3	81.3
245	281	195	1.7	28.6	43.1	51.0	82.0
250	280	196	1.7	28.7	43.3	51.2	82.2

Figure 6  
Sheet 2 of 10

**Proposed WUKV 3-second Data**

<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	60 dBu, f(50,50) <u>Distance (km)</u>	54 dBu, f(50,10) <u>Distance (km)</u>	50.8 dBu, f(50,10) <u>Distance (km)</u>	40 dBu, f(50,10) <u>Distance (km)</u>
255	288	188	1.7	28.2	42.5	50.2	81.2
260	295	181	1.7	27.6	41.6	49.3	80.2
265	300	176	1.7	27.3	41.1	48.7	79.5
270	314	162	1.7	26.3	39.7	47.0	77.6
275	324	152	1.7	25.6	38.5	45.7	76.2
280	308	168	1.7	26.8	40.3	47.8	78.5
285	304	172	1.7	27.1	40.8	48.3	79.1
290	284	192	1.7	28.4	42.9	50.7	81.7
295	287	189	1.7	28.2	42.5	50.3	81.3
300	274	202	1.7	29.1	43.9	51.9	82.9
305	268	208	1.7	29.5	44.6	52.5	83.6
310	248	228	1.7	31.0	46.8	54.7	86.0
315	243	233	1.7	31.3	47.3	55.2	86.5
320	253	223	1.7	30.6	46.2	54.1	85.4
325	263	213	1.7	29.9	45.1	53.1	84.2
330	250	226	1.7	30.8	46.5	54.5	85.7
335	251	225	1.7	30.8	46.5	54.4	85.7
340	243	233	1.7	31.3	47.3	55.2	86.5
345	226	250	1.7	32.4	48.9	56.8	88.3
350	224	252	1.7	32.5	49.0	56.9	88.5
355	244	232	1.7	31.2	47.1	55.0	86.4

**WMUL 3-second Data**

<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	60 dBu, f(50,50) <u>Distance (km)</u>	54 dBu, f(50,10) <u>Distance (km)</u>
0	242	-33	1.4	11.0	15.6
5	236	-27	1.4	11.0	15.6
10	219	-10	1.4	11.0	15.6
15	208	1	1.4	11.0	15.6
20	202	7	1.4	11.0	15.6
25	210	-1	1.4	11.0	15.6
30	215	-6	1.4	11.0	15.6
35	224	-15	1.4	11.0	15.6
40	234	-25	1.4	11.0	15.6
45	222	-13	1.4	11.0	15.6
50	215	-6	1.4	11.0	15.6
55	210	-1	1.4	11.0	15.6
60	202	7	1.4	11.0	15.6
65	188	21	1.4	11.0	15.6
70	190	19	1.4	11.0	15.6
75	196	13	1.4	11.0	15.6
80	215	-6	1.4	11.0	15.6
85	222	-13	1.4	11.0	15.6
90	197	12	1.4	11.0	15.6
95	186	23	1.4	11.0	15.6
100	197	12	1.4	11.0	15.6
105	204	5	1.4	11.0	15.6
110	192	17	1.4	11.0	15.6
115	207	2	1.4	11.0	15.6
120	222	-13	1.4	11.0	15.6
125	230	-21	1.4	11.0	15.6
130	238	-29	1.4	11.0	15.6
135	249	-40	1.4	11.0	15.6

