

FCC FACT SHEET*

Modifying Rules for FM Terrestrial Digital Audio Broadcasting Systems

Order and Notice of Proposed Rulemaking – MB Docket No. 22-405

Background: Digital FM broadcast stations must currently limit the power of their digital signal in order to protect FM stations on nearby channels from interference. The Commission received a petition for rulemaking requesting blanket authorization for digital FM stations to set digital power at different levels on their upper and lower digital sidebands (asymmetric operation), thus allowing a digital FM station to increase power on a sideband while minimizing the impact on nearby stations. The Commission subsequently received a petition for rulemaking requesting an update to the methodology stations use to determine maximum digital FM power levels, thus allowing for higher digital broadcast power and improvements to coverage area and building penetration.

What the Order and Notice of Proposed Rulemaking Would Do:

- Tentatively concludes that the petitioned proposals would advance the Commission’s commitment toward improving the FM terrestrial digital radio service and seeks comment on:
 - Whether to (1) change the methodology used by digital FM stations to determine if they are eligible to increase digital FM power up to -10 dBc, or 10% of analog power; (2) allow such power increases without the need for additional individual special authorization, but upon basic notification to the Commission; and (3) allow digital FM stations to notify the Commission of a power increase up to -10 dBc, using the same notification procedures as currently used for digital operation;
 - Whether to grant blanket authorization to digital FM stations to originate digital transmissions at different power levels on the upper and lower digital sidebands without having to request experimental authorization, but instead by filing a notification with the Commission;
 - Whether an FM station increasing digital power or implementing asymmetric sideband operation should be required to directly notify first-adjacent channel FM stations of these actions, or whether filing notification with the Commission is sufficient; and
 - Whether the existing interference mitigation and remediation procedures are sufficient to manage any reports of inter-station interference as a result of increased digital FM power or asymmetric sideband operation.

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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of
Modifying Rules for FM Terrestrial Digital Audio
Broadcasting Systems
MB Docket No. 22-405

ORDER AND NOTICE OF PROPOSED RULEMAKING*

Adopted: []

Released: []

Comment Date: [30 days after date of publication in the Federal Register]
Reply Comment Date: [45 days after date of publication in the Federal Register]

By the Commission:

I. INTRODUCTION

1. In this Order and Notice of Proposed Rulemaking (NPRM), we grant two Petitions for Rulemaking and propose changes to our digital audio broadcasting (DAB) technical rules that would permit additional FM stations to increase FM hybrid digital effective radiated power (FM Digital ERP) beyond the existing levels without the need for individual Commission authorization. In addition, we propose to allow a digital FM station to operate with asymmetric power on the digital sidebands. This would allow stations to operate with different power levels on the upper and lower digital sidebands, as a way to facilitate greater digital FM radio coverage without interfering with adjacent channel FM stations.

2. The two Petitions for Rulemaking were consolidated by the Media Bureau (Bureau) because the proposed rule changes both relate to improving digital FM signal quality and minimizing the

*This document has been circulated for tentative consideration by the Commission at its August 3, 2023 open meeting. The issues referenced in this document and the Commission’s ultimate resolutions of those issues remain under consideration and subject to change. This document does not constitute any official action by the Commission. However, the Chairwoman has determined that, in the interest of promoting the public’s ability to understand the nature and scope of issues under consideration, the public interest would be served by making this document publicly available. The Commission’s ex parte rules apply and presentations are subject to “permit-but-disclose” ex parte rules. See, e.g., 47 CFR §§ 1.1206, 1.1200(a). Participants in this proceeding should familiarize themselves with the Commission’s ex parte rules, including the general prohibition on presentations (written and oral) on matters listed on the Sunshine Agenda, which is typically released a week prior to the Commission’s meeting. See 47 CFR §§ 1.1200(a), 1.1203.

1 We note that the Low Power FM service, the FM translator service, and the FM booster service are all eligible to operate in hybrid mode, in the same manner as the full-power FM service. See Digital Audio Broadcasting Systems and Their Impact on the Terrestrial Radio Broadcast Service, Second Report and Order, First Order on Reconsideration and Second Further Notice of Proposed Rule Making, 22 FCC Rcd 10344, 10366-67, 10381-81, paras. 56-58, 92-93 (2007) (DAB Second R&O). In this NPRM any references to the “FM service” or “FM” include all of these discrete FM services, unless noted otherwise.

effect of the digital FM station signal on adjacent channel FM transmissions.² The petitioners point out the increasing penetration of digital FM receivers, especially in automobiles, and note that station conversions to digital have not experienced an equivalent growth. Petitioners submit that a significant contributor to the slower digital conversion rate is the difficulty of replicating an FM station's analog signal using currently allowable digital FM power levels. In the earlier of the two petitions, filed December 9, 2019, petitioners National Association of Broadcasters (NAB), Xperi Corporation (Xperi), and National Public Radio (NPR) request blanket authorization to set digital power at different levels on each digital sideband, thus allowing a digital FM station to protect, for example, an analog FM station on a lower first adjacent channel, while enabling an increase in digital power on the upper sideband where there is no adjacent analog FM station or a more distant adjacent station.³ In the second petition, filed October 26, 2022, NAB and Xperi request that the FCC update the methodology stations use to determine maximum FM digital power levels.⁴ We grant these petitions and seek comment on whether the rule changes proposed below, based on the Asymmetric Sideband Petition and Power Increase Petition, would serve the public interest by providing FM digital stations with the ability to increase power and, concomitantly, increase coverage area, building penetration, and provide a more robust digital signal. We additionally seek comment on: whether such rule changes would cause or increase interference to analog FM stations adjacent to digital FM station; whether the proposed rule changes would have other adverse effects on incumbent FM stations; whether and to whom notice of increased digital FM power should be provided; and whether additional interference remediation procedures should be introduced. We tentatively conclude that adoption of the proposed rule changes would advance the Commission's ongoing commitment to developing terrestrial digital broadcasting with minimal to no adverse effects, including any harmful interference, on existing service. We therefore seek comment from broadcasters, engineers, and other interested parties to help us clarify some of the issues raised by the proposed rule changes and to assess their relative costs and benefits.

