

## EXHIBIT 13, Rev. A

### Interference Considerations

#### Introduction

This application is for modification of the facilities of an FM translator under the “250-mile window application” procedure set forth in the Commission’s AM Revitalization proceeding, MB Docket No. 13-249. The application requests a change in the location of the transmitting facilities for the modified translator, and operation on Channel 222D with 120 watts effective radiated power and employing a nondirectional antenna, to provide fill-in service for AM Station WFAT, Orange-Athol, Massachusetts.

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

North latitude 42° 35’ 38”

West longitude 72° 12’ 02”.

At this location the ground elevation is 344 meters above mean sea level.

The proposed operation of the modified translator conforms with the requirements of Section 74.1204 of the Commission’s Rules for a Class D station on Channel 222 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, the second adjacent channels, and one of the third adjacent channels, as shown in this Exhibit. On the other third adjacent channel, the site for the proposed translator is located just outside the predicted protected contour of an existing FM station, and there is a small amount of contour overlap with the 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 translator 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 Antenna System

The antenna system for the proposed translator is an Electronics Research, Inc., Model LP-2 Antenna, which is comprised of two circularly polarized omnidirectional radiating elements mounted in a vertical line and spaced 1.0 wavelength between radiating elements. The antenna system will be side-mounted on an existing tower, with the radiation center located 45 meters above ground. Figure 1 of this Exhibit is the manufacturer’s data sheet showing the vertical plane radiation pattern for this antenna system.

## EXHIBIT 13, Rev. A (continued)

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#### 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 2 of this Exhibit shows the pertinent predicted contours for the proposed translator and co-channel Class B stations WFLY(FM), Troy, New York; and WPRO-FM, Providence, Rhode Island.

The pertinent predicted contours for the proposed translator and first-adjacent-channel stations WDER-FM, Peterborough, New Hampshire, on Channel 221A; and WXRV(FM), Andover, Massachusetts, on Channel 223B, are shown in Figure 3 of this Exhibit.

Figure 4 of this Exhibit depicts the pertinent predicted contours for the proposed translator and the nearby FM stations on the second and third adjacent channels. Shown are the contours for second-adjacent-channel station WKVT-FM, Brattleboro, Vermont, on Channel 224A; and for third-adjacent-channel station WJWT(FM), Gardner, Massachusetts, on Channel 219A.

Although the proposed translator site is outside the WJWT(FM) predicted 60 dBu F(50,50) contour, a portion of the predicted 100 dBu contour for the translator overlaps the WJWT(FM) 60 dBu contour. From free-space propagation calculations, the maximum distance to the proposed translator 100 dBu contour in any direction in the horizontal plane is 0.767 kilometer. The contour overlap area is shown in detail in Figure 5 of this Exhibit, and falls in a wooded area.

The map for Figure 5 is a portion of the USGS 1:25,000 scale topographic map (with metric contours) showing the vicinity of the proposed translator site. This older topographic map was selected because it depicts residences and other buildings in the area of interest. The part of the map showing the contour overlap has been compared with up-to-date aerial photography from the Google Earth web site for accuracy.

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Figure 5 shows there are two places where buildings are close to the contour overlap area. The ground elevation at either of these places does not exceed 317 meters above mean sea level. Taking into account the antenna radiation center elevation of 389 meters above mean sea level and the vertical plane radiation pattern for the proposed translator antenna system (provided in Figure 1 of this Exhibit), computations based on free-space propagation show the translator signal reaches 100 dBu or greater only at heights of 50 meters or more above the ground in the vicinity of any of these buildings. The segment of Bearsden Road that crosses the contour overlap area is at elevations similar to the ground elevation at these buildings. This application conforms with the requirements of Section 74.1204(d) of the Commission's Rules, as the three-dimensional space within which interference to WJWT(FM) may be expected does not include any places that could be considered populated, or any streets or highways; and operation of the proposed FM translator therefore would not result in objectionable interference to WJWT(FM).

On the frequencies 53 and 54 channels removed from Channel 222, the only FM station or FM translator within 50 kilometers of the proposed modified translator site that requires consideration is W276CB, Keene, New Hampshire, on Channel 276D, operating with 250 watts effective radiated power. W276CB is located 38 kilometers from the proposed site, more than the minimum required intermediate frequency spacing of 10 kilometers from an FM translator to another FM translator operating with 100 watts effective radiated power or greater.

