

TECHNICAL EXHIBIT  
APPLICATION FOR FM CONSTRUCTION PERMIT  
RADIO STATION WDFH(FM)  
OSSINING, NEW YORK  
CH 212A    0.25 KW (MAX-DA)    145 M

Technical Narrative

This technical exhibit supports an application for construction permit for non-commercial educational (NCE) FM station WDFH(FM) on Channel 212A (90.3 MHz) at Ossining, New York.<sup>1</sup> This application seeks to propose an increase in the effective radiated power from the present 53 watts to 250 watts by replacing its directional transmitting antenna. No change in the transmitting site location, radiation center nor station class is requested.

Proposed Transmitter Location

A sketch showing the proposed antenna and existing supporting structure is shown on Figure 1. As the existing supporting structure has an overall height of less than 200 feet and is not located near any public airports, no antenna registration number is required.

Blanketing Interference Concerns

The 115 dBu predicted "blanketing" contour of the proposed station would extend radially 0.2 kilometer from the transmitting site. No interference problems are expected; however the applicant recognizes its responsibility to resolve complaints of blanketing interference as required by Section 73.318.

Coverage Contour

The FCC predicted coverage contour for the proposed FM station antenna was calculated in accordance with Section 73.313. No consideration was given to terrain roughness correction factors. The average elevations from 3 to 16 kilometers along 8 radials evenly spaced at 45-degree intervals were obtained from the U.S.G.S. 30-second digitized terrain database. The antenna radiation center heights above average terrain in the individual directions and the ERP were used in conjunction with the F(50,50) curves of Section 73.333 (Figure 1) to determine distances to contour.

The coverage map in Figure 2 shows the proposed FM station's 60 dBu coverage contour. The land area of the community of Ossining, New York is entirely encompassed by the 60-dBu contour of the proposed station. Therefore, the proposed FM station meets the coverage requirement in Section 73.515 of the Commission's rules to provide at least 50% of the population within the community of license with a 60-dBu signal.

The existing WDFH(FM) 60 dBu coverage contour contains a population of 127,200 persons whereas the herein proposed facility serves a population of 147,439 persons within its 60 dBu coverage contour. This is an increase of 20,239 persons within the 60 dBu coverage contour, or 16 percent.

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<sup>1</sup> See FCC License File Number BLED-20090121AHR.

### Allocation Considerations

Figure 3 provides a summary of an allocation study for the proposed facility. There are no intermediate frequency (IF) related facilities in close proximity to the proposed facility. The tabulation at Figure 3 lists the results of a numerical analysis of the potential for contour overlap for all nearby co-channel and first-, second-, and third-adjacent-channel facilities. For the purposes of the numerical study, the maximum HAAT and ERP values were used in calculating the maximum distance to the predicted service and interfering contours.

Figure 4 is a map depicting the predicted protected and interfering contours of those stations close enough to warrant further study pursuant to Section 73.509. This is based on the numerical analysis in Figure 3, where there is an indication of the potential for prohibited overlapping contours. As indicated in Figure 4 the proposed operation complies with the requirements of Section 73.509 with the exception of WFUV on second adjacent channel 214B at New York, New York. A continued waiver of Section 73.509 is requested with respect to WFUV(FM) as detailed below.

The present WDFH(FM) has contour overlap to second-adjacent station WFUV(FM). This is predicted interference caused to WFUV(FM) from WDFH(FM) as the WDFH(FM) 100 dBu interfering contour has contour overlap with the WFUV(FM) 60 dBu coverage contour. There is no contour overlap of the WDFH(FM) 60 dBu coverage contour to the WFUV(FM) 100 dBu interfering contour. For a discussion on how this overlap between WDFH(FM) and WFUV(FM) occurred, see Appendix A.

Figure 5 is a map showing the FCC predicted 100 dBu interfering contours for both the existing and proposed WDFH(FM) as it relates to WFUV(FM). Both of these 100 dBu interfering contours are completely engulfed ("donuted") by the WFUV(FM) 60 dBu coverage contour.

Within the area of overlap, there are approximately 135 persons within the existing WDFH(FM) 100 dBu interfering contour and 771 persons within the proposed WDFH 100 dBu interfering contour. Within the WFUV(FM) 60 dBu coverage contour, there is a population of 13,800,000 persons. Therefore, the WFUV(FM) affected population is 0.0056% of its population served. All population values are based upon the 2010 Census.

FCC letter decisions regarding WEEE(FM), Cherry Hill, New Jersey (1994) and WCYC(FM), Chicago Illinois (1993) are analogous to this instant situation.<sup>2</sup> Specifically, those decisions involved second and third adjacent channel stations whose existing interfering contour was donuted by a 60 dBu protected contour. In each case, the FCC permitted a facility improvement which resulted in a *de minimus* increase in interference.<sup>3</sup>

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<sup>2</sup> See FCC letter dated May 9, 1994, from Dennis Williams, Chief, FM Branch, Audio Services Division, Mass Media Bureau to Broadcast Learning Center, Inc. regarding WEEE(FM), Cherry Hill, NJ, BPED-930422MA. See also FCC letter dated September 21, 1993, from Larry Eads, Chief, Audio Services Division, Mass Media Bureau to Mr. Robert P. Bucaro, Chicago Boys Clubs Educational Corp., regarding WCYC(FM), Chicago, IL, BPED-920608IC.

