

TECHNICAL EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
NEW NCE-FM STATION
NORTH GRANBY, CONNECTICUT
CH 215A (90.9 MHZ) 0.05 KW (MAX-DA) 123 M

Technical Narrative

The technical exhibit of which this narrative is part was prepared in response to the FCC Public Notice (Public Notice) dated April 21, 2021 and entitled “Media Bureau Announces NCE-FM New Station Application Filing Window; Window Open from November 2, 2021 to November 9, 2021” (DA 21-463). Specifically, this technical exhibit was prepared in support of a complete FCC Form 340 as required by the Public Notice for a proposed new NCE-FM station to operate on channel 215A (90.9 MHz) at North Granby, Connecticut.

Proposed Facility

It is proposed to operate on reserved band channel 215A (90.9 MHz) from an existing tower (ASRN 1285133) with a directional antenna maximum effective radiated power (ERP) of 0.05 kW (horizontal and vertical polarization) and an antenna height above average terrain (HAAT) of 123 meters.

City Coverage

Figure 1 is a map showing the predicted 60 dBu contour for the proposed facility. As indicated, the proposed 60 dBu will encompass 92.6% of the land area within the North Granby CDP limits (obtained from the 2010 Census), which comports with Section 73.515.

The predicted 60 dBu contour was calculated in accordance with Section 73.313 of the FCC Rules. The average terrain elevations from 3 to 16 km were computed using the NED 1-second terrain database. The overall antenna HAAT was determined according to the provisions of Section 73.313 of the FCC Rules. The antenna radiation center HAAT in each radial direction and the ERP were used in conjunction with the propagation prediction curves of Section 73.333 to determine the

distances to contours. The proposed 60 dBu contour encompasses a 2010 Census population of 5,394 persons within a land area of 125 square kilometers.¹

Allocation Studies

Figure 2 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 in Figure 2 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 3 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 2, where there is an indication of the potential for prohibited overlapping contours. As indicated in Figure 3 the proposed operation complies with the requirements of Section 73.509.

Section 73.316(b)(2) Compliance

The proposed directional antenna complies with the 2 dB per 10 degrees of azimuth rate of change and 15 dB maximum-to-minimum ratio requirements of Section 73.316(b).

TV Channel 6 Protection

It is required that NCE-FM facilities in the reserved band (Chs. 201-220) provide interference protection to affected TV channel 6 facilities as defined in Section 73.525. Pursuant to Section 73.525 (a) (1), all pertinent TV channel 6 facilities within 180 kilometers of a proposed channel 215 FM facility must be

¹ The 60 dBu contour population was determined using the 2010 Census Block Data available from the Census Bureau. The area within the 60 dBu was determined using mapping software that utilizes spherical trigonometry.

protected. Figure 4 shows 1 full-service TV/DTV station operating on channel 6 that is located within 180 kilometers of the proposed site, namely WRGB on channel 6 at Schenectady, NY. As indicated on Figure 5, the proposed NCE-FM interfering contour does not overlap any portion of the normally protected contour of the WRGB. Therefore, it is believed that the NCE-FM comports to the provisions of Section 73.525.

International Borders

The proposed site is located 336 kilometers from the closest point of the Canadian border and 2631 kilometers from the closest point of the Mexican border. As these distances are outside the respective coordination zones of each country, notification of the proposal to either Canada or Mexico is not necessary.

