

Mars Hill Broadcasting Co. Inc.
FM Translator W300DG, Facility ID 150710
September 2022 Application for Minor Change Construction Permit

ENGINEERING EXHIBIT

The application requests a minor modification of FM Translator W300DG to change antenna location, antenna elevation, and antenna type. The proposed site is presently in use by FM Translator W270BX, also licensed to Mars Hill Broadcasting. A contingent application proposes relocation of W270BX to the Pinnacle Hill antenna farm, allowing W300DG to use an existing Bext TFC-2K broadband antenna and continue to provide service to Greece, NY. W300DG will continue to rebroadcast WMHN(FM) as a non-fill-in facility via direct off-air reception.

Figure 1 shows that the proposed W300DG 60 dBu coverage contour overlaps that of the presently-licensed facility, based on FCC 30-second terrain data. The area of overlap with the proposed W270BX 60 dBu contour is 14.2 km², which comprises only 15.8 percent of the total coverage area of 89.6 km² proposed for W300DG.

Figure 2 shows that all co-channel and adjacent-channel stations will be protected against prohibited contour overlap.

Figure 3 provides additional detail showing full protection of W298CH.

The proposed W300DG facility operating at 27 watts in both horizontal and vertical polarizations will employ a single bay antenna centered at 23 meters above ground level, mounted on an existing unregistered tower. Based on FCC "FM Model" calculations assuming an EPA Type 1 antenna, the maximum radiofrequency power density attributable to W300DG will not exceed 2.5 $\mu\text{W}/\text{cm}^2$ at two meters above ground level, as shown in **Figure 4**. Applicant will reduce power or cease operation of W300DG as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