<sup>3</sup> In the WCYC(FM) decision, the prohibited overlap was less than 1% of the current 60 dBu contour, and in the WEEE(FM) decision the prohibited overlap was 0.001% of the 60 dBu contour.

### Channel 6 Protection

There are two licensed full-service DTV channel 6 stations located within 195 kilometers of the herein proposed transmitter site, WEDY-DT at New Haven, Connecticut and WRGB-DT at Schenectady, New York. As indicated by Figure 6, the herein proposed WDFH(FM) 50 dBu F(50,10) interfering contour does not overlap the noise-limited 28 dBu F(50,90) contour of either of these Channel 6 stations. Therefore, the proposal is in compliance with the Channel 6 allocation requirements.

### Radiofrequency Electromagnetic Field Exposure

The proposed FM facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. A "worst-case" relative field value of 1.0 was used for the new FM operation's directional antenna, along with a total ERP of 0.5 kW (circular polarization). The proposed power density at the base of the structure and 2 meters above ground level (49 meters) is calculated to be  $0.008 \text{ mW/cm}^2$ , which is less than 5% of the recommended limit of  $0.2 \text{ mW/cm}^2$  for FM channels, applicable to general population/uncontrolled exposure areas. Since there are no other co-located high power emitters, it is believed that this proposal is in compliance with the FCC's RF emission rules.

Access to the transmitting site is restricted and appropriately marked with warning signs. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to

radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed new FM operation appears to be otherwise categorically excluded from environmental processing.

It is noted that this technical exhibit only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis should have been completed by the tower owner.

