

EXHIBIT 13

Interference Considerations

Introduction

This application for modification of the facilities of FM translator W243DC, Needham, Massachusetts, requests a change in the location of the transmitting facilities for the translator, an increase in effective radiated power from 10 watts to 190 watts, and a change from nondirectional antenna to a directional antenna. The translator will continue to operate on Channel 243D.

The geographical coordinates (NAD27) of the proposed FM translator site are as follows:

North latitude 42° 14' 49"

West longitude 71° 02' 55"

At this location the ground elevation is 58 meters above mean sea level.

The proposed operation of W243DC conforms with the requirements of Section 74.1204 of the Commission's Rules for a Class D station on Channel 243 with respect to overlap of predicted contours with the licensed operation of any FM station, LPFM station or FM translator, and the operation of any such facilities specified in a construction permit or pending application, on the same channel, the first adjacent channels, one of the second adjacent channels, and the third adjacent channels, as shown in this Exhibit. On the other second adjacent channel, the proposed translator site is located within the predicted protected contour of an existing FM station. This Exhibit demonstrates that, under Section 74.1204(d) of the Rules, no objectionable interference will be caused to the FM station. Additionally, the location of the proposed W243DC site complies with the intermediate frequency distance separation requirements set forth in the Rules. The proposed operation of the translator therefore would not result in objectionable interference to any station.

Description of Directional Antenna System

The basic composite directional antenna system for the proposed operation of W243DC is comprised of two circularly polarized Shively Labs 6014 Panel Antennas spaced apart horizontally by 0.59 wavelength, with both panel antennas oriented to zero degrees True. For the proposed operation the basic antenna array is oriented clockwise by 300 degrees. The antenna system will be side-mounted on an existing supporting structure, with the radiation center located 160 meters above ground.

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The values of relative radiation for the horizontal plane radiation pattern for the basic composite directional antenna system are tabulated in Item 10 of the Tech Box in Section III-A of FCC Form 349 for this application. This data was provided by the antenna manufacturer, Shively Labs.

Allocation Study

The FM stations and FM translator taken into account in the allocation study for this application are listed in Table A of this Exhibit.

Figure 1 of this Exhibit shows the pertinent predicted contours for the proposed operation of W243DC and co-channel Class A station WMLL(FM), Bedford, New Hampshire; and Class B station WTIC-FM, Hartford, Connecticut.

The pertinent predicted contours for the proposed operation of W243DC and first adjacent channel FM translator W242AA, Beacon Hill, Massachusetts, on Channel 242D are shown in Figure 2 of this Exhibit.

Figure 3 of this Exhibit depicts the location of the proposed W243DC site, and the pertinent predicted contours for the proposed operation of the translator and the nearby FM stations on the second adjacent channels. Shown are the contours for WBQT(FM), Boston, Massachusetts, on Channel 245B; and WSRS(FM), Worcester, Massachusetts, on Channel 241B.

Figure 4 of this Exhibit shows the location of the proposed W243DC site, and the pertinent predicted contours for the proposed operation of the translator and for WATD-FM, Marshfield, Massachusetts, on Channel 240A.

The proposed W243DC site is located within the 54 dBu F(50,50) contour for WBQT(FM), Boston, Massachusetts, on Channel 245B. The potential for interference from the proposed translator to WBQT(FM) was evaluated by determining the three-dimensional volume in which the ratio of undesired to desired signal between the translator and WBQT(FM) equals or exceeds 40 dB, using free space propagation calculations for the translator signal.

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The predicted F(50,50) signal of WBQT(FM) at the proposed W243DC site is 88.6 dBu, and interference would occur where the translator signal is 128.6 dBu (2692 mV/m) or greater. For operation at 190 watts effective radiated power, and assuming uniform radiation from the translator in all directions and free-space propagation, computations show that interference to WBQT(FM) would not extend beyond 36 meters from the proposed translator antenna.

On the frequencies 53 and 54 channels removed from Channel 243, there are no FM stations or FM translators within 50 kilometers of the proposed W243DC site.

The proposed W243DC site is located within 320 kilometers of the Canadian border. With respect to the requirements of Section 74.1235(d) of the Commission's Rules, the 34 dBu F(50,10) contour for the proposed translator operation would not extend to more than 60 kilometers in any direction toward the nearby part of the U.S.-Canada border, and as shown in Figure 1 of this Exhibit, the contour would not extend across the U.S.-Canada border.

The predicted contours shown in this Exhibit were determined in accordance with the requirements of Section 73.313 of the Commission's Rules, from computerized calculations based on the NGDC 30-second terrain database, and Figures 1 and 1a of Section 73.333 of the Rules. Distances to the contours were calculated at azimuthal increments of one degree.