II. BACKGROUND

3. *Power Increase Petition; History of Digital FM Power Limits.* In 2002, the Commission selected in-band, on-channel (IBOC) technology to enable radio broadcast stations to commence digital broadcasting.⁵ In the *DAB R&O*, the Commission adopted notification procedures allowing existing FM radio stations to begin digital transmissions immediately on an interim basis using the IBOC system.⁶ The iBiquity FM IBOC digital system includes several hybrid modes and separate all-digital modes. In the hybrid and extended hybrid modes, a station simultaneously transmits both the analog and digital signals.⁷ In the all-digital modes, the station drops the analog signal and is able to increase the capacity of the digital signal. The Commission initially limited digital operations to the hybrid digital mode,⁸

² *Media Bureau Seeks Comment on Petitions for Rulemaking Proposing Amendments to FM Broadcast Digital Radio Rules*, Public Notice, DA 22-1226 (MB Nov. 28, 2022) (*FM Digital Comment PN*).

³ Petition for Rulemaking of Nat'l Ass'n of Broad., Xperi Corp., and Nat'l Public Radio, MB Docket No. 22-405 (filed Dec. 9, 2019), <https://www.fcc.gov/ecfs/document/1125972022299/1> (Asymmetric Sideband Petition).

⁴ Petition for Rulemaking of Nat'l Ass'n of Broad. and Xperi Inc., MB Docket No. 22-405 (filed Oct. 26, 2022), <https://www.fcc.gov/ecfs/document/10261669202264/1> (Power Increase Petition).

⁵ *Digital Audio Broadcasting Systems And Their Impact On The Terrestrial Radio Broadcast Service*, First Report and Order, 17 FCC Rcd 19990 (2002) (*DAB R&O*). DAB generally refers to the digital service broadcast by radio stations whereas IBOC generally refers to the technical system supporting DAB service. While early DAB orders addressed both AM and FM digital broadcasting, this *NPRM* deals exclusively with digital FM operations and regulations.

⁶ iBiquity subsequently was sold, and the acquiring company renamed itself Xperi.

⁷ The extended hybrid mode adds an additional 50 kbps (kilobits per second) to the 96 kbps digital capacity of the hybrid mode. See *DAB Second R&O*, 22 FCC Rcd at 10344, para. 2. See also 47 CFR § 73.402 Definitions.

⁸ The Commission subsequently authorized use of the FM IBOC extended hybrid digital mode in the *DAB Second R&O*. See *DAB Second R&O*, 22 FCC Rcd at 10352, paras. 18-19.

which permits the simultaneous transmission of both the analog and digital signals within the current spectral emissions mask of a single FM channel, placing redundant blocks of digital information in the sidebands on both sides of and immediately adjacent to the analog signal.⁹

4. iBiquity and several independent parties conducted extensive field and laboratory tests of the IBOC system prior to Commission adoption. Based on the National Radio Systems Committee's (NRSC)¹⁰ evaluation of those test results, in December 2001 the NRSC approved the NRSC-5 standard,¹¹ which specifies a digital FM ERP equal to one percent of authorized analog FM power (20 decibels below carrier or -20 dBc). Subsequently, the Commission adopted this as the maximum digital power level for the hybrid digital mode of the FM IBOC system the Commission authorized in the 2002 *DAB R&O*.¹² In 2010, the Bureau released an Order increasing the allowable power level of the FM station's digital sidebands from -20 dBc to -14 dBc, upon electronic notification to the Commission.¹³ In the *2010 MB DAB Order*, the Bureau further allowed certain FM stations to increase digital power above -14 dBc, to up to -10 dBc, upon a showing that such power increase would comply with the formula in the *2010 MB DAB Order*, and therefore would not cause harmful interference to adjacent analog FM stations.¹⁴

5. Petitioners state that digital FM receiver penetration continues to grow: according to the October 2022 Power Increase Petition, there are over 90 million autos in the U.S. with digital receivers; receiver penetration has exceeded 40% in some markets; and almost 60% of new automobiles sold in the U.S. are equipped with digital IBOC receivers.¹⁵ Petitioners NAB and Xperi contend, however, that many stations have resisted adopting IBOC technology due to the inability to replicate their analog signal coverage with digital coverage, owing to the limits placed on digital sideband power.¹⁶ They maintain that the Commission, by its own admission,¹⁷ overprotected adjacent-channel FM analog stations when implementing the allowable FM digital power table set forth in the *2010 MB DAB Order*, and further state that 12 years of experience with the current FM digital power levels has yielded few if any complaints of interference from hybrid digital FM transmissions.¹⁸ As evidence for its contentions, petitioners NAB and Xperi attach an analysis of existing digital FM stations transmitting at the current allowable limit of -14 dBc, but whose digital signal substantially overlaps that of adjacent analog FM stations. They assert that in none of these real-world situations have there been any instances of digital-to-analog

⁹ The sideband frequency higher than the FM channel's center frequency is known as the upper sideband, while that which is lower than the FM channel's center frequency is known as the lower sideband.

¹⁰ The NRSC is an industry group jointly sponsored by the National Association of Broadcasters and the Consumer Technology Association.

¹¹ Press Release, NRSC, NRSC Approves Digital Radio Broadcasting Standard (Apr. 16, 2005).

¹² See *DAB R&O*, 17 FCC Rcd at 20004 n.67 and Appendix B, 17 FCC Rcd at 20041-43. See also 47 CFR § 73.404(a).

¹³ *Digital Audio Broadcasting Systems And Their Impact on the Terrestrial Radio Broadcast Service*, Order, 25 FCC Rcd 1182, 1189, para. 16 (MB 2010) (*2010 MB DAB Order*).

¹⁴ *Id.* at 1182, 1189-90, paras 16-20. See also 47 CFR §73.404(a). The showing required to obtain FM digital power of between -14 dBc and -10 dBc included the calculation results using the following formula: Allowable FM digital power = $[2.27 * (60 - \text{FM digital station } F(50,10) \text{ dB}\mu) - 33.6]$. Thus, a licensee desiring FM digital ERP in excess of -14 dBc total power is required to calculate the digital station's analog $F(50,10)$ field strength at all points on the protected 60 dB μ $F(50,50)$ contour of a potentially affected first-adjacent channel analog FM station. This calculation must be performed using each station's licensed analog facilities and the standard FCC contour prediction methodology. *2010 MB DAB Order*, 25 FCC Rcd at 1187, 1190, paras. 12, 20.

