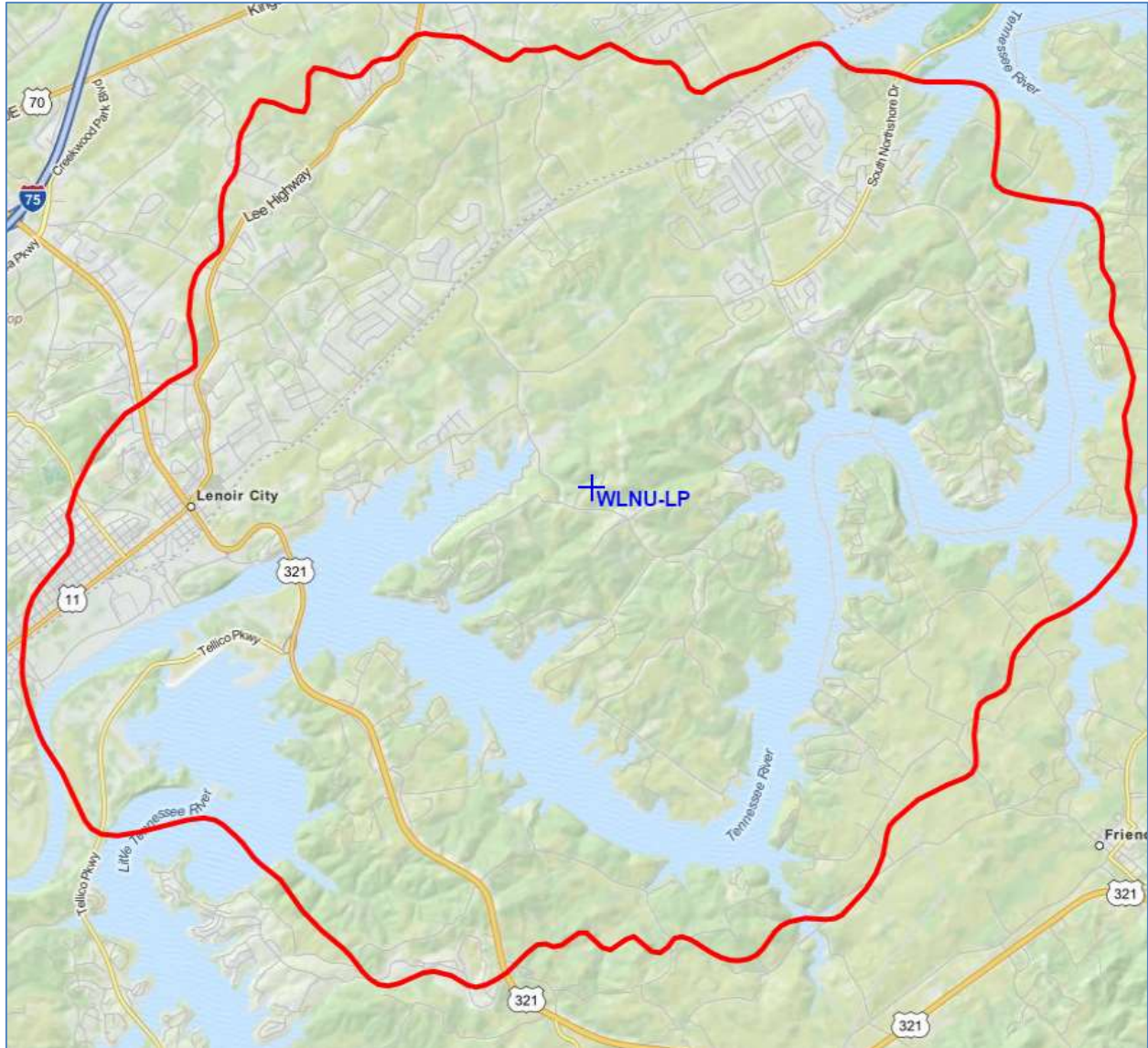




**REC Broadcast Services**  
11541 Riverton Wharf Rd.  
Mardela Springs, MD 21837  
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recnet.com