The site for the proposed modified translator 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 2 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.

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Engineering Consultant

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Sierra Madre, California

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Interference Considerations

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	222D	Proposed Modified Translator, Athol, MA	N 42° 35' 38" W 72° 12' 02"	0.12 kW Nonirectional	-----
	222B	WFLY(FM), Troy, NY License BLH-19871015KA	N 42° 38' 16" W 73° 59' 55"	17.0 kW Nondirectional	259
	222B	WPRO-FM, Providence, RI License BMLH-19920605KA	N 41° 48' 18" W 71° 28' 24"	39.0 kW Nondirectional	168
First Adjacent Channel Stations	221A	WDER-FM, Peterborough, NH License BLH-20010828AAS	N 42° 51' 41" W 71° 52' 45"	0.17 kW Nondirectional	423
	223B	WXRV(FM), Andover, MA License BLH-20061121ACI	N 42° 46' 23" W 71° 06' 01"	25.0 kW Nondirectional	217

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Interference Considerations

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 and Third Adjacent Channel Stations	219A	WJWT(FM), Gardner, MA License BLED-20060623ABM	N 42° 33' 29" W 72° 03' 06"	0.85 kW Directional	84
	224A	WKVT-FM, Brattleboro, VT License BMLH-19900627KB	N 42° 53' 45" W 72° 39' 49"	1.8 kW Nondirectional	186
Intermediate Frequency Station	276D	W276CB, Keene, NH License BLFT-20140416AAD	N 42° 55' 50" W 72° 18' 00"	0.25 kW Nondirectional	-----

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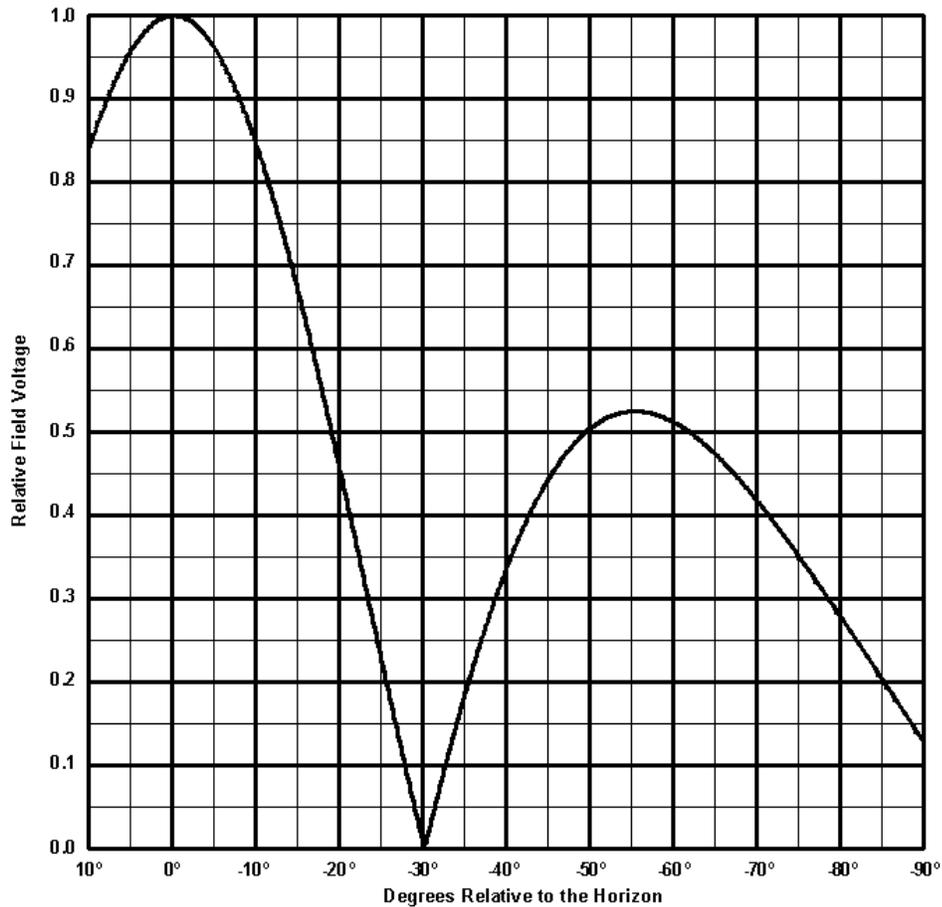
FIGURE 1

