

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC

In the matter of:)	
)	
Petition for Rulemaking to Allow the MA3)	
All-Digital Mode of HD Radio for all AM)	RM-11836
Stations)	
)	
Revitalization of the AM Radio Service.)	MB Docket 13-249
)	
)	

COMMENTS OF REC NETWORKS

1. REC Networks (REC) is a leading advocate for a citizen's access to spectrum through broadcast and other radio services. REC's constituency includes but is not limited to Low Power FM (LPFM), rural commercial and noncommercial broadcasting, the needs of broadcast listeners in rural areas, the hobbyist community and non-broadcast services such as the Amateur Radio Service. In these comments, REC will address the above captioned *Petition for Rulemaking* (Petition) filed by Bryan Broadcasting Corporation (BBC) requesting that AM broadcast stations be allowed to elect all-digital broadcasting using HD Radio mode MA3.¹ As detailed herein, REC supports AM stations changing to MA3 mode, but in a manner that addresses various public interest issues and concerns.²

¹ - Petition at 1.

² - REC is intentionally filing our comments early in this proceeding to head off any rhetoric or misinformation that is being expressed on social media, especially within the AM broadcast listening hobbyist community because of past experiences where listeners experienced interference of desired analog stations due to undesired adjacent channel stations operating the MA1 hybrid mode of HD Radio, especially at night. Instead of dwelling on the poor performance of the MA1 mode at night, we need to approach this petition with more of a clean slate as MA3 holds potential promise for a digital operation with little to no adjacent channel nighttime interference. Due to other past and current projects, REC's skill set rests more around Digital Radio Mondiale (DRM). Some of those same basic theories learned from research on DRM can also be applied to HD Radio. We make it clear though, REC is not proposing to permit DRM30 in the AM broadcast band as HD Radio is the established standard. The Commission has already established DRM30 as the digital standard for International Broadcast Stations. *See* 47 C.F.R. §73.758.

A. INTERFERING DEVICES ARE “HERE TO STAY”

2. In their *Petition*, BBC discusses that the proliferation of Part 15 devices such as flat screen television receivers, switching power supplies, compact fluorescent lighting and other unintentional radiators has substantially increased the noise floor within the AM band and that these devices are “here to stay”.³ Further BBC cites testing that has been conducted by NAB Labs as well as on-air experimental operation of MA3 by WWFD, Frederick, Maryland.⁴ In that testing and on-air experimentation, BBC has claimed that while MA1 hybrid digital mode has provided a noise-free digital audio service, the hybrid service is subject to dropouts and that the MA3 all-digital mode would provide a larger footprint of noise-free AM broadcast service.⁵

B. IN GENERAL THEORY, MA3 MODE OPERATION IS THE BEST WAY TO “REVITALIZE” AM

3. REC agrees with the basic findings of BBC based on our own independent research of the accounts of the WWFD experimental operation and we share the opinion that in technical theory, the ability of an AM station to cease analog operations and transition to an all-digital signal should be considered as an option for “final revitalization” of an AM station as it will address many of the issues that are at the crux of the overall issue that triggered the *AM Revitalization* proceeding, the substantial decline of AM listenership as opposed to FM.

C. DESPITE INCREASED PENETRATION OF RECEIVERS, WE MUST PROTECT LISTENERS, ESPECIALLY IN RURAL AREAS

4. In the trade media, it was reported that in 2017, 40 different automobile manufacturers are now providing 250 different models that come with HD Radio.⁶ The article does not state whether this includes receivers that include AM. We note, that while there is a significant amount of new car sales to those more likely to be in urbanized areas, many in rural areas tend to keep their older vehicles. Despite the uptick of AM receiver availability on the dashboard, major retailers such as amazon.com show a very limited selection of “table” and portable models capable of receiving HD broadcasts. One of the most accessible HD Radio receivers that can be

³ - *Petition* at 2.

⁴ - *Id.* at 3.

⁵ - *Id.* at 4.

⁶ - *HD Radio Penetration Nears 50% in New Car Sales*, Radio World (Feb. 20, 2018). Retrieved Apr. 14, 2019 from <https://www.radioworld.com/industry/hd-radio-penetration-nears-50-in-new-car-sales>.

easily purchased at many Best Buy stores, the Insignia model NS-HDRAD2, is only capable of receiving analog and HD broadcasts on FM. The radio does not have AM.⁷

5. With the ongoing decline in AM stations across the country, especially in the west, we are seeing more areas where there are only a small number of AM stations within a particular region. One of our biggest concerns with the wholesale ability for AM licensees to specify all-digital operation, albeit voluntary would be the loss of first or second *localized* AM broadcast service to particular areas, this increasing the potential of creating AM analog “grey” and “white” areas.⁸ While some of those listeners could listen with an FM radio, it may be possible that some people may have an emergency kit with only an AM receiver. It may be possible too that the “alternative” FM station that is available in a particular community as a result of the local AM station going digital may not necessarily be configured with the Emergency Alert System (EAS) FIPS codes for that county and therefore would not be able to inform listeners in the event of an emergency.

