

**Exhibit to WCGX Application**  
**Minor Change**  
**Dublin, Ohio**  
**Facility ID: 40170**

---

This exhibit presents the technical details of a class change of WCGX from Class B1 to Class A, with a change in antenna location. No change in principal community or channel is proposed.

**Antenna Location**

The proposed antenna location for WCGX is 170 meters above ground on the tower identified by antenna structure registration number 1029036.

**Spacing Compliance**

Attached as Figure 1 is a spacing study from the proposed antenna location; other than the present WCGX facilities, this proposal is in accordance with Section 73.207 of the Commission's rules.

**Allowable Power**

The FCC provided web tools have been used to determine the height above average terrain of 144 meters, see Figure 2; and an equivalent power of 3.0 kW, see Figure 3, to be applicable at this location.

**Supplemental Community Coverage**

We have determined that a supplemental method of depicting city grade coverage from the antenna location, as provided in §73.313(e) of the Commission's rules, is appropriate and is part of this application.

The proposed WCGX city grade contour (3.16 mV/m, 70 dBu) does not completely encompass the principal community when utilizing the standard FCC method of calculating the contour<sup>1</sup> from the antenna location. We have determined that a supplemental method of depicting city grade coverage, as provided in §73.313(e) of the Commission's rules, is appropriate. As shown below, the supplementary determined distance to contour exceeds that predicted by the standard method by more than 30%.

---

<sup>1</sup> §73.313(c) and §73.333.

The principal community falls in an arc between 292° and 336° from the proposed WCGX transmitter site. Analyzing individual radials from the proposed WCGX site toward the community, we have determined the location of the city grade 70 dBu (3.16 mV/m) contour based on the standard utilization of the Commission's F50:50 curves.

We have alternatively determined the location of the city grade 70 dBu (3.16 mV/m) signal using the Longley-Rice coverage model, based on NBS Technical Note #101 methodology as implemented in the V-Soft microcomputer program "Probe 4". In this instant proposal this alternative method provides a more representative prediction of field strength than the standard methodology. A summary of the data and a tabulation of the results of this report, at one degree intervals, is attached.

The distances in the direction of concern depicted by Longley-Rice are in excess of 30% higher than the distances predicted using the Commission's standard methodology.<sup>2</sup> Based on the Commission and staff policy,<sup>3</sup> we find that the predicted distance of the contour on these pertinent radials varies widely from the standard methodology, therefore, pursuant to §73.313(e), a supplemental method of depicting city grade coverage is acceptable.

Using this supplemental method, as visually demonstrated in Figure 4 and documented in the tabulation of Figure 5, we find that the city grade contour, in the direction of the principal community,<sup>4</sup> extends well beyond the community boundary. Therefore, based on the supplemental showing, we find that the principal community is completely encompassed by the city grade contour of the proposed WCGX facility, in compliance with §73.315 of the Commission's rules.

---

<sup>2</sup> On average, 84% further utilizing the supplemental methodology.

<sup>3</sup> See *Amendments of Parts 73 and 74 of the Commission's Rules to Permit Certain Minor Changes in Broadcast Facilities Without a Construction Permit, Report and Order*, 12 FCC Rcd 12371, 12401-03 (1997); *Skytower Communications - 94.3, LLC*, 25 FCC Rcd 13204 (Chief, Audio Div., Med. Bur. 2010).

<sup>4</sup> On a bearing of 292° to 336° True from the antenna site.

### **Radio Frequency Radiation Study and Statement**

The proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio frequency Radiation."

The proposed antenna system is an ERI LPX 3 bay half wave spaced array which has been evaluated using the program "FM Model" as EPA type 3, "Rototiller " antenna, mounted with its center of radiation 170 meters above ground level, and operated with an effective radiated power of 3 kilowatts in both the horizontal and vertical planes. At 2 meters above ground, at 494 meters from the base of the tower, this proposal will contribute worst case, 0.3 microwatts per square centimeter, or 0.03 percent of the allowable ANSI limit for controlled exposure, and 0.15 percent of the allowable limit for uncontrolled exposure. This figure is less than 5% of the applicable FCC exposure limit at all locations extending out from the base of the tower. Section 1.1307(b)(3) excludes applications when the calculated level is predicted to be less than 5% of the applicable exposure limit. It is therefore believed that this proposal is in compliance with OET Bulletin Number 65 as required by the Federal Communications Commission.