FM Translator Antenna  
Vertical Plane Radiation Pattern

**ERI<sup>®</sup> Vertical Plane Relative Field Pattern**

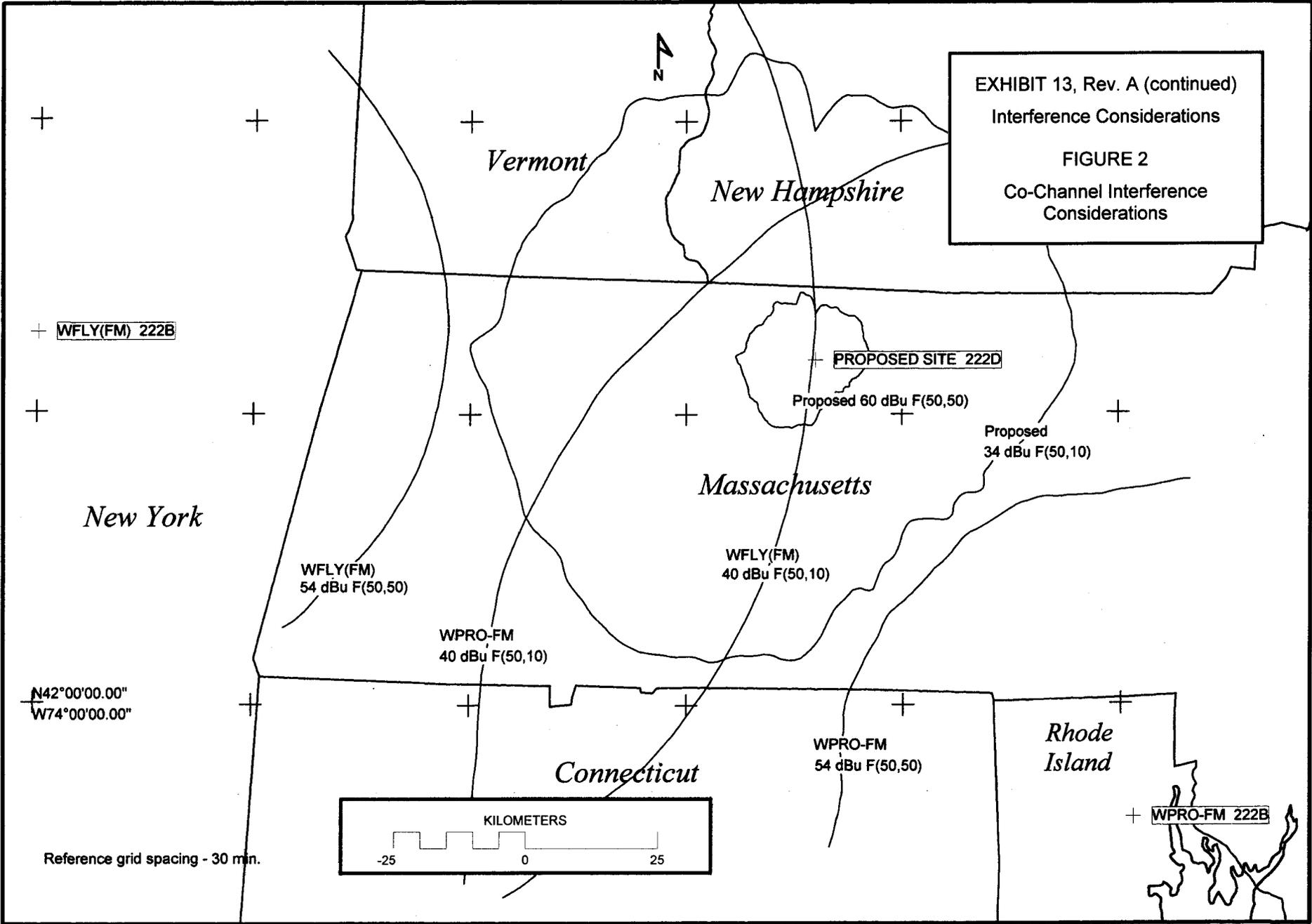
**ERI TYPE SHP, SHPX, MP, MPX, LP OR LPX ELEMENTS**

*A 2 level, 1 wave-length spaced non directional antenna  
with 0° beam tilt, 0% null fill and a H/V maximum power ratio of 1.000*



