

***COMPREHENSIVE TECHNICAL EXHIBIT  
AMENDMENT TO APPLICATION FOR  
CONSTRUCTION PERMIT***

---

NON-COMMERCIAL EDUCATIONAL FM STATION  
WHPK-FM - CHICAGO, ILLINOIS  
FACILITY ID: 69000  
FM CHANNEL 203 / 88.5 MHz

THE UNIVERSITY OF CHICAGO

AUGUST, 2013

## **AMENDMENT TO APPLICATION FOR CONSTRUCTION PERMIT**

The following engineering statement and attached exhibits have been prepared for **The University of Chicago** ("UC"), licensee of NCE station WHPK-FM at Chicago, Illinois, and are in support of their amendment to application for construction permit.<sup>1</sup>

By way of letter dated July 26, 2013, the Staff dismissed the original UC application under FCC File No. BPED-20130618ABI for violation of Section 73.509 to WHSD(FM) at Hinsdale, Illinois.<sup>2</sup> This curative amendment to the original application seeks to correct this deficiency, and it is respectfully requested that the Commission reinstate the WHPK-FM *nunc pro tunc*.

The licensed transmitter site for WHPK-FM is on the campus of the University of Chicago at Pierce Hall. As part of a campus construction program, the existing Pierce Hall facility is to be demolished. Originally, this demolition was slated for August of 2014; however, due to changes in the construction plans, the razing of this building was moved up a full year to August of 2013. As a result of the construction plans, UC seeks a relocation of the WHPK-FM transmitter site a distance of approximately 1.1 kilometers.

The original application continued to specify operation on channel 203, with a maximum effective radiated power of 0.1 kW at a center of radiation of 228.3 meters AMSL. Under that application, a directional antenna was proposed in order to provide contour protection to other facilities in the region. Under this amendment, UC proposes to maintain the originally proposed center of radiation at 228.3 meters AMSL, as well as the use of a directional antenna, however, the

---

<sup>1</sup> The Facility ID for WHPK-FM at Chicago, Illinois is 69000.

<sup>2</sup> The Facility ID for WHSD(FM) at Hinsdale, Illinois is 27263.

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415  
221 S. 1st Avenue  
Canton, IL 61520

Tel: 309.647.1200  
Fax: 855.332.9537  
jeremyruck.com

pattern envelope will necessarily change, and it is proposed that the maximum ERP be increased to 0.125 kW. The combination of the modified pattern envelope and small increase in effective radiated power will prevent the loss of current service of WHPK-FM to portions of its community of license.

In the latter part of 1981, a number of mutually exclusive NCE facilities in the Chicago metropolitan area met to discuss addressing the situation that plagued their applications. Out of that meeting came a general understanding, with the cooperation and indulgence of the Commission, as to a rectification of the issues. Under the plan, the facilities were more or less "allocated" coverage areas, and contour overlap provisions of the Commission's Rules waived to accommodate the stations in question. This agreement and plan has worked well over the preceding three decades, and has permitted the very diverse Chicago metropolitan area to be served on a regional basis by numerous NCE facilities, each of which serve their particular niches and neighborhoods.

The proposed WHPK-FM facility will maintain this agreement to the extent possible within the framework of the Commission's Rules, and maintain the coverage area that was originally agreed upon despite the relocation of the facility. The small increase in the effective radiated power coupled with the proposed directional pattern achieves this objective.

The main studio for WHPK-FM would continue to comply with the provisions of Section 73.1125 of the Commission's Rules. The main studio is located on the campus of the University of Chicago. As a result, the main studio is located within not only the principal community coverage

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415  
221 S. 1st Avenue  
Canton, IL 61520

Tel: 309.647.1200  
Fax: 855.332.9537  
jeremyruck.com

contour of numerous facilities licensed to Chicago, but also within the corporate limits of the city itself.

The proposed facility does not comply with the provisions of Section 73.515 of the Commission's Rules. Due to the low effective radiated power and height of the antenna, it is not possible to encompass at least fifty percent of the city with the WHPK-FM 60 dBu service contour. WHPK-FM has been licensed to Chicago, Illinois since its inception in the late 1960's. As will be demonstrated in this amendment, the coverage footprint of WHPK-FM will not be reduced as a result of the relocation of the facility. It is also believed that WHPK-FM is "grandfathered" into its current situation with its community of license. For these reasons, it is respectfully requested that the Commission waive the provisions of Section 73.515, if necessary.

The proposed facility would comply with the provisions of Sections 73.509, 73.207, and 73.525 with regard to other relevant stations. The provisions of Sections 73.213 and 73.215 are not relevant in this instance. The licensed WHPK-FM facility currently has contour overlap with other facilities in the region. Pursuant to Section 73.509, this situation will not be exacerbated as a result of a grant of this application.

Exhibit E-1 is a tabular allocation study for the proposed facility. This study demonstrates that the proposed facility would cause no *outgoing* overlap to any other facility, but would receive overlap from two other facilities in the region. The overlap with these facilities will be discussed in detail. An overview of this tabular allocation study using a truncated set of facilities is depicted in Exhibit E-2.

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415  
221 S. 1st Avenue  
Canton, IL 61520

Tel: 309.647.1200  
Fax: 855.332.9537  
jeremyruck.com

As indicated in Exhibits E-1 and E-2, the proposed facility would receive contour overlap from both WHFH(FM) at Flossmoor, Illinois and WIIT(FM) at Chicago, Illinois.<sup>3</sup> It should be noted that in considering the overlap received from WHFH(FM), both the licensed and construction permit facilities were considered.<sup>4</sup> The level of contour overlap received over land from both facilities is not being increased, but is rather being maintained.

Exhibit E-3 provides an overview of the particular situation between WHPK-FM and WHFH at Flossmoor. Each of the relevant contours for this situation is indicated on this map in a different color. Specifically, the 60 dBu F(50,50) contour for the licensed and proposed WHPK-FM facilities as well as the 40 dBu F(50,10) contour for the licensed and authorized WHFH facilities have been plotted. As this map demonstrates, there is a new area of contour overlap between the two facilities. This area of overlap, however, is located over Lake Michigan, and is a consequence of the use of the directional pattern and the permissible slope for the pattern. It is respectfully submitted that this area of overlap does not violate the Commission's Rules per Section 73.509(e).

