

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)
Revitalization of the AM Radio Service) **MM Docket No. 13-249**
)

REPLY COMMENTS OF KYLE MAGRILL

A significant number of comments have been filed, some by very learned and esteemed members of the broadcasting and broadcast engineering communities. It is interesting to see how many views are similar and yet some views are quite contrary. It is clear that many have a heartfelt desire to improve the AM band. Everyone that commented on this venerable broadcast service should be applauded for their efforts.

The task of improving AM that the Commission has set for itself is daunting and has many pitfalls. With that in mind, the keyword very possibly should be “caution”. Some proposals that have been suggested have risks and before they are undertaken, additional study and comment may well be advisable. If AM is to survive and prosper, then the Commission has to get this right and an opportunity to re-evaluate things after a reasonable amount of time has passed should be planned.

In all of these comments, we must ask ourselves, “Is what we are currently doing working”? If it is, then perhaps we need to do more of it. If it is not working, then perhaps a change in direction is indicated.

A second question that must be put forth is: Do we want to improve AM or do we want to move AM? This question arises because some proposals involve moving AM to FM, either in the form of FM translators or in the form of relocation to the former TV 5 and TV 6 channels. Other proposals are more concerned with changes to the actual AM band or methods of broadcast/engineering standards. If the goal is to provide relief to AM broadcasters, then proposals seeking to supplement AM with FM or to move AM stations to the 76 to 88mHz band are valid. If the goal is to improve AM as a medium, then supplementing AM with FM is secondary and moving AM to the VHF band is out of the question.

Considering the fore mentioned thoughts, I offer reply comments on the following comments / topics:

I. Comments made regarding translators and their use by and for AM stations

AM only translator window

Although the statement has been made that an AM only filing window would not violate the so-called “Ashbacker” rights of other applicants, this should be discussed. If the Commission decides that Ashbacker is not violated by allowing a specific class of applicants to apply for FM translators, then the Commission should render a clear opinion as to why the proposed exclusive window would not violate this doctrine. In its most basic concept, opening a window for thousands of applicants while denying thousands of otherwise qualified applicants seems to be the very essence of what Ashbacker is supposed to avoid. If such a decision is made, it must be fully explained because the rationale may have implications in all future FCC proceedings in which Ashbacker plays a role. Shall the Commission proceed to select other disadvantaged or otherwise “worthy” individuals to participate in future private windows? If not, then why not? This has all the appearance of a “slippery slope” whereby Ashbacker can be suspended whenever it feels right to do so. An alternative might be to open a window that is limited to translators pledged to broadcast a particular type of station, such as AM, but let any qualified applicants participate in the window. I don’t know if this would fly under Ashbacker, but it seems more reasonable than the proposed solution.

Translators awarded in that window bound to AM stations.

Assuming there is to be a translator window for AM stations, then proposals to bind translators to AM stations ignore the fact that a large and unknown quantity of translators will be poor fits for the AM station. Some AM stations will be blessed with translators that are competent to cover most or all of their markets. Other AM stations may end up with 10 Watt, directional, pea shooters. The AM owner needs to have the flexibility to sell one or trade one in order to acquire another. There will be many situations where a micro-power translator in one community that barely covers any population can be moved to an adjacent community where it will have significant value. The AM station could sell the under-performing translator and buy another that is better suited to their community. Rather than bind a translator to an AM station for life, a reasonable holding period of 1 or 2 years would be sufficient to prevent trafficking while allowing flexibility for the AM owner to take advantage of market conditions to keep their AM station operating. An alternative would be to treat translators obtained in an AM only window as having obtained a bidding credit, thus requiring an affirmative answer to question 10 of form 345 (or equivalent) therefore requiring a 5 year holding period. Any sale of a translator within the holding period should be for distress reasons or as part of an agreement to buy/swap another translator to replace the sold property.