¹⁵ Power Increase Petition at 3-4.

¹⁶ *Id.* at 4-5. See 47 CFR § 73.404(a).

¹⁷ *2010 MB DAB Order*, 25 FCC Rcd at 1189, para. 19.

¹⁸ Power Increase Petition at 6, 9-10.

interference.¹⁹ NAB and Xperi further attach the results of their own field test, conducted under experimental authority, using three stations in the New York market, two adjacent “interfering” stations and one “interfered with” station. In this study the adjacent-channel digital stations operated first with FM digital signals at -14 dBc, and then at -10 dBc, while recordings were made of the adjacent channel analog station under each condition. According to a panel of listeners—consisting of NAB and Xperi employees—who evaluated the recordings, there was “no significant change or degradation of the desired [FM analog] signal when the 1st-adjacent channel interferer went from -14 dBc to -10 dBc” even though these stations were operating at levels far in excess of the levels permitted under the current methodology.²⁰

6. *Asymmetric Sideband Petition.* The Commission’s existing rules assumed that digital power would be the same on both digital sidebands.²¹ NAB, Xperi, and NPR, in the Asymmetric Sideband Petition, assert that with asymmetric sidebands a digital FM station could protect one adjacent analog FM station while concurrently increasing power on the other sideband frequency in order to expand its digital coverage and building penetration.²² These petitioners conducted a study that they state demonstrates that many more digital FM stations could increase power above -14 dBc on at least one sideband. Out of 10,875 digital FM stations studied, petitioners contend that 6,120 could increase power to -10 dBc under the current rules, whereas if asymmetric sidebands were allowed, an additional 3,496 stations could increase one sideband to -10 dBc, with another 532 being able to increase one sideband’s power to between -14 and -10 dBc.²³ These petitioners also note that, under the current rules, stations may only request asymmetric sidebands under an experimental authorization.²⁴ They argue that the need to request experimental authorization, and the temporary nature of such authorizations, discourages use of asymmetric sidebands,²⁵ which in turn limits digital FM stations to the power level needed to protect the closer or higher-powered adjacent-channel analog FM station.²⁶ Petitioners thus request that we amend our rules to allow FM stations to operate with asymmetric digital sidebands, without having to request experimental authorization to do so, in order to remove unnecessary regulatory barriers and promote broader adoption of terrestrial digital FM broadcasting.²⁷ The Bureau sought comment on the consolidated Power Increase Petition and Asymmetric Sideband Petition in the *FM Digital Comment PN*, released November 28, 2022.²⁸

III. DISCUSSION

7. After review of the Power Increase Petition and the Asymmetric Sideband Petition, and the comments filed in response, we conclude that the record discloses sufficient reasons to justify the

¹⁹ *Id.* at 10-17 and Appendix 1.

²⁰ *Id.* at 17-20 and Appendices 2-3.

²¹ See *2010 MB DAB Order*, 25 FCC Rcd at 1190, para. 20 (setting forth methodology for calculating maximum permissible FM Digital ERP that assumes operation with symmetric sidebands). A station wishing to operate with asymmetric sideband power must request experimental operation, including a showing that the digital sideband signal contours will not overlap adjacent stations’ protected contours. The staff generally grants requests that do not propose prohibited overlap.

²² *Id.*

²³ *Id.* at 9-11. Petitioners’ study was conducted in 2017.

²⁴ Asymmetric Sideband Petition at 11.

²⁵ *Id.*

²⁶ *Id.* at 8-10.

²⁷ *Id.* at 8-11.

²⁸ *FM Digital Comment PN*, *supra* note 4, at 1.

institution of a rulemaking proceeding seeking further comment on these proposals.²⁹ We tentatively conclude that the proposals in both the Power Increase Petition and the Asymmetric Sideband Petition represent steps toward improving the terrestrial digital FM broadcast radio service. We seek comment on our proposal to allow additional stations to increase FM digital power levels, to authorize asymmetric sideband power levels without the need for experimental authorization, and to rely on our existing interference mitigation and remediation processes, and notification procedures.

A. Power Increase Petition

8. We propose to amend our rules to change the power increase methodology and notification procedures, consistent with the Petition. Specifically, we propose to change the methodology used by digital FM stations to determine whether they are eligible to increase digital FM power up to -10 dBc, or 10% of analog power. We also propose that such increases be allowed without the need for additional individual special authorization, but upon basic notification to the Commission. We further propose that stations notify the Commission of a power increase up to -10 dBc in the Bureau's Licensing and Management System (LMS), using the same notification procedures as currently used to notify the Commission of digital operation up to -14 dBc.

9. *Maximum Permissible FM Digital ERP Table.* We propose to amend our rules to modify the methodology a digital FM station must use to determine whether it is eligible to increase its power above -14 dBc. This modification, if adopted, would allow more stations to increase power up to -10 dBc without the requirement of submitting a contour analysis. As stated in note 1, *supra*, secondary services such as LPFM and FM translators are eligible to operate in hybrid mode. To the extent that such a secondary service station seeks to increase its digital power, it would use the same methodology set forth herein. As summarized above, currently a digital FM station may operate with digital power up to -14 dBc. Additionally, a digital FM station could apply to operate with power of up to -10 dBc (10% of analog power), pursuant to the table adopted in the *2010 MB DAB Order*.³⁰ Petitioners now assert that the intervening dozen years of experience with the established 2010 power limits, as well as follow-up field tests and other studies, demonstrate that most digital FM stations should be able to operate at power levels of up to -10 dBc without special Commission authorization, and without causing interference to adjacent channel FM facilities.³¹ They propose an updated table for determining maximum permissible FM Digital ERP as follows:³²

Proponent Analog F(50,10) Field Strength at First Adjacent Station's³³ Analog 60 dBμ F(50,50) Contour (Symmetric Sideband Operation)	Maximum Permissible FM Digital ERP
57.9 dBμ and above	-14 dBc
56.5 dBμ to 57.8 dBμ	-13 dBc
55.6 dBμ to 56.4 dBμ	-12 dBc

²⁹ See 47 CFR § 1.407.

³⁰ See *supra* note 14. See also *2010 MB DAB Order*, 25 FCC Rcd at 1190, para. 20.

³¹ Power Increase Petition at 9-15, 17-20, and Appendices 1 and 2.

