



# WHEELER BROADCAST CONSULTING

## ***Comments and Counterproposal***

FCC 18-60

MB Docket 18-119

I applaud the Commission's efforts to clarify and streamline the Rules surrounding FM translators. With the proliferation of translators it is somewhat amazing that there has been a generally peaceful coexistence between new translator stations and full service broadcasters. With the recently closed AM improvement windows where some applications are still being processed and many of the stations, while having a granted construction permit, have not yet constructed the facilities that have been granted I fear that the interference problem is going to grow exponentially and do so rapidly.

By way of background I am the principal of Wheeler Broadcast Consulting and I have prepared hundreds of applications that have been filed with and granted by the Commission. Of those applications many have been for FM translators either as a part of non commercial, educational, network expansions or, more recently, as fill in translators for AM stations. I also work with or have worked with many licensees of full service AM and FM radio stations. As such, I have experience on both sides of the translator interference fence. Some of my full service FM licensee clients have suffered from interference from translators and I believe two of the translator applications that I have prepared that were subsequently granted later had their grants rescinded due to interference complaints.

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The current system, from a consultants perspective, is a minefield. The interference standards established in 47 CFR 74.1204(a) are predictable and repeatable by using the curves or digital representations of the curves in 47 CFR 73.333 figures 1 and 1a. Distances to relevant contours can be precisely predicted and plotted to assure compliance with 47 CFR 74.1204(a).

The precision with which the consulting community can operate within, however, completely falls apart when 47 CFR 74.1204(f) is applied to a proposed translator station which is the underlying reason for this Rulemaking proceeding. Speaking for myself with certainty and more generally about my fellow consultants we, for the most part, strive to engineer translator stations that can provide good service for our clients while not causing damage to other full service broadcasters. Experience and common sense tells us that if we propose a translator that has a co-channel or first adjacent channel interfering contour that abuts a full service station's protected contour there is a high likelihood that the translator will be the subject of complaints and that the translator station has a high likelihood of being forced off the air even though that station would be perfectly acceptable under the rest of the provisions of 47 CFR 74.1204. Given the tiered approach to opening the AM Improvement windows, however, the demand for spectrum has increased while the supply of suitable channels has been decreased by applicants who applied for a translator in the preceding window(s). As such, stations are being proposed that push the interference standards set forth in 74.1204(a) to their limits. In larger markets the channels that coexisted with the full service stations without problems are largely gone which forces the more recent applications to specify facilities that are more likely to have interference issues.

FM translators have historically been limited by the power and HAAT restrictions of 47 CFR 74.1235. As such, their coverage areas were relatively small and the resultant interference to full service stations, even beyond their protected contour, was also relatively small. Given that the cross service, AM on FM, and HD translators are "Fill In" as set forth in 47 CFR 74.1235(b) the MERP height restrictions of that section do not apply and there are FM translators that, even with 0.250 kW ERP, have 60 dBu F(50,50) contours that actually exceed the 28 km associated with a model Class A FM radio station. These fill in translator stations would be considered a Class C3 station if they were authorized under part 73 rather than part 74. With the increased coverage area there is a much larger area of potential interference to an otherwise regularly used full service FM signal.

Interference to full service broadcasters is real. The protected contour of a radio station is not a brick wall and most stations, particularly outside of populous regions, provide regular service to listeners that live, work, or travel through areas that are beyond that station's protected contour. In early 2017 I had a client with a Class C0 facility in a metropolitan area that experienced a catastrophic burnout in their transmission line to the main antenna.



Fortunately they had a licensed auxiliary antenna and they were able to restore acceptable service to the bulk of the metropolitan area quickly. During the roughly 60 days that it took to schedule tower crews and refurbish and replace the transmission line the station received numerous comments or complaints on the feedback portion of their webpage from listeners that could no longer receive the radio station. As it turns out most of the people that commented or complained were actually in an area that was beyond that station's full power predicted 60 dBu contour. They were not complaining about interference from a translator but rather the lack of a usable signal however that experience conclusively demonstrated to me that there are many listeners beyond that radio station's protected contour.

In another case I have a client that has an underdeveloped Class C1 radio station that routinely provides service beyond its predicted 60 dBu contour. Although underdeveloped, the station is fully spaced under the provisions of 47 CFR 73.207 and does not operate under the provisions of 47 CFR 73.215. As such, the radio station is "protected" from interference by a full service radio station to a model Class C1 facility (100 kW at 299m HAAT). Absent other interference<sup>1</sup> from a full service broadcaster, in the case of that radio station, there were communities beyond the 60 dBu where they provided real community service and community involvement such as reading the local obituaries and providing hourly commodity prices at that community's local grain elevator. Service to that community and its surrounding area was wiped out, however, by a co-channel translator in a large urban area on the other side of that community. The affected station collected complaint letters and filed an objection with the Commission seeking relief however the translator continues to exist and continues to take away service to that community.<sup>2</sup> In this case the interference from the co-channel translator is both real and harmful.