Minor CP Modification for **WLNU-LP**  
**LENOIR CITY, TN**  
**J.W. MCGHEE FOUNDATION FOR BROADCAST ARTS**  
**BLL-20150722ADJ**

### **PROPOSED 60dBu F(50,50) SERVICE CONTOUR**



LENOIR CITY, TN – Channel 296L1 ~ 107.1 MHz ~ ERP 0.023 kW  
Elev: 337 meters ~ RCAGL: 8 meters ~ RCAMSL: 345 meters ~ HAAT: 61 meters (GLOBE)  
Overall tower height: 9 meters – ASR: None (no nearby airports)  
NAD83 Latitude: 35° 47' 57.3" NL – Longitude: 84° 12' 05.7" WL  
NAD27 Latitude: 35° 47' 57.0" NL – Longitude: 84° 12' 06.0" WL  
No AM stations within 3km

NAD27 LATITUDE: 35 - 47' 57.0" - LONGITUDE: 84 - 12' 06.0"  
CHANNEL: 296 - CLASS: LPFM(LP-100)

\* Does not meet third adjacent channel spacing under LCRA Sect 7.

<b>Azimuth</b>	<b>Field</b>	<b>ERP</b>	<b>HAAT</b>	<b>Contour</b>	<b>Latitude</b>	<b>Longitude</b>
0	1.000	0.023	55.2	5.345	35.8473	84.2016
5	1.000	0.023	52.4	5.205	35.8459	84.1966
10	1.000	0.023	51.7	5.168	35.8450	84.1916
15	1.000	0.023	49.4	5.041	35.8430	84.1871
20	1.000	0.023	56.6	5.410	35.8450	84.1811
25	1.000	0.023	69.4	5.935	35.8476	84.1738
30	1.000	0.023	68.1	5.883	35.8451	84.1689
35	1.000	0.023	74.0	6.124	35.8444	84.1626
40	1.000	0.023	81.3	6.423	35.8435	84.1558
45	1.000	0.023	86.7	6.642	35.8415	84.1495
50	1.000	0.023	73.7	6.112	35.8346	84.1496
55	1.000	0.023	75.0	6.166	35.8310	84.1456
60	1.000	0.023	89.4	6.749	35.8296	84.1368
65	1.000	0.023	85.1	6.577	35.8242	84.1355
70	1.000	0.023	82.8	6.482	35.8192	84.1340
75	1.000	0.023	82.6	6.474	35.8143	84.1322
80	1.000	0.023	80.8	6.403	35.8092	84.1317
85	1.000	0.023	78.4	6.306	35.8042	84.1319
90	1.000	0.023	77.5	6.270	35.7992	84.1321
95	1.000	0.023	79.7	6.359	35.7942	84.1313
100	1.000	0.023	74.5	6.145	35.7896	84.1345
105	1.000	0.023	64.7	5.748	35.7858	84.1400
110	1.000	0.023	55.9	5.378	35.7827	84.1456
115	1.000	0.023	55.8	5.373	35.7788	84.1476
120	1.000	0.023	52.6	5.216	35.7758	84.1515
125	1.000	0.023	57.2	5.437	35.7712	84.1522
130	1.000	0.023	59.2	5.524	35.7673	84.1547
135	1.000	0.023	55.0	5.336	35.7653	84.1598
140	1.000	0.023	55.1	5.340	35.7624	84.1635
145	1.000	0.023	63.5	5.700	35.7572	84.1653
150	1.000	0.023	68.0	5.880	35.7534	84.1690
155	1.000	0.023	64.7	5.748	35.7524	84.1747
160	1.000	0.023	66.7	5.828	35.7500	84.1795
165	1.000	0.023	69.1	5.923	35.7478	84.1846
170	1.000	0.023	59.1	5.520	35.7504	84.1910
175	1.000	0.023	59.7	5.546	35.7496	84.1962