Due to the small footprint of WHPK-FM, and the limited area over which overlap occurs, an additional map is necessary to illustrate the detail concerning changes in the overlap area. Exhibit E-4 illustrates additional detail in this region. This region is denoted by the orange oval on Exhibit E-3.

---

<sup>3</sup> The Facility ID for WHFH(FM) at Flossmoor, Illinois is 12922. The Facility ID for WIIT(FM) at Chicago, Illinois is 28307.

<sup>4</sup> The outstanding construction permit for WHFH(FM) is under FCC File No. BPED-20130515ABL.

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415  
221 S. 1st Avenue  
Canton, IL 61520

Tel: 309.647.1200  
Fax: 855.332.9537  
jeremyruck.com

The region of consideration indicated in Exhibit E-3 is depicted in Exhibit E-4 while maintaining the contours. As this map demonstrates there are three areas where the level of contour overlap would be reduced, and four areas where the level of contour overlap would be increased. The sum total of the reduction areas is equivalent to the sum total of the increase areas. As a result, the total area of contour overlap received from WHFH would not change. It is respectfully submitted that this situation complies with the provisions of Section 73.509. It should be noted that there is no overlap of either of the 40 dBu F(50,10) contours from WHPK-FM with the 60 dBu contour of WHFH.

The second situation of consideration is that between WHPK and WIIT at Chicago, Illinois. In this particular case, the 100 dBu F(50,10) contour of WIIT is wholly encompassed by the 60 dBu F(50,50) contours of WHPK-FM. The WHPK-FM 100 dBu F(50,10) contour does not overlap the 60 dBu F(50,50) contour of WIIT. Thus, in this situation only overlap received by WHPK-FM must be considered.

Exhibit E-5 illustrates the detail concerning this particular situation. As this map demonstrates, there is existing overlap between the WIIT 100 dBu F(50,10) contour and the WHPK-FM 60 dBu contours. Since WIIT is not changing their technical parameters, this area of overlap, which is the area of the WIIT 100 dBu F (50, 10) contour, is unchanged. As a result, there is no change to the overlap situation between the two facilities.<sup>5</sup>

---

<sup>5</sup> It is expressly understood that the Commission does not permit showings of U/D ratios for purposes of determining FM interference. However, it is worth noting that in this particular instance that the field strength of WHPK-FM in the vicinity of the WIIT transmitter site will be slightly higher than it is at present. Therefore, although not permitted as a formal showing, the potential for interference to be caused to the reception of WHPK-FM would be reduced. WIIT

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415  
221 S. 1st Avenue  
Canton, IL 61520

Tel: 309.647.1200  
Fax: 855.332.9537  
jeremyruck.com

The proposed facility would comply with the spacing provisions of Section 73.207 of the Commission's Rules. Due to the channel of operation, the spacings between WHPK-FM and channels plus or minus three from the channel of operation are not applicable. The applicable spacings, however, are to facilities operating on channels 256 and 257, or on the intermediate frequency split. Exhibit E-6 is a single channel spacing study for the proposed facility that demonstrates that all of these spacings would be adequately met.

The single channel spacing study in Exhibit E-6 is also used to demonstrate compliance with the provisions of Section 73.525 of the Commission's Rules. This spacing study indicates there are no television channel six broadcast facilities within the affected distance for channel 203.

The proposed facility would comply with the relevant international agreements. Exhibit E-7 is a map that depicts a 320 kilometer site radius for WHPK-FM. As this map demonstrates, this radius would not intersect or overlap either the common border of the United States with Canada, or the common border of the United States with Mexico.

The proposed facility would not constitute a significant environmental impact, and is exempt from environmental processing. The antenna for the facility would be located on an existing building on the campus of the University of Chicago. Thus, the increase of this pole mounted antenna will not increase the existing environmental impact already present from the building structures.

---

operates second adjacent to WHPK-FM, thus any interference that may occur would be highly localized, and would not result in a elimination of service such as would occur on a co-channel or first adjacent channel situation.

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415  
221 S. 1st Avenue  
Canton, IL 61520

Tel: 309.647.1200  
Fax: 855.332.9537  
jeremyruck.com

In addition, the facility will not result in general population exposure to radiofrequency radiation in excess of the uncontrolled environment condition of the current safety standards. Although a final design of the antenna has not yet been constructed, the worst case scenario for the facility utilizing the Commission's *FM Model* software package yields a calculated power density at ground level of  $0.933 \mu\text{W}/\text{cm}^2$  at a distance of 12 meters from the base of the building. This value is sufficiently low that the proposed facility is categorically excluded.

The rooftop of the building on which the antenna is to be located is a controlled environment. The height at which the antenna is to be located is sufficiently high so as not to exceed the controlled environment condition on the building rooftop. In order to ensure that this is in fact the case, following construction, radiofrequency radiation measurements will be performed on the rooftop. Appropriate signage will be installed at the access points to the rooftop, and in the vicinity of the supporting structure. UC certifies that it will coordinate with all other users of the site to ensure that workers and other personnel are not exposed to levels of radiofrequency radiation in excess of the applicable safety standards.

The principal community for the proposed facility is Chicago, Illinois, as has been previously stated. There is no change in the community of license proposed under this application.

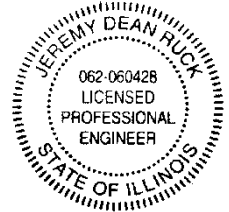
JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415  
221 S. 1st Avenue  
Canton, IL 61520

Tel: 309.647.1200  
Fax: 855.332.9537  
jeremyruck.com



The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature  
License Expires November 30, 2013

Jeremy D. Ruck, PE  
August 21, 2013

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415  
221 S. 1st Avenue  
Canton, IL 61520

Tel: 309.647.1200  
Fax: 855.332.9537  
jeremyruck.com

8.21.2013

Jeremy Ruck & Associates, Inc.  
Consulting Engineers - Canton, Illinois

Exhibit E-1 - Tabular Allocation Study  
WHPK-FM - Chicago, Illinois  
CH# 203A - 88.5 MHz, Pwr= 0.125 kW DA, HAAT= 47.7 M, COR= 228.3 M  
Average Protected F(50-50)= 7.48 km  
Standard Directional

REFERENCE  
41 47 03.9 N.  
87 36 01.0 W.