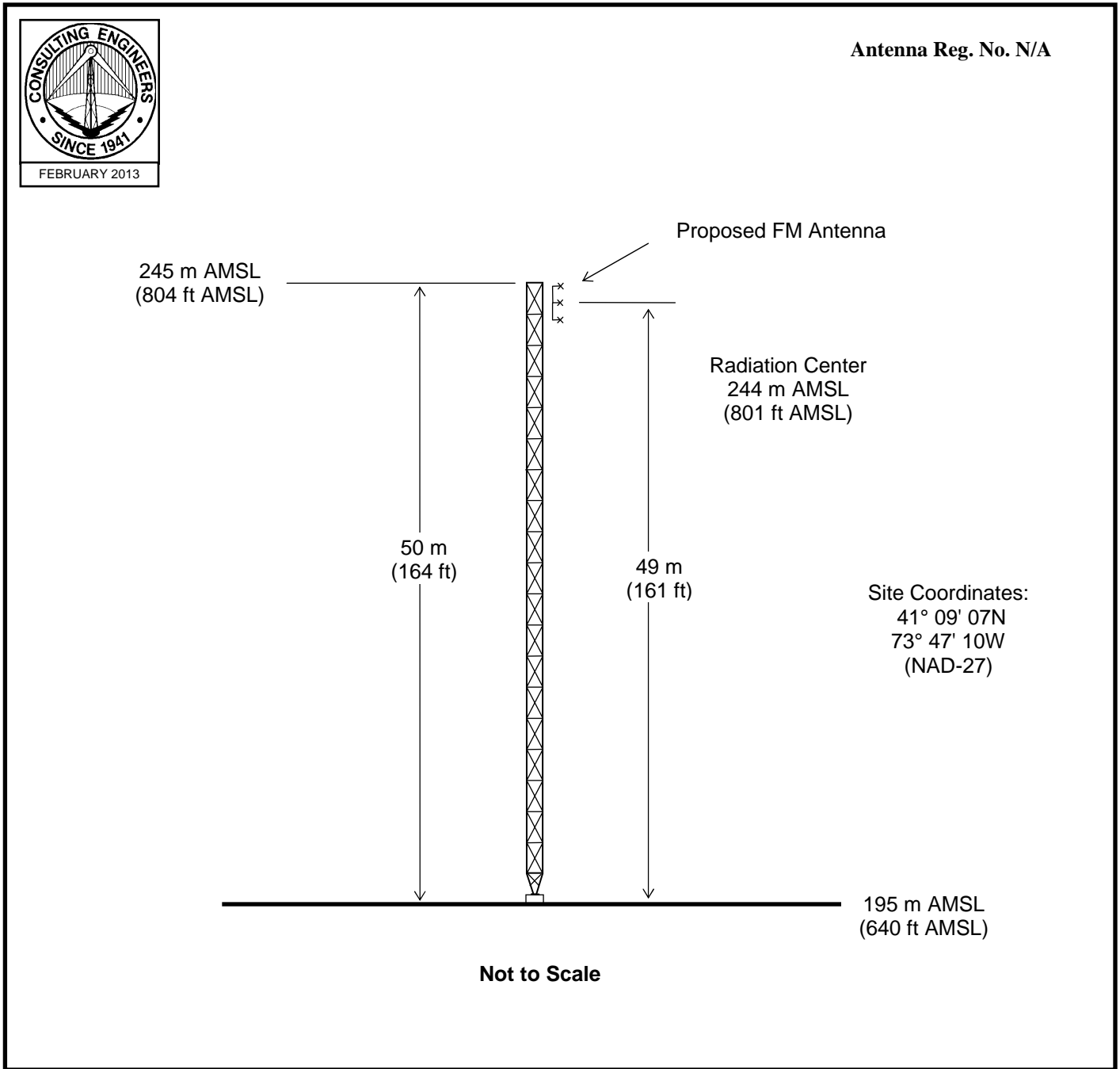


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March 12, 2013

Figure 1



## **PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

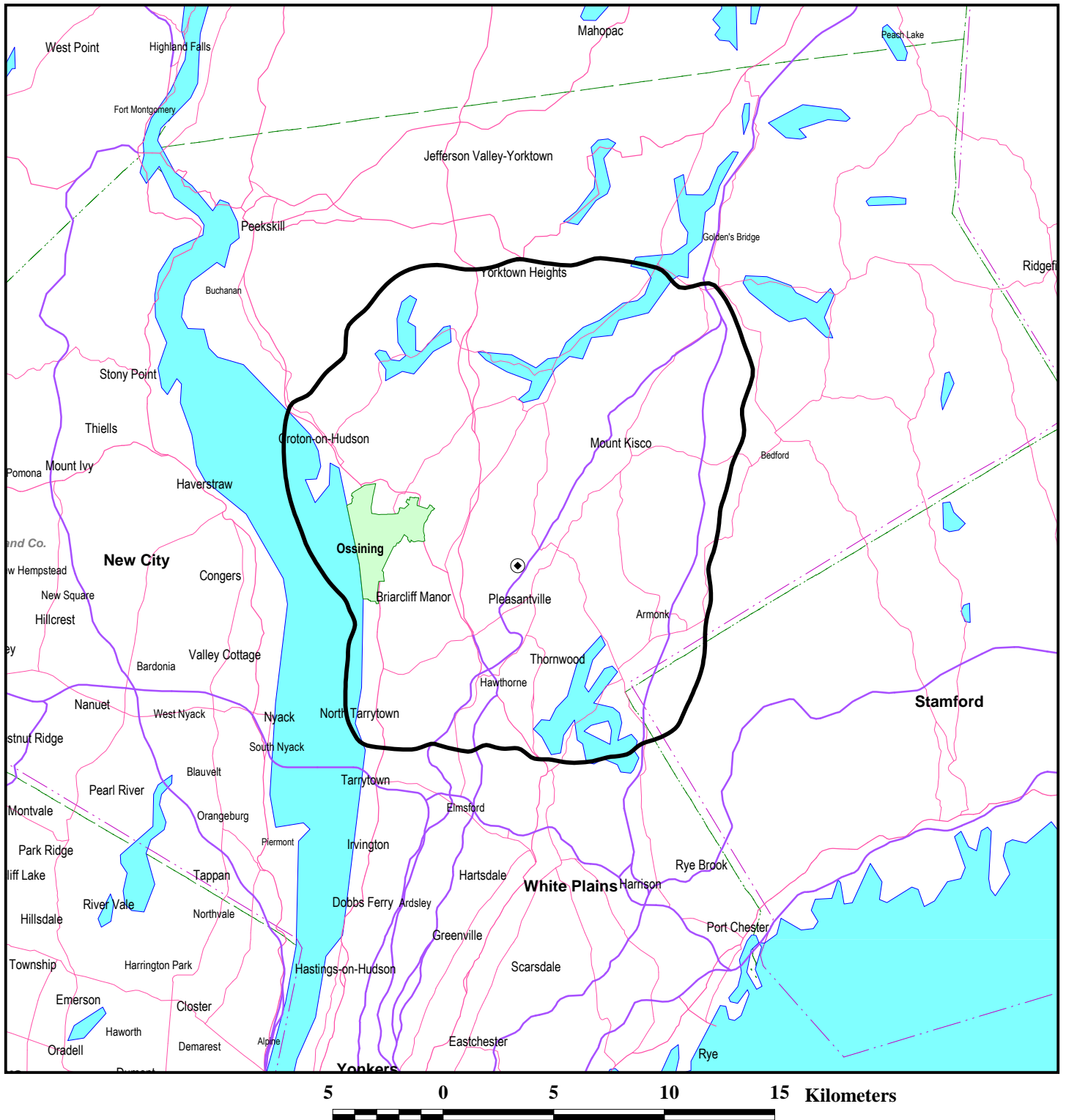
**RADIO STATION WDFH(FM)**

**OSSINING, NEW YORK**

**CH 212A      0.25 KW (MAX-DA)      145 M**

**du Treil, Lundin & Rackley, Inc.    Sarasota, Florida**

Figure 2



## PROPOSED PREDICTED 60 DBU COVERAGE CONTOUR

STATION WDFH(FM)  
OSSINING, NEW YORK  
CH 212A 0.25 KW (MAX-DA) 145 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



# FM Contour Study

du Treil, Lundin, &amp; Rackley, Inc., Sarasota, Florida

**Channel:** 212    **Coordinates:** 041-09-07 073-47-10 (NAD 83)    **ERP:** .25 kW    **Max. HAAT:** 196 m**Comment:** Proposed WDFH