<b>Azimuth</b>	<b>Field</b>	<b>ERP</b>	<b>HAAT</b>	<b>Contour</b>	<b>Latitude</b>	<b>Longitude</b>
180	1.000	0.023	60.2	5.567	35.7492	84.2016
185	1.000	0.023	60.0	5.558	35.7494	84.2070
190	1.000	0.023	67.0	5.840	35.7475	84.2128
195	1.000	0.023	76.6	6.233	35.7451	84.2195
200	1.000	0.023	77.0	6.249	35.7464	84.2253
205	1.000	0.023	84.8	6.564	35.7457	84.2323
210	1.000	0.023	79.7	6.359	35.7497	84.2368
215	1.000	0.023	77.0	6.249	35.7532	84.2413
220	1.000	0.023	73.5	6.103	35.7572	84.2451
225	1.000	0.023	72.9	6.078	35.7606	84.2492
230	1.000	0.023	76.1	6.212	35.7633	84.2543
235	1.000	0.023	104.4	7.306	35.7615	84.2679
240	1.000	0.023	104.9	7.323	35.7663	84.2719
245	1.000	0.023	105.8	7.354	35.7713	84.2755
250	1.000	0.023	105.0	7.326	35.7767	84.2779
255	1.000	0.023	100.2	7.156	35.7826	84.2782
260	1.000	0.023	91.0	6.811	35.7886	84.2759
265	1.000	0.023	79.7	6.359	35.7942	84.2718
270	1.000	0.023	77.8	6.282	35.7992	84.2712
275	1.000	0.023	71.6	6.023	35.8039	84.2681
280	1.000	0.023	62.6	5.664	35.8081	84.2634
285	1.000	0.023	53.1	5.241	35.8114	84.2577
290	1.000	0.023	51.9	5.179	35.8152	84.2556
295	1.000	0.023	57.1	5.433	35.8199	84.2562
300	1.000	0.023	58.1	5.477	35.8239	84.2542
305	1.000	0.023	59.9	5.554	35.8279	84.2520
310	1.000	0.023	66.1	5.804	35.8328	84.2509
315	1.000	0.023	73.2	6.091	35.8380	84.2494
320	1.000	0.023	73.3	6.095	35.8412	84.2450
325	1.000	0.023	73.7	6.112	35.8443	84.2405
330	1.000	0.023	65.3	5.772	35.8442	84.2336
335	1.000	0.023	65.7	5.788	35.8464	84.2287
340	1.000	0.023	67.0	5.840	35.8486	84.2237
345	1.000	0.023	58.9	5.511	35.8471	84.2174
350	1.000	0.023	56.1	5.387	35.8470	84.2120
355	1.000	0.023	54.6	5.316	35.8469	84.2067

**REQUEST FOR HANDLING UNDER §73.870(a)**  
**NON ADJACENT CHANNEL**

WLNU-LP  
Lenoir City, Tennessee  
Channel 296L1 (107.1 MHz)

WLNU-LP is currently licensed to operate on Channel 274L1 (102.7) where it has been operating since July 22, 2015. During its operation, WLNU-LP has been experiencing real-world (actual) interference from WCNG, Murphy, North Carolina. A co-channel station on Channel 274A.

Based on the guidelines set out in §73.807(a) of the Commission Rules, the separation needed for no interference received from the maximum class-A facility is 92 kilometers. WLNU-LP is 83.3 kilometers from WCNG.

CHAN	FREQ	CALL	LOCATION	CLS	DIST	REQ	CLEAR	BEAR
274	102.7	WCNG	MURPHY	NC A	83.3	67.0	16.3	167.3
: CHEROKEE BROADCASTING CO., INC.								