Further, the applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The site itself is restricted from public access. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for


## **Figures and Attachments**

### Figure 1 - Antenna Location Spacing Study

Call	Channel	Location	Azi	Dist	FCC	Margin
WCGX	LIC-N 294B1	Dublin	OH 27.5	17.79	142.5	-124.7
R59693	ADD 294B1	Dublin	OH 32.7	18.29	142.5	-124.2
R59693	DEL 294B	Hillsboro	OH 208.2	107.10	177.5	-70.4
R59692	DEL 295B	Marion	OH 352.0	66.91	112.5	-45.6
WQLX	LIC-Z 293A	Chillicothe	OH 178.5	76.19	71.5	4.7
WXMG	LIC-Z 292A	London	OH 246.9	37.46	30.5	7.0
WNKK	LIC 296A	Circleville	OH 159.8	41.73	30.5	11.2
WVNO-FM	LIC 291B	Mansfield	OH 22.2	89.66	68.5	21.2
WDSJ	LIC 293B	Greenville	OH 276.6	136.39	112.5	23.9
WRQK-FM	LIC 295B	Canton	OH 55.9	162.04	112.5	49.5
WYBZ	LIC 297A	Crooksville	OH 107.5	83.08	30.5	52.6
WYNT	LIC 240A	Caledonia	OH 0.8	73.82	9.5	64.3
WHLK	LIC 293B	Cleveland	OH 35.5	186.93	112.5	74.4

Figure 2 – Antenna Location HAAT Calculation

Antenna Height Above Average Terrain (HAAT) Calculations (HAAT) Results Aud... Page 1 of 1



Federal Communications Commission

**Audio Division**

(202)-418-2700

FCC Home | Search | Updates | E-Filing | Initiatives | For Consumers | Find People

**Antenna Height Above Average Terrain (HAAT) / Contour Calculations**

FCC > MB > Audio Division > HAAT/Contour Calculations

[FCC site map](#)

**Antenna Height Above Average Terrain Calculations -- Input**

Latitude **40 1 1.8 North**  
Longitude **83 1 11.3 West** (NAD 27)

Height of antenna radiation center above mean sea level [RCAMSL] = **392.0** meters

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

**Results:**

**Calculated HAAT= 144. meters**

(Antenna Height Above Average Terrain)  
using the 30 second FCC/NGDC terrain data)

**Antenna Radiation Center Heights Above Individual Radials:**

0.0°	133.5 meters
45.0°	131.2 meters
90.0°	141.1 meters
135.0°	161.0 meters
180.0°	181.6 meters
225.0°	138.3 meters
270.0°	129.2 meters
315.0°	136.2 meters

**New Antenna Height Above Average Terrain (HAAT) calculation?**

---

[FCC Home](#) | [Search](#) | [RSS](#) | [Updates](#) | [E-Filing](#) | [Initiatives](#) | [Consumers](#) | [Find People](#)

Federal Communications Commission  
445 12th Street SW  
Washington, DC 20554  
[More FCC Contact Information...](#)


Phone: 1-888-CALL-FCC ( )  
1-888-225-5322 ( )  
TTY: 1-888-TELL-FCC ( )  
1-888-835-5322 ( )  
Fax: 1-866-418-0232 ( )  
E-mail: [fccinfo@fcc.gov](mailto:fccinfo@fcc.gov)

- [Privacy Policy](#)  
- [Website Policies & Notices](#)  
- [Required Browser Plug-Ins](#)  
- [Freedom of Information Act](#)

[http://transition.fcc.gov/fcc-bin/haat\\_calculator?dlat=40&mLat=01&slat=01.8&ns=1&dlon...](http://transition.fcc.gov/fcc-bin/haat_calculator?dlat=40&mLat=01&slat=01.8&ns=1&dlon...) 4/10/2012

Figure 3 – FMpower, Equivalent Power Determination

Page 1 of 1



Federal Communications Commission

FCC Home | Search | Updates | E-Filing | Initiatives | For Consumers | Find People

Audio Division

(202)-418-2700

FMpower Results

[FCC](#) > [MB](#) > [Audio Division](#) > [FMpower](#) [FM Propagation Curves](#)

[FCC site map](#)

### FMpower Results

**6 kW ERP Class A facilities for Equivalency Determination:**

Reference ERP = 6.000 kW  
Reference HAAT = 100.0 meters  
F(50,50) 60 dBu protected contour at 28.3 km distance

**Equivalent ERP (rounded per 47 CFR 73.212) = 3.000 kW**

... at **144.0 meters HAAT**

Unrounded ERP = 2.975 kW for 144.0 meters HAAT

Class A stations are authorized throughout the United States.