Callsign	Chan.	Service	Status	Freq.	City	State	Co.	Rec.	Latitude	Dist. (km)	Sep. (km)	Spac. (km)
Facility ID	ARN			Class	DA	73.215	ERP (kW)	HAAT (m)	Longitude	Bear. (deg)	Comment	
<b>WEDY</b>	6	DT	LIC	85	NEW HAVEN	CT	US	C	41-19-42	76.3	135	-58.7
13595	BLEDT	20060906ABJ		N		0.4	88		072-54-25	74.77	<b>SHORT</b>	Note 1
<b>WJZZ</b>	211	FM	LIC	90.1	NORTH SALEM	NY	US	C	41-23-03	31.24	37.26	-6.02
175564	BLED	20120628AAJ	A	D	N	0.44	-13		073-34-35	34.14	<b>SHORT</b>	
WJZZ 60.0 dBu desired distance: 10.0 km				Proposed 54.0 dBu undesired distance: 27.3 km								
Proposed 60.0 dBu desired distance: 18.4 km				WJZZ 54.0 dBu undesired distance: 13.9 km								
<b>WUSB</b>	211	FM	LIC	90.1	STONY BROOK	NY	US	C	40-50-32	71.63	67.62	4.01
63110	BLED	19950824KA	B1	D	N	3.6	162		073-02-23	118.54	<b>CLOSE</b>	
WUSB 60.0 dBu desired distance: 32.9 km				Proposed 54.0 dBu undesired distance: 27.3 km								
Proposed 60.0 dBu desired distance: 18.4 km				WUSB 54.0 dBu undesired distance: 49.3 km								
<b>WDFH</b>	212	FM	LIC	90.3	OSSINING	NY	US	C	41-09-07	0.04	69.89	-69.85
71711	BLED	20090121AHR	A	D	N	0.053	145		073-47-10	73.28	<b>SHORT</b>	
WDFH 60.0 dBu desired distance: 12.3 km				Proposed 40.0 dBu undesired distance: 57.5 km								
Proposed 60.0 dBu desired distance: 18.4 km				WDFH 40.0 dBu undesired distance: 40.9 km								
<b>WWPT</b>	212	FM	LIC	90.3	WESTPORT	CT	US	C	41-10-19	38.5	70.76	-32.26
72035	BLED	19860224KF	A		N	0.33	39		073-19-43	86.51	<b>SHORT</b>	
WWPT 60.0 dBu desired distance: 13.2 km				Proposed 40.0 dBu undesired distance: 57.5 km								
Proposed 60.0 dBu desired distance: 18.4 km				WWPT 40.0 dBu undesired distance: 45.6 km								
<b>WRPR</b>	212	FM	LIC	90.3	MAHWAH	NJ	US	C	41-04-51	33.66	65.32	-31.66
55029	BLED	19800613AA	A		N	0.1	-20		074-10-34	256.53	<b>SHORT</b>	
WRPR 60.0 dBu desired distance: 7.8 km				Proposed 40.0 dBu undesired distance: 57.5 km								
Proposed 60.0 dBu desired distance: 18.4 km				WRPR 40.0 dBu undesired distance: 25.9 km								
<b>WHCR-FM</b>	212	FM	LIC	90.3	NEW YORK	NY	US	C	40-49-09	39.41	63.08	-23.67
11412	BLED	19860626KA	D		N	0.008	81		073-56-59	200.37	<b>SHORT</b>	
WHCR-FM 60.0 dBu desired distance: 5.5 km				Proposed 40.0 dBu undesired distance: 57.5 km								
Proposed 60.0 dBu desired distance: 18.4 km				WHCR-FM 40.0 dBu undesired distance: 18.0 km								Note 2
<b>WHPC</b>	212	FM	LIC	90.3	GARDEN CITY	NY	US	C	40-43-47	49.64	71.86	-22.22
47429	BMLED	19981109KA	A	N	N	0.5	65		073-35-33	160.79	<b>SHORT</b>	
WHPC 60.0 dBu desired distance: 14.3 km				Proposed 40.0 dBu undesired distance: 57.5 km								
Proposed 60.0 dBu desired distance: 18.4 km				WHPC 40.0 dBu undesired distance: 49.6 km								