DISPLAY DATES  
DATA 08-20-13  
SEARCH 08-20-13

| CH<br>CITY            | CALL    | TYPE<br>STATE | ANT<br>AZI<br><-- | DIST<br>FILE #             | LAT<br>LNG               | PWR(kW)<br>HAAT(M) | INT(km)<br>COR(M) | PRO(km)<br>LICENSEE                | *IN*<br>(Overlap in km) | *OUT*  |
|-----------------------|---------|---------------|-------------------|----------------------------|--------------------------|--------------------|-------------------|------------------------------------|-------------------------|--------|
| 203A<br>Chicago       | WHPK-FM | APP DCX<br>IL | 0.0<br>0.0        | 0.00<br>BPED20130618ABI    | 41 47 03.9<br>87 36 01.0 | 0.100<br>48        | 23.9<br>228       | 7.1<br>University Of Chicago       | -31.4*                  | -32.3* |
| 203A<br>Chicago       | WHPK-FM | LIC_CN<br>IL  | 7.1<br>187.1      | 1.12<br>BLED19850611KC     | 41 47 40.0<br>87 35 55.0 | 0.100<br>37        | 21.6<br>220       | 6.4<br>University Of Chicago       | -28.0*                  | -30.5* |
| 203A<br>Flossmoor     | WHFH    | CP DCX<br>IL  | 196.0<br>16.0     | 27.62<br>BPED20130515ABL   | 41 32 44.0<br>87 41 31.0 | 1.500<br>33        | 29.5<br>236       | 7.8<br>Community High School Dist  | -5.6*                   | 0.7    |
| 203A<br>Flossmoor     | WHFH    | LIC_DHN<br>IL | 196.0<br>15.9     | 27.64<br>BLED19800513AE    | 41 32 43.0<br>87 41 30.0 | 1.500<br>28        | 29.6<br>236       | 7.8<br>Community High School Dist  | -5.6*                   | 0.8    |
| 205D<br>Chicago       | WITT    | LIC_HN<br>IL  | 337.1<br>157.1    | 6.03<br>BLED19910204KB     | 41 50 04.0<br>87 37 43.0 | 0.017<br>27        | 1.6<br>206        | 3.6<br>Illinois Institute Of Tech  | -3.1*                   | 1.7    |
| 203A<br>Hinsdale      | WHSB    | LIC_DEN<br>IL | 271.0<br>90.8     | 27.65<br>BLED19860522KA    | 41 47 18.0<br>87 56 02.0 | 0.125<br>40        | 15.1<br>254       | 4.7<br>Hinsdale Twp. High Sch. D   | 6.0                     | 0.0    |
| 202A<br>Chicago       | WXAV    | LIC_DCN<br>IL | 229.1<br>49.1     | 12.58<br>BLED19910819KB    | 41 42 37.0<br>87 42 54.0 | 0.150<br>39        | 5.4<br>224        | 3.9<br>St. Xavier College          | 1.7                     | 1.2    |
| 201D<br>Chicago       | WSSD    | LIC_CN<br>IL  | 146.4<br>326.4    | 7.41<br>BLED19791022AA     | 41 43 44.0<br>87 33 03.0 | 0.010<br>31        | 0.2<br>209        | 3.2<br>Lakeside Telecommunication  | 1.6                     | 3.8    |
| 201A<br>Chicago       | WCRX    | LIC_DEN<br>IL | 338.2<br>158.2    | 10.58<br>BLED19851106KH    | 41 52 22.0<br>87 38 52.0 | 0.100<br>39        | 0.7<br>226        | 6.9<br>Columbia College            | 2.3                     | 2.9    |
| 204A<br>Chicago       | WLWU    | LIC_CN<br>IL  | 348.4<br>168.4    | 24.59<br>BLED19840904CR    | 42 00 04.0<br>87 39 36.0 | 0.100<br>70        | 12.4<br>253       | 8.8<br>Loyola University Of Chi ca | 4.7                     | 5.0    |
| 205A<br>Irondale      | NEW     | CP DCX<br>IL  | 145.7<br>325.7    | 10.87<br>BNPED20071022B00  | 41 42 13.0<br>87 31 35.0 | 0.100<br>36        | 0.3<br>216        | 3.5<br>The Dwelling Place, Inc.    | 5.1                     | 6.5    |
| 202A<br>Chicago       | WZRD    | LIC_CN<br>IL  | 336.0<br>156.0    | 24.07<br>BLED19850221KP    | 41 58 56.0<br>87 43 07.0 | 0.100<br>22        | 8.0<br>209        | 5.6<br>Northeastern Illinois Uni v | 8.6                     | 7.6    |
| 203A<br>Glenview      | WGBK    | LIC_DC_<br>IL | 332.2<br>152.1    | 41.04<br>BLED19990913AAD   | 42 06 39.0<br>87 49 56.0 | 0.185<br>32        | 24.4<br>226       | 7.2<br>Glenbrook High School Dist  | 9.2                     | 8.5    |
| 204A<br>Gary          | WGVE-FM | LIC_HN<br>IN  | 137.4<br>317.6    | 34.70<br>BLED714           | 41 33 15.0<br>87 19 05.0 | 2.100<br>28        | 20.3<br>219       | 13.7<br>Gary Community School Corp | 8.7                     | 13.0   |
| 205A<br>Summit        | WARG    | LIC_DEN<br>IL | 267.2<br>87.0     | 16.97<br>BLED19851106KC    | 41 46 36.0<br>87 48 17.0 | 0.500<br>25        | 0.5<br>218        | 5.4<br>Community High School Dist  | 9.7                     | 10.4   |
| 201A<br>La Grange     | WLTL    | LIC_DCN<br>IL | 277.7<br>97.6     | 23.46<br>BLED19850903KW    | 41 48 45.0<br>87 52 51.0 | 0.180<br>42        | 0.3<br>229        | 4.9<br>Lyons Township High School  | 16.1                    | 17.3   |
| 204A<br>Elmhurst      | WRSE    | LIC_DCX<br>IL | 293.6<br>113.3    | 31.19<br>BLED20080812ACW   | 41 53 46.0<br>87 56 45.0 | 0.320<br>29        | 5.9<br>236        | 4.3<br>Bd. Of Trustees, Elmhurst   | 17.8                    | 16.2   |
| 205A<br>River Grove   | WRRG    | LIC_DCN<br>IL | 306.8<br>126.6    | 24.40<br>BLED19860926KC    | 41 54 56.0<br>87 50 12.0 | 0.100<br>39        | 0.3<br>234        | 5.2<br>Triton College              | 16.5                    | 18.3   |
| 203A<br>Wanatah       | WTMK    | CP DCX<br>IN  | 137.9<br>318.3    | 71.71<br>BPED20111103AGS   | 41 18 15.0<br>87 01 30.0 | 4.000<br>103       | 47.6<br>311       | 13.4<br>Olivet Nazarene University | 18.8                    | 37.9   |
| 202A<br>Downers Grove | WDGC-FM | LIC_DHN<br>IL | 273.9<br>93.6     | 34.21<br>BLED1271          | 41 48 16.0<br>88 00 44.0 | 0.250<br>40        | 5.8<br>258        | 4.1<br>Wdgc-fm, School District #  | 21.5                    | 19.6   |
| 201A<br>Rosemont      | WTZI    | LIC_DCX<br>IL | 310.8<br>130.6    | 29.16<br>BLED20101217ABD   | 41 57 20.0<br>87 52 02.0 | 0.300<br>22        | 0.6<br>218        | 5.1<br>Calvary Radio Network, Inc  | 21.1                    | 23.3   |
| 203A<br>Lowell        | WTMK    | LIC_DCX<br>IN | 155.7<br>335.9    | 85.49<br>BLED20051212ACI   | 41 04 59.0<br>87 10 47.0 | 1.500<br>51        | 55.1<br>260       | 15.1<br>Olivet Nazarene University | 25.0                    | 52.4   |
| 202A<br>Chesterton    | WDSO    | LIC_CX<br>IN  | 113.4<br>293.8    | 48.92<br>BMLLED20050107ABH | 41 36 29.0<br>87 03 37.0 | 0.400<br>41        | 15.7<br>241       | 10.9<br>Duneland School Corp.      | 26.6                    | 28.9   |
| 201A<br>Winnetka      | WNTH    | LIC_DCN<br>IL | 344.2<br>164.1    | 35.83<br>BLED19860210KF    | 42 05 40.0<br>87 43 07.0 | 0.100<br>25        | 0.3<br>218        | 3.8<br>Board Of Education, New Tr  | 28.1                    | 30.9   |
| 201A<br>Crete         | WBMF    | LIC_CX<br>IL  | 185.2<br>5.2      | 40.52<br>BLED20020822AAA   | 41 25 17.0<br>87 38 39.0 | 0.090<br>114       | 0.7<br>330        | 11.4<br>Family Worship Center Chur | 34.5                    | 28.7   |