³² *Id.* at 7-8. The table is derived from an updated formula proposed by petitioners, as follows: Allowable IBOC power (dBc, total power) = 44 – [IBOC Station F(50,10) dBμ at the desired station 60 dBμ F(50,50) contour] (if using symmetric sidebands), or Allowable IBOC power (dBc, per sideband) = 41 – [IBOC Station F(50,10) dBμ at the desired station 60 dBμ F(50,50) contour] (if using asymmetric sidebands). Petitioners note that total power is 3 dB greater than that of each individual sideband, explaining the 3 dB difference between the two formulas.

³³ As petitioners note, “the word ‘protected’ has been struck from the first column heading in the table to emphasize that the 60 dBμ contour is the contour of interest regardless of station class.” Power Increase Petition at 6 n.12. We also note that, as stated in note 1, *supra*, digital LPFM stations and FM translators and boosters may avail themselves of the increased maximum permissible digital ERP. However, this does not provide secondary stations with additional protection from interference by full-service stations.

54.1 dB μ to 55.5 dB μ	-11 dBc
54.0 dB μ or less	-10 dBc

As detailed in the *2010 MB DAB Order*,³⁴ a licensee desiring FM Digital ERP in excess of -14 dBc must calculate the station's analog F(50,10) field strength at all points on the 60 dB μ F(50,50) contour of a potentially affected first-adjacent channel analog FM station. This calculation must be done using each station's licensed analog facilities and the standard FCC contour prediction methodology.³⁵ Once the most restrictive analog F(50,10) field strength of the proponent station has been determined, the licensee will use the updated table to determine the proponent station's maximum permissible FM Digital ERP.

10. As discussed above, petitioners studied pairs of stations in which the digital FM station operated at -14 dBc, yet the station's signal strength at the protected contour of the adjacent analog FM station is greater than that allowed by the current methodology.³⁶ Despite this, petitioners state that none of the studied analog FM stations reported any significant interference from the digital FM stations, in spite of signal strengths higher than permitted by the current methodology. We note that we have not received any interference complaints from any of the adjacent channel stations most likely to experience interference from the stations that petitioners studied, with greater-than-normal power ratios. We request comment on the methodology or interpretation of petitioners' studies, and whether they support petitioners' claim that use of the proposed revised table will not result in harmful interference.

11. The majority of commenters support the proposals set forth in the Power Increase Petition.³⁷ Most agreed with petitioners that allowing more stations to increase digital power would assist FM digital stations to expand their digital service areas, as well as improve building signal penetration.³⁸ As discussed below, two commenters express concern about the effect of increased digital FM power on Low-Power FM (LPFM) and smaller Class A FM stations, contending that such stations serve listeners outside the protected 60 dB μ contour.³⁹

12. We tentatively conclude that the record collected to date supports our proposed methodology change. We reiterate that the Commission initiated the process of authorizing digital broadcast operations in 1999 with the eventual goal of moving terrestrial broadcasting from an all-analog

³⁴ *2010 MB DAB Order*, 25 FCC Rcd at 1190, para. 20.

³⁵ See 47 CFR § 73.313. As explained in the *2010 MB DAB Order*, 25 FCC Rcd at 1190 n.43, since the Commission's rules permit only a limited differential in the location of separate FM analog and digital transmitting facilities and there will be very little difference in the predicted maximum permissible FM Digital ERP for an eligible FM station if calculated from either of the two locations, we require use of the licensed analog facilities for this calculation.

³⁶ Power Increase Petition at 10-15 and Appendix 1 at 7-34. Because each digital station studied was operating at the current maximum allowable power level of -14 dBc, none were required to make a special authorization showing using the current methodology.

³⁷ See, e.g., Comments of Beasley Media Group Licenses, LLC (Beasley Comments) at 4 (contending that there can be "no downside to adjusting the formula for power levels."); Comments of CMG Media Corp. (CMG Comments) at 2 (supporting "swift grant of the [Power Increase] Petition and the Asymmetric Sideband Petition as the next step in the technological advancement of the radio industry."); Comments of Communications Technologies, Inc. (CTI Comments) at 3; Comments of New York Public Radio (NYPR Comments) at 2 (stating that adoption of the updated digital power methodology and asymmetric sideband operation "will do much to spur improvements and increased adoption of HD Radio technology nationwide."); Comments of E. Glynn Walden (Walden Comments) at 3; Comments of Kevin J. Haider (Haider Comments) at 1; Comments of David Maxson (Maxson Comments) at 1 ("The NAB/Xperi technical assessment demonstrates their proposed protection equation will be more than sufficient to maintain interference-free use of the FM spectrum.").

³⁸ See, e.g., CMG Comments at 2; Comments of Nautel Maine, Inc. (Nautel Comments) at 2; Walden Comments at 2.

³⁹ See *infra* paras. 14-17, for a discussion of the effect of increased FM digital power on secondary service stations.

to an all-digital world.⁴⁰ Although we have stated repeatedly that there is no timetable for this eventual change to all-digital broadcast radio⁴¹—and do not alter that stance in any way today—our objective remains to advance the progress of digital radio without causing harmful interference or disruption to existing analog operations. This is especially true given the record evidence of increased digital FM receiver penetration,⁴² even though we recognize that such receivers are far from ubiquitous, and that the record is less complete with regard to non-automotive digital FM receiver penetration. It is this desire to encourage continued adoption of digital FM broadcast technology that informs our tentative conclusions and proposals in this *NPRM*.

13. We tentatively conclude that the proposals set forth in the Power Increase Petition support the goal of furthering the progress of digital FM broadcast radio. We therefore propose to amend our rules to change the methodology used by digital FM stations to determine whether they are eligible to operate with allowable IBOC power up to and including -10 dBc, and to permit any existing FM digital station currently operating with power below -10 dBc that satisfies the table we propose to adopt herein, to increase allowable IBOC power without seeking prior Commission authorization and without the requirement of submitting a contour overlap analysis. We further propose to adopt the petitioners' table for calculating maximum allowable FM IBOC power set forth in paragraph 9, above. We seek comment on this proposal. Are the contours and power levels set forth in the Maximum Permissible FM Digital ERP Table reasonable from an engineering standpoint? If not, how would commenters modify the table? To the extent that any such modifications are proposed, we request that commenters detail the engineering rationale underlying any such modifications. If commenters generally support providing greater flexibility for stations to increase their FM digital power but disagree with the use of the Maximum Permissible FM Digital ERP Table, what other methods would they suggest for calculating maximum FM digital power?