WLNU-LP is proposing operation on Channel 296L1 (107.1). Unlike Channel 274L1, Channel 296L1 will allow WLNU-LP to operate on a channel that not only clears the minimum separation required by §73.807(a) of the Commission's Rules but also achieves the separation needed for no interference received from the maximum facilities:

Channel	Call	City	Actual distance	No interference received
295C	WMIT	Black Mountain, NC	173.4	142
295C2	WKXD-FM	Monterey, TN	100.9	84
296C2	WUHU	Smiths Grove, KY	218.0	143
296C1	WTSH-FM(LIC)	Aragon, GA	186.0	178
296C1	WTSH-FM(CP)	Aragon, GA	205.4	178
297C2	WCTT-FM	Corbin, KY	123.0	84
297C0	WJMZ-FM	Anderson, SC	189.5	130
297D	W297AX	Knoxville, TN	32.4	16

A further study shows that a significant portion of WLNU-LP's protected contour (including the area around the community of license) is inside of the actual 34 dBu interfering contour of WCNG. While the 34 dBu interfering contour is not recognized in this region for the purposes of allocations, it is still possible that a station can cause interference at the 34 dBu contour, especially in the outer portions of the protected station's service contour which is in this case.

We do note that on the proposed channel (296L1), station WTSH-FM places a 34 dBu interfering contour over most of the WLNU-LP protected contour. Actual field reports from WLNU-LP indicate that WTSH-FM is not placing any kind of a signal into the Lenoir City area on Channel 296. It should also be noted that WTSH-FM has been granted a construction permit (BPH-20130729AOL) to move their facility further south and further away from WLNU-LP.

We also note that Channel 296 is a known frequency in the Lenoir City area as that channel was previously used by the former translator W296CE which was moved to Murphy, North Carolina on BPFT-20160216ACN and licensed on BLFT-20160322ADN.

In this frequency change proposal, it will result in WLNU-LP moving to a channel that is already well-known in the Lenoir City area and therefore has been a proven channel. This preferential arrangement of channels will also permit WCNG better serve the Lenoir City and Loudon areas. This preferential arrangement also takes into consideration the granted construction permit for WTSH-FM.

The move to Channel 296L1 will result in an instant real-world reduction in interference and with the eventual licensing of WTSH-FM at their new location, it will further reduce the risks of any kind of interference on Channel 296L1.

Based on the benefits mentioned and the fact that §73.870(a) of the Commission's Rules permit a change to "any frequency" upon a showing of "reduced interference", we respectfully request that the Commission apply §73.870(a) to permit this non-adjacent channel change in order to improve reception for two stations in this rural area.

