

**Second Adjacent Channel Interference Waiver Request**

**Salisbury Community TV and Media Center**

**Application for Minor Modification**

**WXBj-LP, FCC Facility ID #195189 (Silent)**

**94.1 MHz, Channel 231L1**

**Salisbury, MA**

The proposed site is within the 54 dBu f(50,50) protected contour of full-service FM station WEEI-FM, Lawrence, MA, FCC Facility ID # 1919.

The f(50,50) field strength of WEEI-FM at the proposed site is 67.27 dBu, making the free-space interfering signal level 107.27 dBu.

For the purposes of this Waiver Request, we will assume that the maximum ERP will be 100 W.

The proposed antenna would be mounted on an existing water tank.

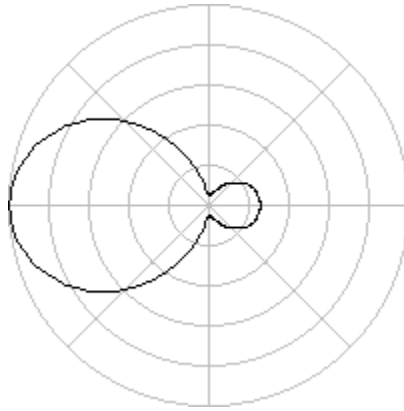
The site elevation is 1.1 m Above Mean Sea Level (AMSL).

The overall height of the structure is 55.8 m Above Ground Level (AGL).

The antenna Radiation Center (RC) will be at 50.6 m AGL, or 51.7 m AMSL.

The proposed antenna is a Kathrein/Scala CA2-FM, oriented so that the main lobe will be at 270° true and the minor lobe will be at 090° true.

The pattern looks like this:



The relative field of the minor (eastern) lobe is 0.26. Assuming 100 W in the main lobe, the ERP in the minor lobe is 6.76 W ( $100 \text{ W} * 0.26^2$ ).

The following Google Earth image shows the full extent of the 107.27 dBu free-space signal:



The 107.27 dBu free-space contour is depicted as a red polygon.

It should be noted that this representation is at the antenna center of 50.6 m AGL, not at ground level.

In the main lobe to the west, there are no roads or buildings of any type.

In the minor lobe to the east, there are two structures:



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A Google Earth Street View image shows the two buildings with the water tank behind:



These are clearly residences that must be protected from interference.

This angled view shows the residences in more detail<sup>1</sup>:



The multifamily residence close to the water tank is a four-story building. The top floor is about 24' (7m) AGL, and the roof is about 34' (9m) AGL.

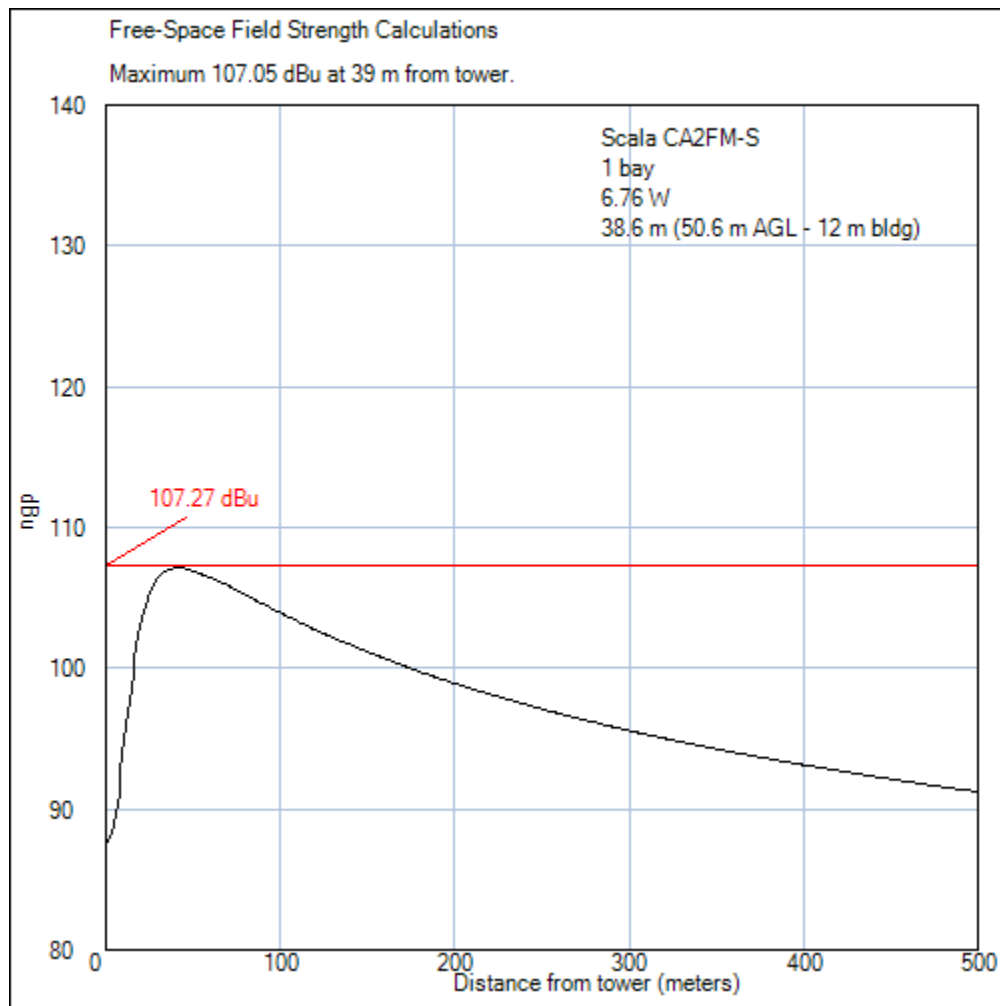
The single-family residence in the foreground is clearly less than the 34' (9m) height of the multifamily residence.

