

**Engineering Statement  
In Support of an  
Application for a Construction Permit  
WXET, Channel 300A, Arcola, IL**

**General**

Champaign Partners LLC, the proposed assignee of WXET, channel 300A, hereby seeks to file an application for a construction permit that amends the previously-filed application BPH-20061201BOW and to use a supplemental method to prove coverage of the community of license (Arcola, Illinois). The instant application seeks to modify the tower site, the ERP, the height above ground, the overall tower height, and the CORAMSL.

**Exhibits Explained**

The proposed facility will operate with an ERP of 3.60 kW (H&V). The proposed facility is short spaced to one facility: the licensed facility of WNTR, channel 300B, Indianapolis, Indiana. This facility is protected as a maximum class B facility under §73.215 (see Exhibit E, Figures 4 through 6).

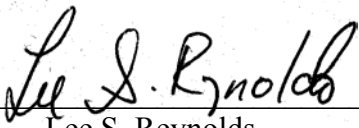
The proposed facility provides 100% coverage of the city of license with a F(50,50) 60 dBu contour, which qualifies it for use of a supplemental method (see Exhibit E, Figure 3). Exhibit E, Figures 7 through 10 show that the Longley-Rice 70 dBu contour covers 100% of the city of license. The proposed application also meets the FCC's required delta-h standard and shows at least a 10% difference between the F(50,50) 70 dBu and the Longley-Rice 70 dBu.

**Human Exposure to Radiofrequency Radiation (no exhibits)**

RF Worksheet #1 shows that the proposed facility does not exceed either the 20% (uncontrolled) or the 100% (controlled) radiofrequency allowable under FCC guidelines. (It provides 1.446% of the maximum allowable RF at a point 2 meters above ground.)

## **Conclusion**

The proposed amendment meets all FCC rules and regulations. If there are any questions regarding this engineering, please feel free to contact us.



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Lee S. Reynolds

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**WXET Channel Spacing Study**

REFERENCE		DISPLAY DATES
39 52 43 N	CLASS = A	DATA 12-12-06
88 11 51 W	Current Spacings	SEARCH 12-21-06
----- Channel 300 - 107.9 MHz -----		

Call	Channel	Location	Dist	Azi	FCC	Margin
<b>WXET.A</b>	<b>APP-N 300A</b>	<b>Arcola</b>	<b>IL 1.47</b>	<b>90.0</b>	<b>115.0</b>	<b>-113.53</b>
Of no concern: Application coordinates that are being amended.						
<b>WXET</b>	<b>LIC 300A</b>	<b>Arcola</b>	<b>IL 35.39</b>	<b>195.0</b>	<b>115.0</b>	<b>-79.61</b>
Of no concern: Licensed coordinates of WXET.						
<b>WNTR</b>	<b>LIC 300B</b>	<b>Indianapolis</b>	<b>IN 170.77</b>	<b>88.7</b>	<b>178.0</b>	<b>-7.23</b>
Of concern: Protection afforded under §73.215.						
WYST	LIC-Z 299B1	Fairbury	IL 97.01	329.5	96.0	1.01
AP6275	APP 298B	Terre Haute	IN 71.84	120.4	69.0	2.84
AP8277	APP 298B	Terre Haute	IN 71.84	120.4	69.0	2.84
DWZZQ	VAC 298B	Terre Haute	IN 76.90	122.6	69.0	7.90
AP8786	APP 298B	Terre Haute	IN 77.41	129.7	69.0	8.41
WCDD	LIC-N 300B1	Canton	IL 171.97	296.1	143.0	28.97
WAMW-F	LIC 300A	Washington	IN 158.08	149.7	115.0	43.08
WDKR	LIC 297A	Maroa	IL 74.16	277.8	31.0	43.16

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**WXET Terrain/Contour Study**