14. *Interference and Proposed Interference Remediation Procedures.* We seek comment on whether changing the power increase methodology will create an unacceptable risk of interference to adjacent-channel stations. Most commenters agree with petitioners that interference has not been and would not be an issue with the proposal to broaden the number of stations eligible to increase digital power levels.⁴³ Petitioners, and those who concur with them, base their contentions on the technical analyses and field studies they cite.⁴⁴ Some commenters, however, express caution surrounding digital interference to FM analog stations, especially smaller stations. These commenters argue that the proposed change to the methodology could harm smaller stations such as Class A FM stations, LPM stations, and FM translators and AM stations rebroadcasting over FM translators.⁴⁵

⁴⁰ See *DAB R&O*, 17 FCC Rcd at 19992-93, para. 7. See also *Digital Audio Broadcasting Systems and Their Impact on the Terrestrial Radio Broadcast Service*, Notice of Proposed Rulemaking, MM Docket No. 99-325, 15 FCC Rcd 1722, 1730, para. 16 (1999).

⁴¹ See, e.g., *DAB Second R&O*, 22 FCC Rcd at 10350-51, para. 13.

⁴² See Power Increase Petition at 2-4; Asymmetric Sideband Petition at 2-5.

⁴³ See, e.g., Beasley Comments at 3 (asserting that the Power Increase Petition proposals are “supported by thorough engineering studies” and that there is “no downside” to adjusting the digital power methodology); Maxson Comments at 1 (“The NAB/Xperi technical assessment demonstrates their proposed protection equation will be more than sufficient to maintain interference-free use of the FM spectrum.”); Reply Comments of iHeartCommunications, Inc. (IHC Reply) at 3-4 (stating that “the comprehensive technical analysis, long-term real-life experiences and field studies presented to the Commission in the NAB/Xperi Petition justify adjusting the IBOC formula to permit certain stations to operate above -14 dBc,” and further that real-world experience and field studies demonstrate that the current methodology is too conservative).

⁴⁴ Power Increase Petition at 9-15, 17-20, and Appendices 1 and 2.

⁴⁵ See Comments of Santiam Community Radio Corp. (Santiam Comments) at 1; Letter from Robert McAllan, CEO, Press Communications, LLC, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 22-405, at 1-2 (filed Mar. 2,

(continued....)

15. In the *2010 MB DAB Order*, the Bureau set forth detailed procedures to identify and remedy complaints of digital-to-analog FM interference among full-service FM broadcast stations.⁴⁶ Those procedures require, first, that an analog FM station receiving verifiable listener complaints of digital interference within its protected contour contact the digital FM station, and that the stations cooperate to confirm the interference and attempt to eliminate it using voluntary tiered FM digital power reductions.⁴⁷ If the stations are unable to agree on appropriate interference remediation measures, the affected analog FM licensee may file a complaint with the Media Bureau.⁴⁸ Media Bureau staff will review each complaint and order appropriate action within 90 days of filing the complaint. If the Bureau has not acted within 90 days, the interfering station must reduce its digital power, and ongoing complaints of interference may require subsequent stepped reductions of digital power.⁴⁹

16. Like the petitioners and commenters,⁵⁰ we have noted few interference complaints from full-service analog FM stations resulting from adjacent-channel digital transmissions. Given the paucity of interference complaints, we tentatively conclude that the interference remediation procedures outlined above and set forth in the *2010 MB DAB Order* will continue to suffice to handle such digital-to-analog interference complaints as may arise between full-service FM stations. These interference mitigation and remediation procedures would therefore remain in place to guard against any instances of actual interference to other facilities. We seek comment on this tentative conclusion. To the extent that commenters believe that these current procedures would be inadequate to deal with the increased power levels proposed in this *NPRM*, we ask that they state specifically where the current system is deficient, and describe in detail the interference identification and remediation measures they feel are needed.

17. As discussed in the *2010 MB DAB Order*, as secondary services LPFM and FM translators stations are not eligible for the interference remediation procedures adopted therein.⁵¹ Because secondary services are not protected from interference from full-service stations, we do not propose to modify this approach such that secondary services can use these interference remediation procedures to claim interference from full-service stations. However, although the number of secondary service stations employing hybrid digital operation to date is small, we invite comment as to whether we should adopt any digital interference remediation procedures for secondary service analog stations claiming interference

2023) (Press First *Ex Parte*). See also Comments of NPR (NPR Comments) at 3 (requesting that any new rules protect FM stations that are not increasing digital power levels). See also *infra* para. 17, for a discussion of the effect of increased FM digital power on secondary service stations.

⁴⁶ *2010 MB DAB Order*, 25 FCC Rcd at 1191-93, paras. 24-30.

⁴⁷ *Id.* at 1193, para. 27. If the stations resolve the interference by voluntarily reducing FM digital power, the digital FM station must notify the Commission of the reduced digital power level, and maintain its digital ERP at the jointly agreed-upon level. *Id.*

⁴⁸ This complaint must contain the following: (a) at least six reports of ongoing (not transitory) objectionable interference; (b) a map showing the location of the reported interference; (c) a detailed description of the nature and extent of the interference experienced at each mapped location; and (d) a complete description of the tests and equipment used to identify the alleged interference and the scope of the unsuccessful efforts to resolve the interference. *Id.* at 1193, para. 28.

⁴⁹ *Id.* at 1193, para. 29. After 90 days, if the Media Bureau has not acted on the complaint, stations operating with FM digital ERP in excess of -14 dBc must immediately reduce FM Digital ERP to -14 dBc. If ongoing complaints of objectionable interference from the FM digital facilities persist, the Bureau may require subsequent 3 dB reductions in FM Digital ERP to -17 dBc and -20 dBc, respectively, until it acts on the pending interference complaint. Stations operating with FM digital ERP of -14 dBc or less must immediately reduce FM Digital ERP to -17 dBc. If interference complaints persist after this initial reduction, the Bureau will order the station to reduce FM digital ERP to the currently permitted maximum of -20 dBc and require it to remain at that level until the Bureau acts on the pending FM digital interference complaint. *Id.*

⁵⁰ See Power Increase Petition at 10-17 and Appendix 1. See also, e.g., Beasley Comments at 3.