**WMUL 3-second Data**

<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	60 dBu, f(50,50) <u>Distance (km)</u>	54 dBu, f(50,10) <u>Distance (km)</u>
140	252	-43	1.4	11.0	15.6
145	246	-37	1.4	11.0	15.6
150	237	-28	1.4	11.0	15.6
155	229	-20	1.4	11.0	15.6
160	237	-28	1.4	11.0	15.6
165	241	-32	1.4	11.0	15.6
170	256	-47	1.4	11.0	15.6
175	242	-33	1.4	11.0	15.6
180	248	-39	1.4	11.0	15.6
185	236	-27	1.4	11.0	15.6
190	228	-19	1.4	11.0	15.6
195	243	-34	1.4	11.0	15.6
200	238	-29	1.4	11.0	15.6
205	244	-35	1.4	11.0	15.6
210	230	-21	1.4	11.0	15.6
215	227	-18	1.4	11.0	15.6
220	232	-23	1.4	11.0	15.6
225	225	-16	1.4	11.0	15.6
230	217	-8	1.4	11.0	15.6
235	215	-6	1.4	11.0	15.6
240	209	0	1.4	11.0	15.6
245	200	9	1.4	11.0	15.6
250	184	25	1.4	11.0	15.6
255	168	41	1.4	12.7	18.7
260	166	43	1.4	13.0	19.2
265	195	14	1.4	11.0	15.6
270	205	4	1.4	11.0	15.6
275	207	2	1.4	11.0	15.6
280	219	-10	1.4	11.0	15.6
285	219	-10	1.4	11.0	15.6
290	218	-9	1.4	11.0	15.6
295	227	-18	1.4	11.0	15.6
300	237	-28	1.4	11.0	15.6
305	245	-36	1.4	11.0	15.6
310	245	-36	1.4	11.0	15.6
315	244	-35	1.4	11.0	15.6
320	236	-27	1.4	11.0	15.6
325	236	-27	1.4	11.0	15.6
330	224	-15	1.4	11.0	15.6
335	220	-11	1.4	11.0	15.6
340	202	7	1.4	11.0	15.6
345	186	23	1.4	11.0	15.6
350	216	-7	1.4	11.0	15.6
355	219	-10	1.4	11.0	15.6

**WVRR 3-second Data**

<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	60 dBu, f(50,50) <u>Distance (km)</u>	54 dBu, f(50,10) <u>Distance (km)</u>
0	188	105	3.000	24.7	37.5
5	197	96	3.000	23.8	35.9
10	191	102	3.000	24.5	37.0
15	188	105	3.000	24.7	37.5
20	205	88	3.000	22.8	34.1

Figure 6  
Sheet 4 of 10

WVRR 3-second Data				60 dBu, f(50,50)	54 dBu, f(50,10)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>	<u>Distance (km)</u>
25	210	83	3.000	22.1	32.9
30	209	84	3.000	22.2	33.1
35	225	68	3.000	20.1	29.5
40	212	81	3.000	21.9	32.5
45	215	78	3.000	21.4	31.7
50	218	75	3.000	21.0	31.1
55	214	79	3.000	21.6	32.1
60	219	74	3.000	21.0	30.9
65	227	66	3.000	19.8	29.0
70	230	63	3.000	19.3	28.3
75	232	61	3.000	19.1	28.0
80	236	57	3.000	18.4	27.0
85	233	60	3.000	18.9	27.7
90	229	64	3.000	19.6	28.7
95	239	54	3.000	18.1	26.5
100	239	54	3.000	17.9	26.3
105	225	68	3.000	20.1	29.5
110	226	67	3.000	20.0	29.4
115	225	68	3.000	20.2	29.6
120	213	80	3.000	21.8	32.3
125	182	111	3.000	25.5	38.7
130	181	112	3.000	25.5	38.8
135	188	105	2.823	24.5	37.1
140	206	87	2.245	21.1	31.2
145	213	80	1.814	19.2	28.1
150	224	69	1.428	16.6	24.6
155	231	62	1.153	14.9	22.3
160	231	62	0.908	14.0	21.0
165	230	63	0.735	13.5	20.0
170	236	57	0.581	12.1	17.8
175	237	56	0.468	11.5	16.5
180	241	52	0.368	10.5	14.6
185	236	57	0.298	10.4	14.4
190	222	71	0.235	10.8	15.3
195	208	85	0.190	11.2	16.0
200	206	87	0.149	10.6	15.0
205	213	80	0.121	9.7	13.5
210	209	84	0.095	9.4	13.1
215	212	81	0.121	9.8	13.6
220	199	94	0.149	11.0	15.8
225	193	100	0.188	12.0	17.7
230	190	103	0.235	12.8	19.2
235	194	99	0.298	13.4	20.0
240	192	101	0.368	14.2	21.4
245	203	90	0.468	14.2	21.3