| CH CITY                | CALL     | TYPE STATE | ANT | AZI <--     | DI ST FILE #           | LAT LNG               | PWR(kW) HAAT (M) | INT(km) COR (M) | PRO(km) LICENSEE                | Page # 2<br>*IN*<br>(Overlap in km) | *OUT* |
|------------------------|----------|------------|-----|-------------|------------------------|-----------------------|------------------|-----------------|---------------------------------|-------------------------------------|-------|
| 202A Arlington Heights | WCLR     | LIC DEX IL |     | 319.2 138.9 | 48.27 BLED20031105AIA  | 42 06 45.0 87 58 58.0 | 1.000 18         | 8.6 235         | 6.1 Educational Media Foundati  | 32.1                                | 31.1  |
| 206D Mount Prospect    | W206BL   | LIC DC_ IL |     | 312.9 132.7 | 40.33 BLFT20051024AAU  | 42 01 51.0 87 57 29.0 | 0.120 38         | 0.4 248         | 6.0 Best Media, Inc.            | 32.4                                | 33.5  |
| 202A Palatine          | WHCM     | LIC _CX IL |     | 310.4 130.0 | 51.19 BLED20021204AAX  | 42 04 54.0 88 04 23.0 | 0.100 17         | 9.3 249         | 6.4 William Rainey Harper Coll  | 34.4                                | 33.9  |
| 201A Wheaton           | WETN     | LIC DC_ IL |     | 283.0 102.7 | 42.36 BLED19990921ABJ  | 41 52 09.0 88 05 56.0 | 0.250 43         | 0.4 266         | 5.8 The Trustees Of Wheaton Co  | 34.7                                | 35.3  |
| 206A Lowell            | WLPR-FM  | LIC _C_ IN |     | 158.3 338.5 | 55.14 BLED20130320ACC  | 41 19 24.0 87 21 22.0 | 1.100 112        | 1.7 323         | 19.7 Northwest Indiana Public B | 48.0                                | 35.0  |
| 206A Naperville        | WONC     | LIC _CN IL |     | 269.1 88.7  | 49.29 BLED19940809KC   | 41 46 34.0 88 11 41.0 | 1.500 50         | 1.6 264         | 13.4 North Central College      | 40.9                                | 35.0  |
| 205A Monee             | WGEN-FM  | LIC _VX IL |     | 198.7 18.6  | 43.53 BLED20080125ACC  | 41 24 47.9 87 46 02.8 | 0.100 54         | 0.7 275         | 7.8 Life On The Way Communicat  | 37.5                                | 35.3  |
| 204A Joliet            | WCSF     | LIC _CN IL |     | 236.1 55.8  | 49.94 BLED19880916KB   | 41 31 58.0 88 05 54.0 | 0.100 39         | 8.0 230         | 5.6 College Of St. Francis      | 35.9                                | 35.7  |
| 201A Lockport          | WLRA     | LIC _CX IL |     | 243.3 63.0  | 44.67 BMLED20030610ADY | 41 36 10.0 88 04 49.0 | 0.140 40         | 0.8 228         | 6.1 Lewis University            | 37.6                                | 38.0  |
| 203D Michigan City     | W203AJ   | LIC _CN IN |     | 100.8 281.3 | 67.16 BLFT19951024TB   | 41 40 07.0 86 48 21.0 | 0.013 86         | 22.1 302        | 6.6 American Family Associatio  | 38.0                                | 37.6  |
| 203A Minooka           | WMNK     | LIC _CX IL |     | 241.3 60.9  | 66.29 BLED20121003AAZ  | 41 29 47.0 88 17 56.0 | 0.200 32         | 22.4 208        | 6.7 American Education Foundat  | 37.6                                | 40.3  |
| 203B1 Antioch          | WSFI     | CP DCX IL  |     | 327.8 147.4 | 91.58 BMPED20120620ABX | 42 28 48.9 88 11 41.7 | 6.100 115        | 45.9 359        | 13.5 Bvm Helping Hands          | 38.1                                | 51.1  |
| 256D Park Forest       | 1549634« | APP _C_ IL |     | 184.3 4.3   | 53.27 BNPFT20030317EUO | 41 18 22.0 87 38 53.0 | 0.250            | 75.3 304        | 50.0 Edgewater Broadcasting, In | 9.5R                                | 43.8M |
| 205A Lake Forest       | WMXM     | LIC _C_ IL |     | 340.0 159.9 | 55.07 BLED20100322ABP  | 42 14 59.0 87 49 44.0 | 0.295 29         | 1.2 233         | 8.1 Lake Forest College         | 46.3                                | 44.6  |
| 201A Lincolnshire      | WAES     | LIC DC_ IL |     | 328.3 148.1 | 54.33 BLED20011120AAK  | 42 11 59.0 87 56 49.0 | 0.150 15         | 0.2 227         | 3.0 Adlai E. Stevenson Hs Dist  | 46.5                                | 50.4  |
| 204A Kankakee          | WEGN     | LIC DCX IL |     | 205.9 25.7  | 71.25 BMLED20111003AEK | 41 12 26.5 87 58 21.6 | 5.000 65         | 18.6 256        | 12.5 The Power Foundation       | 47.5                                | 50.6  |
| 202A Kankakee          | WAWF     | LIC _C_ IL |     | 189.4 9.3   | 79.66 BLED20000512AAE  | 41 04 39.0 87 45 22.0 | 1.250 87         | 26.7 279        | 18.1 Family Worship Center Chur | 47.7                                | 54.0  |
| 204A Sugar Grove       | WSRI     | LIC DCX IL |     | 263.0 82.4  | 69.72 BLED20080410ABW  | 41 42 16.0 88 26 02.0 | 0.600 103        | 15.1 306        | 10.6 Educational Media Foundati | 47.9                                | 49.0  |