A secondary argument has been put forth that AM stations should be able to own no more than one (or two) FM translators. It is not clear if the language is intended to limit AM stations to actually owning only one translator or if it is intended to limit the number of translators that can be awarded during an AM-only filing window to a specific number. Limiting applications within a specific geographic area during a filing window may be reasonable, however restricting the number of translators that an AM station can own may put the AM station on a severely degraded footing compared to its local FM competitors. Indeed, it may be anti-competitive since FM stations have no such restriction. Because translators cannot exceed 250W, even one placed fairly high above a community will likely not cover an entire county, much less a market. As already mentioned, most translators will never be able to operate at 250W with tall antennas due to prohibited overlap issues. In order to serve a market, several translators will likely be necessary. Therefore, the FCC's existing rule prohibiting service contour overlap of translators carrying the same primary station is superior to any proposal limiting the number of translators that an AM station can actually own. However, it is reasonable to limit the number of translators that an AM station can be awarded in an AM only window to one or two, thus preserving the balance between helping the AM broadcaster and preserving the spectrum resource. In future translator windows, there will be opportunities for AM stations to again seek additional translators.

It should be noted that restricting the number of translators that an AM station can apply for might not be reasonable. Since there are already policies in place that prohibit duplication of carriage on translators that serve substantially the same area, there is already a control in place to prevent abuse. Instead of restricting the number of grants, the Commission may want to consider a priority order so that one station cannot receive a second grant if they are mutually exclusive with another applicant that does not already have a singleton. Presumably this would carry on to third and higher numbers of translators within a market.

Preference for AM daytime stations:

Some comments that support an AM only filing window further seek to restrict the opportunity to seek a translator to AM stations of lower power or those with poor or non-existent nighttime service. This argument belies the fact that *most* AM stations are struggling with declining listener numbers, regardless of the fulltime or daytime status. It should also be considered that many operators of fulltime AM stations have invested considerably more in their stations both in the original purchase price and in the directional antenna systems required by many. As a result, these fulltime stations frequently have higher costs to bear and are, therefore, in need of relief just as much as their daytime siblings. To award preference to daytimers or some "inferior" class of AM station denies the investment that has gone into full time operations and would potentially place the AM daytimer in a superior position to the fulltimer.

Matoon waivers:

In full power broadcasting, it is not necessary for a station to show any overlap of existing service contours with a proposed move. All that is required is a showing that the two locations are mutually exclusive to each other. In the translator service there is a different standard for some overlapping service, but there is no explanation as to why translators should be held to a stricter standard than any other broadcast service. Why are translators required to consistently serve some portion of their existing service area when full powered stations are not burdened by the same restrictions? It would make far more sense to formally adopt the Matoon process in addition to the contour overlap method as two ways to relocate translators. Each method has unique strengths and weaknesses and both should be permitted by rule.

Some comments have suggested that Matoon waivers should only be maintained where no suitable translator is available to an AM station. As in the case of binding AM stations and translators, reserving Matoon waivers only for AMs that have not found translators disregards the fact that most locations can still obtain new translators, but not very many *good* ones. Matoon Waivers will still be very much needed for many AM stations to get the coverage that they need in order to survive.

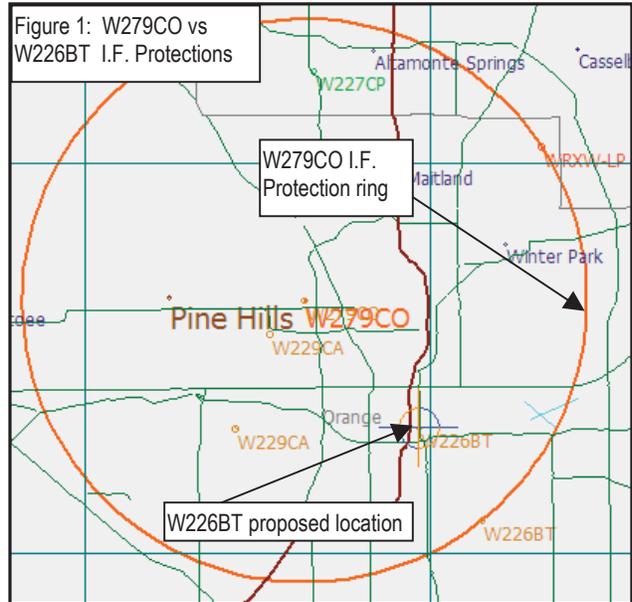
Because of prohibited overlap, a translator at a given location may suffer from very restricted coverage. That same translator, moved 15 or 20 miles, may still be well within the primary station's 2mV contour but may have significantly better coverage prospects or may cover the primary station's population better. In many cases, this would be impossible if Matoon were not available or if some analog to Matoon is not in place.

