

FCC Form 349 - Exhibit No. 12C  
Facility ID 73057  
Request Waiver of IF Spacing Rules

### **Prohibited IF Spacing**

The proposed facility change (FM translator on Channel 217) in this instant application requests 250 Watts ERP and is spaced 27 km from WDEZ 270C (Facility ID 70522) in Wausau, WI. That is in conflict with 47CFR73.207(b)(1) which requires 29 km spacing.

### **Background**

FM Translators have numerous levels of Maximum ERP (MERP) power limitations based upon the twelve radial Height Above Average Terrain (HAAT). For FM translator stations east of the Mississippi River or in Zone I-A there are ten “MERP-classes” of translators. For those in other areas there are eighteen translator “MERP-classes.” Translators providing fill-in service are limited to 250 Watts or less, notwithstanding interference contour overlap.<sup>1</sup>

Intermediate Frequency (IF) Spacing requirements for FM translators with less than 100 Watts are treated as Class D. That results in no IF Separation requirement for FM translators with less than 100 Watts ERP. However, it also requires translators with more than 100 Watts ERP to be treated the same as Class A stations.<sup>2</sup> That protection is for a station class equivalent to at least 24 times the ERP authorized for FM translators.

Since the FCC established specific IF separation distance requirements in 1965, it delayed relaxation of those tighter IF Separation requirements. When the FCC adopted MM Docket 80-90, Note 2 of Table I stated in part, concerning IF Separation, “Classes B1 and C1 will abide by the requirement of classes B and C, respectively, in these instances.”<sup>3</sup> Therefore, even if a station operated at full power for its class, the lower-powered sub-classes had to protect IF separations as though they were operating with full power and height for the higher full-class.

Twenty-two years later, when MM Docket 86-144 created class C2, it changed the tables to allow less IF Separation for all the sub-class stations, both new and old.

*“Our purpose in proposing the reduced separation distances for Class B1, C1 and C2 stations was simply to adjust the rules to provide*

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<sup>1</sup> 47CFR74.1235

<sup>2</sup> 47CFR74.1204(g)

<sup>3</sup> FCC 80-108 (78 FCC Rcd 2d) page 1246.

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*approximately the same standard for these new classes as has existed for Class A, B and C stations since 1965.”<sup>4</sup>*

In that proceeding, the FCC established its determination for the IF separation spacing table as that of preventing “the overlap of the 30 mV/m field strength contours”<sup>5</sup> (equivalent to 89.5 dBu). The FCC showed reluctance to adopt actual use of contours as the standard for IF separation therefore used a table of station spacing based upon those contours for the maximum reference power and elevation instead of adopting a contour method using actual ERP and EAH.

In 1987 the Commission acknowledged that the lack of complaints indicated IF-Spacing standards had been overly restrictive.

*“...we believe that we should not hold indefinitely these classes to a stricter standard than the one that has produced no complaints over a period of 22 years”<sup>6</sup>*

The Commission also expressed its expectations for future significant relaxation of these IF Separation limitations.

*“Furthermore, we believe a more complete and comprehensive record would allow us to determine an appropriate standard that would result in reduction of IF separation for all station classes. We are encouraged by evidence in the record that a substantial number of contemporary receivers exhibit a high immunity to IF interference, and would permit a significant relaxation in the required separations. Accordingly, we plan to issue a Further Notice of Proposed Rule Making in the proceeding looking toward such a relaxation.”<sup>7</sup>*

However, there has been yet another 22 years without any such additional relief.

### **Circumstances of the Proposed Facility Change**

**Figure 1** displays the sites for WDEZ and W217BU. A blue circle indicates a 29 km radius of WDEZ for the required IF spacing defined by 47CFR73.207(b)(1). That requirement was based upon preventing an overlap of the 30 mV contour of a full-power and full-height Class-C station with the 30 mV contour of a full-power and full-height Class-A station.

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<sup>4</sup> FCC 87-295 (2 FCC Rcd Vol. 19) par. 28, page 5696.