# FM Contour Study

du Treil, Lundin, &amp; Rackley, Inc., Sarasota, Florida

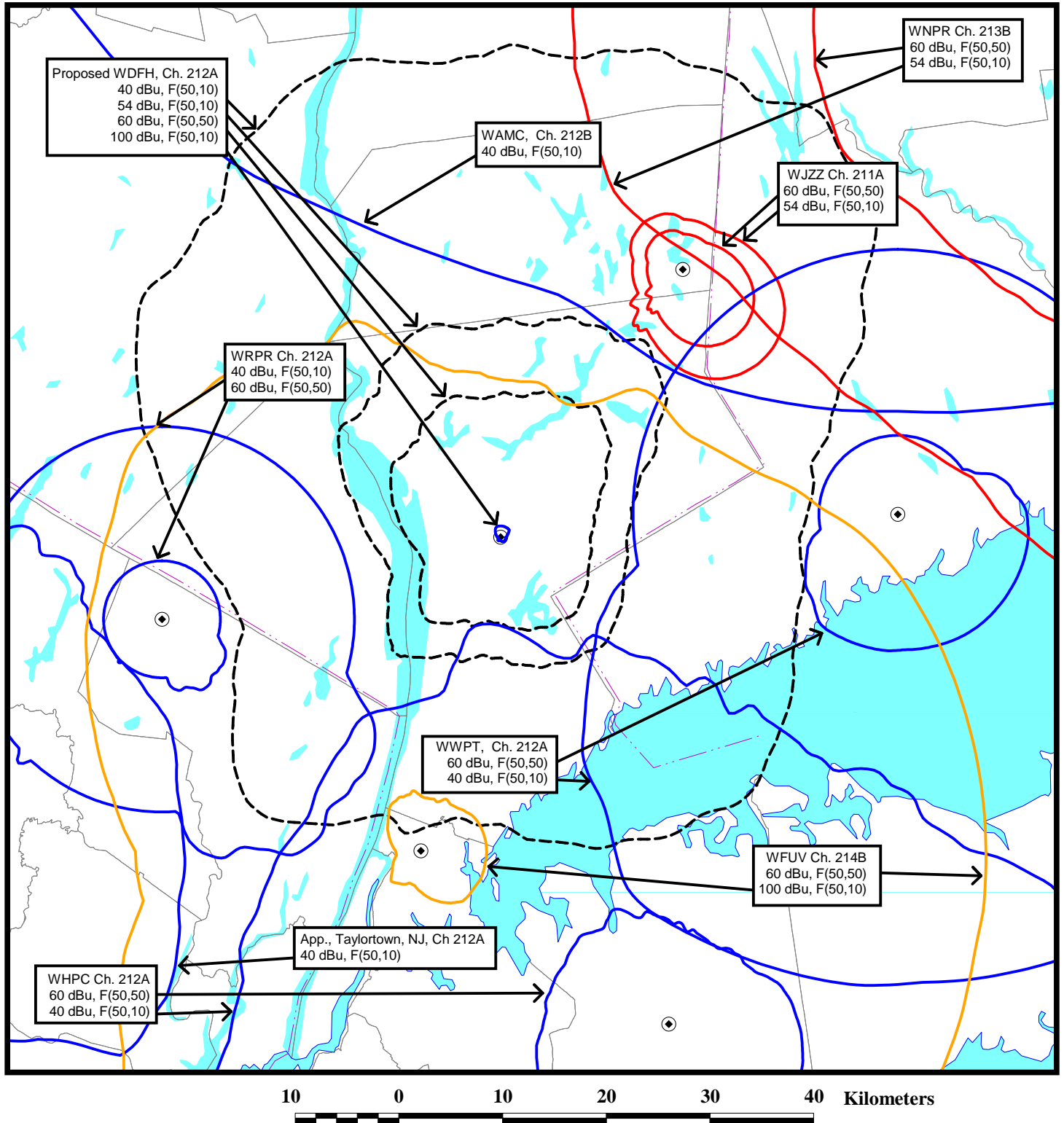
**Channel:** 212    **Coordinates:** 041-09-07 073-47-10 (NAD 83)    **ERP:** 0.25 kW    **Max. HAAT:** 196 m**Comment:** Proposed WDFH

Callsign	Chan.	Service	Status	Freq.	City	State	Co.	Rec.	Latitude	Dist. (km)	Sep. (km)	Spac. (km)
Facility ID	ARN			Class	DA	73.215	ERP (kW)	HAAT (m)	Longitude	Bear. (deg)	Comment	
<b>WMSC</b>	212	FM	LIC	90.3	UPPER MONTCLAIR	NJ	US	C	40-51-53	47.24	62.22	-14.98
43579	BLED	19980209KA	D	N	N		0.001	205	074-12-03	227.57	<b>SHORT</b>	
WMSC 60.0 dBu desired distance: 4.7 km				Proposed 40.0 dBu undesired distance: 57.5 km								Note 2
Proposed 60.0 dBu desired distance: 18.4 km				WMSC 40.0 dBu undesired distance: 17.0 km								
<b>NEW</b>	212	FM	CP	90.3	TAYLORTOWN	NJ	US	C	41-01-00	58.8	72.8	-14
175731	BNPED	20071022AYI	A	D	N		0.06	174	074-27-47	255.37	<b>SHORT</b>	
NEW 60.0 dBu desired distance: 15.3 km				Proposed 40.0 dBu undesired distance: 57.5 km								
Proposed 60.0 dBu desired distance: 18.4 km				NEW 40.0 dBu undesired distance: 50.3 km								
<b>WAMC-FM</b>	212	FM	LIC	90.3	ALBANY	NY	US	C	42-38-14	172.77	180.88	-8.11
70849	BLED	20101102ABH	B	N	N		10	600	073-10-07	17	<b>SHORT</b>	
WAMC-FM 60.0 dBu desired distance: 75.4 km				Proposed 40.0 dBu undesired distance: 57.5 km								
Proposed 60.0 dBu desired distance: 18.4 km				WAMC-FM 40.0 dBu undesired distance: 162.5 km								
<b>WKRB</b>	212	FM	LIC	90.3	BROOKLYN	NY	US	C	40-34-36	65.08	61.33	3.75
34902	BLED	20060424ADG	D	N	N		0.01	40.7	073-56-04	191.05	<b>CLOSE</b>	
WKRB 60.0 dBu desired distance: 3.8 km				Proposed 40.0 dBu undesired distance: 57.5 km								Note 2
Proposed 60.0 dBu desired distance: 18.4 km				WKRB 40.0 dBu undesired distance: 12.0 km								
<b>WKNJ-FM</b>	212	FM	LIC	90.3	UNION TOWNSHIP	NJ	US	C	40-40-35	64.87	61.04	3.83
33783	BLED	19820913AW	D		N		0.009	5	074-14-02	215.56	<b>CLOSE</b>	
WKNJ-FM 60.0 dBu desired distance: 3.5 km				Proposed 40.0 dBu undesired distance: 57.5 km								Note 2
Proposed 60.0 dBu desired distance: 18.4 km				WKNJ-FM 40.0 dBu undesired distance: 11.2 km								
<b>WNPR</b>	213	FM	LIC	90.5	MERIDEN	CT	US	C	41-33-42	91.01	101.49	-10.48
13627	BLED	19910222KC	B	D	N		18.5	251	072-50-41	59.59	<b>SHORT</b>	
WNPR 60.0 dBu desired distance: 56.7 km				Proposed 54.0 dBu undesired distance: 27.3 km								
Proposed 60.0 dBu desired distance: 18.4 km				WNPR 54.0 dBu undesired distance: 83.1 km								
<b>WFUV</b>	214	FM	LIC	90.7	NEW YORK	NY	US	C	40-52-48	31.15	55.86	-24.71
22033	BLED	20091214AEF	B	D	N		47	155	073-52-40	194.24	<b>SHORT</b>	
WFUV 60.0 dBu desired distance: 54.8 km				Proposed 100.0 dBu undesired distance: 1.1 km								
Proposed 60.0 dBu desired distance: 18.4 km				WFUV 100.0 dBu undesired distance: 6.4 km								