⁵¹ *2010 MB DAB Order*, 25 FCC Rcd at 1192-93, para. 26.

from secondary service digital stations. All full-service stations, including Class A stations, may take advantage of the interference remediation procedures set forth in the *2010 MB DAB Order* and as proposed herein.

18. Commenter Aaron Read labels as “disingenuous” a system of determining interference based on listener complaints; rather, he argues for a “a clear, objective, mathematical/contour-based system” for resolving interference issues before the problem becomes acute.⁵² Commenters may wish to address whether the station complaints described above should be based on objective criteria such as “agreed-upon [mathematical] formulas,” rather than listener reports.⁵³ Should the number of reports of ongoing interference required (currently six) be increased or decreased? Should a complaining station be allowed instead to submit studies and/or measurements demonstrating that the digital FM signal within the complaining station’s protected contour exceeds allowable limits? Additionally, how should a digital FM station that has increased its digital power be treated if and when an adjacent-channel analog FM station subsequently increases its analog power, and/or moves its facilities closer to the digital FM station? Should we give precedence to the analog FM signal? Alternatively, should the digital FM facility that now seeks a power increase be protected over a subsequent facility modification by an adjacent-channel analog FM station?

19. Two commenters raise the issue of how a digital FM station power increase would affect protection to incumbent stations. One commenter recounts its experience as an LPFM operator, having its signal blanketed by a local digital signal operating at only four percent of its analog ERP.⁵⁴ It asks that any increase to FM digital sideband power be “carefully considered” due to its impact on LPFM and other smaller stations, suggesting that LPFM and FM translator signals should be protected from digital signal encroachment to at least the 50 dB μ contour.⁵⁵ Another commenter asserts that the proposed power increase would largely benefit large station group owners at the expense of small broadcasters, and would “destroy well-established listening patterns to analog FM stations,” especially in areas like New Jersey where the FM band is saturated with services.⁵⁶ It believes that small Class A stations should be protected beyond their 60 dB μ contours,⁵⁷ and further argues that the proposed rule changes would give large Class B stations in metropolitan areas such as New York and Philadelphia an unfair competitive advantage over smaller, local analog FM stations.⁵⁸ Both commenters argue that protection to the 60 dB μ contour is insufficient for analog FM stations on adjacent channels that, they contend, have listenership well beyond that contour.⁵⁹ We tentatively conclude that there is no need to provide protection from actual interference outside the protected contour of an analog FM station from the digital signal of a full-service FM station, and seek comment on this conclusion. Should protection of incumbent analog FM stations on adjacent channels be increased beyond the 60 dB μ contour and, if so, to what contour?

⁵² Comments of Aaron Read (Read Comments) at 1-2. *See also* Comments of CDE (CDE Comments) at 2; Reply Comments of CDE (CDE Reply) at 2 (requesting that we adopt procedures to establish the presence or absence of interference as a result of the increase in digital sideband power before increasing power levels; also opposing a “global” increase in FM digital power absent “appropriate interference studies” to determine the potential of actual interference).

⁵³ Read Comments at 1.

⁵⁴ Santiam Comments at 1.

⁵⁵ *Id.*

⁵⁶ Press First *Ex Parte* at 1-2.

⁵⁷ Letter from Robert McAllan, CEO, Press Communications, LLC, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 22-405, at 6-8 (filed Mar. 23, 2023) (Press Second *Ex Parte*).

⁵⁸ *Id.* at 1-2, 13-15. Press also asserts that expanding FM digital service at the expense of smaller Class A stations would effectively cancel the latter’s proven analog service “for a digital service that has to date shown little, if any, public interest benefit.” *Id.* at 1.

⁵⁹ *See* Santiam Comments at 1; Press Second *Ex Parte* at 5-8.

Commenters are asked to give detailed evidence for or against increasing the level of protection to analog FM stations on adjacent channels from increased FM digital sideband power proposals. Press offers a number of proposals to remedy what it sees as the problems the Power Increase Petition would cause to smaller, coastal FM stations, including: (i) allowing such stations to move up to three miles inland under certain conditions; (ii) adopting a universal analog 60 dB μ protection in Zone I⁶⁰ for all co-, first-, and second-adjacent analog Class A to Class B station-to-station separations; and (iii) extending protection beyond the 60 dB μ contour for Class A stations to the 45 dB μ contour or even a 50 dB μ Longley-Rice contour.⁶¹ While noting that Press's proposed solutions appear to be geographically targeted and class-specific, we invite comment on Press's proposals.

20. *Superpowered FM Stations.* We propose to continue to limit the power level for previously authorized superpowered FM stations to the station's class maximum.⁶² REC Networks (REC), while generally supportive of the proposals in the Power Increase Petition, notes that the proposed power increases should not be permitted for previously authorized superpowered stations, which historically have been limited in digital power to the class maximum power under section 73.211 of the rules.⁶³ REC notes that the Power Increase Petition proposes to let a digital FM station meeting the proposed new table to increase its digital ERP up to -10 dBc, or 10% of the analog ERP. It states that allowing legacy superpowered FM stations to increase digital power to this level could allow certain stations to increase digital power to above the class maximum, resulting in harmful interference.⁶⁴ We tentatively conclude that a superpowered station's digital ERP should continue to be limited to the class maximum provided in sections 73.211 and 73.511.⁶⁵ Thus, we propose that a superpowered FM station seeking to increase its digital power above -14 dBc may request experimental authorization or special temporary authorization (STA) to do so, and the staff will review such requests on a case-by-case basis. We solicit comment on this conclusion and proposal, and request that commenters opposing this view detail the reasons why they believe that a digital FM station whose power greatly exceeds its class maximum will not cause excessive interference to adjacent channel analog facilities.⁶⁶

21. *Notification of FM Digital Power Increase.* We seek comment on the type of notification, if any, we should require of a digital FM station increasing digital power, and whom should be notified. NPR states that it does not oppose the proposals in the Power Increase Petition as long as any adopted notification procedures also include a provision that the FM digital station increasing power notify the licensees of first-adjacent channel FM stations at least 30 days prior to implementation of the

⁶⁰ 47 CFR § 73.205(a). Zone I consists of all of the states of Illinois, Indiana, Ohio, West Virginia, Pennsylvania, Maryland, Delaware, New Jersey, Connecticut, Rhode Island, and Massachusetts, and portions of Wisconsin, Michigan, Virginia, New York, Vermont, New Hampshire, and Maine.

