

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
FM CONSTRUCTION PERMIT  
FCC FILE NO. 0000158213  
FM STATION WCGY-FM  
JEFFERSON, NEW HAMPSHIRE  
CH 247A (97.3 MHZ) 6 KW (ND) -83 M

Technical Narrative

1. Purpose of Application: The technical exhibit of which this narrative is part was prepared in support of an application for modification of the construction permit (CP, File No. 0000158213) for FM station WCGY-FM on channel 247A at Jefferson, New Hampshire to change transmitter site and modify facilities. Specifically, it is proposed to operate on channel 247A with a nondirectional antenna maximum ERP of 6 kW (H&V) and an HAAT of -83 meters from an existing, unregistered 54.9 meter tower.

2. Compliance with Section 73.315: Figure 1 is a map which demonstrates that the proposed operation complies with the provisions of Section 73.315 and FCC policies as 92% of the total area within Jefferson receives a 70 dBu, F(50,50) signal. The Jefferson city limits shown on Figure 1 were obtained from a map contained in the 2010 U.S. Census of Population.

3. Compliance with Section 73.207 and US-Canadian FM Agreement: Figure 2A is a separation study based on Section 73.207 for Channel 247A operation from the proposed transmitter site. As shown, the proposed site complies with the minimum distance separation requirements of Section 73.207 for class A operation on channel 247 towards all existing, authorized and proposed stations and allotments, with the exceptions of WOXX on channel 246A (97.1 MHz) at Colebrook, New Hampshire and a Canadian channel 247C1 allotment at Thetford-Mines, Quebec (“Thetford-Mines allotment”).

With respect to the short-spacing with WOXX, as noted on Figure 2A, the proposed site is considered to be fully-spaced to WOXX under Section 73.207. Specifically, WOXX short-spaced the vacant channel 247A allotment at Jefferson, New Hampshire pursuant to Section 73.215. As such, the actual distance between the WOXX site and the vacant channel 247A allotment site at Jefferson becomes the minimum required distance under 73.207. As indicated on the attached Figure 2B, which is a Section 73.207 allotment study from the vacant channel 247A allotment site at Jefferson, the actual distance between sites is 54.15 km. Therefore, as the actual distance between the herein proposed site and WOXX is 57.69 km, which exceeds the 54.15 km separation, the proposed site is considered to be fully-spaced to WOXX under Section 73.207.

With respect to the short-spacing with the Thetford-Mines allotment, Figure 3 demonstrates that the proposed operation complies with the provisions of the US-Canadian FM agreement towards the Thetford-Mines allotment. Specifically, there is no overlap between the proposed WCGY-FM 34 dBu, F(50,10) interfering contour and the 54 dBu, F(50,50) protected contour for the Thetford-Mines allotment (86 km circle).<sup>1</sup>