Note 1 - See Technical Narrative, Figure 6

Note 2 - Class D stations do not require protection.

Figure 4

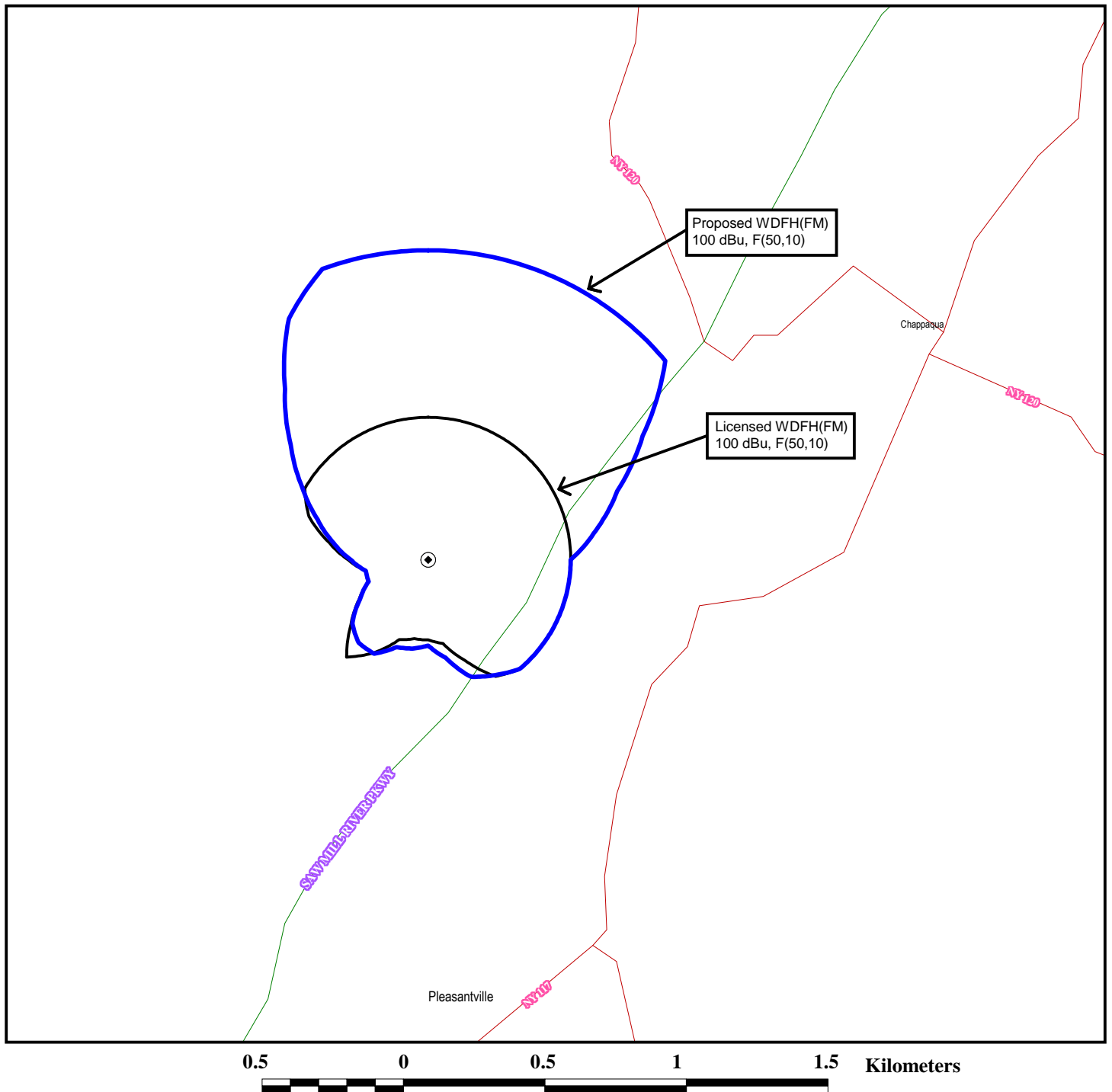


## SECTION 73.509 COMPLIANCE

FM STATION WDFH(FM)  
 OSSINING, NEW YORK  
 CH 212A 0.25 KW (MAX-DA) 145 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Figure 5