**Reference Coordinates:**

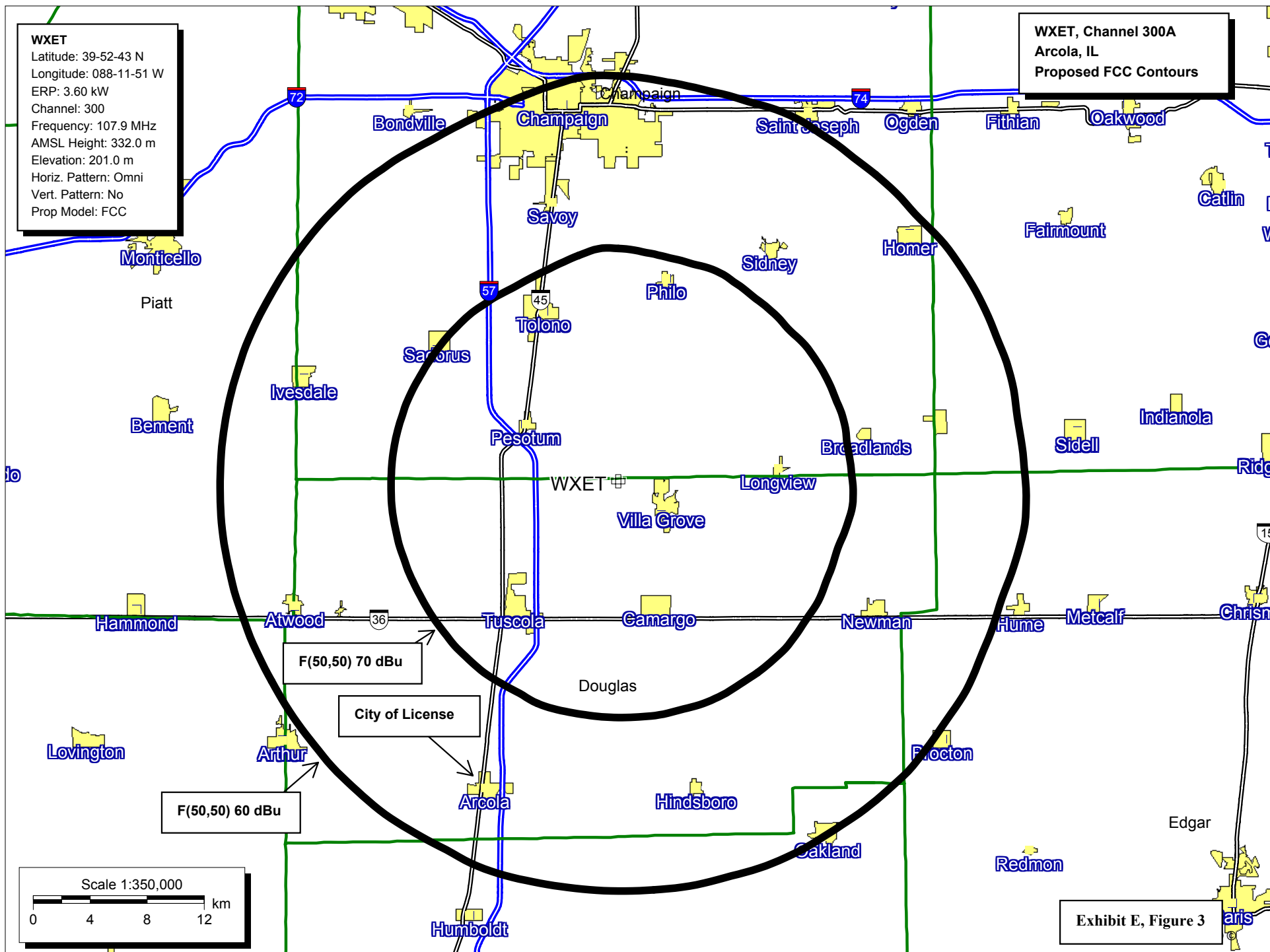
**North Latitude: 39-52-43**

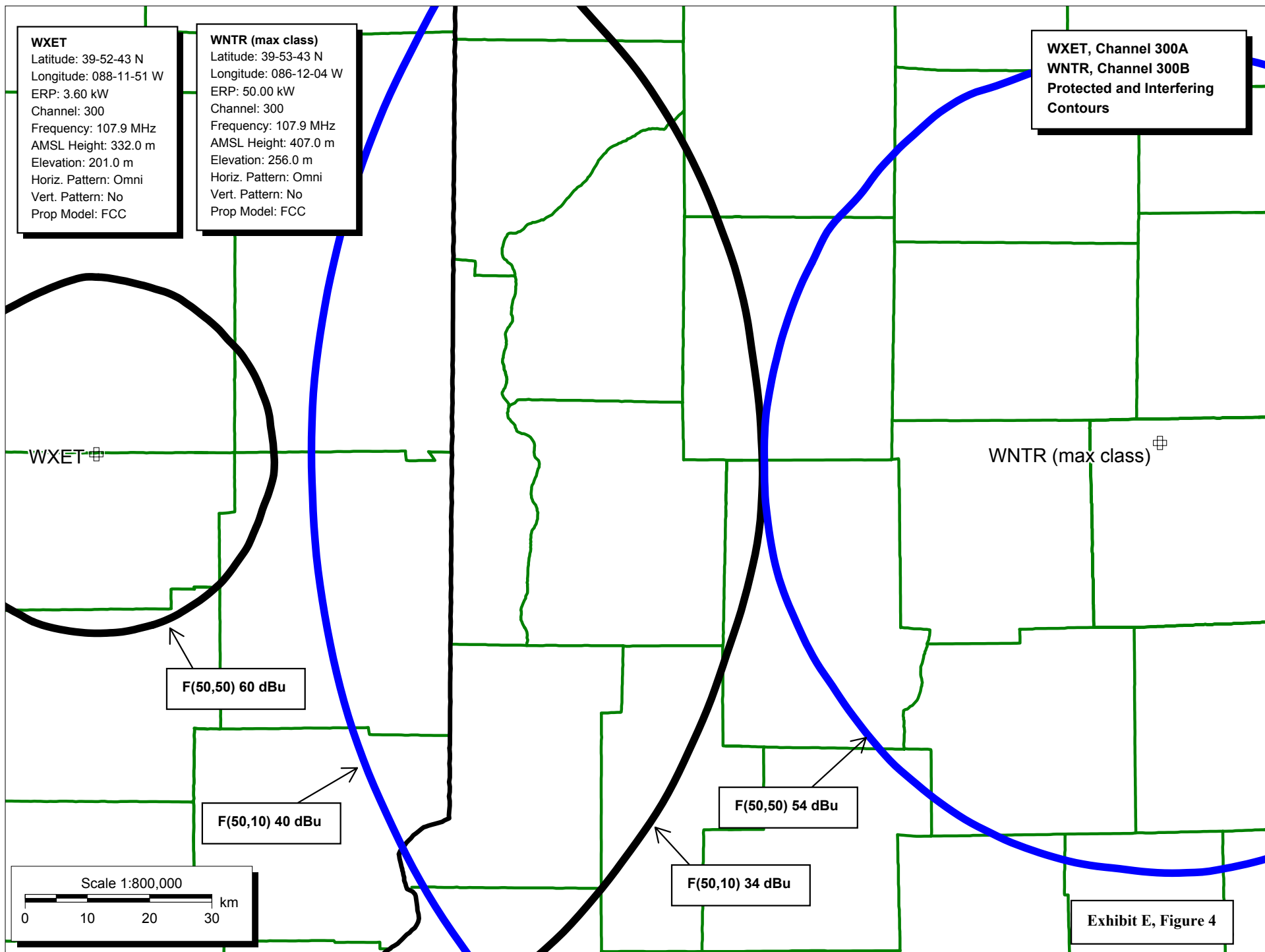
**West Longitude: 88-11-51**

Azimuth °T.	ERP = 3.60 kW Ave. Elev. 3 to 16 km	FM - 2-6 Tables Effective Antenna Height	ERP (dBk)	F(50-50) Distance to 70 dBu Contour	F(50-50) Distance to 60 dBu Contour
	Meters AMSL	Meters AAT		km	km
0	200.2	131.8	5.563	16.3	28.4
5	201.8	130.2	5.563	16.2	28.3
10	203.4	128.6	5.563	16.1	28.1
15	203.6	128.4	5.563	16.1	28.1
20	202.9	129.1	5.563	16.1	28.2
25	201.1	130.9	5.563	16.3	28.3
30	202.6	129.4	5.563	16.2	28.2
35	204.0	128.0	5.563	16.1	28.1
40	204.1	127.9	5.563	16.1	28.1
45	204.2	127.8	5.563	16.0	28.1
50	204.0	128.0	5.563	16.1	28.1
55	201.6	130.4	5.563	16.2	28.3
60	200.8	131.2	5.563	16.3	28.4
65	200.5	131.5	5.563	16.3	28.4
70	200.5	131.5	5.563	16.3	28.4
75	199.6	132.4	5.563	16.4	28.5
80	201.0	131.0	5.563	16.3	28.4
85	200.3	131.7	5.563	16.3	28.4
90	198.8	133.2	5.563	16.4	28.6
95	197.5	134.5	5.563	16.5	28.7
100	199.7	132.3	5.563	16.4	28.5
105	202.6	129.4	5.563	16.2	28.2
110	203.2	128.8	5.563	16.1	28.2
115	202.4	129.6	5.563	16.2	28.2
120	200.1	131.9	5.563	16.3	28.4
125	199.8	132.2	5.563	16.4	28.5
130	198.4	133.6	5.563	16.5	28.6
135	196.6	135.4	5.563	16.6	28.8
140	196.5	135.5	5.563	16.6	28.8
145	196.4	135.6	5.563	16.6	28.8
150	196.2	135.8	5.563	16.6	28.8
155	195.2	136.8	5.563	16.7	28.9