Other FM translator issues:

Because FM translators are now linked to AM and its revitalization efforts, any discussion must now also include issues that AM stations are finding about the use of their translators. While these may, or may not be beyond the scope of the Instant notice, they are important issues that confront all translators and should be examined either in this proceeding or in a new NPRM specifically to look at translator rules.

Comments of Martha Whitman regarding IF protection and Channel:

Ms Whitman is the licensee of an AM and translator combination near Albuquerque, NM. She proposes eliminating or modifying the Intermediate Frequency (I.F.) spacing requirements for translators operating at 100W or more. Currently, translators operating at 100+W are treated as if they were 6kW class A stations and are required to maintain a 10km buffer between themselves and other occupied I.F. channels, even when the occupying station on the I.F. channel is another translator. This is clearly not necessary. This situation is easy to find by simply looking through the CDBS for translators specifying a power level of 99W. Figure 1 is an example of this situation.



The translator, W226BT, is operated by AM station WRSO. The owner of the station, Carl Tutera, has also filed comments in this proceeding. This example illustrates one of the situations that Mr. Tutera faces. W226BT has an application to move to a more central location in the city, but is partially blocked by translator W279CO, operating on the I.F. channel. The WRSO translator, W226BT, must remain outside of the W279CO spacing ring if it wants to operate at 250W. Within the spacing ring, W226BT must reduce power to 99W. Unfortunately, the only tall structure that is centrally located is within the W279CO spacing ring, so W226BT has no choice but to accept operation at 99W.

Incidence of I.F. interference is very rare at low to moderate power levels. Further, new FM radio chipsets are moving away from 10.7mHz I.F. stages. Looking at the specs for most new chipsets, the FM I.F. is much lower than 10.7mHz, some being as low as a few hundred kHz. It is evident that 10.7mHz I.F. protections will become obsolete for all stations in the foreseeable future. For now, the immediate need is for relief from the burdensome I.F. protections for translators because these I.F. protections are already of no value.

Ms. Whitman's, and several other, comments also propose to freely move translators to any available channel, rather than adjacencies and I.F. frequencies. Since such a translator is vacating a channel at the same time that it moves to a different, non-adjacent channel, this concept may work under Ashbacker and should be allowed or, at least, explored further.

The 25 mile rule:

Most comments favor eliminating the 25 mile (40km) translator rule. At least one commenter favored removing the rule only to the extent that the 5mV contour if the AM station exceeds 25 miles. Based upon the comments, I cannot see a reason why 5mV should be preferred over 2mV. If the AM station's service contour is 2mV, why restrict their fill-in service to the city grade contour? Fill in translator policy has been to provide service within the service contour. Unless there is some compelling reason to change that policy or make an exception, then it makes sense to continue to follow this policy and continue to apply it to AM stations. In addition, the AM station should be permitted to fill in either the daytime or nighttime 2mV contour. There are cases where stations actually lose significant parts of their populations in the daytime due to directional protections of neighboring stations that are off the air after dark. So, at sunrise, the overnight listener actually loses the signal.

In my original comments on this subject, I also noted that many AM stations have deep nulls that prevent serving parts of their communities. These nulls often cause the 2mV contour to draw in very close to the AM transmitter site, preventing the AM station from using their own tower to support the translator. A simple change in the rules to permit translators to cover to the greater of their 2mV contour or 25 miles (40km) would eliminate this problem completely.