### Enter New Data in FMpower?

Related items: [FM and TV Propagation Curves](#).  
[This document may be accessed at http://www.fcc.gov/mb/audio/bickel/fmpower.html](http://www.fcc.gov/mb/audio/bickel/fmpower.html)

---

[FCC Home](#) | [Search](#) | [RSS](#) | [Updates](#) | [E-Filing](#) | [Initiatives](#) | [Consumers](#) | [Find People](#)

If you would like more information pertaining to the Media Bureau, please call: (202) 418-7200.

Federal Communications Commission  
445 12th Street SW  
Washington, DC 20554  
[More FCC Contact Information...](#)

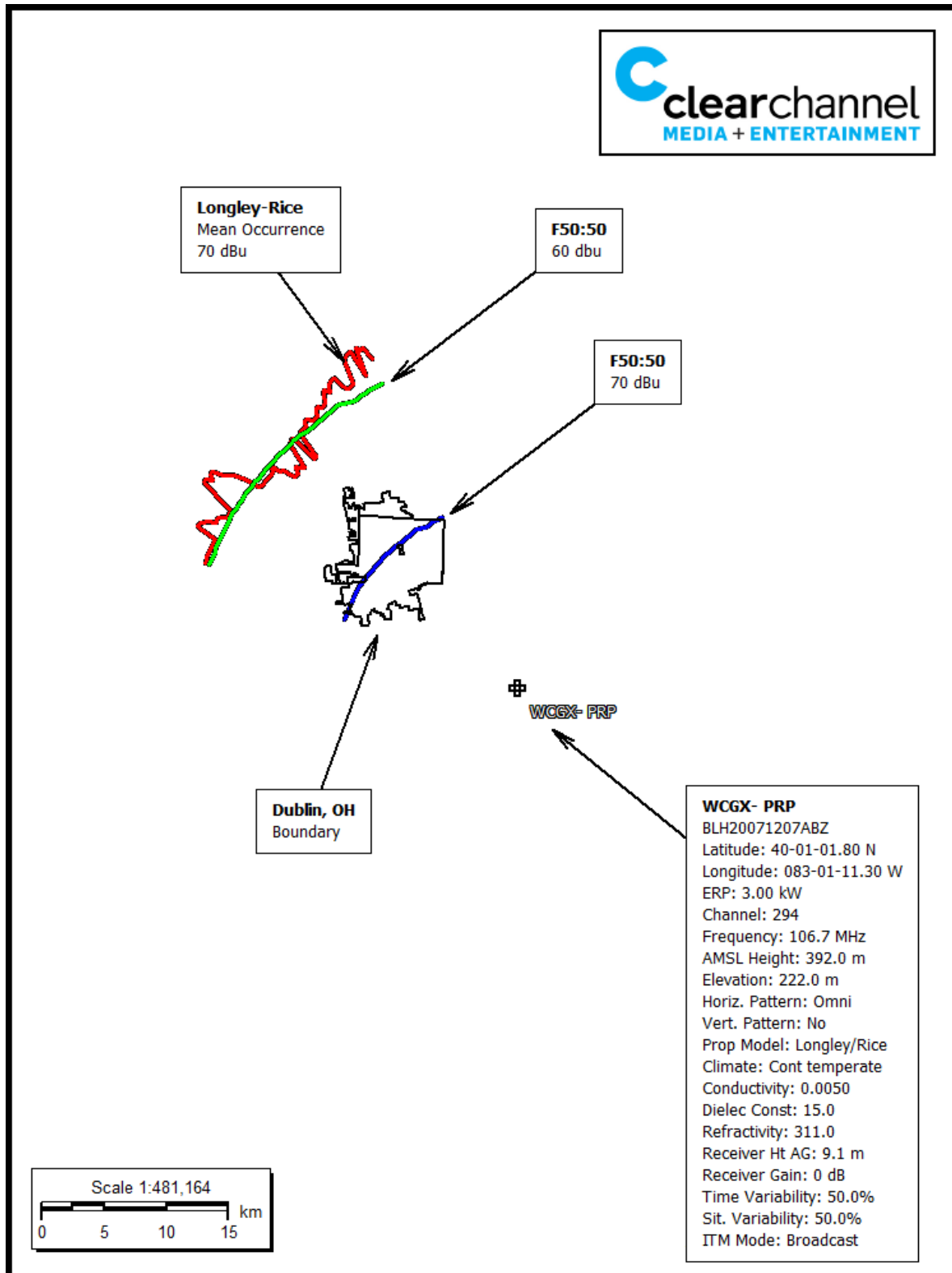
Phone: 1-888-CALL-FCC (1-888-225-5322)  
TTY: 1-888-TELL-FCC (1-888-835-5322)  
Fax: 1-866-418-0232  
E- [fccinfo@fcc.gov](mailto:fccinfo@fcc.gov)  
mail:

- [Privacy Policy](#)
- [Website Policies & Notices](#)
- [Required Browser Plug-ins](#)
- [Freedom of Information Act](#)

<http://transition.fcc.gov/fcc-bin/fmpower>

4/10/2012

Figure 4 - WCGX Supplemental Contour Map





**Figure 5 - WCGX Tabulation of Contour Distances**

WCGTX Tabulation of Contour Distances, and differences between distances as predicted by the FCC Standard and Alternate (Longley-Rice) Methodologies					
Radial		60 dbu FCC Method	70 dbu FCC Method	70 dbu Longley-Rice Method	
Bearing	HAAT	Distance, km	Distance, km	Distance, km	Change %
292.0	124.9	26.7	15.1	26.7	77%
293.0	125.1	26.7	15.1	26.7	80%
294.0	125.2	26.7	15.1	26.7	80%
295.0	125.4	26.7	15.1	26.7	80%
296.0	125.8	26.8	15.1	26.8	79%
297.0	126.0	26.8	15.1	26.8	91%
298.0	126.3	26.8	15.2	26.8	89%
299.0	126.7	26.9	15.2	26.9	83%
300.0	126.9	26.9	15.2	26.9	82%
301.0	127.3	26.9	15.2	26.9	78%
302.0	127.5	26.9	15.2	26.9	78%
303.0	127.3	26.9	15.2	26.9	92%
304.0	126.9	26.9	15.2	26.9	98%
305.0	127.2	26.9	15.2	26.9	98%
306.0	127.1	26.9	15.2	26.9	92%
307.0	127.1	26.9	15.2	26.9	88%
308.0	127.1	26.9	15.2	26.4	73%
309.0	126.6	26.9	15.2	26.3	73%
310.0	126.4	26.8	15.2	26.3	73%
311.0	126.6	26.9	15.2	26.3	73%
312.0	126.5	26.8	15.2	26.7	76%
313.0	126.5	26.8	15.2	25.8	70%
314.0	126.5	26.8	15.2	24.7	63%
315.0	126.4	26.8	15.2	25.3	67%
316.0	126.4	26.8	15.2	24.7	63%
317.0	126.0	26.8	15.1	26.8	77%
318.0	126.8	26.9	15.2	26.9	78%
319.0	126.9	26.9	15.2	24.7	63%
320.0	125.9	26.8	15.1	26.8	79%
321.0	125.3	26.7	15.1	26.7	80%
322.0	124.9	26.7	15.1	26.7	82%
323.0	125.3	26.7	15.1	26.7	80%
324.0	125.6	26.8	15.1	26.8	83%
325.0	126.3	26.8	15.1	26.8	82%
326.0	127.0	26.9	15.2	26.9	82%

Radial		60 dbu FCC Method	70 dbu FCC Method	70 dbu Longley-Rice Method	
<i>Bearing</i>	<i>HAAT</i>	<i>Distance, km</i>	<i>Distance, km</i>	<i>Distance, km</i>	<i>Change %</i>
327.0	127.7	26.9	15.2	26.9	88%
328.0	127.6	26.9	15.2	26.9	89%
329.0	125.3	26.7	15.1	26.7	92%
330.0	124.2	26.6	15.0	26.6	86%
331.0	124.1	26.6	15.0	26.6	85%
332.0	124.7	26.7	15.1	26.7	98%
333.0	125.3	26.7	15.1	26.7	100%
334.0	126.0	26.8	15.1	26.8	85%
335.0	125.5	26.8	15.1	26.8	98%
336.0	126.0	26.8	15.1	26.8	91%
			<b>Average of Change</b>		<b>84%</b>