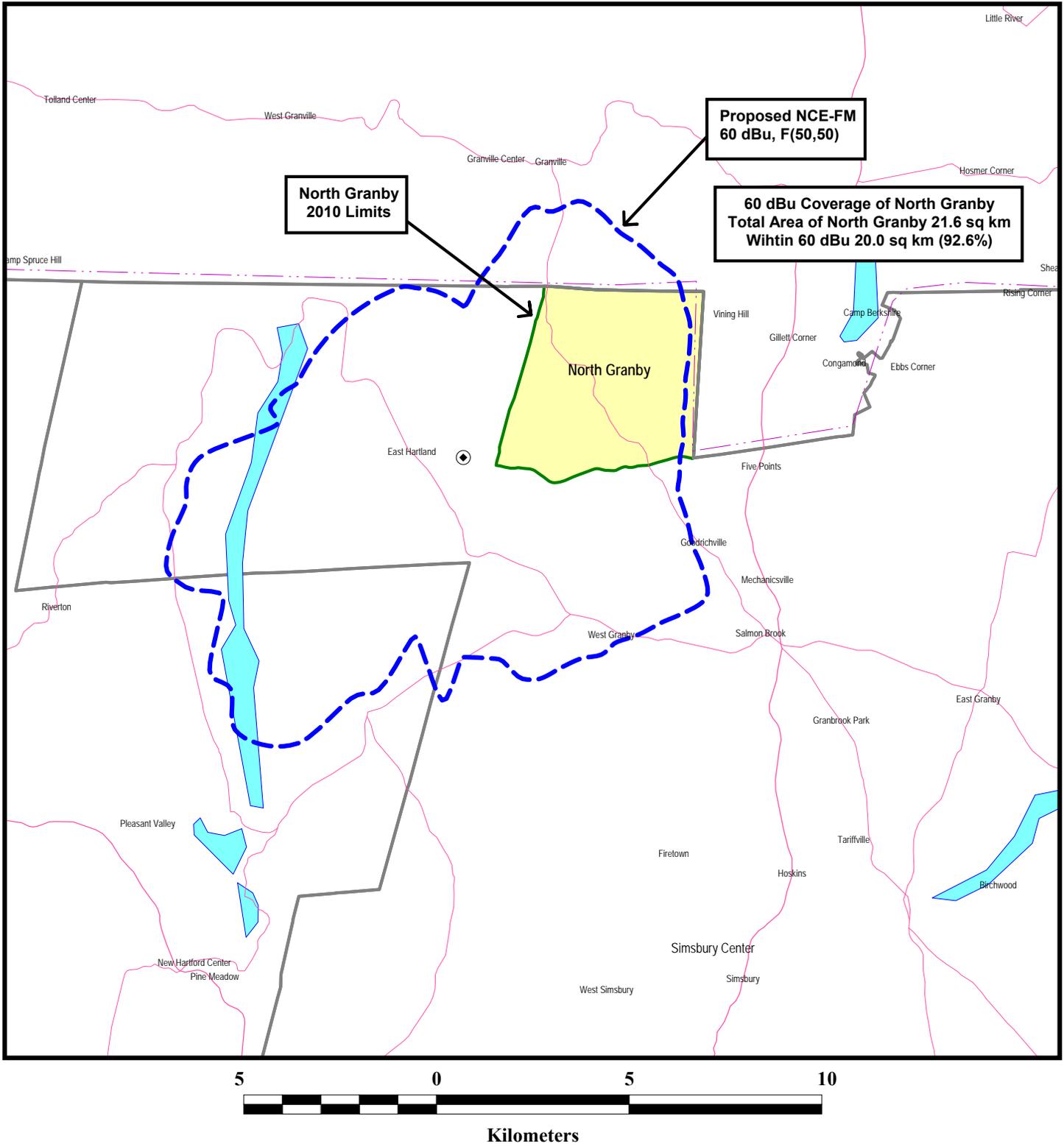
Environmental Considerations

The proposed facilities were evaluated in terms of potential radiofrequency radiation exposure at 2 meters above ground level in accordance with OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation". This Bulletin provides assistance in determining whether FCC-regulated transmitting facilities, operations or devices comply with limits for human exposure to radiofrequency (RF) electromagnetic fields. Using a worst-case vertical relative field value of 1.0, a total maximum ERP of 0.100 kilowatts (horizontal polarization + vertical polarization), and an antenna center of radiation height above ground level of 23.5 meters, the calculated power density at two meters above ground level at the base of the tower is 7.2 microwatt per square centimeter ($\mu\text{W}/\text{cm}^2$), or 3.6 percent of the Commission's recommended limit applicable to general population/uncontrolled exposure areas ($200 \mu\text{W}/\text{cm}^2$ for FM frequencies). Therefore, the proposed facility complies with the FCC's RF emission rules.

Access to the transmitting site will be restricted and appropriately marked with warning signs. Furthermore, procedures will be in effect in the event that workers or other authorized personnel enter the restricted area or climb the tower to ensure 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.

