

**WEST IRONDEQUOIT CENTRAL SCHOOL DISTRICT  
APPLICATION FOR MAJOR CHANGE OF NONCOMMERCIAL  
EDUCATIONAL FM STATION – FCC FORM 340  
WIRQ -- CHANNEL 215D – ROCHESTER, NEW YORK  
OCTOBER 2007**

**FM ENGINEERING NARRATIVE**

**OVERVIEW**

The instant application proposes a "major" change in the channel of Class D noncommercial educational FM station WIRQ, Rochester, NY from Channel 284 (104.7 MHz) to Channel 215 (90.9 MHz). The present effective radiated power of 0.019 kilowatts and antenna height above mean sea level of 146 meters will be maintained at the present location. Based on 30-second terrain data, the antenna height above average terrain has been calculated as 34.73 meters, which is rounded to 35 meters. This differs less than one meter from the 34 meter HAAT shown presently in the FM database for WIRQ.

**DATA SOURCES**

Locations and specifications of all known existing and proposed broadcast facilities pertinent to the instant application were derived from the FCC's current online database. Computer-generated contour plots were produced with the rfSoftware "rfInvestigator" Version 3.2.8 program and based on 30-second linearly-interpolated NOAA/NGDC Digital Elevation Model data in accordance with 47 CFR §73.312(d). This program incorporates algorithms which produce results consistent with the F(50,50) and F(50,10) contour prediction curves of 47 CFR §73.333 figures 1 and 1a. Areas and population counts within contours were also determined through use of this software program, and are based on 2000 US Census block centroid data.

**BACKGROUND**

WIRQ, one of the nation's pioneer Educational FM Broadcast stations, began operating on Channel 215D in January 1960. For several years (until the University of Rochester established WRUR in 1966), WIRQ was the only non-commercial educational station in the Rochester market.

In March 1974, Rochester Area Educational Television Association (RAETA) filed an application to change location of its Class B NCE-FM station WXXI-FM, previously authorized to operate on third-adjacent Channel 218, to the WXXI-TV transmitter site on Pinnacle Hill, about 9.1 kilometers south of WIRQ. (RAETA's legal name has since become "WXXI Public Broadcasting Council", but the current licensee of WXXI-FM is a direct descendant of the original applicant.)

The NCE-FM facilities originally requested in 1974 by RAETA were 36 kilowatts ERP with an antenna height of 123 meters (404 feet) above average terrain, and since then, WXXI-FM's facilities have been increased to the current 45 kilowatt ERP at 134 meters HAAT. RAETA agreed to accept *de minimus* third-adjacent contour overlap from WIRQ when its 1974 construction permit application was filed, acknowledging that "no objectionable interference is predicted." Please see *Engineering Statement* of the 1974 WXXI-FM application attached in Exhibit 16G.

### **FIRST DISPLACEMENT OF WIRQ**

In the mid-1980s, following the FCC ruling that Class D stations must increase at least to Class A status or otherwise attempt to vacate the NCE-FM reserved band, WIRQ applied to move to Channel 227D (93.3 MHz). However, shortly after this change was made, WXME, a new "Docket 80-90" commercial FM station, was licensed on Channel 227A in nearby Avon, New York. (Since then, this 227A commercial allotment has been moved to Fairport, NY and is currently used by WFKL from a transmitter site 10.7 kilometers east of WIRQ.)

### **SECOND DISPLACEMENT OF WIRQ**

Following construction of the Avon station, WIRQ was forced to change frequency again, this time to Channel 231D (94.1 MHz.) The license to cover this change was filed under application BLED -19910702KA. However, the nearby town of Brighton, New York was granted a new Channel 231A allotment in the mid-1990s and commercial station WZNE (originally WAQB) was licensed to operate on that channel in 1997 (File No. BLH-19971014KF) from a site atop Pinnacle Hill, 9.1 kilometers south of WIRQ, requiring yet another change in channel.

### **THIRD DISPLACEMENT OF WIRQ**

After WAQB began operating, WIRQ successfully identified a third available frequency in the non-reserved band and moved to Channel 284D (104.7 MHz) in 1998. (File No. BLED-19980129KB.) An application for renewal of the WIRQ license, specifying Channel 284D, was timely filed in January 2006 (File No. BRED-20060131ASQ) and granted by the Commission on May 26, 2006. WIRQ currently operates under this authorization.

### **A FOURTH DISPLACEMENT IS NOW NECESSARY DUE TO MODIFICATION OF WKDL-FM, CHANNEL 285A, BROCKPORT, NY**

A "one step" construction permit application to change Brockport, New York's commercial FM allotment from Channel 288A to Channel 285A, and to move the transmitter of WKDL-FM (then WMJQ) was filed in 2003 (File No. BPH - 20031017AAA) and granted June 14, 2005. The license to cover these changes (BLH- 20050831ABW) was granted on November 7, 2005. WKDL-FM currently transmits from a site 16.2 kilometers west of WIRQ. As shown in Exhibit 16A, the 60 dBu protected contour of WKDL-FM overlaps the 54 dBu interference contour of WIRQ, resulting in first-adjacent interference. West Irondequoit Central

School District (West Irondequoit) wishes to resolve this problem; however no channels in the commercial portion of the FM band (in the range 221 to 300) remain available for WIRQ to operate on a secondary, non-interference basis. A detailed study of commercial channel availability is provided in Exhibit 16B. Therefore; West Irondequoit is filing the instant application, which, if granted, would return WIRQ to its original Channel 215D assignment.

It is understood that 47CFR§73.512(a)(3) permits grandfathered Class D NCE-FM stations to return to the reserved band if no available channels in the range from 221 to 300 can be found. See WMSC, Upper Montclair, NJ, (application file no. BPED-19940307MB), and KMIH, Mercer Island, WA (application file no. BPED-20060327AIM.)