6. It is REC’s position that rural listeners should not be left out in the cold. With that said, we feel that it is in the public interest that any AM broadcast station seeking to operate MA3 digital-only operation must make a showing that their station is not the only full-service aural service within the AM station’s community of license. An AM station should only be permitted to convert to MA3 if there are other stations (analog AM or FM) licensed to the same community or that a showing must be made that another analog AM or FM station, places a community coverage contour over the entire community of license of the AM station seeking conversion to MA3 and that the other AM or FM station is licensed to a community within the same county as the station seeking conversion.⁹ This requirement will assure the large number of Americans that use legacy analog AM receivers, including those that are in emergency preparedness kits will still be able to receive EAS activations that are directed to their county.¹⁰

⁷ - <https://www.bestbuy.com/site/insignia-tabletop-fm-hd-radio-black/4888900.p?skuId=4888900> (Retrieved Apr. 14, 2019).

⁸ - A “grey” is an area that receives only one broadcast service while a “white” area does not receive any broadcast services. For AM, the Commission considers the contour to receive service as the 0.5 mV/m contour.

⁹ - “Community coverage” is considered in this case: For AM stations, 2 mV/m daytime contour; for commercial FM stations, 3.16 mV/m and for non-commercial reserved-band FM stations, the 1 mV/m service contour. LPFM stations and FM translators (even those specifying the applicant AM station as fill-in) may not be considered a replacement service as these specific facilities do not have a direct requirement to encode EAS.

¹⁰ - The “same county” requirement assures that the “replacement” station has an EAS decoder that is properly configured with the FIPS code for the county that the converting station’s community of license is located in.

D. ALL-DIGITAL OPERATION MUST NOT JUSTIFY THE ONGOING USE OF ANALOG FM TRANSLATORS

7. It has been REC's long-time position that the provision of FM HD Radio subchannel streams (HD2) over analog FM translators operating as "quasi fill-in" service is nothing more than a "crutch", reflecting a failing market acceptance of the HD Radio technology. If HD Radio becomes more successful and that market penetration increases, then this should decrease the dependence on the use of analog FM translators as "fill-in" services for FM HD subchannels. The same theory should hold true for AM stations seeking to operate in MA3. Stations seeking to operate in MA3 should not be placed in a culture where it is dependent on their fill-in translator (if they have one) to be their main "analog" service. We do acknowledge though that there may be a need to "transition" listeners off of listening to their favorite station through an FM translator and returning them to AM in a digital mode that may be the same and, in some cases, superior to the FM translator.

8. Therefore, if an AM station seeks to convert to MA3 and that station holds a license for an FM translator, issued in Auctions 99 or 100 and carry the condition that the primary station cannot be changed to a different station, that those station licenses be converted to a five-year non-renewable license. Once the five-year period has passed, the secondary spectrum would become available again, including for future community-based Low Power FM (LPFM) broadcast stations. If an AM station commonly owns a translator originally obtained in the Auction 83 window or at any time prior to that, the AM station licensee must either:

1. divest the license to a different party;
2. specify a different primary station; or
3. surrender the license.

For FM translators that are not commonly-owned, the translator may not rebroadcast the AM station after the five-year period and that time, a different primary station must be specified or the license for the translator is surrendered. The five-year period will begin when the AM station commences MA3 operation.

9. REC is deeply concerned that this ability for AM stations to convert to the all-digital MA3 operation would give strength to an ongoing campaign in the industry to allow FM translators to be used for AM broadcast stations to be afforded "primary" status. We note that any attempt to make FM translators a primary status would be in direct violation of Section 5(3) of the Local Community Radio Act of 2010 which states that the Commission must ensure that when licensing new FM translator stations that FM translator stations, FM booster stations and low-power FM stations shall remain equal in status and secondary to existing and modified full-service FM stations.¹¹

¹¹ - Pub. L. No. 111-371, 124 Stat. 4072 (2011).

10. If an AM broadcaster wishes to make the “big switch” to MA3 all-digital operation, they are demonstrating to the Commission that they have the economic means to make that conversion and that they feel that their local market conditions would justify making that change. A part of that market condition must be their determination of penetration of HD Radio AM receivers in their market and a long-term expectation that all-digital AM will eventually be the sole method that the station will be delivered to listeners without the “crutch” of a companion FM translator. This is a huge commitment on the part of the AM station and should only be performed when the licensee is sure of potential success.

E. ADDITIONAL TECHNICAL STUDIES NEED TO BE PLACED IN THE RECORD TO DEMONSTRATE MA3’S PERFORMANCE AGAINST ANALOG AM STATIONS ON ADJACENT CHANNELS

11. During the previous larger-scale operations of MA1 hybrid HD Radio, especially at night, there were many issues raised by both broadcasters as well as among listeners who routinely listen to AM broadcast stations by skywave at night. These complaints stem from the noise or “hash” that was generated by the 30 kHz wide hybrid signal. Listeners were stating that listening to first adjacent channel stations (+/- 10 kHz) was nearly impossible where listening to second adjacent stations had some levels of discomfort.