Terrain database is FCC NGDC 30 Sec , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM  
In & Out distances between contours are shown at closest points. Reference zone= - Zone 1, Co to 3rd adjacent.  
All separation margins (if shown) include rounding  
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
"\*"affixed to 'IN' or 'OUT' values = site inside protected contour.  
« = Station meets FCC minimum distance spacing for its class.

BPED20130618ABI  
Latitude: 41-47-03.90 N  
Longitude: 087-36-01 W  
ERP: 0.125 kW  
Channel: 203  
Frequency: 88.5 MHz  
AMSL Height: 228.3 m  
Elevation: 179.88 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: None





-  60 dBu F(50,50) Service Contour
-  40 dBu F(50,10) Interference Contour
-  54 dBu F(50,10) Interference Contour
-  100 dBu F(50,10) Interference Contour

Exhibit E-2  
Graphical Allocation Overview  
WHPK-FM - Chicago, Illinois  
The University of Chicago  
August, 2013

Scale 1:500,000

**WHPK-FM**

BLED19850611KC  
Latitude: 41-47-40 N  
Longitude: 087-35-55 W  
ERP: 0.10 kW  
Channel: 203  
Frequency: 88.5 MHz  
AMSL Height: 220.0 m

**WHPK-FM.X**

BPED20130618ABI  
Latitude: 41-47-03.90 N  
Longitude: 087-36-01 W  
ERP: 0.125 kW  
Channel: 203  
Frequency: 88.5 MHz  
AMSL Height: 228.3 m

**WHFH**

BLED19800513AE  
Latitude: 41-32-43 N  
Longitude: 087-41-30 W  
ERP: 1.50 kW  
Channel: 203  
Frequency: 88.5 MHz  
AMSL Height: 236.0 m

**WHFH.C**

BPED20130515ABL  
Latitude: 41-32-44 N  
Longitude: 087-41-31 W  
ERP: 1.50 kW  
Channel: 203  
Frequency: 88.5 MHz  
AMSL Height: 236.0 m

*Jeremy Ruck & Associates, Inc.*

- Licensed WHPK-FM 60 dBu F(50,50) Contour
- Proposed WHPK-FM 60 dBu F(50,50) Contour
- Licensed WHFH 40 dBu F(50,10) Contour
- Authorized WHFH 40 dBu F(50,10) Contour