⁶¹ Press Second *Ex Parte* at 17-18.

⁶² As noted in Appendix A, to conform to the publishing conventions of the National Archives and Records Administration's Office of the Federal Register, we propose to add paragraph numbers to the list of definitions in 47 CFR §§ 73.310(a) and (b). See Appendix A. The definitions restated in Appendix A are identical to the current definitions, except for the definition of "Previously authorized superpowered FM station," which is a new definition we propose to add.

⁶³ Comments of REC Networks (REC Comments) at 1-3. See also 47 CFR § 73.211. Superpowered FM stations have been previously authorized to operate with facilities that exceed the ERP/Height Above Average Terrain (HAAT) limitations of 47 CFR §§ 73.211 or 73.511 for their specific class of station.

⁶⁴ REC Comments at 2-3.

⁶⁵ 47 CFR §§ 73.211, 73.511.

⁶⁶ A station may determine whether it is, by definition, a superpowered FM station using the Media Bureau's Digital Maximum ERP Calculator for Superpowered FM Stations (<https://www.fcc.gov/media/radio/digital-radio-superpowered-fm-stations>).

power increase, but in no event after the power increase has already taken place.⁶⁷ The International Association of Audio Information Services (IAAIS), representing radio reading services that use analog FM station sub-carriers to provide audio versions of publications for print-disabled individuals, likewise requests that a host station increasing digital power to -10 dBc provide written notification to any radio reading services on that host station's sub-carriers, as well as to all radio reading services broadcasting over any adjacent channel stations' sub-carriers.⁶⁸

22. Under the current system, stations increasing symmetric digital sideband power to levels up to -14 dBc need submit LMS Form 2100, Schedule 335-FM, FM Digital Notification (Schedule 335-FM), without any further showings or analysis to be submitted to the staff for approval. The digital FM station must electronically notify the Media Bureau of increased power FM digital operation within 10 days of commencement of operations at increased power.⁶⁹ Although these notifications are available to the public from the FCC's database, the staff takes no action on the notifications, and they do not appear in the Commission's public notices of broadcast applications or broadcast actions. Symmetric digital operation at power levels between -14 dBc and -10 dBc currently require both notification on Schedule 335-FM and a showing that the contours generated do not overlap with the protected contours of adjacent-channel FM stations. Such showings are confirmed by the staff. Under our proposal herein, such showings would no longer be required for power increases up to -10 dBc—the station seeking a power increase would only have to provide notification by filing Schedule 335-FM, and the staff would neither grant nor deny such notification. We tentatively conclude that this notification-only procedure should be sufficient for digital FM stations increasing digital sideband power the additional 4 dB we propose to allow in this *NPRM*, and seek comment on this conclusion. We likewise tentatively conclude that Schedule 335-FM notification should be required for any digital FM station permanently reducing digital power, and further tentatively conclude that any such notification of digital FM power reduction be accompanied by a short statement of the reason(s) for the power reduction (e.g., interference complaints, inadequate signal coverage, etc.), and seek comment on this tentative conclusion.

23. Although the filing of Schedule 335-FM does not generate a separate LMS Public Notice, all filed LMS forms are searchable, and are thus available to the public using the LMS "Search" function.⁷⁰ We thus seek comment on whether this accessibility should provide adequate notice to other stations and interested parties that a first-adjacent channel FM digital station is increasing its digital power. We seek comment on whether Schedule 335-FM filings in LMS will provide adequate notice or if we should adopt any other notification procedure. Commenters holding differing views should explain why we should require additional specific notice, i.e., to first-adjacent stations or entities other than the Commission, than is currently required. Should we require direct notice to all potentially affected first-adjacent channel FM stations in addition to that provided by the notification filed in LMS? Should potential direct notice to first-adjacent channel FM stations be given a certain period of time before the digital station is allowed to implement the digital power increase, such as the 30 days suggested by NPR?⁷¹ In the alternative, should the station increasing digital power be required not only to file Schedule 335-FM, but further be obliged to wait a certain period of time before implementing the power increase, so as to give interested parties an opportunity to comment and/or object? We ask that commenters provide reasons for their positions regarding notice, and further to provide specifics as to both the type of notice that should be given and the key recipients of that notice.

24. IAAIS expresses concerns about digital FM sideband power and its effects on radio reading services. Radio reading services, using primarily volunteer staff, provide valuable services by

⁶⁷ NPR Comments at 1, 3-4.

⁶⁸ Comments of IAAIS (IAAIS Comments) at 2-3.

⁶⁹ *2010 MB DAB Order*, 25 FCC Rcd at 1189, para. 16.

⁷⁰ <https://enterpriseefiling.fcc.gov/dataentry/public/tv/publicSearchLanding.html>.

⁷¹ NPR Comments at 3.

reading daily and weekly newspapers, magazines, current books, and other programs of interest to blind, visually impaired, physically disabled, and other print-disabled persons, who cannot easily access or consume written media.⁷² While these important services employ a variety of methods to deliver their content, the majority of IAAIS members broadcast over analog FM radio subcarriers.⁷³ With regard to IAAIS's concerns about the effect of increased digital FM sideband power on such subcarriers, even absent a general requirement of direct notice of digital power increase to potentially affected stations, should such radio reading services receive special notification from the station proposing to increase digital power, whether that is the station hosting the radio reading service or a nearby adjacent channel station? If so, what form should that direct notice take? If, after reviewing comments, we determine that a station increasing digital power must notify all first-adjacent channel stations of the increase, should we further require that any first-adjacent channel station receiving such notice notify any radio reading service(s) that it hosts?

B. Asymmetric Sideband Petition

25. We propose to grant blanket authorization to digital FM stations to originate digital transmissions at different power levels on the upper and lower digital sidebands without having to request experimental authorization. As with any digital FM power increase resulting from the proposed revised power table, discussed above, we propose that a digital FM station need only notify us of asymmetric sideband operation by filing notification (Schedule 335-FM) in the Bureau's LMS database.

