

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
All-Digital AM Broadcasting)	MB Docket No. 19-311
All-Digital Mode of HD Radio for AM Stations)	
)	
Revitalization of the AM Radio Service)	MB Docket No. 13-249

**REPLY COMMENTS OF
THE NATIONAL ASSOCIATION OF BROADCASTERS**

The National Association of Broadcasters (NAB)¹ hereby supports the above-captioned Notice of Proposed Rulemaking, in which the Commission proposes to allow AM broadcasters to voluntarily broadcast in the MA3 all-digital mode of the HD Radio in-band/on-channel (IBOC) digital radio system.² Nearly all commenters endorse the proposed technical and policy criteria for all-digital AM service set forth in the Notice.

A range of stakeholders describe the challenges faced by AM broadcasters,³ and agree with the FCC's findings that permitting all-digital operations will allow AM stations to

¹ NAB is a nonprofit trade association that advocates on behalf of local radio and television stations and broadcast networks before Congress, the Federal Communications Commission (Commission or FCC) and other federal agencies, and the courts.

² *All-Digital AM Broadcasting, Revitalization of the AM Radio Service*, Notice of Proposed Rulemaking, MB Docket Nos. 19-311 and 13-249, 34 FCC Rcd 11560 (2019) (Notice).

³ Comments of NAB, MB Docket No. 19-311 (Mar. 9, 2020), at 2; Comments of National Public Radio, Inc. (NPR), MB Docket No. 19-311 (Mar. 9, 2020), at 2; Comments of Bryan Broadcasting Corp., MB Docket No. 19-311 (Mar. 9, 2020), at 2; Comments of California and Missouri Broadcasters Assns (Associations), MB Docket No. 19-311 (Mar. 9, 2020), at 2-3; Comments of the Society of Broadcast Engineers, Inc. (SBE), MB Docket No. 19-311 (Mar. 9, 2020), at 2-4.

reach more listeners⁴ with an improve signal⁵ and additional programming⁶ that could help AM stations better compete in today’s increasingly crowded audio marketplace.⁷

I. THE COMMISSION SHOULD AUTHORIZE VOLUNTARY ALL-DIGITAL AM SERVICE

A. MA3 is a Proven Technology

The record demonstrates that the HD Radio MA3 all-digital AM operating mode is a proven technology. Many parties noted the field and laboratory tests conducted by NAB’s broadcast technology innovation initiative PILOT (and its predecessor, NAB Labs),⁸ which showed that all-digital AM delivers audio sound fidelity equal to FM stereo and a listenable signal out to the 0.5 mV/m analog contour in most cases.⁹ The record also highlights the successful experimental operation of MA3 at Hubbard Radio’s WWFD-AM in Frederick, Maryland.¹⁰ Since launching digital service in July 2018, Hubbard has provided significant improvement to WWFD’s analog audio quality. Hubbard’s experience confirms that all-digital MA3 operations provide an enhanced, high quality listener experience in terms of both

⁴ Notice, 34 FCC Rcd at 11568; NAB Comments at 3-4; Comments of Carl T. Jones Corp., MB Docket No. 19-311 (Mar. 9, 2020), at 1; Comments of Hubbard Radio, LLC, MB Docket No. 19-311 (Mar. 9, 2020), at 4; Comments of Xperi Corp., MB Docket No. 19-311 (Mar. 6, 2020), at 14-15.

⁵ Notice, 34 FCC Rcd at 11566; NAB Comments at 3 and 6-8; Comments of Consumer Technology Assn (CTA), MB Docket No. 19-311 (Mar. 9, 2020), at 4; Bryan Comments at 5-6; Associations Comments at 5; Joint Comments of AM Broadcast Station Licensees (Joint AM Licensees), MB Docket No. 19-311 (Mar. 9, 2020), at 3; Hubbard Comments at 5; Xperi Comments at 11-13 and 20-22.

⁶ Notice, 34 FCC Rcd at 11564-65; CTA Comments at 3; Hubbard Comments at 3.

⁷ Notice, Statement of Chairman Ajit Pai, 34 FCC Rcd at 11589; NAB Comments at 5-6; Bryan Comments at 3; Hubbard Comments at 4.

⁸ SBE Comments at 6 (“all-digital AM broadcasting will improve audio quality in a difficult RF environment.”); Jones Comments at 2 (“HD Radio MA3 All-Digital operating mode is a proven technology. . .”); CTA Comments at 6-7.

⁹ NAB Comments at 3 citing David H. Layer, *NAB Labs All-digital AM Test Project*, 2015 NAB Broadcast Eng. Conf. Proceedings (2015) (NAB Labs (Pilot) Test Project I), at 28.