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1 Interference in this context is the ratio of desired signal to undesired signal. Absent any interference, my NAD consumer model stereo receiver claims a usable signal sensitivity of 15 dBu. While this is an unrealistic expectation in the real world it highlights the capabilities of a modern FM receiver.

2 The specific case referenced may indeed be part of a continuing proceeding and, as such, it will remain non specific as to the parties involved.

As acknowledged by this Rulemaking there is a great deal of room for abuse of the process however that abuse occurs on both sides. There are both serial offenders and serial complainers. As a consultant, the serial complainers are quickly identified and, as a service to my clients, a proposal that might draw a complaint from one or more of their stations is avoided. In the case of the serial complainers a numeric minimum of complaints will make no difference. Six or sixty, the serial complainers will come up with the requisite number of letters. The serial offenders, such as licensees that propose a co-channel translator licensed to the same city as a LPFM, will try to discount and discredit the the complaint letters with silly things like the source of the complaint letter being a Facebook Friend with someone who is employed at the radio station. I do not exist in the world of Facebook and, as such, I have no idea how extended networks of Facebook Friends work but radio advertising sales is a very relationship based endeavor. If a letter comes from an advertiser who happens to be a Facebook Friend with the station sales manager it should not discount or discredit the validity of the complaint.

The point of all of this is that radio stations have listeners in areas beyond the station's normally protected contour and that interference by a translator can be real and it should not be automatically rejected based on other relationships. Any action by the Commission, however, needs to be a bright line and it needs to be predictable and quantifiable. A minimum number of complaint letters from the public fails that test. Interference to a popular, highly rated morning show will draw more complaints than will interference to a lesser rated program on another station even though they might have identically situated signals at the listener's location. The standards surrounding interference should not extend to programming or format considerations and must be established based purely on technical standards.

Having established that there can be and in some cases there is actual interference to regularly used signals I have at least some suggested remedies.

I am in complete agreement with the proposition that translator operators that are the subject of otherwise unresolvable interference be allowed to file a modification application that specifies the channel that would not normally be considered a "minor change" as proposed in Section III (A)(11) of the Rulemaking.



While this may in fact give relief to one full service at the expense of another the flexibility to relocate a translator beyond the normal plus or minus three channels would at least give the translator licensee an opportunity to operate in good faith and attempt to find a channel where they can harmoniously coexist with their full service counterparts. I would go a step further and simultaneously eliminate 2nd and 3rd adjacent spacing and interference requirements for translators. The processing of translator applications has evolved from a near uniform rejection of proposals that were located within the normally protected contour of a full service station to a ratio based showing that shows that the interference either never hits the ground or it covers no population. The current interpretation of those calculations go so far as to allow for scaling the radiated power based on the downward radiation characteristics of the proposed antenna. While these calculations are quite useful in an urban environment with nearby, higher powered, full service stations the calculations fall apart beyond large urban areas. In some cases I have had to select a channel for a client that has a higher chance of causing co-channel or first adjacent channel interference to another full service station because the proposed transmitter site is located within, but near near the edge, of a more distant 2nd or 3rd adjacent station's protected contour. In a hypothetical case where the proposed translator transmitter site is located at the 64 dBu contour of a full service Class A radio station that is 600 kHz removed from the proposed translator the corresponding interfering contour would be the 104 dBu F(50,10) contour. Using a free space calculation for a 0.250 kW ERP station the distance to the 104 dBu contour would be 700 meters which realistically cannot be scaled for downward radiation from the antenna. Even when trigonometry is used to account for the antenna height above ground level the resultant distance from the tower base to the outer limit of the interfering contour will typically extend beyond the property lines of the tower site and encompass one or two residences. Given the strict standards of acceptance at the application stage I reject those channels since they would require an unusual waiver. In my experience I have never, ever, had a full service station complain about a 2nd or 3rd adjacent translator. Even the serial complainers routinely ignore 2nd and 3rd adjacent stations. Accordingly, I propose that 74.1204(a) of the Commission's Rules be amended to completely eliminate the interfering signal levels associated with stations 400 kHz and 600 kHz removed from the proposed translator station. Opening 2nd and 3rd adjacent channels completely for use by translators can provide greater channel availability for displaced translators and can further help to keep them from being displaced in the first place.

As outlined above, I do not agree with the proposal in Section III (B) of the Proposed Rulemaking. A minimum number of letters continues to be an arbitrary standard and it is impossible to predict at the application stage. In some cases I have heard of, but not experienced, complaints come from full service broadcasters to a signal that is way, way beyond their normally protected contour. If the Commission wants to set a minimum predicted signal level threshold to eliminate complaints from full service station owner who is upset about interference to a 30 dBu or 40 dBu predicted signal then by all means establish a minimum signal level, below the normally protected station contour, beyond which interference complaints will be dismissed without consideration. What that number would be is itself a bit arbitrary but it would at least be an identifiable threshold. Based on my experience a typical car radio will routinely lock on a distant signal and provide generally interference free reception down to a predicted signal level of 54 dBu F(50,50) regardless of the class of the station. If a threshold of 6 dBu below the normally protected contour is established outside of which a complaint is discounted then it would at least provide a geographical boundary. The actual number (3 dBu, 6 dBu, 10 dBu) is less important than the establishment of a predictable and identifiable outer limit.