## PREDICTED 100 DBU INTERFERING CONTOURS TO WFUV(FM)

STATION WDFH(FM)  
OSSINING, NEW YORK  
CH 212A 0.25 KW (MAX-DA) 145 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

## APPENDIX A

HISTORICAL INFORMATION  
RELATING TO THE PERMITTED  
CONTOUR OVERLAP BETWEEN  
WFUV (FM) AND WDFH (FM)



are inclined to view waiver requests such as WCCE's favorably where there is clearly a public benefit.

6 FCC Rcd at 14. The overlap caused by WFMU(FM) to WFUV(FM)'s licensed facilities and vice versa is consistent with the public interest calculus set forth in WCPE. Accordingly, waiver of 47 C.F.R. § 73.509 to allow WFMU(FM) to cause and receive overlap with respect to WFUV(FM) is warranted. Likewise, in order to resolve the mutual exclusivity linkages which exist in this complex case involving seven applications, we will, on our own motion, waive 47 C.F.R. § 73.509 to permit WFUV(FM) to cause and receive overlap with respect to the licensed and proposed facilities of WFMU(FM). Appropriate conditions will be attached.<sup>8</sup> In light of the above, the informal objection filed by Upsala against Fordham's June 11, 1991, amendment regarding violation of 47 C.F.R. § 73.509 will be denied. Also, Fordham's informal objection against Upsala's application will be denied in part to the extent that it pertains to prohibited overlap between Stations WFUV(FM) and WFMU(FM). This will remove the mutual exclusivity between the proposals of Fordham and Upsala.

Our Antenna Survey Branch has advised us that they are not in receipt of the Federal Aviation Administration's (FAA) final airspace determination for the tower structure proposed in Fordham's application. Accordingly, Fordham must submit a copy of this determination (if available) to the FM Branch in order to facilitate processing of its application. If a determination has not been released, Fordham must notify the Commission in writing of this fact and provide the status of any negotiations with the FAA.

#### F. Mutual Exclusivity Between WFUV(FM) and Westchester

On March 20, 1984, Fordham's application was placed on an "A" list specifying a cut-off date of April 23, 1984. On April 23, 1984, during the cut-off period for Fordham's application, Westchester Council for Public Broadcasting filed its application for a new second adjacent channel noncommercial educational FM station on Channel 212A in Ossining, NY. An engineering study reveals that WFUV(FM)'s proposed 60 dBu coverage contour would encompass the 80 dBu interfering contour proposed by Westchester's application. See Appendix B, Exhibit B-8.

#### G. Agreement Between WFUV(FM) and Westchester

Westchester's application was placed on a "B" list on December 12, 1991 specifying a cut-off date of January 15, 1992. On January 15, 1992, Fordham and Westchester submitted an agreement to resolve the mutual exclusivity of the their applications. As set forth in the agreement, on February 27, 1992, Westchester filed a minor amendment to its application specifying nondirectional operation from a site further removed from WFUV(FM) at reduced power. Although overlap still exists, the encompassment of Westchester's 80 dBu contour by WFUV(FM)'s 60 dBu contour is consistent with the public interest calculus set forth in WCPE. Accordingly, waiver of 47 C.F.R. § 73.509 with an

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<sup>8</sup> See Footnote 1.



appropriate condition is warranted.<sup>9</sup> This action would remove the mutual exclusivity between Westchester's application and Fordham's application and permit the grant of both. See, e.g., Letter from Chief, Audio Services Division to Memphis Community Television Foundation and Memphis State University (8920-EPD), dated March 11, 1992.

## II. The WSHU Group:

### A. Interference Between WFMU(FM) and WSHU(FM)

Sacred Heart University, Inc., is licensed to operate Station WSHU(FM), Fairfield, CT, on Channel 216B with an ERP of 12.5 kilowatts (H&V) and an antenna HAAT of 181 meters. On January 26, 1990, SHU filed a major change application (File No. BPED-900126IB) to increase the ERP of WSHU(FM) to 20.0 kilowatts and the HAAT to 189 meters. SHU also proposed to modify the existing directional antenna pattern. Staff studies indicate that WSHU(FM)'s licensed facilities neither cause nor receive any prohibited overlap with respect to WFMU(FM)'s co-channel licensed facilities but would receive prohibited overlap from WFMU(FM)'s proposed facilities.<sup>10</sup> See Appendix B, Exhibit B-9. Additionally, although SHU's proposal would not cause prohibited overlap to WFMU(FM)'s licensed facilities, it would cause prohibited overlap to WFMU(FM)'s proposed facilities. Also, SHU's proposal would receive prohibited overlap from both WFMU(FM)'s licensed facilities and proposed facilities. Upsala has requested a general waiver of 47 C.F.R. § 73.509. SHU has not specifically requested waiver of 47 C.F.R. § 73.509 with respect to WFMU(FM).