<b>WVRR 3-second Data</b>				60 dBu, f(50,50)	54 dBu, f(50,10)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>	<u>Distance (km)</u>
250	208	85	0.581	14.6	22.0
255	224	69	0.735	14.0	20.9
260	210	83	0.908	16.3	24.2
265	205	88	1.153	18.0	26.5
270	210	83	1.428	18.4	27.0
275	212	81	1.814	19.3	28.3
280	210	83	2.245	20.7	30.5
285	210	83	2.609	21.4	31.7
290	213	80	3.000	21.8	32.3
295	224	69	3.000	20.3	29.8
300	234	59	3.000	18.8	27.5
305	230	63	3.000	19.4	28.4
310	220	73	3.000	20.8	30.6
315	208	85	3.000	22.4	33.4
320	223	70	3.000	20.4	30.0
325	217	76	3.000	21.3	31.4
330	213	80	3.000	21.8	32.3
335	218	75	3.000	21.1	31.1
340	223	70	3.000	20.4	29.9
345	213	80	3.000	21.8	32.3
350	209	84	3.000	22.2	33.1
355	196	97	3.000	23.8	36.0

<b>WEBF 3-second Data</b>				60 dBu, f(50,50)	40 dBu, f(50,10)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>	<u>Distance (km)</u>
0	333	236	0.956	27.5	79.0
5	320	249	0.956	28.2	80.4
10	331	238	0.956	27.6	79.2
15	316	253	0.956	28.5	80.8
20	316	253	0.956	28.4	80.7
25	306	263	0.956	29.0	81.7
30	308	261	0.956	28.9	81.5
35	307	262	1.217	30.6	84.9
40	301	268	1.510	32.6	88.4
45	294	275	1.911	34.8	92.4
50	285	284	2.360	37.0	96.2
55	271	298	2.998	39.6	100.9
60	270	299	3.714	41.4	104.0
65	289	280	4.685	42.2	105.5
70	284	285	5.769	44.2	109.2
75	275	294	6.746	46.1	112.7
80	265	304	7.800	48.0	116.3
85	270	299	7.800	47.7	115.8
90	277	292	7.800	47.3	115.1
95	288	281	7.800	46.6	113.9

Figure 6  
Sheet 6 of 10

WEBF 3-second Data				60 dBu, f(50,50)	40 dBu, f(50,10)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>	<u>Distance (km)</u>
100	293	276	7.800	46.2	113.3
105	299	270	7.800	45.8	112.7
110	285	284	7.800	46.8	114.2
115	268	301	7.800	47.8	116.0
120	265	304	7.800	48.1	116.4
125	254	315	6.318	46.8	113.9
130	243	326	4.992	45.4	111.4
135	247	322	4.044	43.4	107.6
140	266	303	3.195	40.4	102.2
145	281	288	2.579	37.9	97.8
150	281	288	2.029	36.0	94.4
155	291	278	1.650	33.9	90.6
160	292	277	1.311	32.0	87.3
165	292	277	1.068	30.5	84.6
170	280	289	0.849	29.5	82.6
175	274	295	0.702	28.5	80.6
180	272	297	0.569	27.2	78.1
185	264	305	0.468	26.3	76.3
190	253	316	0.378	25.5	74.7
195	266	303	0.312	23.9	71.1
200	268	301	0.253	22.7	68.3
205	276	293	0.253	22.4	67.5
210	276	293	0.253	22.4	67.6
215	282	287	0.253	22.2	67.0
220	269	300	0.253	22.6	68.2
225	266	303	0.253	22.7	68.5
230	248	321	0.253	23.4	70.2
235	265	304	0.253	22.8	68.6
240	292	277	0.253	21.8	66.0
245	299	270	0.253	21.5	65.4
250	290	279	0.253	21.8	66.2
255	303	266	0.312	22.4	67.5
260	302	267	0.378	23.5	70.0
265	310	259	0.468	24.4	72.0
270	312	257	0.569	25.4	74.3
275	313	256	0.702	26.6	77.0
280	300	269	0.849	28.5	80.7
285	298	271	1.068	30.2	84.0
290	283	286	1.311	32.6	88.3
295	304	265	1.650	33.1	89.3
300	303	266	2.029	34.7	92.2
305	306	263	1.835	33.8	90.6
310	310	259	1.650	32.7	88.7
315	314	255	1.343	30.9	85.5