Short of completely amending the Rules to eliminate 47 CFR 74.1204(f) there really is no way to completely eliminate the ambiguity in that section of the Rules. The establishment of a reasonable outer limit might reduce the number of frivolous complaints and allow the Commission to focus on legitimate problems on an individual basis.

Although not addressed in this Rulemaking, I would propose that the Commission revisit the directional antenna requirements for translators. The Staff routinely grants applications that specify "Off the Shelf" directional antennas. These antennas are subject only to Construction Permit requirements that they be aimed at a specified azimuth with no other proof of performance requirements. With the small, HAAT limited, translators of the past this has not been a serious problem. With the much larger coverage areas associated with the Fill In translators the accuracy of the directional antenna pattern has become much more significant. The "Off the Shelf" patterns are established without regard to the effects of the supporting structure which can be significant. Most of the "Off the Shelf" antennas have front to back ratios that greatly exceed the 15 db maximum to minimum ratios and departure rates that greatly exceed the 2 dB per 10 degrees rate that are established in 47 CFR 73.316 (b)(1) and (b)(2) of the Rules.



There are no proof of performance requirements that include the effects of the supporting structure and other transmission lines and there are no surveyor requirements. There are many of these antennas that, while aimed in generally the correct azimuth, are mounted to the tower on standoffs or in such a way as to create a pattern, intentionally or unintentionally, that is greatly different than the laboratory pattern that was proposed. Those inaccurate patterns became the basis of the underlying engineering studies and renders the submitted data to be essentially useless for the purpose of predicting actual interference. Although properly engineered and proofed antennas come at a much higher cost than their off the shelf counterparts it is my belief that many instances of interference can be reduced or eliminated by employing directional antenna systems that have an actual pattern that matches the pattern used for the engineering studies. As such, I propose that the Commission amend its Rules, 74.1250(b), to bring translator transmit antenna system requirements into conformance with the existing rules set forth in 47 CFR 73.316 and establish construction permit conditions and restrictions that match the requirements associated with a directional antenna used on a full service FM radio station.

I wish the Commission luck with this. On its face this is a problem that is nearly impossible to fully resolve however it is my belief that things can be at least improved. On one side there are full service broadcasters that have invested millions, tens of millions, or even hundreds of millions of dollars in their signals and it is understandable that they desire to have not that investment degraded and devalued. On the other side there are, particularly in the scope of the AM improvement initiative, struggling AM owners that have an opportunity to offer better service or even a first time, fulltime service to their communities. I have amongst my clients several small AM broadcasters that have completely turned their operations around by adding a FM translator. The translator has been a complete game changer. To these small broadcasters the thousands of dollars invested in the translator represent a significant expenditure and the loss of that investment or, even worse, the loss of the translator signal combined with the cost of litigation could actually put them out of business.

Absent purely technical standards I fear there is no way to fully resolve the inherent conflicts between 47 CFR 74.1204(a) and 47 CFR 74.1204(f) of the Rules. Amending the Rules to allow for full flexibility on channel selection by a minor change application will obviously provide more flexibility for translator licensees to resolve complaints.

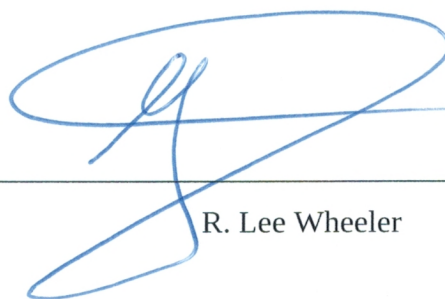
Nearly all current translator transmitters are frequency agile and in many cases with simple, non directional, antennas the translator licensees have employed broadband antennas that are suitable for use on any channel on the FM band. As such, a translator frequency change can be often be accomplished at little or even no cost. Completely eliminating 2nd and 3rd adjacent interference requirements, which have been all but eliminated by policy, will further open the spectrum to provide for a broader alternate channels that can operate in a less intrusive manner. By demanding that translators adhere to more precise directional antenna patterns at the application and construction phases I am confident that some measure of the actual interference can be reduced if not totally eliminated. By establishing a contour based minimum threshold for which a complaint will even be considered the Commission can further reduce the "noise" of frivolous filings.

While none of these proposed changes will by themselves eliminate interference to Full Service broadcasters by the licensee's of translators it can incrementally improve service for all concerned.

All information contained in these comments is true and accurate to the best of my belief. Having had numerous matters before the Commission, my qualifications are a matter of record.

5/17/2018

Date

A handwritten signature in blue ink, consisting of a large, stylized 'R' followed by a horizontal line and a vertical line that loops back down.

R. Lee Wheeler