¹⁰ CTA Comments at 6; Comments of Nautel Maine, Inc., MB Docket No. 19-311 (Mar. 9, 2020), at 2-3; Associations Comments at 3; Xperi Comments 7-8.

sound fidelity and signal robustness.¹¹ NAB submits that these results render additional testing unnecessary to confirm the superior service provided by MA3 compared to other transmission services.¹²

NAB Labs' field test results also confirmed the Commission's finding that all-digital operation will allow stations to reach more listeners with a listenable signal.¹³ The tests consistently showed excellent signal coverage that far outperformed analog coverage and reliability.¹⁴ Hubbard's experience verified these results.¹⁵

B. The Benefits of All-Digital Service Far Outweigh the Limited Interference Concerns

The evidence shows that all-digital signals will cause fewer interference concerns than hybrid operations¹⁶ and eliminate any concerns about interference to adjacent channels.¹⁷ NAB respectfully disputes assertions that additional testing is needed to determine potential interference to co-channels during nighttime hours.¹⁸ WWFD has been broadcasting all-digital nighttime service for 20 months without any problems. Also, the rollout of all-digital is expected to be fairly gradual, which will provide the FCC and industry time to monitor and address any interference problems, as NPR suggests.¹⁹

¹¹ Hubbard Comments at 2.

¹² *Id.*

¹³ NAB Comments at 6-9.

¹⁴ NAB Labs (Pilot) Project I, at 31 (Figure 12) and 34 (Figure 19).

¹⁵ Hubbard Comments at 5-6.

¹⁶ NAB Comments at 6-7 (all-digital signals produce fewer emissions at the outer edges of the occupied bandwidth than hybrid signals).

¹⁷ *Id.*; SBE Comments at 2; Nautel Comments at 9.

¹⁸ Comments of REC Networks, MB Docket No. 19-311 (Mar. 9, 2020), at 4; Jones Comments at 3.

¹⁹ NPR Comments at 3-4 (FCC should monitor and request periodic comment on progress of stations converting to all-digital and impact on analog stations).

In addition, subjective evaluation of NAB Labs' extensive testing revealed essentially no difference in audio quality between the analog and all-digital AM interference cases.²⁰ The field tests also revealed that all-digital operations should not cause increased interference within AM stations' core service areas.²¹ As Xperi states, although NAB Labs' tests may not have exhaustively tested every conceivable all-digital AM operational scenario, "the success of the WWFD experiment confirms that there is more than an adequate foundation for FCC action."²² If further study is needed to resolve any technical concerns raised by all-digital operations, industry stands ready to provide such analysis.

In any event, the FCC's existing interference management procedures provide sufficient technical and regulatory mechanisms for resolving interference issues. The FCC can simply address individual cases of interference as they arise, under current practice.²³ Given the challenges AM radio service already faces, we agree with Xperi that "any lingering technical concerns with the MA3 mode are vastly outweighed by the consumer benefits of all-digital operation."²⁴ We also note that implementing all-digital service despite certain limited interference concerns would be wholly consistent with the FCC's authorization of hybrid daytime AM operation in 2002 and nighttime operation in 2007.²⁵

C. A New Carrier Frequency Tolerance Standard is Unnecessary at this Time

The Notice sought comment on whether the FCC should impose a carrier frequency tolerance standard on AM stations of 1 Hz as a way to improve all-digital reception.²⁶ NAB

²⁰ NAB Comments at 7-9.

²¹ *Id.*

²² Xperi Comments at 8.

²³ *Id.* at 22; NAB Comments at 9.

²⁴ Xperi Comments at 8.

²⁵ Notice, 34 FCC Rcd at 11570.

²⁶ Notice, 34 FCC Rcd at 11573. Supporters of this tentative conclusion include Nautel (Comments at 9); Hubbard (at 10); Xperi (at 25); and Hershberger (at 3).

respectfully opposes this approach as an unnecessary burden on AM broadcasters who will continue to operate in analog mode. The Commission correctly points out that NAB Labs' tests indicated that "if desired and undesired carriers are locked or within 1 Hz of one another, the undesired analog signal amplitude can be as great as 6 dB less than the desired all-digital signal before any degradation is detected in the digital audio signal. This is a significant improvement over the 26 dB desired-to-undesired (D/U) interference standards for analog AM."²⁷ However, the larger frequency offsets tested by NAB Labs (2 and 5 Hz) which resulted in degraded performance compared to the 1 Hz offset case were still a significant improvement over the current 26 dB D/U AM co-channel specification.