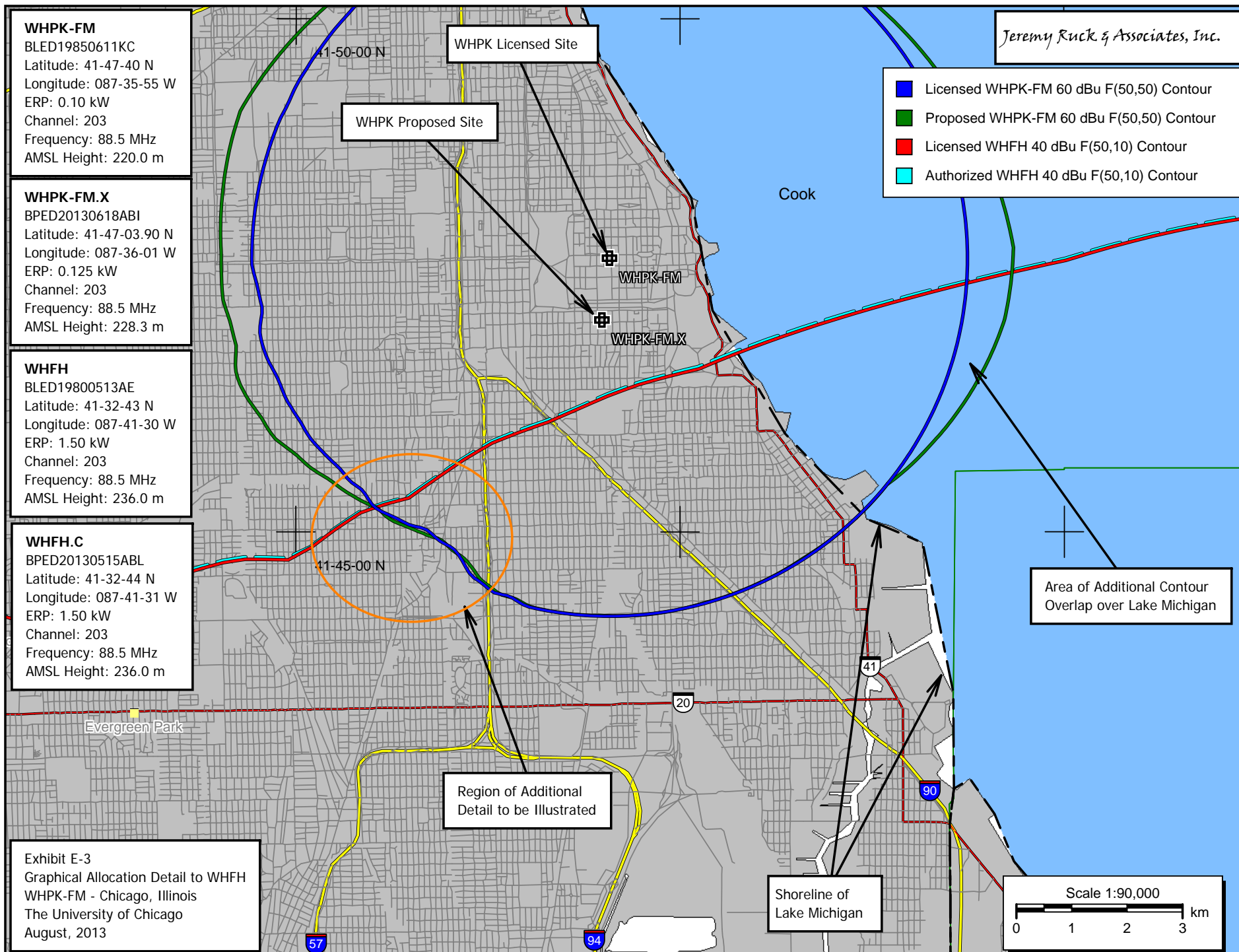


Exhibit E-3

Graphical Allocation Detail to WHFH  
WHPK-FM - Chicago, Illinois  
The University of Chicago  
August, 2013



**WHPK-FM**

BLED19850611KC  
Latitude: 41-47-40 N  
Longitude: 087-35-55 W  
ERP: 0.10 kW  
Channel: 203  
Frequency: 88.5 MHz  
AMSL Height: 220.0 m

**WHPK-FM.X**

BPED20130618ABI  
Latitude: 41-47-03.90 N  
Longitude: 087-36-01 W  
ERP: 0.125 kW  
Channel: 203  
Frequency: 88.5 MHz  
AMSL Height: 228.3 m

**WHFH**

BLED19800513AE  
Latitude: 41-32-43 N  
Longitude: 087-41-30 W  
ERP: 1.50 kW  
Channel: 203  
Frequency: 88.5 MHz  
AMSL Height: 236.0 m

**WHFH.C**

BPED20130515ABL  
Latitude: 41-32-44 N  
Longitude: 087-41-31 W  
ERP: 1.50 kW  
Channel: 203  
Frequency: 88.5 MHz  
AMSL Height: 236.0 m

**Exhibit E-4**

Graphical Allocation Detail to WHFH  
WHPK-FM - Chicago, Illinois  
The University of Chicago  
August, 2013

Jeremy Ruck & Associates, Inc.

- Licensed WHPK-FM 60 dBu F(50,50) Contour
- Proposed WHPK-FM 60 dBu F(50,50) Contour
- Licensed WHFH 40 dBu F(50,10) Contour
- Authorized WHFH 40 dBu F(50,10) Contour