For the second-adjacent interference study, we shall assume a minimum height requirement for the interfering signal of 12 m, which will clear the tops of both structures with a comfortable margin.

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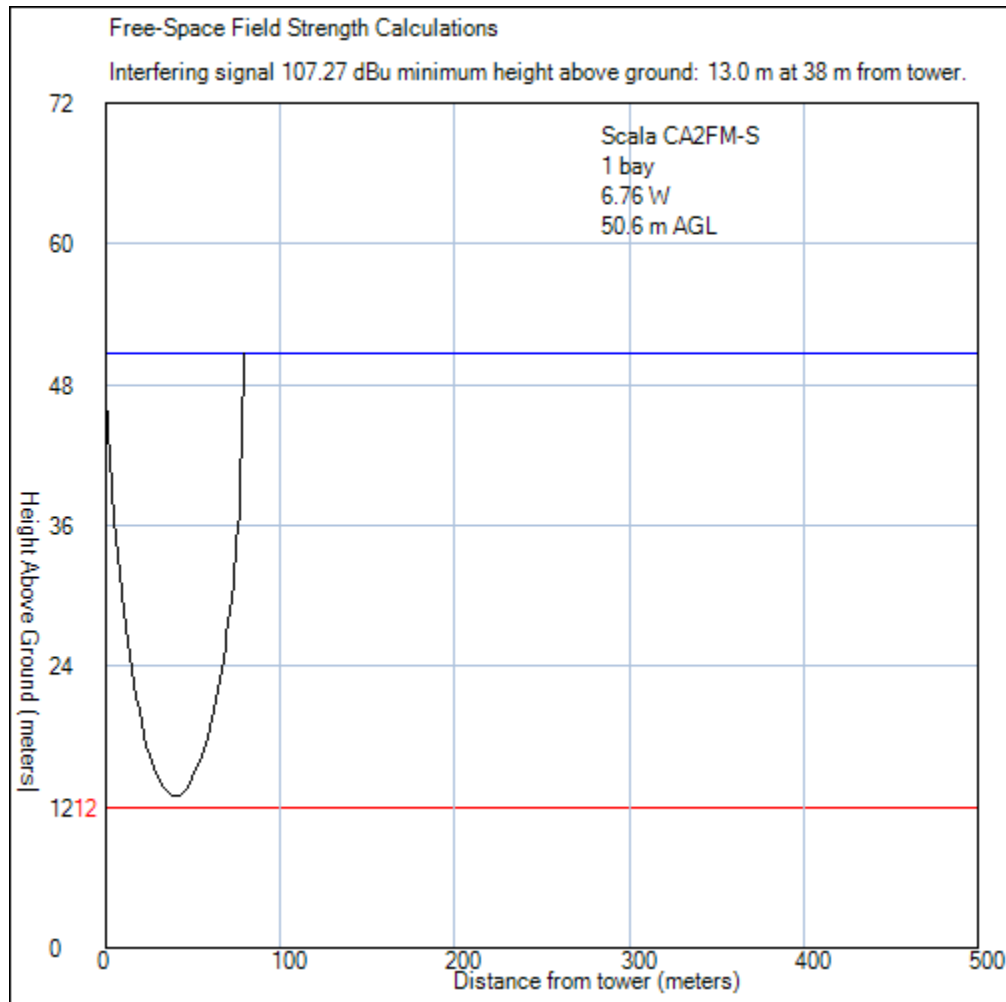
<sup>1</sup> It appears that the water tank is leaning. In fact, it is not. This aberration is due to the angle at which the photo was taken and the properties of the lens used.

This plot shows the interfering signal strength at 12 m AGL:



The maximum signal of 107.05 is 0.22 dB below the allowable limit at the conservative 12 m AGL.

Here is another view, showing that the interfering signal falls at least 13 m AGL:



The above plots are based on the maximum ERP of 100 W for an LPFM station, not on the actual maximum ERP, which will be lower due to the antenna height.

It is therefore respectfully submitted that the proposal satisfies the requirements for a second-adjacent channel interference waiver.

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