Continued on the next page

ERP = 3.60 kW		FM - 2-6 Tables		F(50-50)	F(50-50)
Ave. Elev.		Effective		Distance to	Distance to
Azimuth	3 to 16 km	Antenna Height	ERP	70 dBu Contour	60 dBu Contour
°T.	Meters AMSL	Meters AAT	(dBk)	km	km
<hr/>					
160	195.2	136.8	5.563	16.7	28.9
165	196.2	135.8	5.563	16.6	28.8
170	195.8	136.2	5.563	16.6	28.8
175	196.5	135.5	5.563	16.6	28.8
180	196.7	135.3	5.563	16.6	28.7
185	197.0	135.0	5.563	16.6	28.7
190	197.0	135.0	5.563	16.6	28.7
195	196.5	135.5	5.563	16.6	28.8
200	196.7	135.3	5.563	16.6	28.7
205	199.2	132.8	5.563	16.4	28.5
210	199.5	132.5	5.563	16.4	28.5
215	199.3	132.7	5.563	16.4	28.5
220	200.4	131.6	5.563	16.3	28.4
225	201.1	130.9	5.563	16.3	28.3
230	202.6	129.4	5.563	16.2	28.2
235	203.4	128.6	5.563	16.1	28.1
240	204.3	127.7	5.563	16.0	28.1
245	204.6	127.4	5.563	16.0	28.0
250	205.1	126.9	5.563	16.0	28.0
255	205.0	127.0	5.563	16.0	28.0
260	205.2	126.8	5.563	16.0	28.0
265	205.4	126.6	5.563	16.0	28.0
270	205.9	126.1	5.563	15.9	27.9
275	206.1	125.9	5.563	15.9	27.9
280	206.5	125.5	5.563	15.9	27.9
285	207.0	125.0	5.563	15.8	27.8
290	207.4	124.6	5.563	15.8	27.8
295	208.3	123.7	5.563	15.8	27.7
300	209.0	123.0	5.563	15.7	27.6
305	209.3	122.7	5.563	15.7	27.6
310	209.4	122.6	5.563	15.7	27.6
315	209.8	122.2	5.563	15.7	27.6
320	210.2	121.8	5.563	15.6	27.5
325	211.4	120.6	5.563	15.5	27.4
330	212.8	119.2	5.563	15.5	27.3
335	212.5	119.5	5.563	15.5	27.3
340	210.8	121.2	5.563	15.6	27.5
345	207.7	124.3	5.563	15.8	27.7
350	203.8	128.2	5.563	16.1	28.1
355	199.8	132.2	5.563	16.4	28.5
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**WXET**

Latitude: 39-52-43 N  
Longitude: 088-11-51 W  
ERP: 3.60 kW  
Channel: 300  
Frequency: 107.9 MHz  
AMSL Height: 332.0 m  
Elevation: 201.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: FCC

**WNTR (max class)**

Latitude: 39-53-43 N  
Longitude: 086-12-04 W  
ERP: 50.00 kW  
Channel: 300  
Frequency: 107.9 MHz  
AMSL Height: 407.0 m  
Elevation: 256.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: FCC