Area of Reduced Overlap

Area of Increased Overlap

Scale 1:22,500

0 0.3 0.6 0.9 km

**WHPK-FM.X**

BPED20130618ABI

Latitude: 41-47-03.90 N

Longitude: 087-36-01 W

ERP: 0.125 kW

Channel: 203

Frequency: 88.5 MHz

AMSL Height: 228.3 m

**WHPK-FM**

BLED19850611KC

Latitude: 41-47-40 N

Longitude: 087-35-55 W

ERP: 0.10 kW

Channel: 203

Frequency: 88.5 MHz

AMSL Height: 220.0 m

**WIIT**

BLED19910204KB

Latitude: 41-50-04 N

Longitude: 087-37-43 W

ERP: 0.017 kW

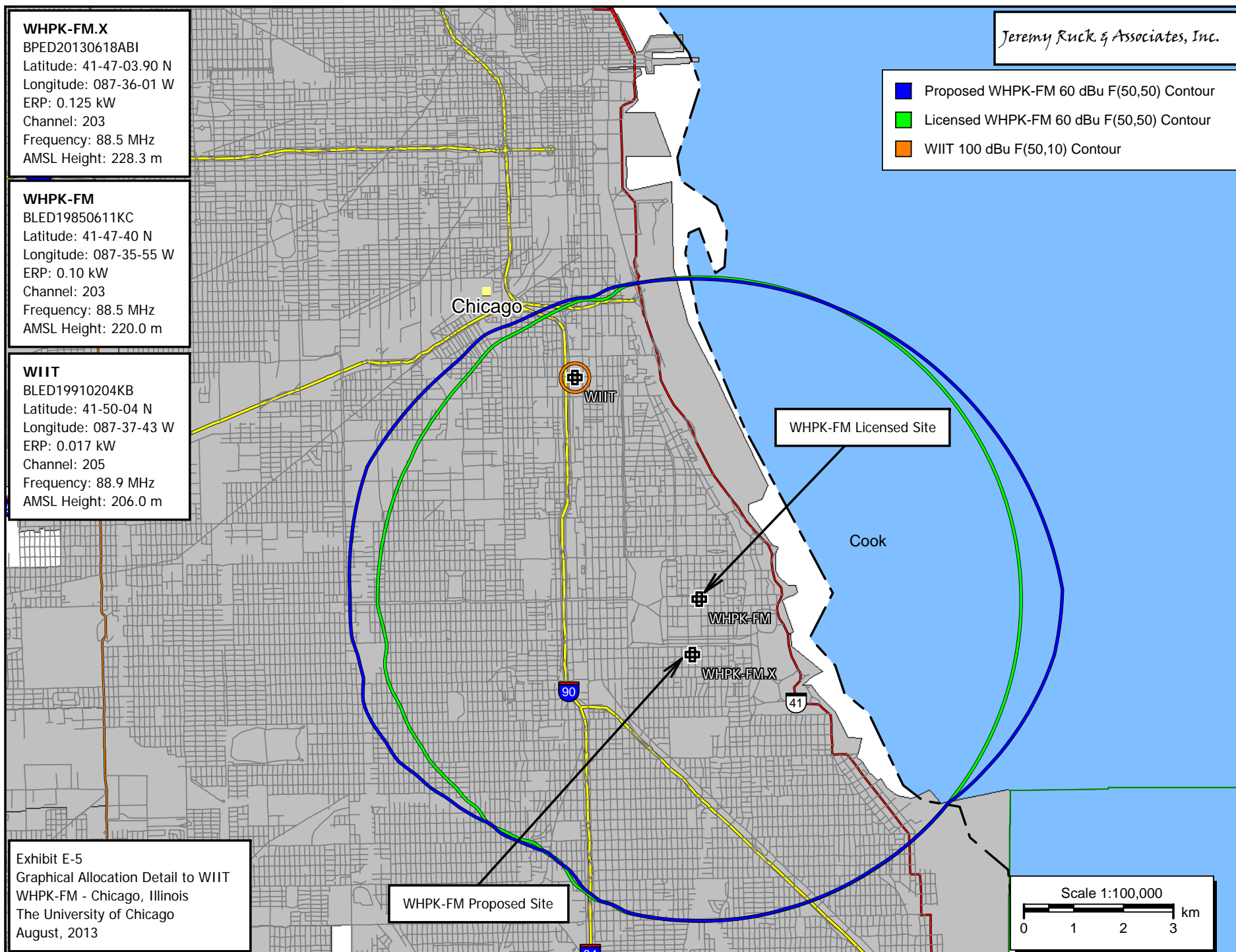
Channel: 205

Frequency: 88.9 MHz

AMSL Height: 206.0 m

*Jeremy Ruck & Associates, Inc.*

- Proposed WHPK-FM 60 dBu F(50,50) Contour
- Licensed WHPK-FM 60 dBu F(50,50) Contour
- WIIT 100 dBu F(50,10) Contour



Jeremy Ruck & Associates, Inc.  
Consulting Engineers - Canton, Illinois  
Exhibit E-6 - Single Channel Spacing Study  
WHPK-FM - Chicago, Illinois

|                                    |                              |                 |
|------------------------------------|------------------------------|-----------------|
| REFERENCE                          |                              | DISPLAY DATES   |
| 41 47 03.9 N.                      | CLASS = A Int = A            | DATA 08-20-13   |
| 87 36 01.0 W.                      | Current Spacings to 3rd Adj. | SEARCH 08-20-13 |
| ----- Channel 203 - 88.5 MHz ----- |                              |                 |