Figure 1 -- Proposed Coverage Contour

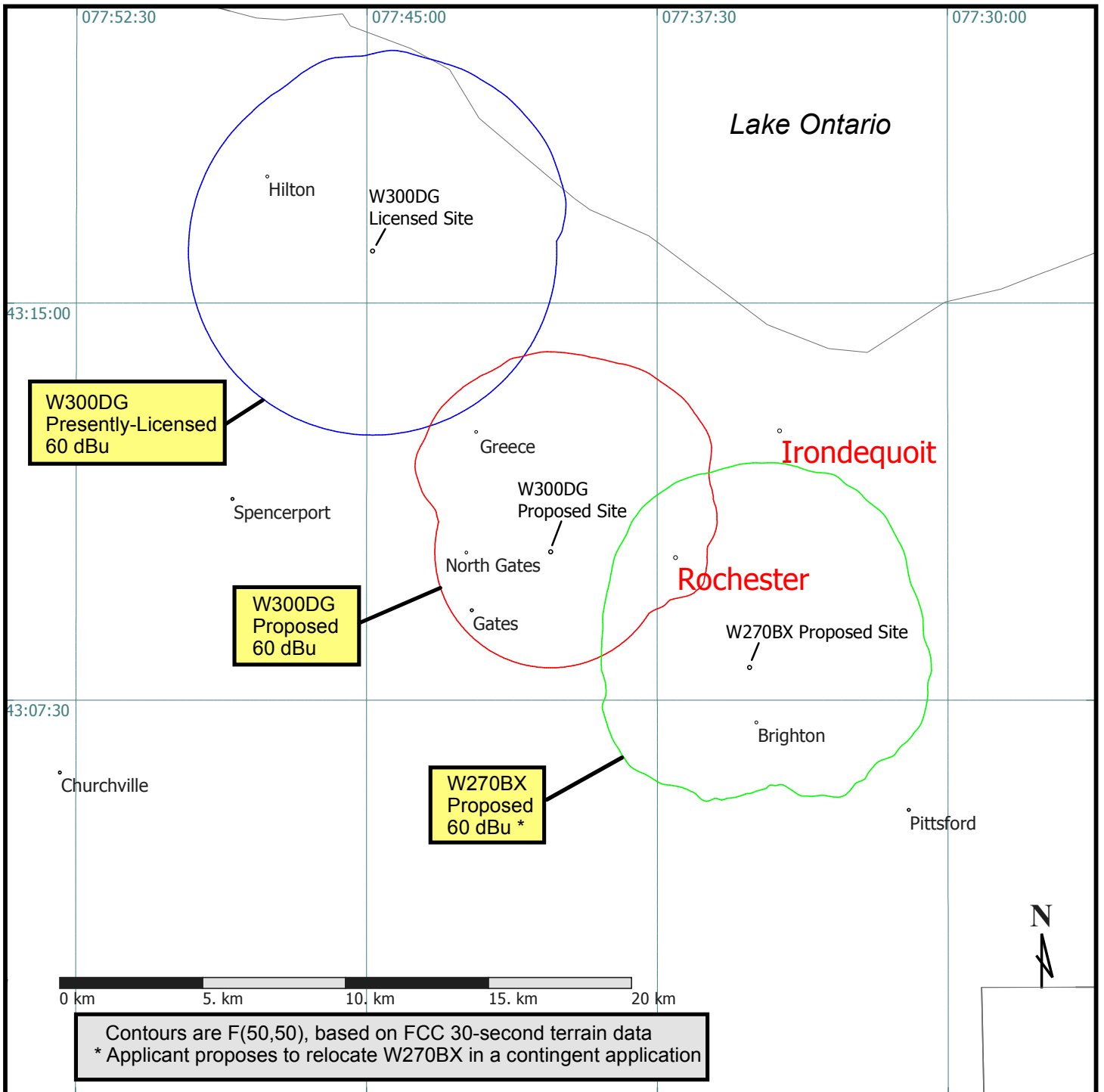


Figure 2
Proposed Contour Protection

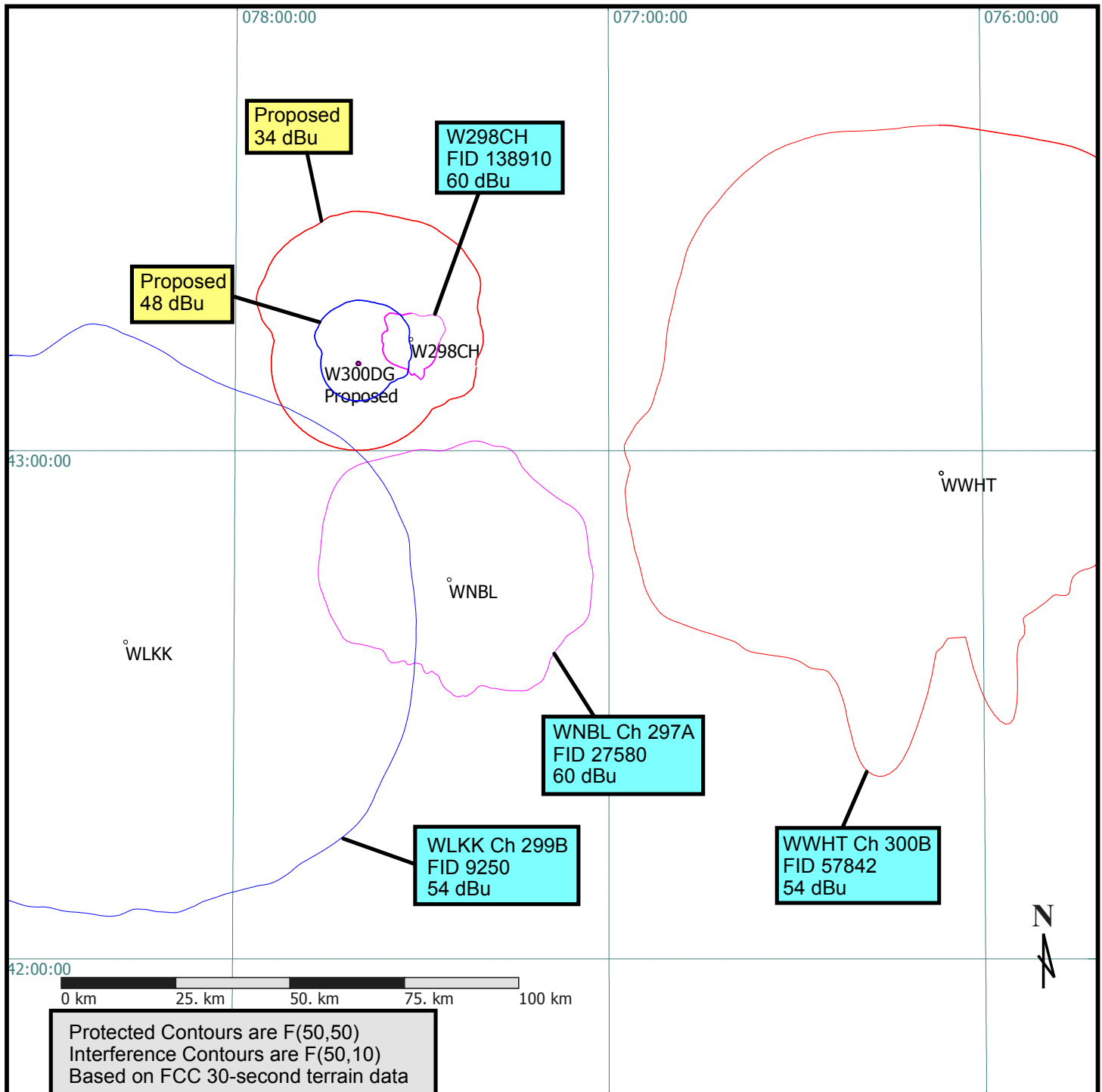


Figure 3
Detail of W298CH Contour Protection

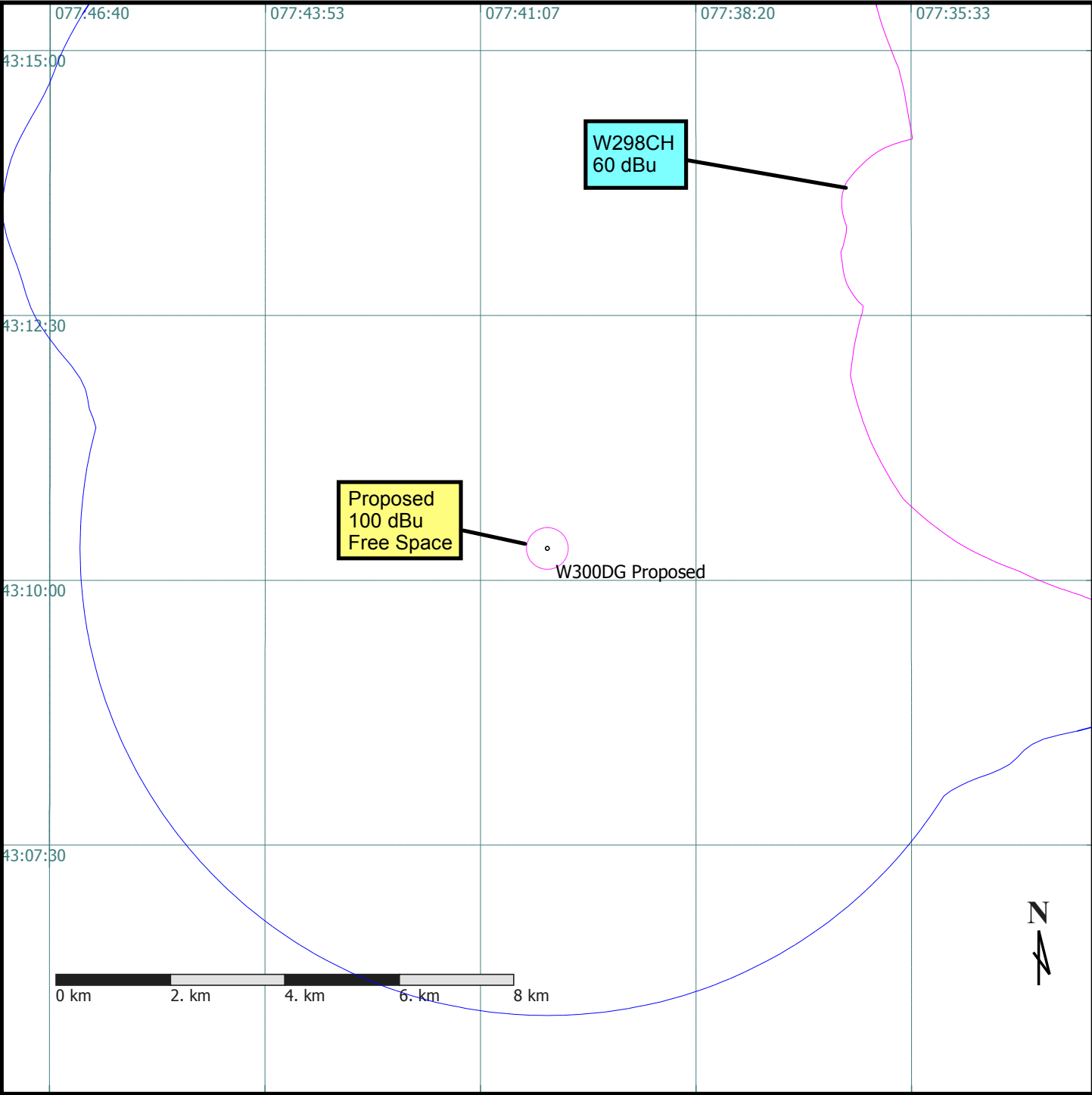