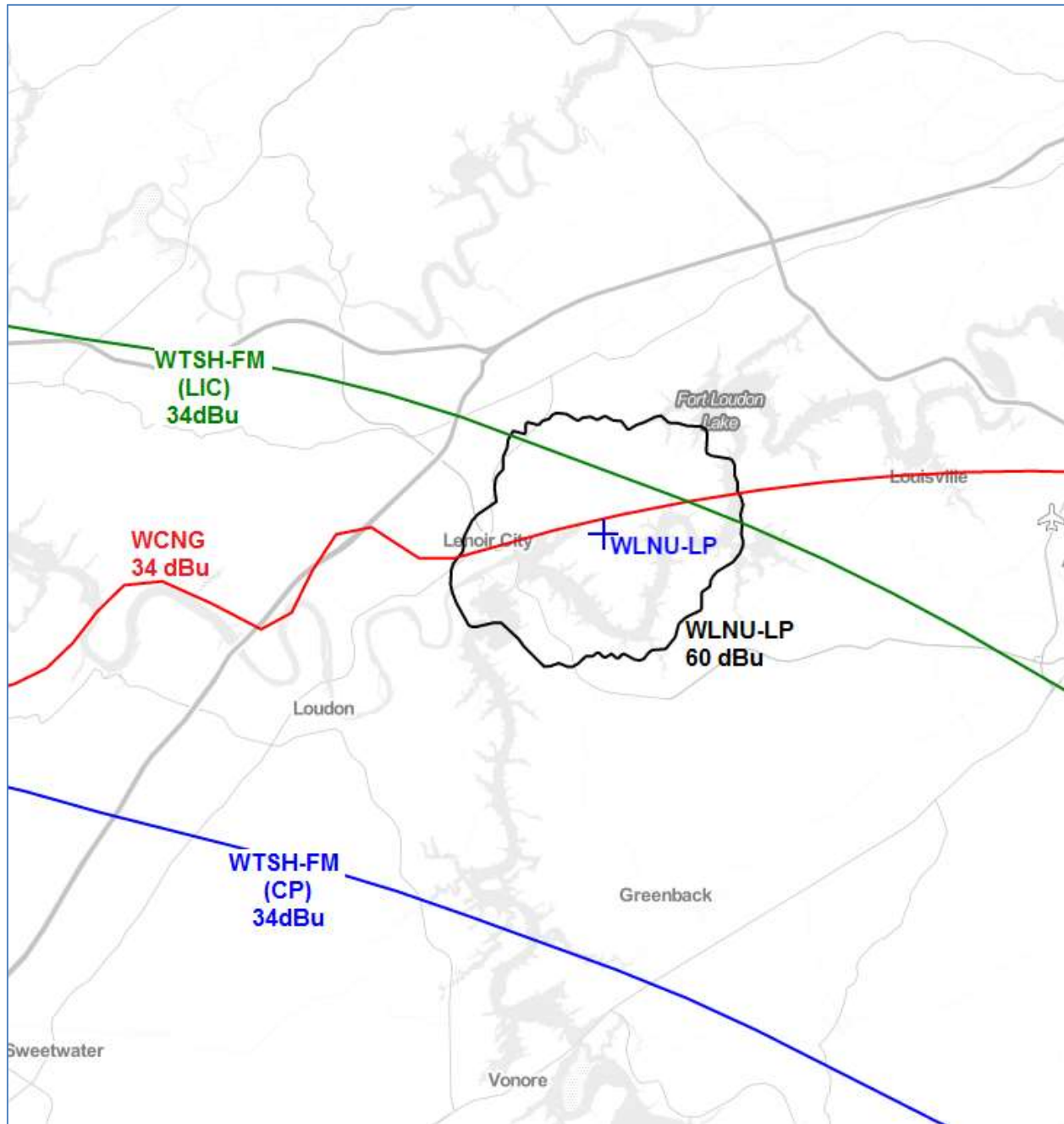
Report prepared by  
Michelle Bradley  
REC Broadcast Services  
April 17, 2016

### **REDUCED INTERFERENCE**

WCNG operates on the current LPFM channel 274.

WTSH operates on the proposed LPFM channel 296.

While WTSH-FM is not providing any real-world interference in the WLNU service contour, the station is being moved further south on a granted construction permit.





## **REQUEST TO USE GLOBE TERRAIN DATA**

Using the alternative GLOBE terrain data in lieu of the FCC NGC-30 terrain data, the height above average terrain (HAAT) at this location has been calculated at 61 meters using 8 radials. At 61 meters HAAT, an LPFM station would be authorized at 23 watts ERP. The applicant is requesting operation at 23 watts ERP.

### **Antenna Height Above Average Terrain Calculations -- Results**

#### **Input Data**

Latitude **35° 47' 57" North**  
Longitude **84° 12' 6" West (NAD 27)**

These coordinates convert to NAD 83 coordinates of  
35° 47' 57.28", North, 84° 12' 05.70" West (NAD 83).

Height of antenna radiation center above mean sea level: **345 meters AMSL**

Number of Evenly Spaced Radials = **8**      0° is referenced to True North

#### **Results**

**Calculated HAAT = 61 meters**

**Antenna Height Above Average Terrain calculated  
using 1 km GLOBE terrain data**

#### **Individual "Radial HAAT" Values, in meters**

0°	43.7 m
45°	76.4 m
90°	67.2 m
135°	55.0 m
180°	50.9 m
225°	67.8 m
270°	58.4 m
315°	67.2 m

[Print Results?](#)

[New Calculation?](#)