| Call    | Channel     | Location          | Azi      | Dist   | FCC   | Margin |
|---------|-------------|-------------------|----------|--------|-------|--------|
| WHPK-FM | APP-D 203A  | Chicago           | IL 180.0 | 0.00   | 114.5 | -114.5 |
| WHPK-FM | LIC 203A    | Chicago           | IL 7.1   | 1.12   | 114.5 | -113.4 |
| WHFH    | CP -D 203A  | Flossmoor         | IL 196.0 | 27.60  | 114.5 | -86.9  |
| WHFH    | LIC-D 203A  | Flossmoor         | IL 196.0 | 27.62  | 114.5 | -86.9  |
| WHSD    | LIC-D 203A  | Hinsdale          | IL 271.0 | 27.73  | 114.5 | -86.8  |
| WGBK    | LIC-D 203A  | Glenview          | IL 332.2 | 41.04  | 114.5 | -73.5  |
| WXAV    | LIC-D 202A  | Chicago           | IL 229.1 | 12.60  | 71.5  | -58.9  |
| WSFI    | CP -D 203B1 | Antioch           | IL 327.8 | 91.60  | 142.5 | -50.9  |
| WMNK    | LIC 203A    | Minooka           | IL 241.3 | 66.41  | 114.5 | -48.1  |
| WZRD    | LIC 202A    | Chicago           | IL 336.0 | 24.06  | 71.5  | -47.4  |
| WLUW    | LIC 204A    | Chicago           | IL 348.4 | 24.57  | 71.5  | -46.9  |
| WTMK    | CP -D 203A  | Wanatah           | IN 137.9 | 71.75  | 114.5 | -42.8  |
| WRSE    | LIC-D 204A  | Elmhurst          | IL 293.6 | 31.26  | 71.5  | -40.2  |
| WDGC-FM | LIC-D 202A  | Downers Grove     | IL 273.9 | 34.31  | 71.5  | -37.2  |
| WGVE-FM | LIC 204A    | Gary              | IN 137.4 | 34.73  | 71.5  | -36.8  |
| WTMK    | LIC-D 203A  | Lowell            | IN 155.7 | 85.45  | 114.5 | -29.1  |
| WCLR    | LIC-D 202A  | Arlington Heights | IL 319.2 | 48.31  | 71.5  | -23.2  |
| WDSO    | LIC 202A    | Chesterton        | IN 113.4 | 49.03  | 71.5  | -22.5  |
| WCSF    | LIC 204A    | Joliet            | IL 236.1 | 50.02  | 71.5  | -21.5  |
| WHCM    | LIC 202A    | Palatine          | IL 310.4 | 51.26  | 71.5  | -20.2  |
| WCRX    | LIC-D 201A  | Chicago           | IL 338.2 | 10.57  | 30.5  | -19.9  |
| NEW     | CP -D 205A  | Irondale          | IL 145.7 | 10.87  | 30.5  | -19.6  |
| WIIT    | LIC 205D    | Chicago           | IL 337.1 | 6.03   | 25.5  | -19.5  |
| WSSD    | LIC 201D    | Chicago           | IL 146.4 | 7.41   | 25.5  | -18.1  |
| W203AJ  | LIC 203D    | Michigan City     | IN 100.8 | 67.34  | 84.5  | -17.2  |
| WARG    | LIC-D 205A  | Summit            | IL 267.2 | 17.01  | 30.5  | -13.5  |
| WLTL    | LIC-D 201A  | La Grange         | IL 277.7 | 23.52  | 30.5  | -7.0   |
| WRRG    | LIC-D 205A  | River Grove       | IL 306.8 | 24.44  | 30.5  | -6.1   |
| WAED    | LIC 203A    | Lee               | IL 268.1 | 111.01 | 114.5 | -3.5   |
| WSRI    | LIC-D 204A  | Sugar Grove       | IL 263.0 | 69.90  | 71.5  | -1.6   |
| WTZI    | LIC-D 201A  | Rosemont          | IL 310.8 | 29.19  | 30.5  | -1.3   |
| WEGN    | LIC-D 204A  | Kankakee          | IL 205.9 | 71.23  | 71.5  | -0.27  |
| WSIS    | APP-D 204B  | Riverside         | MI 63.0  | 116.99 | 112.5 | 4.5    |
| WNTH    | LIC-D 201A  | Winnetka          | IL 344.2 | 35.80  | 30.5  | 5.3    |
| WAWF    | LIC 202A    | Kankakee          | IL 189.4 | 79.58  | 71.5  | 8.1    |
| WBMF    | LIC 201A    | Crete             | IL 185.2 | 40.48  | 30.5  | 10.0   |
| WETN    | LIC-D 201A  | Wheaton           | IL 283.0 | 42.47  | 30.5  | 12.0   |
| WGEN-FM | LIC 205A    | Monee             | IL 198.7 | 43.50  | 30.5  | 13.0   |
| WLRA    | LIC 201A    | Lockport          | IL 243.3 | 44.76  | 30.5  | 14.3   |
| W206BL  | LIC-D 206D  | Mount Prospect    | IL 312.9 | 40.37  | 25.5  | 14.9   |
| WONC    | LIC 206A    | Naperville        | IL 269.1 | 49.42  | 30.5  | 18.9   |
| WSIS    | LIC 204B1   | Riverside         | MI 63.0  | 116.99 | 95.5  | 21.5   |
| WAES    | LIC-D 201A  | Lincolnshire      | IL 328.3 | 54.34  | 30.5  | 23.8   |



| Call    | Channel     | Location         |    | Azi   | Dist   | FCC   | Margin |
|---------|-------------|------------------|----|-------|--------|-------|--------|
| WMXM    | LIC 205A    | Lake Forest      | IL | 340.0 | 55.04  | 30.5  | 24.5   |
| WLPR-FM | LIC 206A    | Lowell           | IN | 158.3 | 55.11  | 30.5  | 24.6   |
| WGNC-FM | LIC-D 203B1 | Constantine      | MI | 85.1  | 169.58 | 142.5 | 27.1   |
| WBNH    | LIC-D 203B  | Pekin            | IL | 233.0 | 207.02 | 177.5 | 29.5   |
| WFEN    | LIC-D 202B  | Rockford         | IL | 297.5 | 142.35 | 112.5 | 29.9   |
| WEPS    | LIC 205A    | Elgin            | IL | 296.8 | 62.66  | 30.5  | 32.2   |
| WWTG    | LIC-D 201A  | Carpentersville  | IL | 299.3 | 73.65  | 30.5  | 43.2   |
| WPJC    | CP -D 202B1 | Pontiac          | IL | 213.5 | 139.22 | 95.5  | 43.7   |
| 1549634 | APP 256D    | Park Forest      | IL | 184.3 | 53.27  | 9.5   | 43.8   |
| WOKL    | CP -D 206A  | Round Lake Beach | IL | 333.2 | 75.92  | 30.5  | 45.4   |

-----  
All separation margins include rounding

**WHPK-FM.X**

BPED20130618ABI

Latitude: 41-47-03.90 N

Longitude: 087-36-01 W

ERP: 0.125 kW

Channel: 203

Frequency: 88.5 MHz

AMSL Height: 228.3 m

320 km Site Radius

*Jeremy Ruck & Associates, Inc.*

WHPK-FM.X

Exhibit E-7  
International Agreement Compliance  
WHPK-FM - Chicago, Illinois  
The University of Chicago  
August, 2013

Scale 1:8,000,000

0 110 220 330 km