<b>WEBF 3-second Data</b>				60 dBu, f(50,50)	40 dBu, f(50,10)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>	<u>Distance (km)</u>
320	322	247	1.068	28.9	81.7
325	323	246	0.875	27.5	78.9
330	328	241	0.702	25.9	75.5
335	337	232	0.702	25.5	74.6
340	326	243	0.702	26.0	75.7
345	329	240	0.702	25.8	75.4
350	339	230	0.702	25.3	74.3
355	335	234	0.824	26.5	76.8

<b>WBMK 3-second Data</b>				60 dBu, f(50,50)	54 dBu, f(50,10)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>	<u>Distance (km)</u>
0	315	139	0.6	19.3	28.4
5	295	159	0.6	20.6	30.5
10	319	135	0.6	19.0	28.0
15	311	143	0.6	19.6	28.9
20	323	131	0.6	18.7	27.6
25	322	132	0.6	18.8	27.7
30	324	130	0.6	18.6	27.5
35	317	137	0.6	19.2	28.2
40	332	122	0.6	18.1	26.7
45	329	125	0.6	18.3	27.0
50	339	115	0.6	17.5	26.0
55	335	119	0.6	17.9	26.4
60	323	131	0.6	18.7	27.5
65	327	127	0.6	18.4	27.2
70	319	135	0.6	19.0	28.0
75	322	132	0.6	18.8	27.7
80	307	147	0.6	19.8	29.3
85	319	135	0.6	19.0	28.0
90	325	129	0.6	18.6	27.4
95	341	113	0.6	17.4	25.7
100	340	114	0.6	17.4	25.8
105	341	113	0.6	17.4	25.7
110	334	120	0.6	17.9	26.5
115	334	120	0.6	17.9	26.5
120	331	123	0.6	18.1	26.7
125	328	126	0.6	18.3	27.0
130	323	131	0.6	18.7	27.5
135	331	123	0.6	18.1	26.8
140	314	140	0.6	19.4	28.6
145	312	142	0.6	19.5	28.7
150	334	120	0.6	17.9	26.5
155	310	144	0.6	19.7	29.0
160	321	133	0.6	18.8	27.8
165	307	147	0.6	19.8	29.2