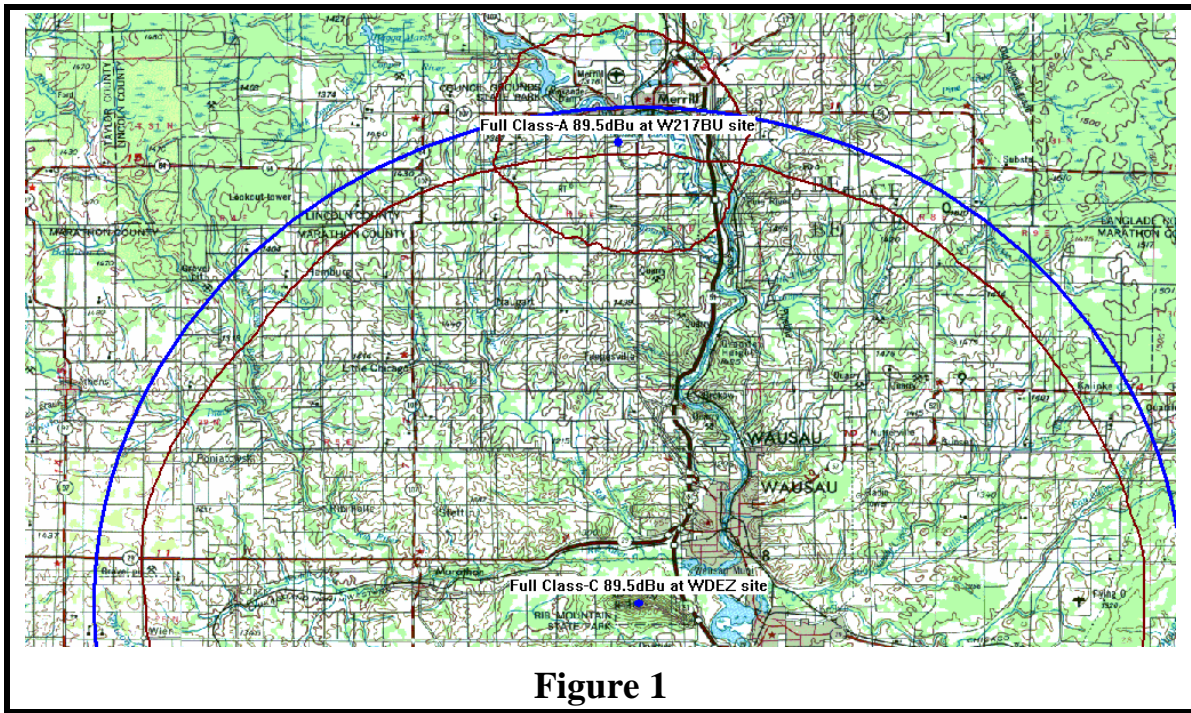
<sup>5</sup> par. 23, page 5695.

<sup>6</sup> par 29, page 5696

<sup>7</sup>; par. 29, page 5696

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Therefore the stations are spaced 2.0 km closer than the basis allowed by the tables for a Class C and Class A station for IF spacing. The 89.5 dBu F[50,50] contours are shown in **Figure 1** using full power and full height for a Class C facility at the WDEZ site and using full power and full height for a Class A facility at the W217BU site.



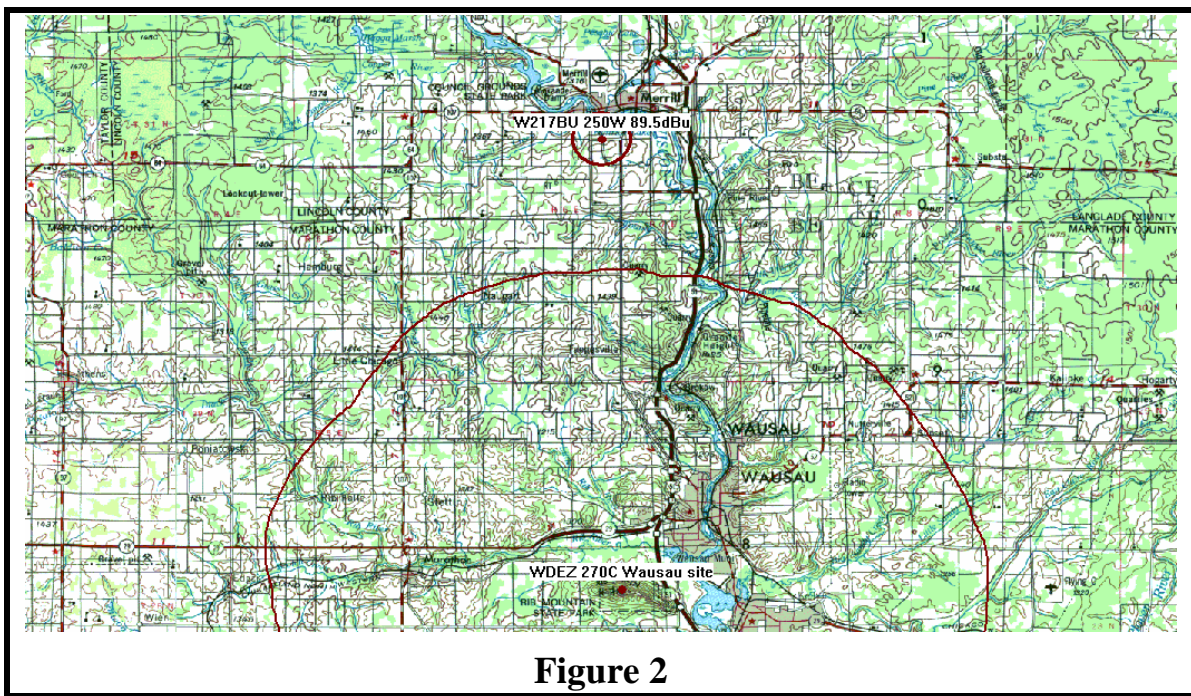
The WDEZ 89.5dBu F[50,50] contour for the actual facility is 19.1 km and the proposed 89.5dBu F[50,50] contour is 1.6 km. Those contours, displayed in **Figure 2**, do not overlap since the translator is spaced 27 km from WDEZ, which is 6.3 km more than the 20.7 km distance for the contours to meet.