**WXET, Channel 300A  
WNTR, Channel 300B  
Protected and Interfering  
Contours (zoomed view)**

F(50,10) 34 dBu

F(50,50) 54 dBu

Scale 1:150,000

0 2 4 6 km

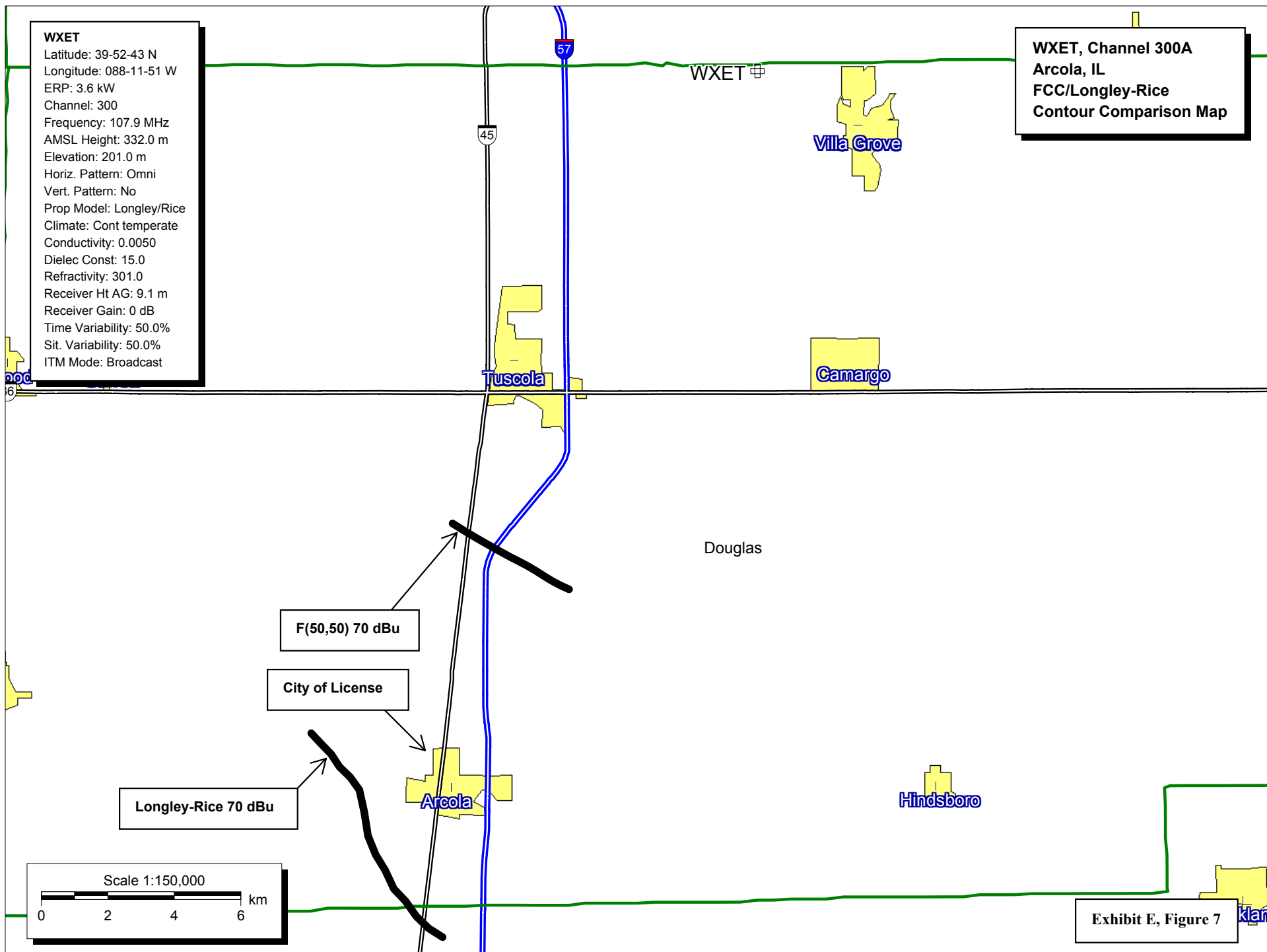
**Exhibit E, Figure 5**



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**WNTR Protected/WXET Interfering FM Overlap Study**