II. Comments made specifically about AM improvement**Reduce bandwidth to 6kHz and eliminate the NRSC curve:**

Here is one of the places that we must ask the question, "Is what we are currently doing helping"? We have already reduced the occupied bandwidth of AM stations to 10kHz in an effort to reduce interference to neighboring stations. This effort was largely brought about when receiver manufacturers stated that the reason for narrow IF receivers was due to adjacent channel interference. It was not put into place as a result of a huge outcry among broadcasters complaining of interference from their neighbors. Has reducing the bandwidth of AM helped at all? Are there better receivers than there were before? What will be gained by reducing the bandwidth? The main reason that I can see for reducing bandwidth is that stations may be afforded more power or less restrictive patterns if they produce less adjacent channel noise that affects their neighbors. Great caution must be used here.

Not enough study has been done on this subject to justify the risk, nor has the need been properly established. Let's be clear, there is a risk. AM already is a medium struggling with poor fidelity. While it is true that the majority (or maybe all) AM radios currently in production lack the frequency response to reproduce even 6kHz, we are at the cusp of a new generation of receiver chipsets. These chipsets can already do a

great deal of signal processing in DSP and we cannot even envision what will be possible in 10 years. Unless we can guarantee that no significant presence of DSP based or software defined radios in the next decade, then further narrowing of the transmitted bandwidth may be a bad idea. In addition to the risk, the incidence of reception issues resulting from 10kHz splatter is largely undefined and variable. Many markets suffer from little or no adjacent noise while some have more significant problems. This situation should be studied and quantified before making any decisions about occupied bandwidth. If the Commission should decide to accept a 6kHz bandwidth limit, it should accept waiver applications for 10kHz and 15kHz bandwidths from stations that can demonstrate that no harmful interference will result from their operation.

Finally on this point, we must remember that all digital systems for AM do require certain bandwidths to work. If we narrow the occupied spectrum more than it already is, then digital options may be eliminated, thus forcing AM to remain analog forever.

Allow no more AM stations.

There are two very different types of proposal on the table. One is to allow no more AM stations and the other is to allow only new digital AM stations. I would favor the concept of only allowing new digital services, with some modifications, as I will describe later.

The prevailing tide of sentiment is to not allow any more AM stations. It is a common, but largely unsupported, belief that too many AM stations are clogging the airwaves. There appear to be two forks of argument for eliminating future AM licensing. First is that AM stations already face too much competition. The second is that overcrowding of the spectrum results in mutual interference.

Is competition good or bad for the AM band? The question that must be asked is: Does what works best in the short term for some AM broadcasters truly the best result for the AM band in the long term?

It has been stated by many commenters that the AM band is mature and cannot support additional competition from sibling broadcasters. This is a very complex subject and the answers thus far suggested are much too simple.

First, it should be pointed out that the majority of AM stations now on the air have been on the air for many years, if not decades. At one time, when AM was a hot medium, most of these stations made money. This fact indicates that the AM band is not oversaturated and that competition from AM stations is not the cause of AM's troubles. If oversaturation were the culprit, then these stations would never have been successful businesses. It is true that AM suffers from competition, but it is not coming from within the band, but from without. AM broadcasters seek to limit competition within the band and by doing so preserve their slice of the revenue pie. They do so at great peril which is not obvious. The unforeseen peril is that as AM choices dwindle, the listener has less

reason to try the AM band. When I tune around the AM band on my receivers at home (a top 100 market), I can pick up no more than a half dozen stations, all of which are local. In my car, I can pick up more, but more distant stations, even those 40 to 50 miles away are already too weak to overcome the environmental noise. In all, I can reliably pick up no more than 10 stations in the daytime and fewer than five at night, not accounting for distant skywave signals. I can pick up at least 20 FM stations on a cheap home receiver and more than 35 FM stations in my car. As far as I can tell, the AM band has virtually no radio stations on it at all compared to the FM band. Far from being overcrowded, the AM band is a wasteland. I don't listen to it very often because there is not enough content there to pique my interest to even flip the band switch. A few years ago, on a visit to Atlanta I took out my Sangean SR-66 and tuned around the dial. I was shocked at how few stations could be heard compared to the FM band, even in a major city like Atlanta.