12. After our brief review of the MA3 technical standards, we do feel that the MA3 operation with digital components within +/- 10 kHz from the unmodulated carrier would be sufficient to protect second-adjacent channel stations, especially at night. Our review of the standard notes that it may also be possible to broadcast in MA3 Mode with the secondary and tertiary sidebands completely suppressed thus providing digital components within +/- 5 kHz from the unmodulated carrier.¹² Such a service, while not as robust as operating with the secondary and tertiary sidebands can be an option to address potential first-adjacent channel interference, especially at night.

13. REC acknowledges those who do only receive nighttime AM service by skywave and during a time when there is a mix of all-digital and all-analog stations on the air, we need to assure that both modes would be able to operate in a manner where there is minimal to no interference. Before the Commission should consider the wholesale ability for AM stations to elect to go all-digital, a *Notice of Inquiry* should be issued which would seek additional data from Xperi, NAB Labs and data from the WWFD experimental operation. Then at that time, it can be determined what carrier powers are necessary to replicate current daytime and nighttime contours and whether reductions in power may be necessary. It will be in the best interest of

¹² - See *HD Radio AM Transmission System Specifications, Rev. F* (Aug. 24, 2011) at 24. Retrieved Apr. 14, 2019 from <https://www.nrsstandards.org/standards-and-guidelines/documents/archive/nrsc-5-c/1082sf.pdf>.

stations, their listeners and the planet if power consumption and land use by AM broadcast stations can be considerably reduced.

F. CONCLUSIONS

14. Just as excited we are about the potential of DRM30 on a worldwide basis, we are mostly as excited about an all-digital deployment of HD Radio in the United States. Unlike DRM30, HD Radio is still very much tied around licensing costs related to deployment, which can be burden to minority-owned and small market stations. However, the industry and market has established HD Radio as the standard in the United States for 535~1705 kHz and we can't change that in this proceeding, nor do we intend to any time in the near future.

15. The conversion of analog AM stations to MD3 must be considered the "final solution" for stations electing to make the change. While REC recognizes that there will need to be a "ramp-up" period from the time that a station ceases analog operation, we cannot make the same mistake we did with the expansion of the AM band and ignore the transitional licenses for decades. If an AM station converts to MD3, we must *insist* on a sunset of their FM translator operations and the release of that secondary spectrum for potentially new community-based LPFM services. This must be documented through a nonrenewable license for the FM translator if the FM translator license was issued in association with Auctions 99 or 100.

16. As more HD Radio receivers come into the market and as long as Xperi makes it more reasonable for stations, especially those owned by minorities and in small markets to afford to run digital and as long as the consumer electronics industry steps up, then we can reach a point where we can completely eliminate AM's and HD FM's dependence on FM translators. This will not only relieve overcrowding in the FM band but opens opportunities for new community-based LPFM stations, many of which originate their own programming and tend to the needs of their local area. We can address the overall sunset of FM translators for HD streams in a future proceeding.

17. As we are currently in a situation where not every household has an AM receiver capable of decoding HD Radio, we must assure that the listener's county has an Emergency Alert System source available through full-service analog that not only can relay alerts but can also originate alerts. With that said, we must insist that rules be put in place that an AM station may not be able to elect to operate MA3 all-digital if any of the following apply:

- The AM station is the only aural full-service station within the community of license;
- If the AM station is the only aural full-service station within the community of license, there is no other AM or FM station within a different community of license but within the same county that places a coverage contour over the entire community of license for the station seeking conversion to MA3; or

- The AM station converting to digital-only may not create any new “grey” or “white” areas in the band. In other words, there may be at least two other analog AM stations placing a 0.5 mV/m daytime contour over the 0.5 mV/m daytime contour of the AM station seeking conversion.

18. We must insure that there are technical standards in place to assure that digital to analog co-channel, first- and second-adjacent channel interference is addressed and we must also insure that the coverage areas of AM stations operating MA3 are comparable to their former analog service areas and that power levels be adjusted accordingly.

19. FM does not face the same issues that AM is facing right now and if there is a way to bring AM back to some of its old glory by eliminating the “modern” noise from the band, we will support it. However, we will not support a mandatory “conversion” from analog to digital for either FM or AM. We need to progress a lot further before we cross that road. REC is excited about this proceeding and we hope the Commission issues a *Notice of Inquiry* so we can gain further knowledge of what may now be the “game-changing innovation” that Commissioner O’Reilly has been looking for.¹³ While REC is excited over the technology and potential final solution for the AM problem, we are also very cautious and will remain fully vigilant in our protection of LPFM and other small stations, which must and will always come first at REC.

Respectfully submitted,

/S/

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¹³ - *Petition* at 4.