Figure 1



North Granby
2010 Limits

Proposed NCE-FM
60 dBu, F(50,50)

60 dBu Coverage of North Granby
Total Area of North Granby 21.6 sq km
Within 60 dBu 20.0 sq km (92.6%)

COMPLIANCE WITH SECTION 73.515

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

FM Contour Study LMS

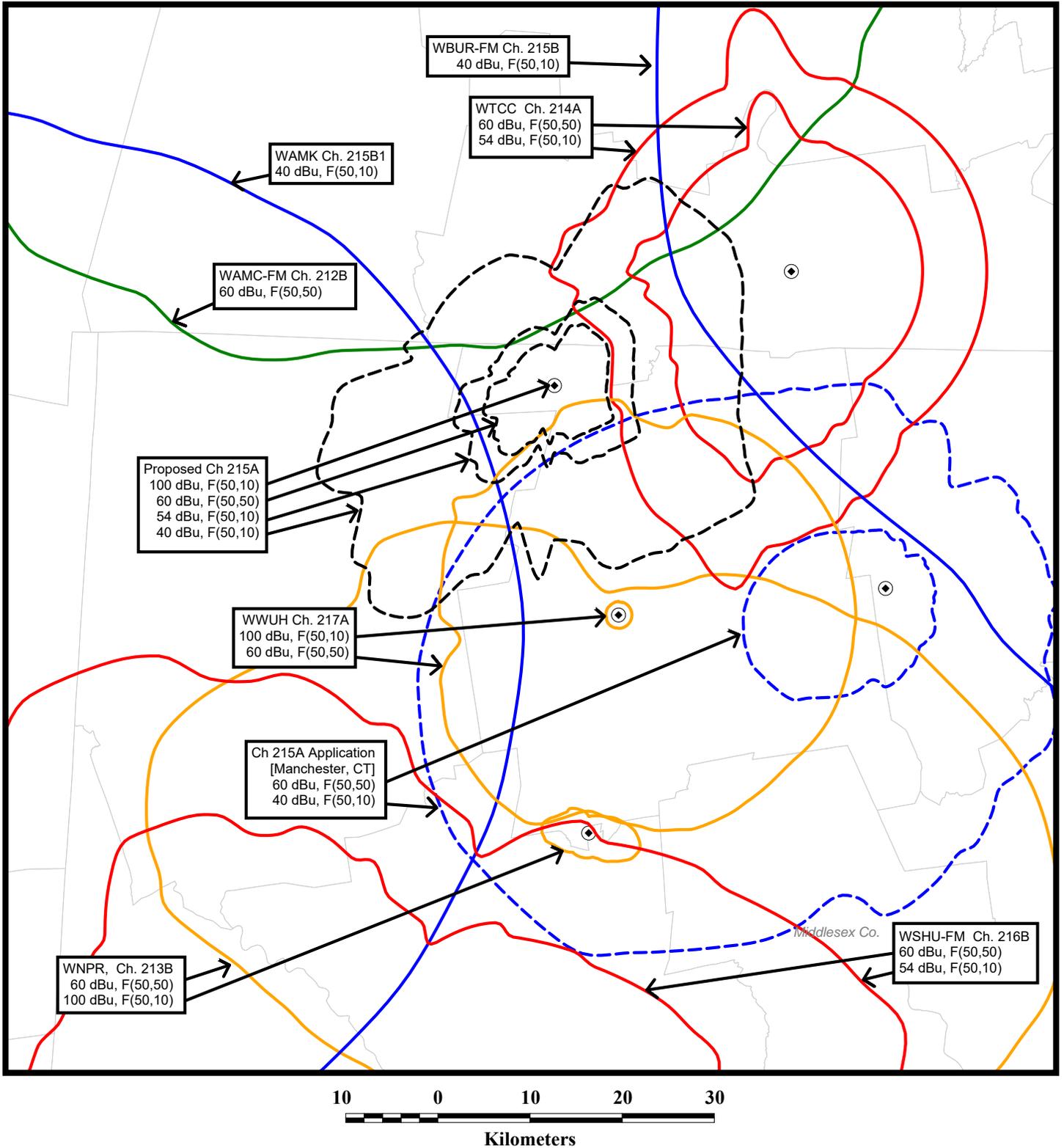
du Treil, Lundin, & Rackley, Inc., Sarasota, Florida



Channel: 215 Coordinates: 041-59-51.8 072-53-20.4 (NAD 83) ERP: 0.05 kW Max. HAAT: 265 m

Comment:

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	
WAMC-FM	212	FM	AMD	90.3	ALBANY	NY	US	C	42-38-14.3	74.68	75.84	-1.16
70849	BLANK	BML	2010110	B	NDI		10	600	073-10-05.4	342.21	SHORT	
				WAMC-FM 60.0 dBu desired distance: 75.4 km		Proposed 100.0 dBu undesired distance: 0.5 km						
				Proposed 60.0 dBu desired distance: 14.1 km		WAMC-FM 100.0 dBu undesired distance: 6.3 km						
WNPR	213	FM	L2C	90.5	MERIDEN	CT	US	C	41-33-42.3	48.57	57.21	-8.64
13627	BLANK	BLED-19910222	B	DRI		18.5	251		072-50-39.3	175.61	SHORT	
				WNPR 60.0 dBu desired distance: 56.7 km		Proposed 100.0 dBu undesired distance: 0.5 km						
				Proposed 60.0 dBu desired distance: 14.1 km		WNPR 100.0 dBu undesired distance: 6.3 km						
WTCC	214	FM	MOD	90.7	SPRINGFIELD	MA	US	C	42-06-32.3	28.51	47.34	-18.83
62018	BLANK	BML	2007031	A	NDI		4	28	072-34-43.3	64.12	SHORT	
				WTCC 60.0 dBu desired distance: 22.3 km		Proposed 54.0 dBu undesired distance: 21.2 km						
				Proposed 60.0 dBu desired distance: 14.1 km		WTCC 54.0 dBu undesired distance: 33.3 km						
WAMK	215	FM	L2C	90.9	KINGSTON	NY	US	C	42-04-35.3	101.22	133.91	-32.69
70502	BLANK	BLED-19910829	B1	DRI		0.94	453		074-06-24.5	275.38	SHORT	
				WAMK 60.0 dBu desired distance: 48.6 km		Proposed 40.0 dBu undesired distance: 46.9 km						
				Proposed 60.0 dBu desired distance: 14.1 km		WAMK 40.0 dBu undesired distance: 119.8 km						
WBUR-FM	215	FM	L2C	90.9	BOSTON	MA	US	C	42-18-37	140.91	143.87	-2.96
68241	BLANK	BLED-20170802	B	DRI		8.6	357.8		071-14-12	75.13	SHORT	
				WBUR-FM 60.0 dBu desired distance: 54.0 km		Proposed 40.0 dBu undesired distance: 46.9 km						
				Proposed 60.0 dBu desired distance: 14.1 km		WBUR-FM 40.0 dBu undesired distance: 129.8 km						
WSHU-FM	216	FM	L2C	91.1	FAIRFIELD	CT	US	C	41-16-44.3	83.55	93.46	-9.91
58515	BLANK	BLED-20131125	B	DRI		20	194.6		073-11-06.4	197.21	SHORT	
				WSHU-FM 60.0 dBu desired distance: 54.0 km		Proposed 54.0 dBu undesired distance: 21.2 km						
				Proposed 60.0 dBu desired distance: 14.1 km		WSHU-FM 54.0 dBu undesired distance: 79.4 km						
WHVP	216	FM	L2C	91.1	HUDSON	NY	US	C	42-18-28.3	60.63	55.52	5.11
60899	BLANK	BLED-19980514	A	DRI		0.22	318		073-29-33.4	304.93	CLOSE	
				WHVP 60.0 dBu desired distance: 26.7 km		Proposed 54.0 dBu undesired distance: 21.2 km						
				Proposed 60.0 dBu desired distance: 14.1 km		WHVP 54.0 dBu undesired distance: 41.4 km						
WWUH	217	FM	L2C	91.3	WEST HARTFORD	CT	US	C	41-46-27.3	25.78	26.29	-0.51
68986	BLANK	BLED-19970107	A	NDI		0.44	239		072-48-18.3	164.35	SHORT	
				WWUH 60.0 dBu desired distance: 25.8 km		Proposed 100.0 dBu undesired distance: 0.5 km						
				Proposed 60.0 dBu desired distance: 14.1 km		WWUH 100.0 dBu undesired distance: 1.5 km						