Although AM stations may briefly benefit from limiting competition, over the long haul, the perception of listeners that there is nothing to be heard on AM will continue to grow. The fewer the stations available, the less reason to listen. We live in a world where media is ubiquitous and we expect to hear an AM band vibrant with choices. When that isn't there, we tune out and switch to a medium with more flavors. If there were only one AM station in each city, would the potential audience even find the band interesting enough to seek out that station? I doubt it. Without enough diversity of programming to draw listeners, the AM band will continue to falter and eventually fail when there are finally too few choices to attract any listeners. While a temporary moratorium on new AM stations would be reasonable, I would urge great caution before closing the door on adding new AM stations in the future because this could do far more harm than good in the long term.

Modification of minimum interference standards and eliminating future AM licensing opportunities are contradictory.

The second fork of the rationale to ban new AM licenses is technical. The premise is that too many stations are limiting the ability of others to upgrade or move and that some stations are already causing interference to each other.

In the late 1980s and early 1990s, a number of AM improvement initiatives were undertaken by the Commission. The comments of the day echo in a ghostly familiar parallel with comments of today. Most comments supported narrowing the occupied spectrum to 10kHz, implementing the "Ratchet Rule" and tightening interference standards. These were all in response to the concern by some that AM stations were causing interference to each other and that the AM band was overcrowded. Blame was placed on the Commission for allowing too many AM stations to be on the air. Now, we are considering eliminating most of the improvements that were enacted, yet the claim is still loudly made that there are too many AM stations on the air.

I happen to agree that none of those improvements were especially useful to the AM band, but the major point of today is that we cannot eliminate these protections unless we admit that the perceived problem was not really what we thought it was and that we were, basically, wrong. Today, the majority of commenters seem to agree with the NPRM that interference standards need to be relaxed to allow existing AM stations more flexibility to alter their sites or upgrade. The only way this can be accomplished is if there is general agreement that the available spectrum is sufficiently able to accommodate these moves without causing real interference. It is not possible to propose upgrades and moves of stations on one hand while saying that the spectrum is too full for more stations on the other. If the spectrum can accept upgrades, then there must also be places where it can also accept new stations. If that is true, then there is no technical reason to consider the existing spectrum generally overcrowded. Doubtless there are plenty of examples where stations cause or receive interference from neighbors, but no real research has been done to study the frequency of this situation or the severity when compared to the majority of AM stations operating today. Definitive and comprehensive studies need to be done before any decision to ban future AM stations is made. This cannot be stressed too much. It is irresponsible and dangerous to enact sweeping reforms without fully understanding the needs and risks associated with such actions.

A valid concern expressed by several commenters is that potentially allowing new licenses on the band might further limit the ability of existing AM stations to seek upgrades or moves, if/when some of the changes proposed in this NPRM are adopted. That is another reason why a temporary freeze or moratorium on new applications would be reasonable. Allowing AM stations that wish to take advantage of the new rules some time to do so before permitting new applications to be filed would be good for the band and good for individual stations.

Unless the situation is studied far more extensively that it currently has been, no permanent changes should be made that would bar future AM development.

Comments of Michael J Marcus.

I fully support all of the comments of Marcus Spectrum Solutions, LLC that urge the Commission to open a separate NPRM exploring proposals to revamp outdated AM technical rules. Specifically, the rules governing antenna design should be modified to allow greater flexibility in system design and operation. Also, research into skywave reducing antenna system should be revisited at periodic intervals.

Unintentional Radiators:

Clearly AM has suffered greatly as a result of manmade noise. Many comments have pointed out the dire increase in electronic noise that has become pervasive. This noise is ever increasing and is likely unstoppable. While I agree that the Commission should make every effort to prevent as much of this noise as possible, the unfortunate truth is that this noise will likely continue to rise despite any efforts otherwise. Considering what I believe is inevitable, the Commission, in addition to preventing as much part 15 and part 18 noise as possible, may want to look at technologies that are more immune to manmade noise than the current analog AM system.