WNTR				WXET					
Channel = 300B				Channel = 300A					
Max ERP = 50 kW				Max ERP = 3.60 kW					
RCAMSL = 407 M				RCAMSL = 332 M					
N. Lat = 395343				N. Lat = 395243					
W. Lng = 861204				W. Lng = 881151					
Protected 54 dBu				Interfering 34 dBu					
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)		Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
250.0	50.000	149.0	64.9		100.5	3.600	131.9	111.8	33.0
251.0	50.000	148.7	64.9		100.0	3.600	132.2	111.3	33.0
252.0	50.000	148.3	64.8		99.4	3.600	132.5	110.8	33.2
253.0	50.000	147.8	64.8		98.9	3.600	132.9	110.4	33.3
254.0	50.000	147.1	64.7		98.4	3.600	133.3	110.0	33.4
255.0	50.000	146.5	64.6		97.8	3.600	133.6	109.6	33.4
256.0	50.000	145.7	64.5		97.2	3.600	133.9	109.3	33.5
257.0	50.000	145.0	64.4		96.7	3.600	134.2	108.9	33.6
258.0	50.000	144.4	64.3		96.1	3.600	134.2	108.6	33.7
259.0	50.000	143.8	64.2		95.5	3.600	134.4	108.4	33.7
260.0	50.000	143.2	64.1		94.9	3.600	134.4	108.1	33.8
261.0	50.000	142.8	64.1		94.3	3.600	134.3	107.9	33.8
262.0	50.000	142.4	64.0		93.8	3.600	134.2	107.7	33.9
263.0	50.000	141.8	63.9		93.2	3.600	134.0	107.6	33.9
264.0	50.000	141.2	63.8		92.6	3.600	133.9	107.5	33.9
265.0	50.000	140.6	63.7		92.0	3.600	133.8	107.4	33.9
266.0	50.000	140.1	63.7		91.4	3.600	133.7	107.3	33.9
267.0	50.000	139.5	63.6		90.8	3.600	133.4	107.3	33.9
268.0	50.000	139.2	63.5		90.2	3.600	133.2	107.3	33.9
269.0	50.000	139.1	63.5		89.6	3.600	132.9	107.3	33.9
270.0	50.000	138.9	63.5		89.0	3.600	132.6	107.3	33.9
271.0	50.000	138.7	63.5		88.4	3.600	132.3	107.3	33.9
272.0	50.000	138.5	63.4		87.8	3.600	132.1	107.4	33.9
273.0	50.000	138.4	63.4		87.2	3.600	132.1	107.5	33.8
274.0	50.000	138.3	63.4		86.7	3.600	132.0	107.6	33.8
275.0	50.000	138.0	63.4		86.1	3.600	131.9	107.8	33.8
276.0	50.000	137.6	63.3		85.5	3.600	131.7	108.1	33.7
277.0	50.000	137.2	63.2		84.9	3.600	131.5	108.3	33.6
278.0	50.000	136.7	63.2		84.4	3.600	131.4	108.6	33.6
279.0	50.000	136.4	63.1		83.8	3.600	131.2	108.9	33.5
280.0	50.000	136.1	63.1		83.3	3.600	131.0	109.3	33.4
281.0	50.000	135.9	63.1		82.7	3.600	130.9	109.6	33.4
282.0	50.000	135.6	63.0		82.2	3.600	130.8	110.0	33.3
283.0	50.000	135.4	63.0		81.7	3.600	130.8	110.4	33.2
284.0	50.000	135.2	62.9		81.1	3.600	130.7	110.8	33.1
285.0	50.000	135.1	62.9		80.6	3.600	130.7	111.3	33.0
286.0	50.000	135.1	62.9		80.1	3.600	130.8	111.7	32.9
287.0	50.000	135.1	62.9		79.6	3.600	131.0	112.2	32.8
288.0	50.000	134.9	62.9		79.1	3.600	131.1	112.8	32.7
289.0	50.000	134.8	62.9		78.6	3.600	131.4	113.3	32.6
290.0	50.000	134.8	62.9		78.2	3.600	131.6	113.9	32.5



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**WXET FCC/Longley-Rice 70 dBu Contour Comparison Study  
(Over the community of license)**

**Reference Coordinates:**

**North Latitude: 39-52-43**

**West Longitude: 88-11-51**

	Longley-Rice	FCC F(50,50)	Percentage
<u>Azimuth</u>	<u>70 dBu</u>	<u>70 dBu</u>	<u>Change</u>
200.0	27.7	16.6	66.9%
201.0	27.6	16.6	66.3%
202.0	27.4	16.5	66.1%
203.0	27.1	16.5	64.2%
204.0	26.9	16.4	64.0%
205.0	26.5	16.4	61.6%
206.0	26.2	16.4	59.8%
207.0	25.8	16.4	57.3%
208.0	25.2	16.4	53.7%