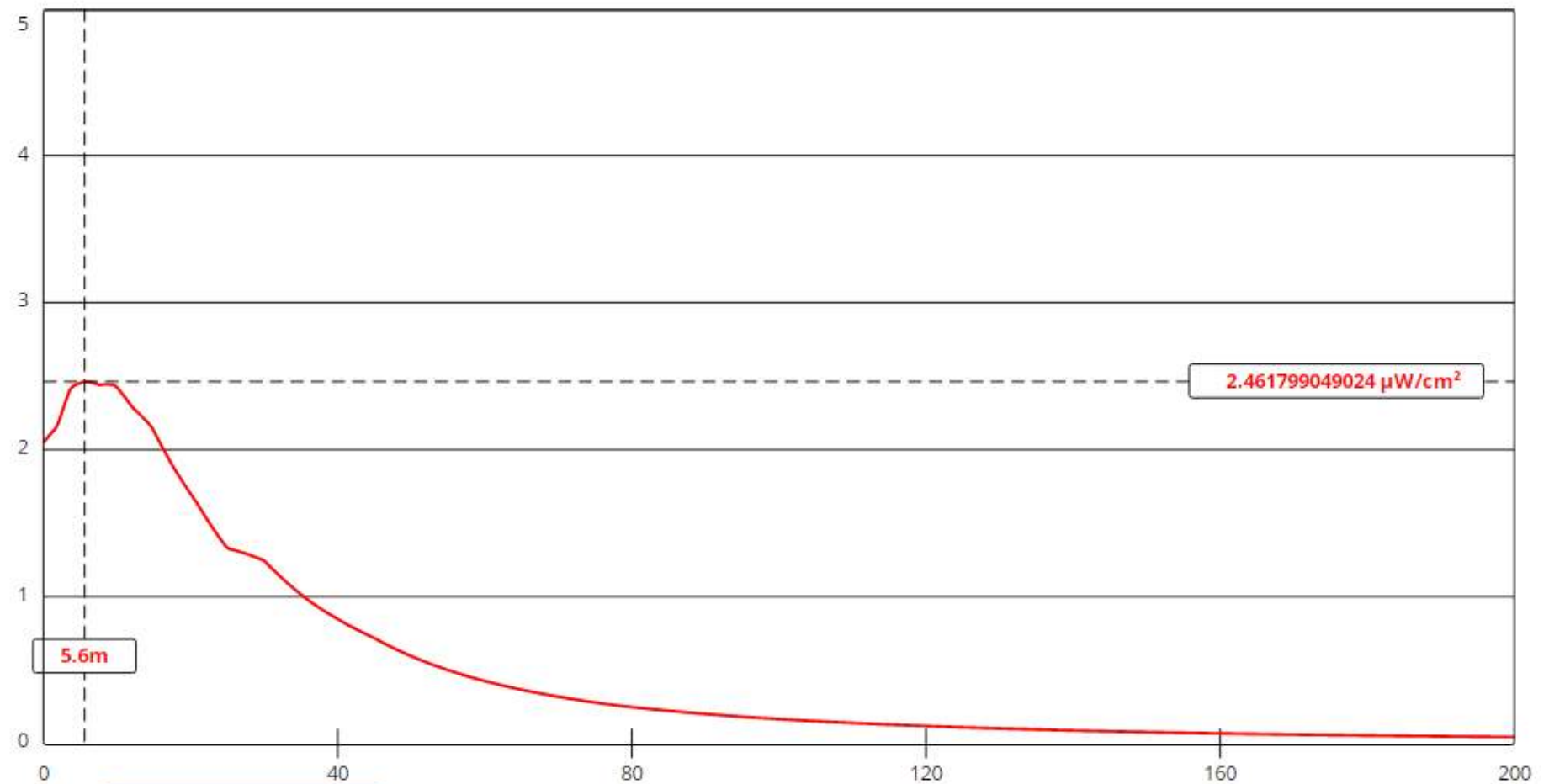


Figure 4 -- "FM Model" Power Density Plot



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Channel Selection	Channel 300 (107.9 MHz) ▼		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▼		
Height (m)	<input type="text" value="23"/>	Distance (m)	<input type="text" value="200"/>
ERP-H (W)	<input type="text" value="27"/>	ERP-V (W)	<input type="text" value="27"/>
Num of Elements	<input type="text" value="1"/>	λ	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	<input type="button" value="Apply"/>	