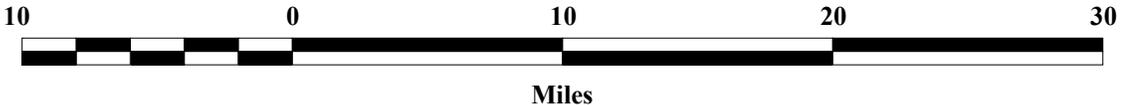
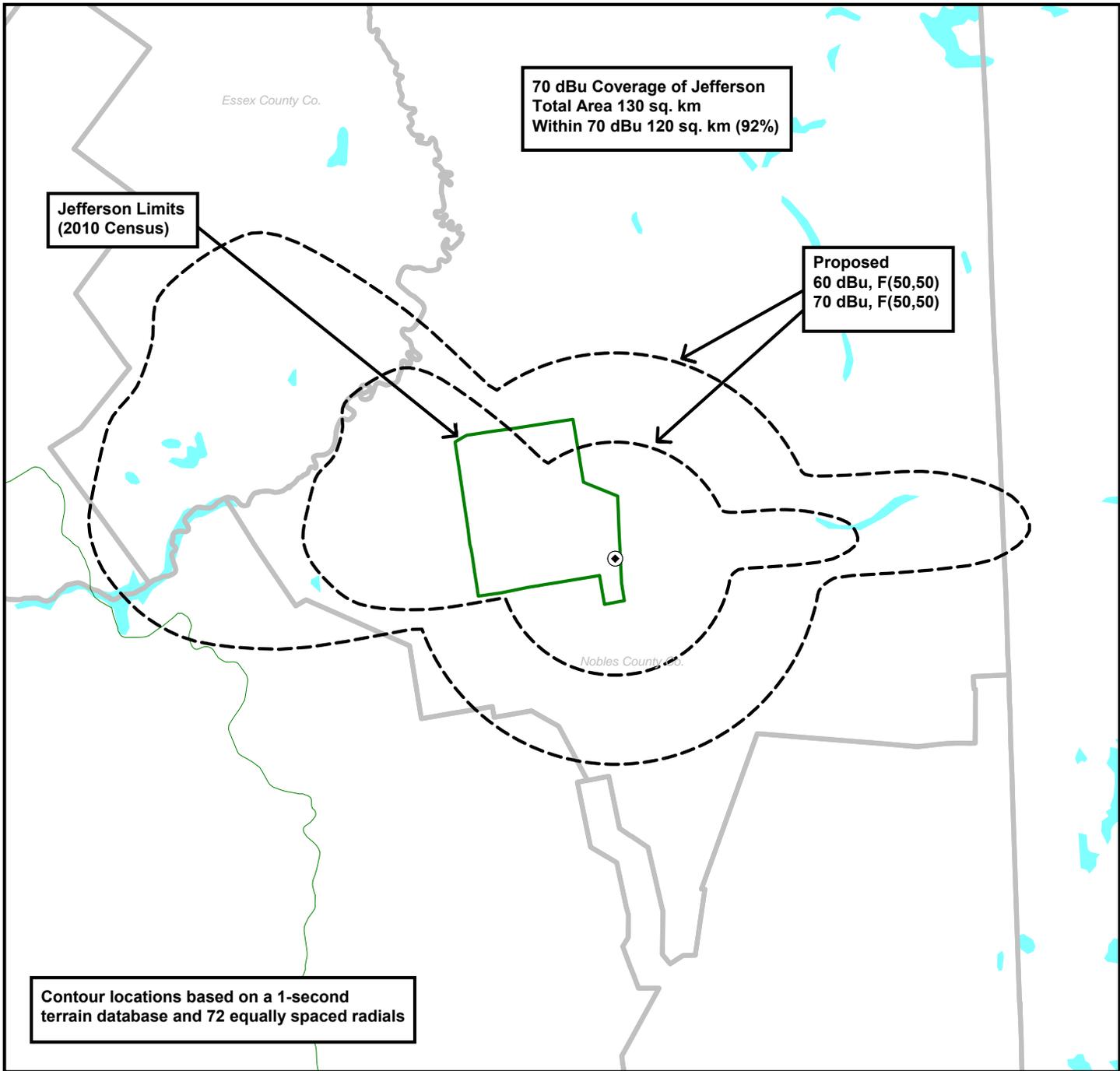
4. RFR Compliance: The proposed facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public based on the FCC's FM Model software. It is proposed to mount a Shively model SLV-4, full-wavelength spaced antenna at the 36.6 meter level on the existing 54.9 meter tower. The total ERP is 12 kW (H+V). Figure 4 depicts the output of the FCC's FM Model program. As indicated, a maximum power density of 199.4 uW/cm<sup>2</sup> will occur at a point located 6.2 meters from the tower. This is 99.7% of the FCC's recommended limit of 200 uW/cm<sup>2</sup> for FM frequencies for an uncontrolled environment. Thus, as the proposed FM station will be the only broadcast station in the vicinity, it is believed that the proposed facility is in full compliance with the FCC's requirements with regard to radio frequency radiation exposure.

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

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<sup>1</sup> The proposed WCGY-FM 34 dBu, F(50,10) contour location is based on use of 72 equally spaced radials and a 30-second terrain database.