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**WXET Delta-H Study (206° Radial out to 26.2 km)**

<u>Distance to</u> <u>XMTR (km)</u>	<u>Elevation</u> <u>AMSL (m)</u>	<u>Distance to</u> <u>XMTR (km)</u>	<u>Elevation</u> <u>AMSL (m)</u>	<u>Distance to</u> <u>XMTR (km)</u>	<u>Elevation</u> <u>AMSL (m)</u>	<u>Distance to</u> <u>XMTR (km)</u>	<u>Elevation</u> <u>AMSL (m)</u>
10.0	208.1	14.2	208.9	18.4	207.1	22.6	208.6
10.1	207.7	14.3	209.0	18.5	207.1	22.7	208.0
10.2	207.0	14.4	209.0	18.6	208.3	22.8	208.0
10.3	206.4	14.5	209.6	18.7	209.0	22.9	208.0
10.4	206.5	14.6	209.0	18.8	210.0	23.0	208.0
10.5	207.2	14.7	209.0	18.9	<b>*210.0</b>	23.1	208.0
10.6	208.2	14.8	209.0	19.0	210.1	23.2	208.0
10.7	206.7	14.9	209.0	19.1	210.1	23.3	208.0
10.8	205.7	15.0	209.0	19.2	210.0	23.4	208.0
10.9	207.2	15.1	208.8	19.3	210.0	23.5	208.0
11.0	207.1	15.2	208.3	19.4	210.0	23.6	208.0
11.1	207.8	15.3	207.0	19.5	210.0	23.7	208.0
11.2	209.2	15.4	207.0	19.6	210.0	23.8	207.7
11.3	210.0	15.5	207.7	19.7	209.9	23.9	206.3
11.4	209.5	15.6	207.0	19.8	210.0	24.0	205.0
11.5	209.0	15.7	207.0	19.9	209.4	24.1	205.0
11.6	209.1	15.8	207.0	20.0	209.0	24.2	205.0
11.7	210.0	15.9	207.0	20.1	208.6	24.3	205.0
11.8	210.0	16.0	207.0	20.2	208.0	24.4	205.0
11.9	210.5	16.1	206.8	20.3	207.0	24.5	205.0
12.0	211.0	16.2	206.2	20.4	207.0	24.6	205.0
12.1	211.0	16.3	205.4	20.5	207.0	24.7	205.0
12.2	211.0	16.4	205.5	20.6	206.0	24.8	203.0
12.3	211.9	16.5	206.0	20.7	206.0	24.9	203.7
12.4	212.0	16.6	205.0	20.8	207.0	25.0	203.0
12.5	211.5	16.7	203.8	20.9	207.5	25.1	203.0
12.6	211.6	16.8	203.7	21.0	207.9	25.2	203.9
12.7	211.0	16.9	202.0	21.1	208.0	25.3	204.4
12.8	210.1	17.0	202.0	21.2	208.0	25.4	205.0
12.9	209.9	17.1	204.4	21.3	208.0	25.5	<b>**205.0</b>
13.0	209.2	17.2	204.4	21.4	208.0	25.6	205.0
13.1	209.0	17.3	204.0	21.5	208.0	25.7	205.0
13.2	208.8	17.4	204.6	21.6	207.6	25.8	205.0
13.3	208.0	17.5	205.0	21.7	207.0	25.9	205.1
13.4	208.0	17.6	205.9	21.8	207.0	26.0	206.0
13.5	208.0	17.7	206.1	21.9	207.6	26.1	206.0
13.6	208.0	17.8	207.0	22.0	209.0	26.2	206.0
13.7	208.0	17.9	207.1	22.1	209.4		
13.8	208.0	18.0	207.9	22.2	209.2		
13.9	208.1	18.1	208.0	22.3	208.0		
14.0	208.8	18.2	208.0	22.4	208.0		
14.1	209.0	18.3	207.9	22.5	208.0		

\* - h<sub>max</sub>    \*\* - h<sub>min</sub>    Delta h = h<sub>max</sub> - h<sub>min</sub> = 210.0 - 205.0 = **5.0 meters**

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**WXET Longley-Rice Study Parameters**