When the Commission created the IF-Spacing rules in its current form it planned to make “*significant relaxation in the required separations*” because “*substantial number of contemporary receivers exhibit a high immunity to IF interference*” some 22 years ago. It seems likely that continuing technological improvements have may have improved that condition, which might reduce objections raised decades ago. Therefore, we believe that further significant relaxation is overdue for consideration.

During the intervening 22 years a large percentage of FM stations have upgraded their facilities to maximum height and ERP (or the equivalent by over-height stations) for the station’s class. Even if the record does not have more recent information at this time on receiver rejection to IF-Spacing

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interference, it should be recognized that there has been no proliferation of complaints for such IF interference. If the standards were very close to a critical threshold, it would be reasonable that complaints of IF interference would have increased as so many more stations operate at class maximum for many more classes of stations. When there are interference complaints, recent availability of improved instrumentation allows station engineers to more easily discern the cause and identify IF-interference as such. We believe such a lack of new IF-spacing complaints is evidence that IF-Separation protection standards are overly restrictive.



**Figure 2**

Full-service FM Stations operating on non-reserved channels have special protection for their station class due to the 73.207 minimum separation rules; stations that do not have 73.213 or 73.215 status are required to protect allotments for full facility operation even when such stations are licensed for lesser parameters.

Reserved-channel stations use contour protection instead of allocation tables for co-channel and first through third adjacent channel spacing. A higher percentage NCE-FM stations operate with facilities significantly less than maximum power and height for the class when compared to FM stations operating on non-reserved channels.



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Similarly, there are many “MERP classes” at which FM translators operate which require IF Spacing with standards as though they were operating with facilities magnitudes larger.

When FM translators must provide IF-Spacing protection to full-service NCE-FM stations, then the disparity is even greater with both stations operating with significantly lower parameters than the basis upon which the IF-Separation tables were established.

We see no good reason to require FM translators to provide more IF-Spacing protection than necessary. The waiver request for this instant application seeks to use the contour method which was originally used as the basis for developing the current IF-Separation table but by using the specific facility conditions instead of maximum-class parameters for Class A stations.

Contour protection is a common practice for FM Translators to provide co-channel and first through third adjacent channel protection. Second and third-adjacent-channel waivers are routinely granted by the FCC for FM translators. We estimate that it should be comparatively less burdensome to the Commission for an FM Translator applicant to elect use of the 89.5 dBu F[50,50] contour overlap as an alternative protection for translator IF Separation.

Although this instant application does propose a specific antenna for an adjacent-channel waiver request, the IF-Channel contour protection proposed by this waiver request is not based upon any specific antenna. The contours for this requested waiver of IF-spacing rules assume no reduction of signal by using any special antennas.

### **Waiver Request**

The applicant hereby requests a waiver of 47CFR74.1204 and 47CFR73.207(b)(1) plus any other rules, policy or provision required to allow the proposed station facility change relating to IF spacing requirements by allowing the use of 89.5dBu F[50,50] contour spacing.