<b>Vertical Polarization Gain:</b> Maximum: 0.997 (-0.013 dB) Horizontal Plane: 0.997 (-0.013 dB)
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<b>Horizontal Polarization Gain:</b> Maximum: 0.997 (-0.013 dB) Horizontal Plane: 0.997 (-0.013 dB)
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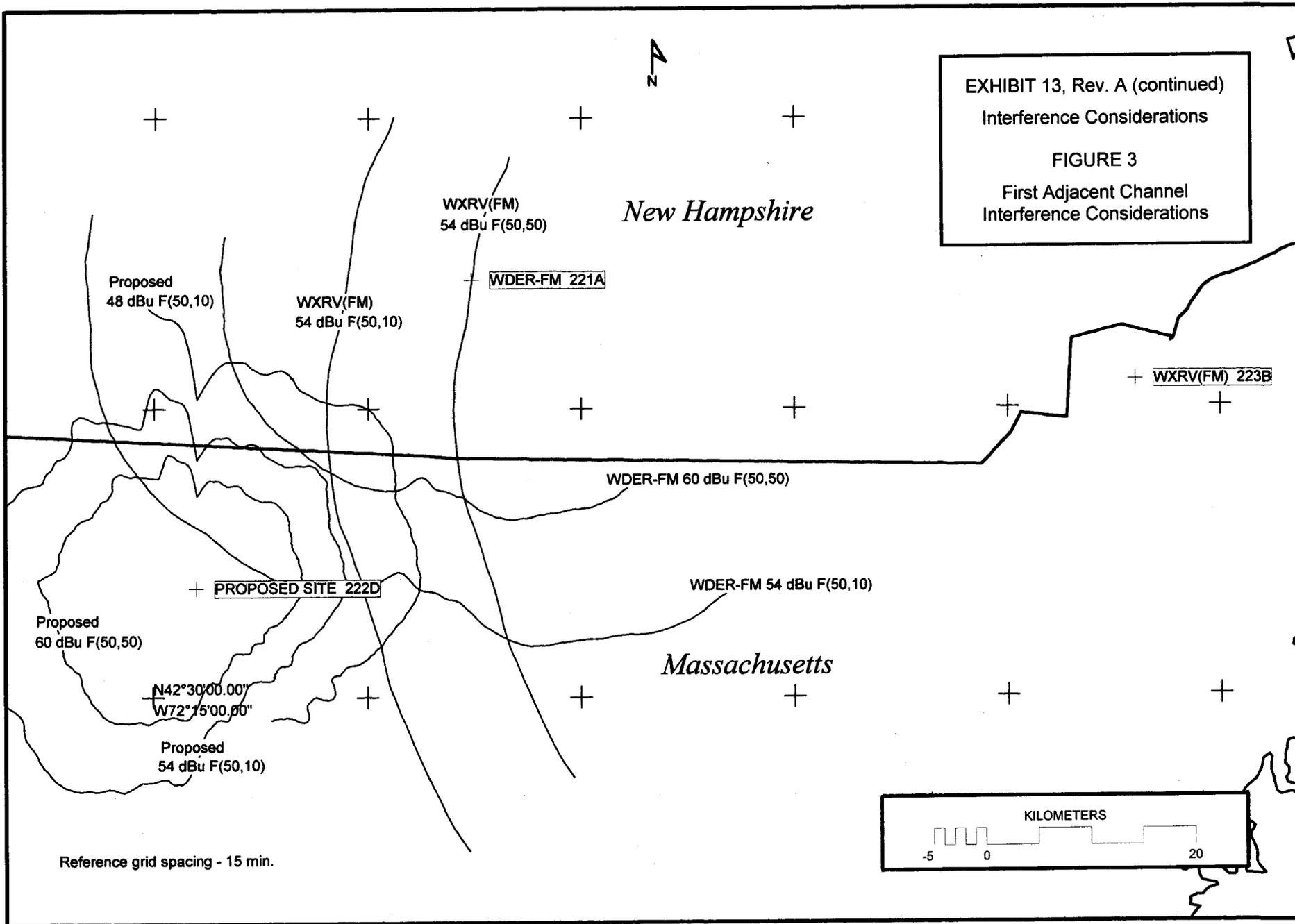
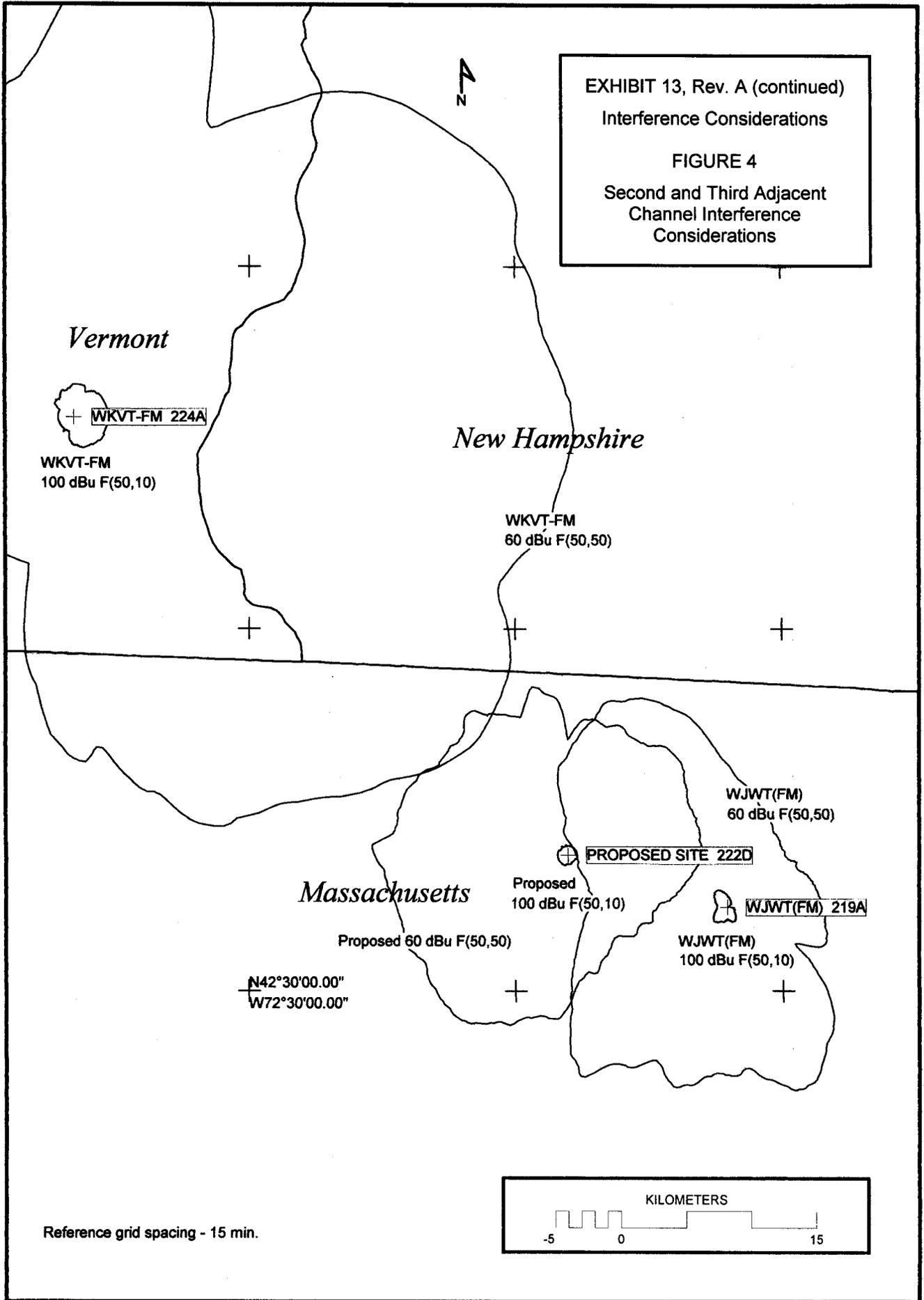


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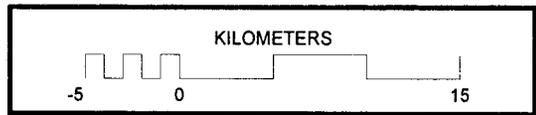
Interference Considerations

FIGURE 4

Second and Third Adjacent  
Channel Interference  
Considerations



Reference grid spacing - 15 min.



10ND, N. H. 18 KM  
VILLE 0.3 KM

12' 30"

730

731

732

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FIGURE 5

Third Adjacent Channel  
Interference Considerations