Figure 1



**SECTION 73.315 COMPLIANCE**

FM STATION WCGY-FM  
JEFFERSON, NEW HAMPSHIRE  
CH 247A (97.3 MHZ) 6 KW (ND) -83 M

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

# FM Study LMS

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



**Station Channel:** 247      **Station Coordinates:** 044-21-53.5 071-23-20.8 (NAD 27)  
**Class:** A      **Buffer Distance:** 15 km  
**Comment:** Proposed WCGY-FM

Callsign	Status	Channel	Service	Freq.	City	State	Co.	Rec Type	Latitude	Dist. (km)	Sep. (km)	Spacing (km)	
Facility ID	ARN		Class	DA	Ant ID	ERP (kW)	HAAT (m)	73.215	Longitude	Bear. (deg)	73.215 (km)	Comment	
<b>WLTN-FM</b>	L2C	244	FM	96.7	LISBON		NH	US	C	044-13-11.2	41.49	31	10.49
53636	BLH-19940711KC		A	NDIR		6	90		N	071-52-05.3	247.23	25	<b>CLEAR</b>
<b>WOXX</b>	L2C	246	FM	97.1	COLEBROOK		NH	US	C	044-52-47.5	57.69	72	-14.31
170980	BLH-20111205AAI		A	NDIR		0.7	-69.5		Y	071-28-51.2	352.8	49	<b>SHORT /1</b>
	ALLOT	247	FA	97.3	JEFFERSON		NH	US	C	044-23-40.2	4.13	115	-110.87
736440			A							071-25-13.3	323.01	92	<b>SHORT /2</b>
<b>WCGY-FM</b>	AMD	247	FM	97.3	Jefferson		NH	US	C	044-16-24	11.06	115	-103.94
762191	0000158213		A	DRL	69-2019-08-06	0.54	329		N	071-20-05	156.95	92	<b>SHORT /3</b>
	CP	247	FR	97.3	THETFORD-MINES		QC	CA	C	046-03-28.1	188.84	243	-54.16
740040			C1							071-36-04.4	355.03		<b>SHORT /4</b>
<b>WGMT</b>	L2C	249	FM	97.7	LYNDON		VT	US	C	044-34-15.1	46.24	42	4.24
69938	BLH-19970801KD		C3	DRL	14851	0.6	574		N	071-53-38.3	299.94	36	<b>CLOSE</b>

/1 The proposed site is considered to be fully-spaced to WOXX under Section 73.207. Specifically, WOXX short-spaced the vacant channel 247A allotment at Jefferson, NH pursuant to Section 73.215. As such, the actual distance between the WOXX site and the vacant channel 247A allotment site at Jefferson becomes the minimum required distance under 73.207. As indicated on the attached Figure 2B, which is a Section 73.207 allotment study from the vacant channel 247A allotment site at Jefferson, the actual distance between sites is 54.15 km. Therefore, as the actual distance between the herein proposed site and WOXX is 57.69 km, which exceeds the 54.15 km separation, the proposed site is considered to be fully-spaced under Section 73.207.

/2 Vacant channel 247A allotment at Jefferson, NH.

/3 Authorized WCGY-FM operation.

/4 The proposal complies with the provisions of the US-Canadian FM Agreement with respect to this short-spacing. See Technical Narrative and Figure 3.