<b>WBMK 3-second Data</b>				60 dBu, f(50,50)	54 dBu, f(50,10)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>	<u>Distance (km)</u>
170	313	141	0.6	19.4	28.6
175	329	125	0.6	18.3	27.0
180	298	156	0.6	20.4	30.2
185	305	149	0.6	20.0	29.5
190	317	137	0.6	19.1	28.2
195	313	141	0.6	19.4	28.7
200	297	157	0.6	20.5	30.3
205	277	177	0.6	21.7	32.2
210	279	175	0.6	21.6	32.0
215	297	157	0.6	20.5	30.3
220	270	184	0.6	22.1	32.8
225	285	169	0.6	21.2	31.5
230	281	173	0.6	21.5	31.8
235	271	183	0.6	22.0	32.7
240	249	205	0.6	23.2	34.6
245	241	213	0.6	23.5	35.3
250	235	219	0.6	23.8	35.8
255	233	221	0.6	24.0	36.0
260	258	196	0.6	22.7	33.9
265	270	184	0.6	22.1	32.8
270	264	190	0.6	22.4	33.3
275	264	190	0.6	22.4	33.3
280	269	185	0.6	22.1	32.9
285	271	183	0.6	22.0	32.7
290	270	184	0.6	22.0	32.8
295	282	172	0.6	21.4	31.8
300	287	167	0.6	21.1	31.3
305	282	172	0.6	21.4	31.8
310	277	177	0.6	21.7	32.2
315	278	176	0.6	21.6	32.1
320	293	161	0.6	20.7	30.7
325	316	138	0.6	19.2	28.3
330	300	154	0.6	20.3	29.9
335	300	154	0.6	20.3	29.9
340	290	164	0.6	20.9	31.0
345	303	151	0.6	20.1	29.7
350	316	138	0.6	19.2	28.3
355	309	145	0.6	19.7	29.1

<b>WOUC-TV 3-second Data</b>				47 dBu, f(50,50)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>
0	308	347	6.926	79.1
5	297	358	7.110	80.2
10	296	360	6.969	80.1
15	312	343	6.444	78.1

WOUC-TV 3-second Data				47 dBu, f(50,50)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>
20	319	336	5.940	76.8
25	328	328	5.259	74.9
30	321	334	4.619	74.1
35	308	348	4.161	74.0
40	326	329	3.727	71.5
45	318	337	3.302	70.9
50	329	326	2.903	68.8
55	322	333	2.238	66.7
60	321	334	1.659	63.7
65	333	323	1.121	59.1
70	332	324	0.688	54.6
75	332	323	0.634	53.8
80	332	323	0.582	53.0
85	344	311	0.701	53.9
90	334	321	0.832	56.2
95	340	315	0.871	56.2
100	341	314	0.832	55.7
105	345	310	0.701	53.9
110	338	317	0.582	52.6
115	359	297	0.634	52.0
120	359	296	0.688	52.8
125	358	298	1.121	57.4
130	364	291	1.659	60.7
135	364	292	2.238	63.6
140	369	286	2.903	65.8
145	350	305	3.302	68.6
150	342	313	3.727	70.4
155	336	319	4.161	71.9
160	324	331	4.619	73.9
165	326	329	5.259	75.1
170	322	333	5.940	76.6
175	314	341	6.444	78.0
180	319	336	6.969	78.4
185	312	343	7.110	79.2
190	313	343	6.926	78.8
195	301	354	6.249	78.6
200	300	356	5.607	77.6
205	299	356	5.125	76.7
210	286	370	4.665	76.8
215	286	369	5.077	77.6
220	294	362	5.506	77.9
225	293	362	5.927	78.7
230	286	369	6.363	79.9
235	291	364	5.927	78.9
240	288	367	5.506	78.3

WOUC-TV 3-second Data				47 dBu, f(50,50)
<u>Azimuth (deg T)</u>	<u>Terrain (m)</u>	<u>HAAT (m)</u>	<u>ERP (kW)</u>	<u>Distance (km)</u>
245	287	368	5.077	77.5
250	282	373	4.665	77.0
255	281	374	5.125	78.1
260	289	367	5.607	78.4
265	288	367	6.249	79.6
270	293	362	6.926	80.2
275	283	372	7.110	81.2
280	279	376	6.926	81.3
285	284	371	6.249	79.8
290	288	367	5.607	78.5
295	293	363	5.125	77.2
300	295	360	4.665	76.1
305	302	353	5.077	76.5
310	304	351	5.506	77.1
315	320	336	5.927	76.7
320	331	324	6.363	76.6
325	326	330	5.927	76.3
330	327	329	5.506	75.5
335	328	327	5.077	74.5
340	325	330	4.665	73.9
345	315	340	5.125	75.6
350	315	340	5.607	76.5
355	313	342	6.249	77.7