Digital AM:

The National Alliance of AM Broadcasters (NAAMB) makes a number of specific proposals, many of which have considerable merit, though I do not agree with all of their ideas or assumptions. Two unique proposals in their comments are discussed here. They propose that existing AM stations should be permitted to go 100% digital. Further, all new AM broadcast stations must be 100% digital and that hybrid Am digital should be banned. Finally, they propose that existing analog AM stations have an opportunity to apply for new digital companion channels. These proposals would seem to merit further discussion and I hope the Commission will open an NPRM to specifically address these ideas. It is possible that these NAAMB proposals could be the key to true revitalization of the AM band. Should the Commission decide that the NAAMB proposal has merit, I would suggest that existing HD hybrid mode be permitted to continue during daytime hours for stations that demonstrate no interference to neighbors and that do not own digital companion channels. This suggestion is made to enable continued adoption of digital by the consumer while avoiding the expense of building new digital companion facilities for struggling AM stations. Once adoption of digital receivers has reached a reasonable level, hybrid mode can be sunset, if desired, but this should be evaluated in the future rather than set a specific timetable now.

The state of AM then and now:

Many commenters state or suggest that AM is a high quality medium that once upon a time sounded great. These commenters believe that poor receivers and lack of content drove listeners away starting in the 1960s or 1970s. Some commenters believe that mandating AM receivers with minimum specification and revitalizing C-Quam AM stereo will improve the state of affairs for AM. The facts and history of radio dispute these romantic notions. Generally speaking, AM was king of the hill in most locations until at least 1970. Starting in the early 1970s, FM quickly rose to dominate radio listening. At the time, many (but not all) of the radio receivers were still what we would consider today to be relatively high quality. Yet, people flocked to hi-fi shops to buy new FM receivers, many of which had terrible AM tuners by the late 1960s. This happened because, despite the "pleasing sound" of AM receivers of the day, FM still had

noticeably better fidelity and was immune to impulse noise. People bought those FM radios because they clearly sounded better and more natural. It is that simple. While we may fondly remember listening to the Beatles in 1965 on our aging 1958 Zenith table radio, the Beatles still sounded better on almost any FM radio. The fact is that AM is handicapped in both fidelity and noise rejection and this was always true, even in the "good old days". Likewise, AM stereo never had a chance because the fidelity and noise problems remain the same. Some commenters have blamed the failure of AM on the Commission's AM stereo "marketplace decision" which did not require adoption of a single AM stereo system early on. These comments forget that the FCC DID pick a system but that choice was rejected by broadcasters. It was only in response to broadcaster objections of the selection that the FCC reversed itself and allowed broadcasters to choose. Indeed, the introduction or lack of introduction of AM stereo was never a factor in AM decline. Proposals to re-introduce or revitalize C-Quam basically ignore the fact that stereo AM still sounds far inferior to FM regardless of whether the comparison station is stereo or mono. Broadcasting in C-Quam (or any other analog stereo format of the time) never had a chance of success once FM was affordable and the public was FM aware. ANY technical solution that attempts to improve AM broadcasting must fix the noise and frequency response issues that currently haunt the AM broadcaster.

The only realistic long term solution so far presented that might solve the fidelity issue is digital. IBOC/HD while panned by many, seems to offer a medium that provides reasonable audio response and immunity to impulse noise. It may well be that new technologies will emerge that offer better performance than the current Ibiqumity HD system. Regardless of the system, any alternative to existing analog systems must, at least, come close to the audio fidelity of FM if it is to have any hope of success, despite any romantic notions to the contrary.

While changes to FCC rules and technical adjustments like lowering antenna efficiency standards or the proposed rollback of the Ratchet Rule are worth considering, they really don't address the fundamental problems with AM, namely fidelity and noise. Solutions that address the fundamental technical weaknesses of AM must be achieved first. Then, incremental changes that have been proposed will be more useful.

Finally, technology is rapidly changing. Ideas put forth today may be obsolete in a few years. For this reason, a timetable of future review should be established so that the decisions made this year can be more easily evaluated and modified in the future. An intermediate review of the AM broadcasting path should be made every few years.

Respectfully Submitted,

Kyle Magrill
20 March, 2014