COMPLIANCE WITH SECTION 73.509
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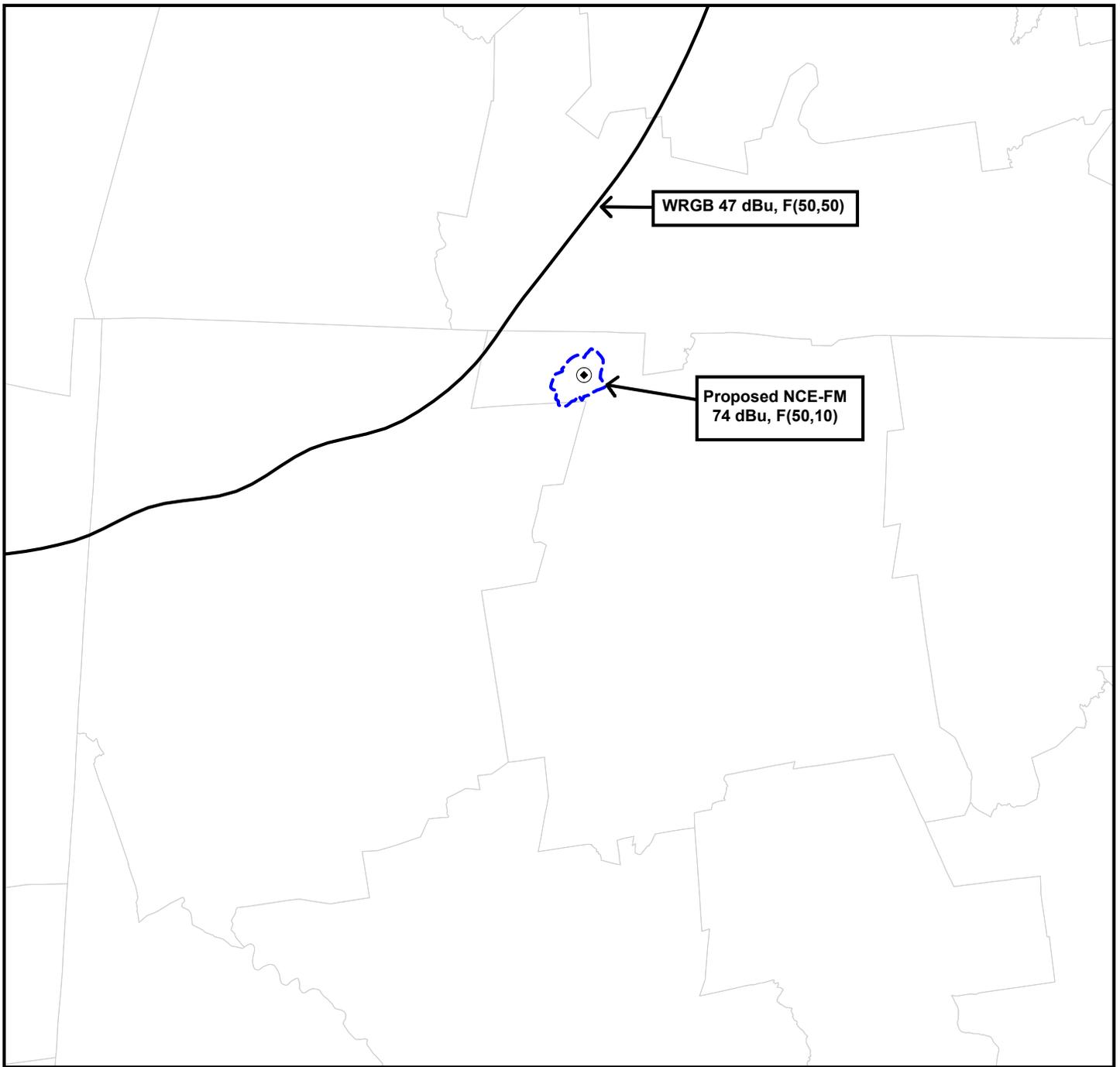
TV Inquiry

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

Listed stations are within 200 km of the point at 041-59-51.8 072-53-20.4.

<i>Callsign</i>	<i>Chan.</i>	<i>Type</i>	<i>Zone</i>	<i>Service</i>	<i>Status</i>	<i>City</i>	<i>State</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Distance (km)</i>	
<i>ARN</i>			<i>DA</i>	<i>Ant. ID</i>	<i>Rotation</i>	<i>ERP (kW)</i>	<i>HAAT (m)</i>	<i>RCAMSL (m)</i>	<i>Rec. Type</i>	<i>Facility ID</i>	<i>Bearing (deg)</i>
WRGB	6	ML	1	DT	LIC	SCHENECTADY		NY	042-37-31	074-00-38	115.8
BMLCDT-20110816AAF			N	96110		30.2	392	649	C	73942	307.49

Figure 5



10 0 10 20 30
Kilometers

SECTION 73.525 COMPLIANCE

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