# FM Study LMS

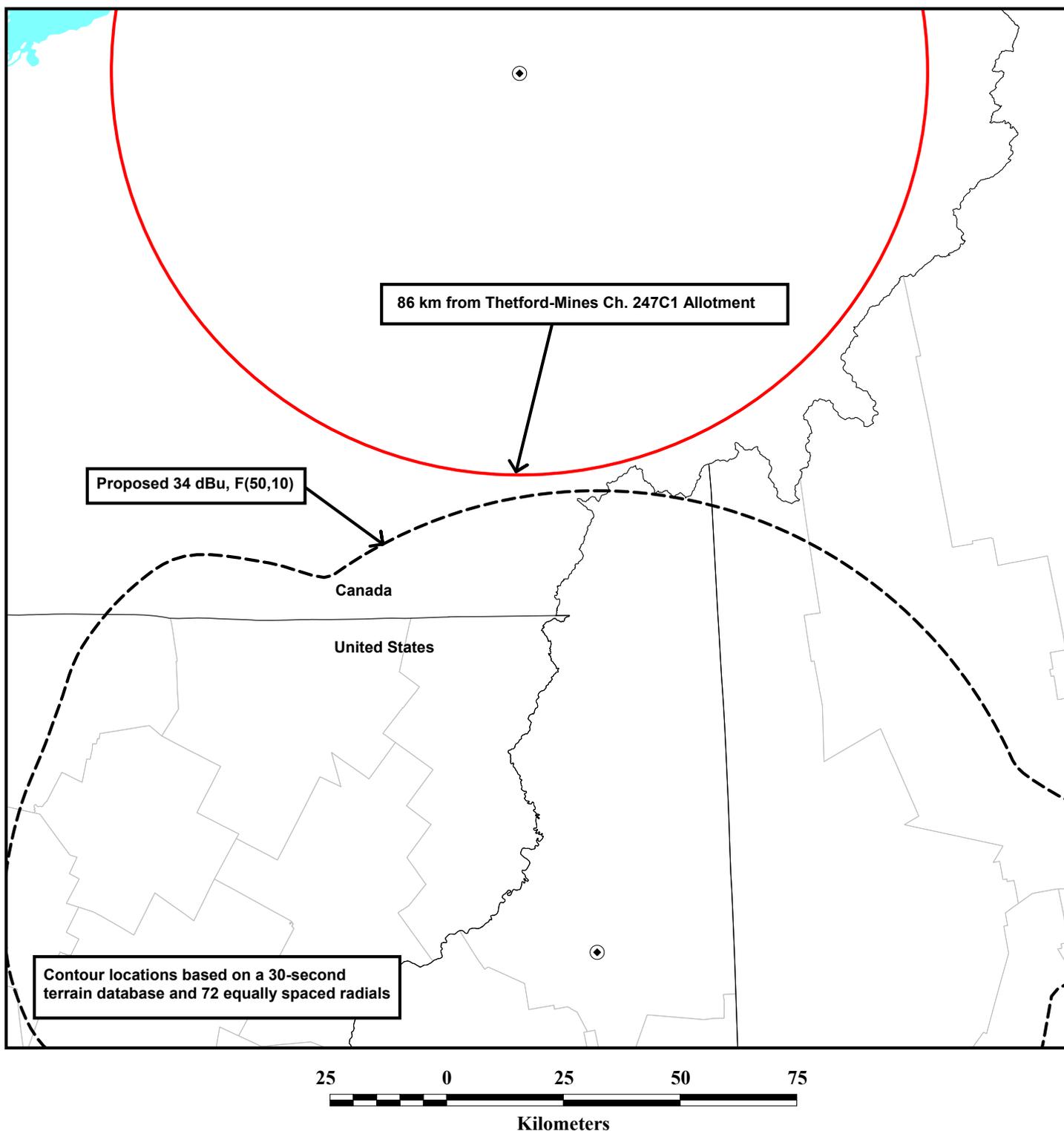
du Treil, Lundin, &amp; Rackley, Inc., Sarasota, Florida



**Station Channel:** 247      **Station Coordinates:** 044-23-40.2 071-25-13.3 (NAD 27)  
**Class:** A      **Buffer Distance:** 15 km  
**Comment:** Ch 247A Allotment Reference Point

Callsign	Status	Channel	Service	Freq.	City	State	Co.	Rec Type	Latitude	Dist. (km)	Sep. (km)	Spacing (km)	
Facility ID	ARN		Class	DA	Ant ID	ERP (kW)	HAAT (m)	73.215	Longitude	Bear. (deg)	73.215 (km)	Comment	
<b>WLTN-FM</b>	L2C	244	FM	96.7	LISBON		NH	US	C	044-13-11.2	40.66	31	9.66
53636	BLH-19940711KC		A	NDIR		6	90		N	071-52-05.3	241.55	25	<b>CLOSE</b>
<b>WOXX</b>	L2C	246	FM	97.1	COLEBROOK		NH	US	C	044-52-47.5	54.15	72	-17.85
170980	BLH-20111205AAI		A	NDIR		0.7	-69.5		Y	071-28-51.2	354.95	49	<b>SHORT /1</b>
	ALLOT	247	FA	97.3	JEFFERSON		NH	US	C	044-23-40.2	0	115	-115
736440			A							071-25-13.3	0	92	<b>SHORT</b>
<b>WCGY-FM</b>	AMD	247	FM	97.3	Jefferson		NH	US	C	044-16-24	15.1	115	-99.9
762191	0000158213		A	DRL	69-2019-08-06	0.54	329		N	071-20-05	153.15	92	<b>SHORT</b>
	CP	247	FR	97.3	THETFORD-MINES		QC	CA	C	046-03-28.1	185.36	243	-57.64
740040			C1							071-36-04.4	355.68		<b>SHORT</b>
<b>WGMT</b>	L2C	249	FM	97.7	LYNDON		VT	US	C	044-34-15.1	42.47	42	0.47
69938	BLH-19970801KD		C3	DRL	14851	0.6	574		N	071-53-38.3	297.73	36	<b>CLOSE</b>