Latitude: 39-52-43 N  
Longitude: 88-11-51 W

Frequency: 107.9 MHz

Base Elevation: 201.0 meters  
Antenna AGL: 131.0 meters

ERP: 3.60 kW

Conductivity: 0.005 S/m

Receiver height: 9.1 meters

Dielectric constant: 15.00

Receiver gain: 0.0 dB

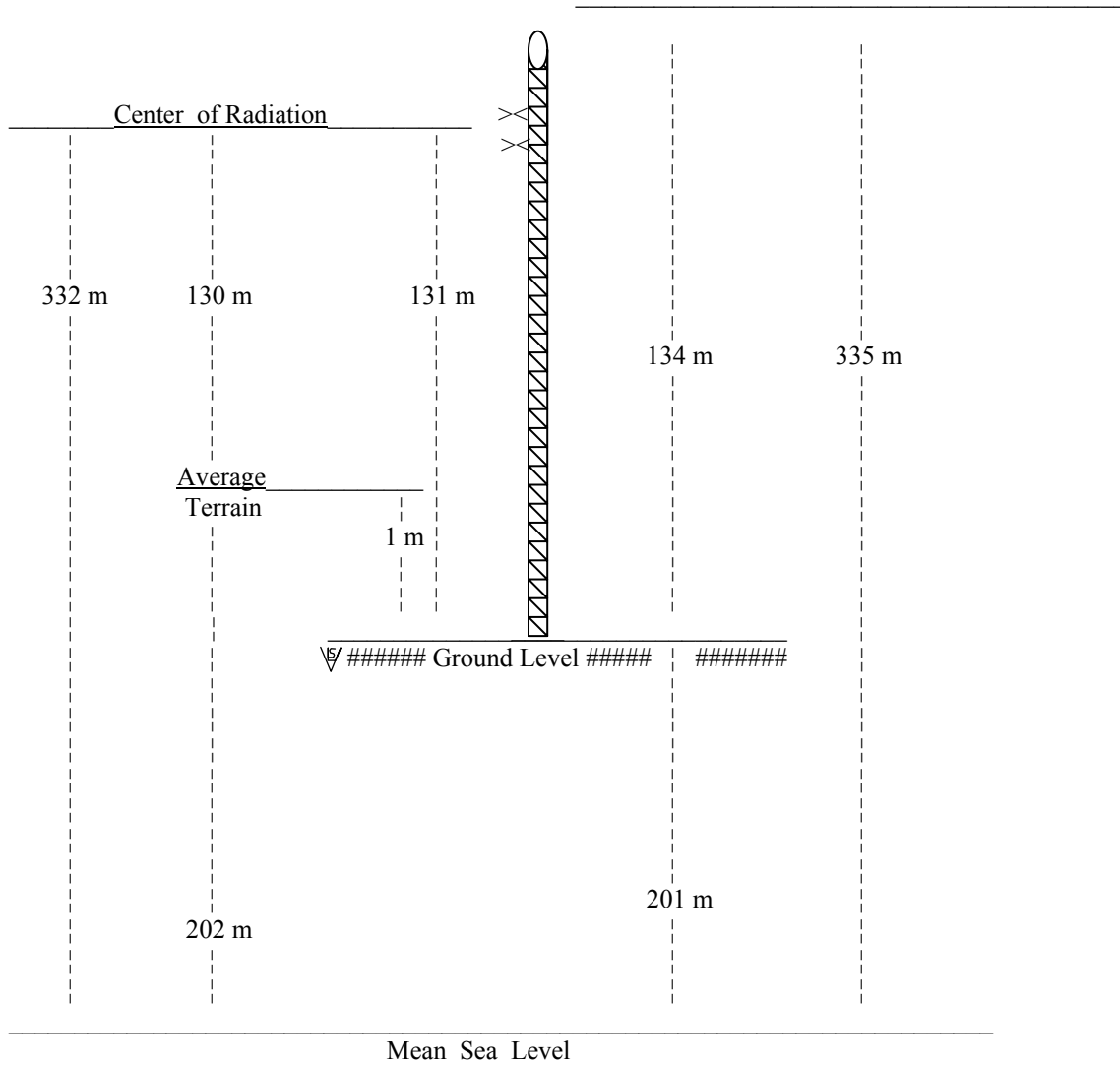
Time variability: 50%  
Situation variability: 50%

Refractivity: 301.0

Polarization: Horizontal

Longley-Rice mode: Broadcast

## Proposed Vertical Sketch



Proposed Location - 39° 52' 43" N. Lat.

88° 11' 51" W. Long. [NAD 27]

NOT DRAWN TO SCALE