**RESPONSE TO SECTION VII, ITEM 13 – MAIN STUDIO LOCATION**

The main studio of WIRQ will remain at 260 Cooper Road in the Town of Irondequoit, within a 25-mile radius of the listed geographical coordinates of Rochester, New York.

**RESPONSE TO SECTION VII, ITEM 14 – COMMUNITY COVERAGE**

The predicted 60 dBu service contour of WIRQ is shown in Exhibit 14. The service area covers 67 square kilometers and includes a total population of 79,080 persons, based on 2000 US Census Block data. Since the instant application proposes no modification to WIRQ other than a different channel, there will be no change in coverage from the licensed facilities.

**RESPONSE TO SECTION VII, ITEM 15 a-d – PREDICTED INTERFERENCE AND REQUEST FOR WAIVER OF 47CFR§73.509**

The following FM facilities were considered in the interference study:

Callsign	Channel	Class	Adjacency	Dist (km)	Bearing	Status	City	State
WBER	213B1	B1	2nd Adj	25.0	145	LIC	ROCHESTER	NY
WGCC-FM	214A	A	1st Adj	49.3	243	LIC	BATAVIA	NY
WXXI-FM	218B	B	3rd Adj	9.1	173	LIC	ROCHESTER	NY

A map showing the relationship of the proposed facility's contours to those of potentially-affected stations is provided as Exhibit 16C, with detail in Exhibit 16D.

Please note that WIRQ's 100 dBu free-space interference contour, with a radius of 0.306 kilometer, will overlap the 60 dBu service contours of WBER and WXXI-FM. West Irondequoit respectfully requests a waiver of 47CFR§73.509 to allow this *de minimus* overlap, covering an area of 0.294 square kilometers. Based on 2000 Census Block data, the total population residing within the WIRQ100 dBu contour is 392 persons. This corresponds to 0.059 percent of the 660,209 people within WBER's 60 dBu contour, and 0.041 percent of the 948,140 people within WXXI-FM's 60 dBu contour.

A more-realistic analysis of interference, commonly accepted in FM translator proposals, would consider only the smaller zones in which the ratio of WIRQ's signal exceeds the desired signal by 40 dB or more. In the case of second-adjacent WBER, with a predicted F(50,50) signal of 63.1 dBu at WIRQ's site, the interfering contour would be 103.1 dBu. This has a radius of only 0.214 kilometers and falls mainly on school property, as shown in Exhibit 16E. Based on US Census Block data, this overlap area shows a residential population of 253 persons. Because the affected area is so small, Monroe B.O.C.E.S. #1, licensee of WBER, has provided a letter of consent to the changes proposed in the instant application, which is attached as Exhibit 16F.

Third-adjacent WXXI-FM has much stronger field strength of 93.5 dBu at WIRQ's site, so the pertinent +40 dB interfering contour would be 133.5 dBu, which extends only 6 meters from the transmitting antenna, and does not touch the ground or even extend past the edge of the roof of Irondequoit High School. As noted in Exhibit 16G, the licensee of WXXI-FM agreed to this third-adjacent contour overlap from WIRQ in 1974, based on a showing that "no objectionable interference is predicted."

West Irondequoit believes the requested waiver would allow WIRQ to continue operating as a Class D facility while having a minimal impact on full service stations in the Rochester area, and notes that similar waivers have been granted by the Commission in the recent displacement cases of KMIH, Mercer Island, WA and WHHS, Havertown, PA.

## **RESPONSE TO SECTION VII, ITEM 15 e – TELEVISION CHANNEL 6**

There are no full-service Channel 6 television stations operating within 180 kilometers of the proposed FM Channel 215 facility, however there is one LPTV station nearby; WGCE-CA in Greece, NY, 9.1kilometers from the proposed site at 249 degrees. To avoid predicted interference, the undesired-to-desired (U/D) ratio of Channel 215 FM field strength at the edge of a Class A TV station's 62 dBu service contour must not exceed 9 dB, which corresponds to an FM interference contour of 71 dBu. Exhibit 19 demonstrates that the proposed WIRQ 215D facility will fully protect the service area of WGCE-CA.

## **RESPONSE TO ITEM 17 – INTERNATIONAL BORDERS**

WIRQ's transmitting antenna is located 46.1 kilometers from the common border between the United States and Canada, which falls in Lake Ontario. However, as demonstrated in Exhibit 16C, WIRQ's predicted 34 dBu F(50,10) contour distance does not exceed 27.7 kilometers at any bearing; therefore the requested change will not have an adverse impact on any Canadian FM broadcast facility.

## **RESPONSE TO ITEM 18 – ENVIRONMENTAL / RF EXPOSURE**

Please note that no tower construction is required and the effective radiated power of WIRQ does not exceed 100 watts; therefore this application is categorically excluded from further environmental processing.

The antenna will be mounted on a rooftop with limited access. West Irondequoit will reduce power or cease operation of the proposed facility as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.

## **CERTIFICATION**

I, Mark D. Humphrey, hereby certify that I have prepared the engineering portion of the instant application and all associated exhibits on behalf of the applicant, West Irondequoit Central School District. The information provided is true and accurate to the best of my knowledge and belief. I currently hold a *Professional Broadcast Engineer* certification from the Society of Broadcast Engineers, and have been employed in the broadcast engineering field for over 25 years, during which time I have prepared numerous applications which were accepted by the Federal Communications Commission. My other qualifications are a matter of record with the Commission.

/signed/  
Mark D. Humphrey, CPBE  
October 20, 2007

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