Fred W. Volken
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February 2019

Sierra Madre, California

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TABLE A

Station Facilities

	Channel and Class	Station and Location, Status, File Number	Geographical Coordinates	Facilities	
				Effective Radiated Power and Antenna	Antenna Height Above Average Terrain (meters)
Co-Channel Stations	243D	Proposed W243DC, Needham, MA	N 42° 14' 49" W 71° 02' 55"	0.19 kW Directional	-----
	243D	W243DC, Needham, MA License BLFT-201410520AGX	N 42° 18' 10" W 71° 13' 07"	0.010 kW Nondirectional	-----
	243A	WMLL(FM), Bedford, NH License BLH-19991109ABW	N 42° 59' 02" W 71° 35' 22"	0.73 kW Directional	285
	243B	WTIC-FM, Hartford, CT License BMLH-20131029ABW	N 41° 46' 27" W 72° 48' 20"	20.0 kW Nondirectional	247
First Adjacent Channel Station	242D	W242AA, Beacon Hill, MA License BLFT-19911227TB	N 42° 21' 42" W 71° 05' 03"	0.005 kW Directional	-----

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TABLE A (continued)

Station Facilities

	Channel and Class	Station and Location, Status, File Number	Geographical Coordinates	Facilities	
				Effective Radiated Power and Antenna	Antenna Height Above Average Terrain (meters)
Second Adjacent Channel Stations	241B	WSRS(FM), Worcester, MA License BMLH-20051227AFL	N 42° 18' 34" W 71° 54' 13"	16.5 kW Nondirectional	263
	245B	WBQT(FM), Boston, MA License BLH-19960903KE	N 42° 20' 50" W 71° 04' 59"	22.5 kW Nondirectional	224
Third Adjacent Channel Station	240A	WATD-FM, Marshfield, MA License BLH-19900305KC	N 42° 06' 39" W 70° 42' 17"	1.6 kW Nondirectional	143