Minor change applications for noncommercial educational FM stations operating in the reserved band are not processed under the "first-come first-served" rule applicable to commercial stations. Therefore, they are subject to mutually exclusive applications until the time of grant. Accordingly, although Upsala's application was filed prior to SHU's application, SHU's application is considered to be timely and mutually exclusive with Upsala's application.<sup>11</sup> Options as to resolving this mutual exclusivity are addressed in Section VI of this document.

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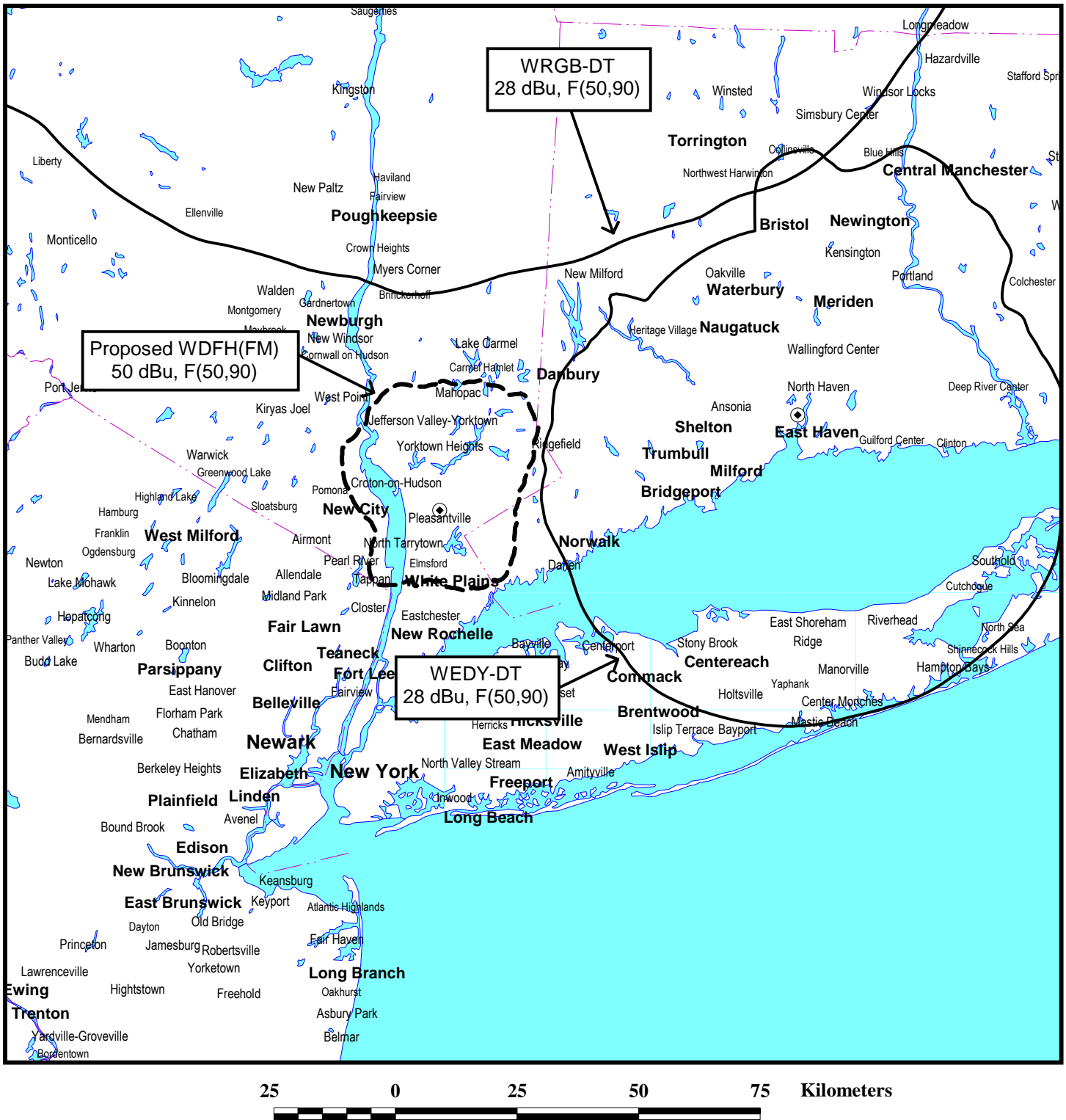
<sup>9</sup> Ibid.

<sup>10</sup> SHU's application was originally filed as a minor change application. However, staff studies indicated that the application constituted a major change pursuant to 47 C.F.R. § 73.3573. On June 13, 1991, application BPED-900126IB was placed on an "A" list which specified a cut-off date of July 15, 1991.

<sup>11</sup> Because of its mutual exclusivity with SHU's major change application, Upsala's minor change application takes on the cut-off date of SHU's application, ie., July 15, 1991. This also corresponds with the cut-off date of Application BPED-900202IA of Mercer County Community College.



Figure 6



## SECTION 73.525 COMPLIANCE

CLASS A STATION WMDO-CA  
WASHINGTON, DC  
CH 47

du Treil, Lundin & Rackley, Inc. Sarasota, Florida 34237