/1 Station WOXX short-spaced the vacant channel 247A allotment reference site pursuant to Section 73.215. Therefore, the actual distance between sites, namely 54.15 km, becomes the minimum required separation under Section 73.207.



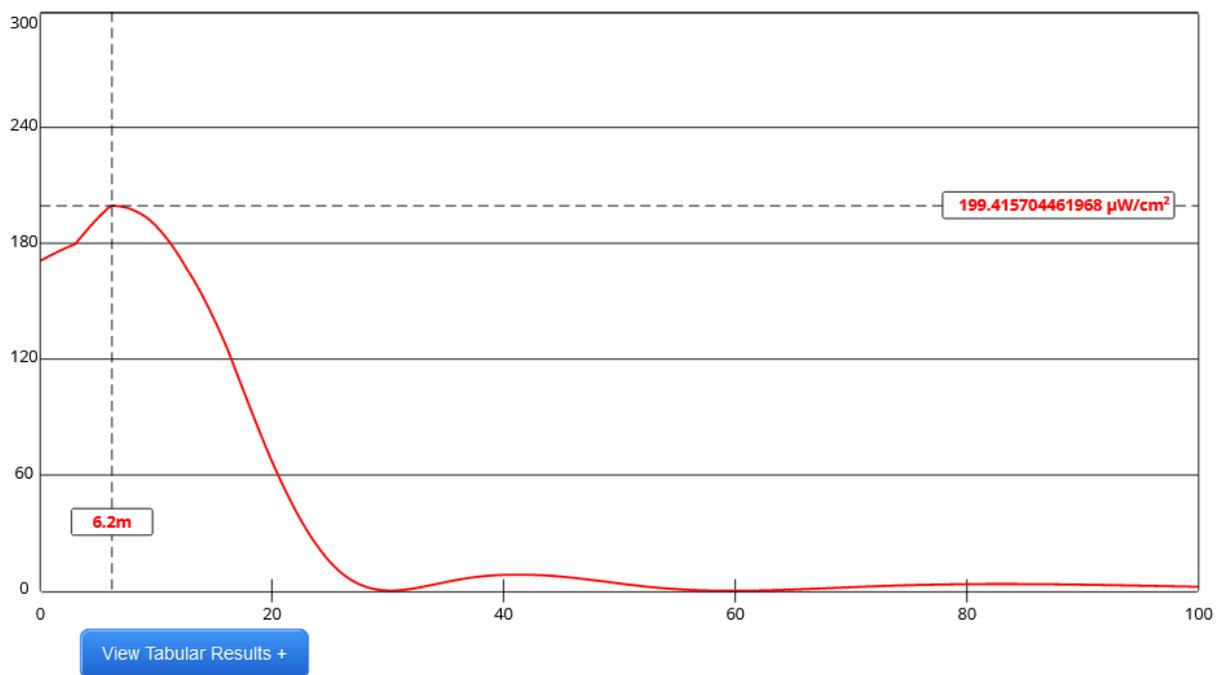
**CANADIAN ALLOCATION MAP**

NEW FM STATION  
JEFFERSON, NEW HAMPSHIRE  
CH 247A (97.3 MHZ) 6 KW (ND) -83 M

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

Figure 4

Output of FCC's FM Model Program:



Channel Selection	Channel 247 (97.3 MHz) ▾		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	<input type="text" value="36.6"/>	Distance (m)	<input type="text" value="100"/>
ERP-H (W)	<input type="text" value="6000"/>	ERP-V (W)	<input type="text" value="6000"/>
Num of Elements	<input type="text" value="4"/>	Element Spacing (?)	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	<input type="button" value="Apply"/>	