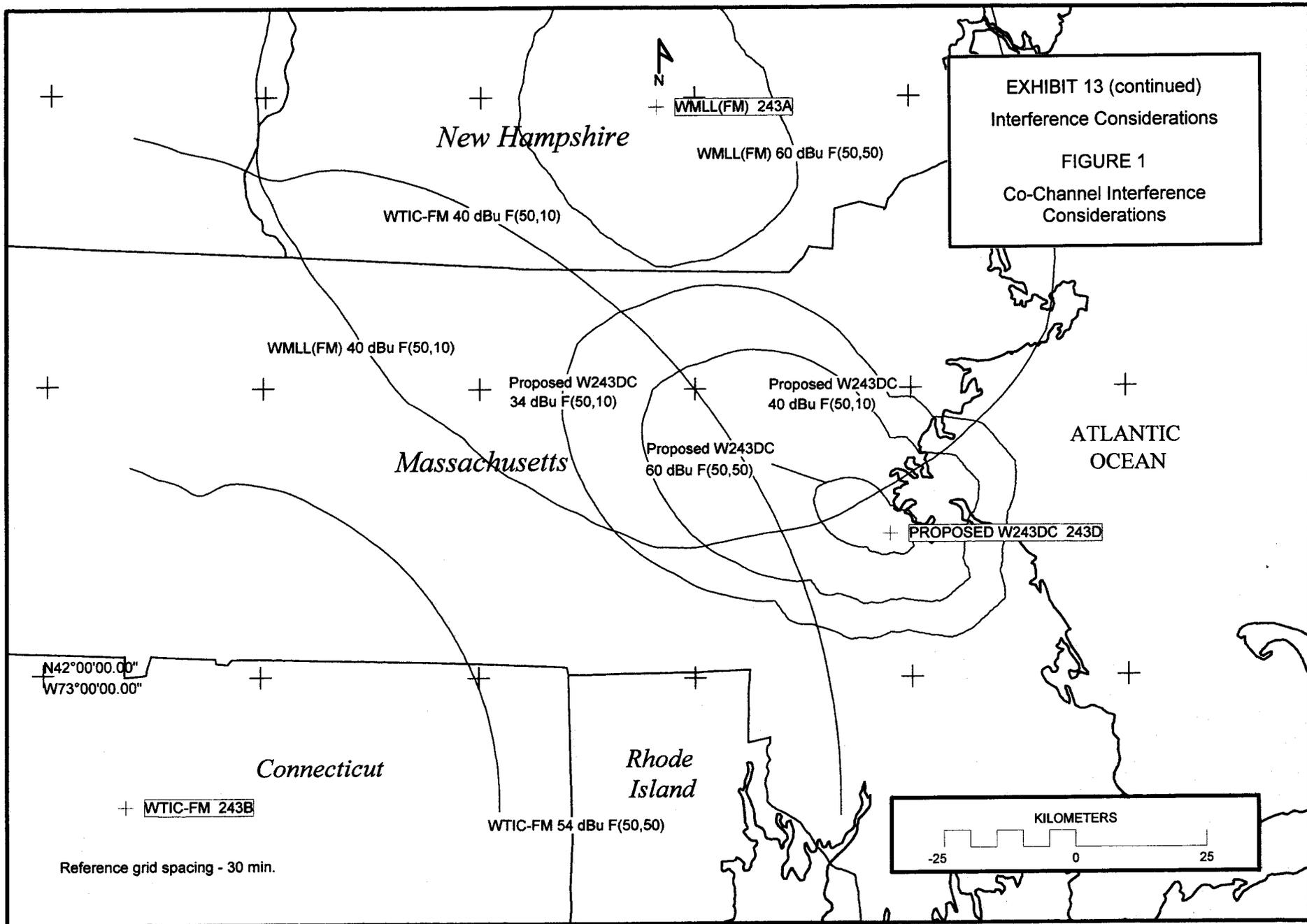
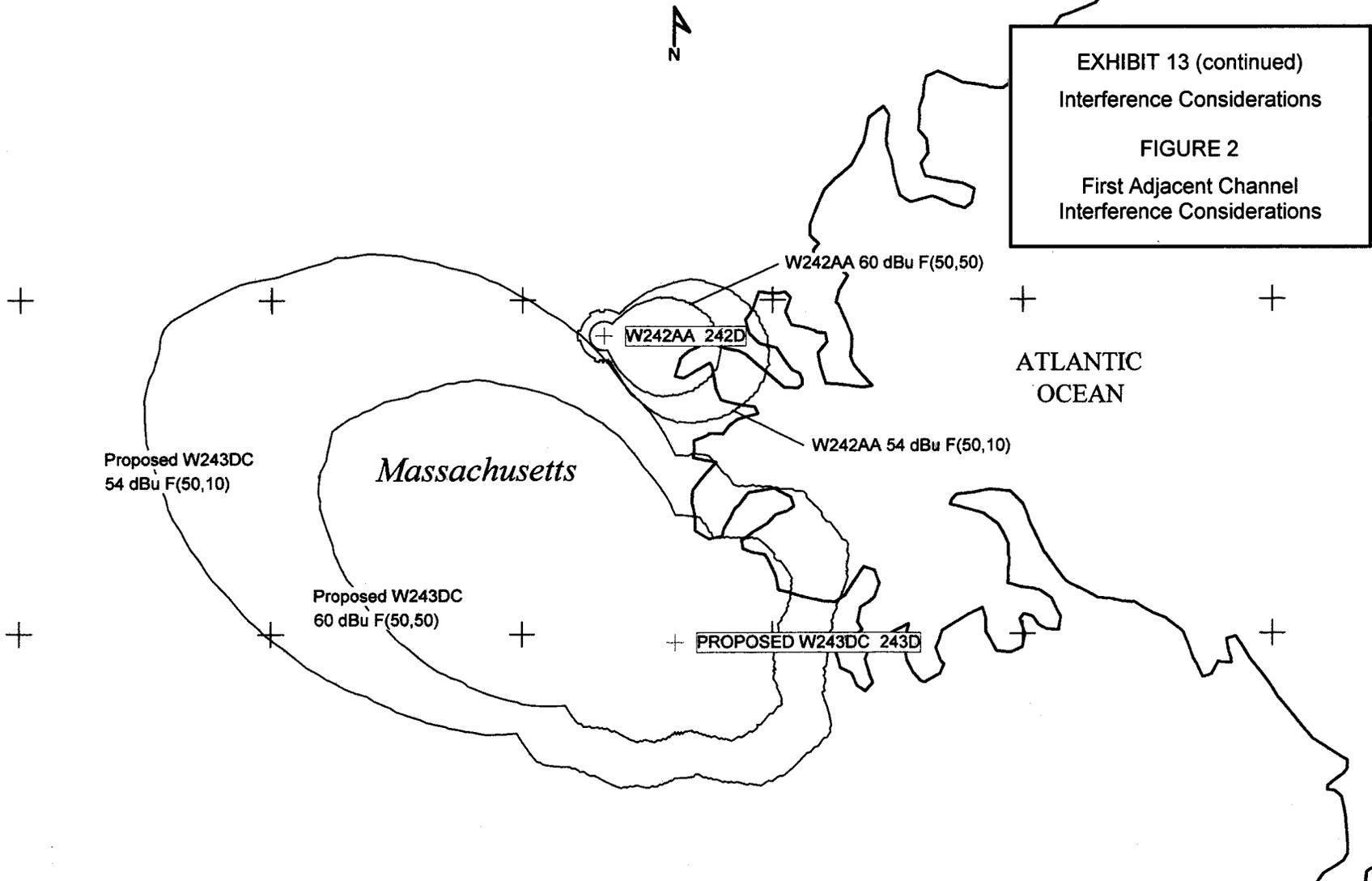


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Interference Considerations
FIGURE 2
First Adjacent Channel
Interference Considerations



Reference grid spacing - 7.5 min.