We agree that tightening the carrier frequency tolerance would benefit both analog and all-digital operations by reducing the impact of co-channel interference. However, given today's extremely challenging economic climate for radio broadcasting, especially AM service, such a new requirement would be a burden and counterproductive to the FCC's goal of AM radio revitalization. At most, the FCC should table this proposal until there is a sufficient number of all-digital AM stations to provide a meaningful number of data points.

D. Operating Power Limits

NAB is supportive of the proposal made by Nautel Maine, Inc. ("Nautel") regarding the allowed operating power (nominal power) limits for AM stations.²⁸ Nautel has offered alternate wording for Section 73.21, to specify that this section be applied "...to the average all-digital signal power including the digital signal power and the unmodulated analog carrier power" and not simply the "unmodulated analog carrier power" as proposed in the Notice. Nautel has provided a lengthy explanation of the rationale behind this change and it is

²⁷ Notice, 34 FCC Rcd at 11573.

²⁸ Comments of Nautel Maine, Inc, MB Docket No. 19-311 (Mar. 9, 2019), at 2-6.

sound. This is an important modification which makes good technical sense and has the added benefit of increasing the number of AM stations likely to be able to upgrade to MA3 operations.

E. NRSC-5 Should be Adopted as the Formal Technical Standard for All-digital Service

NAB reiterates our support for the Commission's plan to incorporate the NRSC-5-D Standard by reference into the digital audio broadcasting rules.²⁹ Adopting NRSC-5-D as a formal technical standard will provide stakeholders the regulatory certainty needed to confidently invest in providing digital broadcasting service and products. Contrary to the requests of Dolby and a few others calling for the FCC to start over with a reevaluation of alternatives to IBOC as the standard for all-digital AM service,³⁰ confirming IBOC as the single standard for digital audio broadcasting will avoid completely upending the long-standing and ongoing progress of digital radio in the United States. Thousands of radio stations have already launched HD Radio technology, nearly 70 million cars on the road are equipped with HD Radio reception capability and all HD Radio receivers and AM transmission equipment already in the market are compatible with MA3 operations.³¹ As the definitive standards documentation for HD Radio, NRSC 5-D is a mature standard, and adopting IBOC technology, specifically NRSC 5-D, as the formal standard for digital broadcast radio will provide consumers, equipment manufacturers and automakers the certainty to continue building on this foundation.

²⁹ *Id.* at 11574; NAB Comments at 11-12.

³⁰ Comments of Dolby Laboratories, Inc., MB Docket No. 19-311 (Mar. 9, 2020), at 2-3; REC Networks Comments at 3.

³¹ NAB Comments at 5.

Finally, we note that converting to all-digital AM service is entirely voluntary under the Commission's approach. AM broadcasters, who are intimately familiar with the needs and interests of their local listeners, will carefully weigh the potential costs of conversion against the benefits in deciding whether to transition to digital mode. Such benefits would include enhanced audio quality, expanded audience coverage and the ability to provide auxiliary data and more content that will help AM broadcasters to better compete with other audio sources.³² To facilitate this determination, NAB supports calls for the FCC to adopt a simple notification procedure for AM stations' conversion to all-digital service, as now used for deploying hybrid AM digital.³³ In this vein, we respectfully oppose SBE's request for a much longer prior notification period (e.g., 60 days) for converting to all-digital service to allow co- and adjacent analog channel stations to determine certain baseline data before digital service starts.³⁴ NAB submits that NAB Labs' extensive testing and WWFD's real-world experience confirm that such a requirement is unnecessary.

II. CONCLUSION

For these reasons, NAB respectfully requests that the Commission adopt the proposals set forth in the Notice to permit AM broadcasters to voluntarily elect to convert to

³² SBE Comments at 6; Hubbard Comments at 3-4.

³³ Associations Comments at 4; Joint Licensees Comments at 2-4. On the other hand, we also question the Puerto Rico Broadcasters Association's (PRBA) request that the FCC require radio receiver manufacturers to include HD reception capabilities in every new radio sold in the United States, to help ensure the success of all-digital AM service. Comments of PRBA, MB Docket No. 19-311 (Mar. 6, 2020), at 2. Although NAB shares PRBA's enthusiasm for all-digital service, we believe that such a mandate is unnecessary at this time because the benefits of all-digital AM should create adequate market incentives for manufacturers to include digital capabilities in new radio receivers. As the number of all-digital AM stations grows, enabling them to provide improved sound quality, more content and auxiliary service, so should demand by consumers and automakers for digital-capable receivers.

³⁴ SBE Comments at 6.

all-digital operations using the HD Radio MA3 mode and adopt the NRSC 5-D standard into the Commission's rules.

Respectfully submitted,

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