N42°07'30.00"
W71°22'30.00"

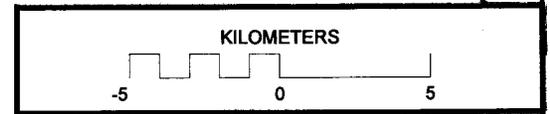


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FIGURE 3
Second Adjacent Channel
Interference Considerations

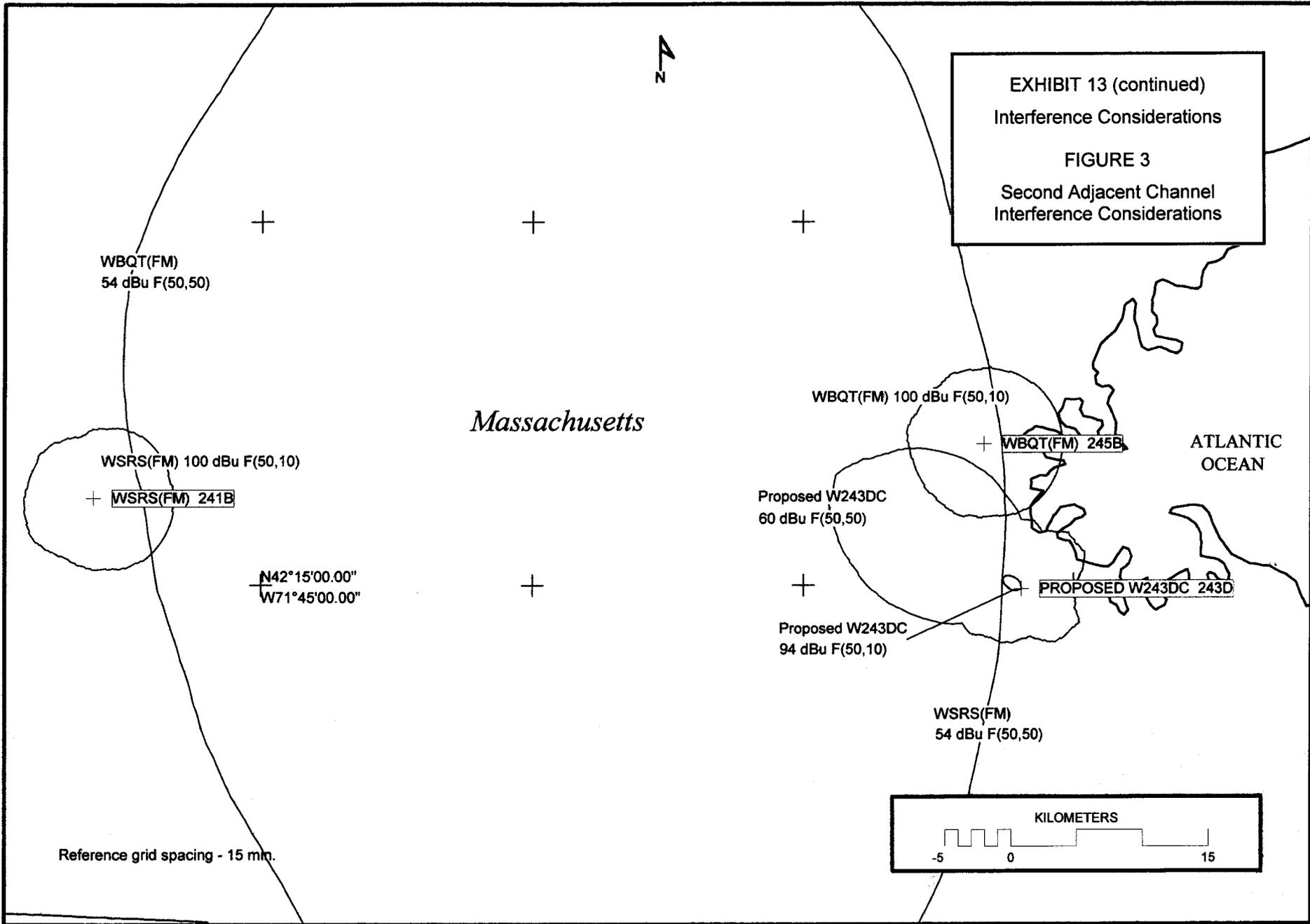


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FIGURE 4
Third Adjacent Channel
Interference Considerations