26. *Asymmetric Sideband Operation / Interference Issues.* Currently, as discussed above, digital FM stations must use the same ERP on both the upper and lower digital sidebands.⁷⁴ Thus, as pointed out by petitioners NAB, Xperi, and NPR, any digital FM station's digital power was limited to that needed to protect the nearer of the adjacent channel analog FM stations, regardless of whether there was a need to limit power on the other sideband.⁷⁵ Petitioners contend that allowing calculation of the maximum allowable digital FM ERP on a per-sideband basis allows such stations to optimize their digital signal coverage while still protecting analog FM stations on adjacent channels.⁷⁶ For example, a digital FM station with an analog station only on the first adjacent channel above its frequency could selectively reduce power on the upper sideband to avoid causing interference, while maintaining or even increasing digital ERP on the lower sideband to enhance signal coverage without interfering with a nearby station. Alternatively, a digital FM station in the same situation could maintain its digital ERP on the upper sideband while increasing power on the lower sideband. The 2019 Asymmetric Sideband Petition proposed an adjustment to the current methodology for calculating maximum FM Digital ERP, that would subtract 3 dB, owing to the 3 dB difference between total digital power and per-sideband power.⁷⁷ The 2022 Power Increase Petition proposes a new formula to calculate maximum digital power per sideband,

⁷² IAAIS Comments at 1.

⁷³ *Id.* A subcarrier, known also as Subsidiary Communications Authority or SCA, is a separate audio or data channel that is transmitted along with the main audio signal over a broadcast station. These subcarrier channels are not receivable with a regular radio; special receivers are required.

⁷⁴ See 2010 MB DAB Order, 25 FCC Rcd at 1190, para. 20 (setting forth methodology for calculating maximum permissible FM Digital ERP that assumes operation with symmetric sidebands). A station wishing to operate with asymmetric sideband power must request experimental operation, including a showing that the digital sideband signal contours will not overlap adjacent stations' protected contours. The staff will grant requests that do not propose prohibited overlap.

⁷⁵ Asymmetric Sideband Petition at 9.

⁷⁶ *Id.* at 8-9.

⁷⁷ *Id.* at 6 (proposing the formula: Allowable IBOC Power = $[2.27 * (60 - \text{IBOC station } F(50,10) \text{ dB}\mu) - 36.6]$). See also Power Increase Petition at 7 n.13.

updated to comport with the Power Increase Petition proposal.⁷⁸ The proposed new method for calculating per-sideband FM Digital ERP yields the following table:

Proponent Analog F(50,10) Field Strength at First Adjacent Station's Analog 60 dBμ F(50,50) Contour (Asymmetric Sideband Operation)	Maximum Permissible FM Digital ERP
54.9 dB μ and above	-14 dBc
53.5 dB μ to 54.8 dB μ	-13 dBc
52.6 dB μ to 53.4 dB μ	-12 dBc
51.1 dB μ to 52.5 dB μ	-11 dBc
51.0 dB μ or less	-10 dBc

When operating in symmetric mode, each digital sideband contributes exactly half of the total authorized digital power for that station. For example, a station that is authorized to operate in symmetric mode with a total digital power of -10 dBc operates with half that power (-13 dBc) in each digital sideband. When a station operates in asymmetric mode with one digital sideband having more power than the other, it is necessary to ensure that each sideband is limited to the appropriate contour-limited value from the table, and that the total digital power in both sidebands together does not exceed the total amount of digital power that would be authorized if the station were operating in symmetric mode. Accordingly, the Effective Radiated Power at each sideband must be adjusted so that the total sideband powers do not exceed the total power that would be authorized for that station operating in symmetric sideband mode.

27. Those commenters that addressed the Asymmetric Sideband Petition uniformly supported it.⁷⁹ Many of the supporters noted that eliminating the need to seek experimental authorization for asymmetric sideband operation would encourage more stations to adopt this operational mode.⁸⁰

28. Given the general lack of commenter objection and the record as presented by the petitioners and certain commenters, we propose to authorize asymmetric sideband operation for FM digital broadcasters operating at any power level, without the need first to seek experimental authorization. As with any potential FM digital power increase, as discussed at paragraph 22, above, we propose that a digital FM station seeking to operate with asymmetric sidebands must notify the Bureau using Schedule 335-FM. We reiterate that the filing of Schedule 335-FM with the Commission does not trigger the release of a separate Public Notice in LMS, but that, like all LMS forms, the filing is searchable and thus available to members of the public using the LMS "Search" function.⁸¹ We therefore seek comment on whether notification to the Commission should suffice to provide notice to other interested parties, including adjacent channel stations. To the extent that commenters believe that more or different notice should be required, we ask that they specify the type of notice and the reasons why form

⁷⁸ The updated formula is: Allowable IBOC power (dBc, per sideband) = 41 – [IBOC Station F(50,10) dB μ at the desired station 60 dB μ F(50,50) contour]. Power Increase Petition at 7.

⁷⁹ See IHC Reply at 2-3; Walden Comments at 3; REC Comments at 4; Read Comments at 1; NYPR Comments at 5; Nautel Comments at 1; Haider Comments at 1; CTI Comments at 3; CMG Comments at 2-4; Beasley Comments at 2-3. See also NPR Comments at 2; Xperi Reply at 3. It must be noted that Press, which filed its *ex parte* presentations after the commenting period expired, questions whether the proposals in the Asymmetric Sideband Petition, if adopted, would actually protect adjacent FM analog stations to the extent it believes is required. See Press Second *Ex Parte* at 4.

⁸⁰ See Beasley Comments at 3 (reporting experimental operation of its station WCSX(FM), Birmingham, Michigan, with asymmetric sidebands as having "uniformly positive" results, improving the stability and robustness of the digital signal while generating no interference reports); REC Comments at 4; Walden Comments at 3; IHC Reply at 1-2; NYPR Comments at 5 (stating that its classical music station WQXR-FM, Newark, New Jersey, is limited on one sideband from increasing digital power, but is not so limited on the other sideband, thus the use of asymmetric sidebands would enable it greatly to improve its digital service).

⁸¹ <https://enterpriseefiling.fcc.gov/dataentry/public/tv/publicSearchLanding.html>.

availability in LMS is not sufficient. We further tentatively conclude that Schedule 335-FM notification should be required for any digital FM station that permanently reverts to symmetric sideband operation from asymmetric sideband operation, and further tentatively conclude that any such notification of return to symmetric sideband operation be accompanied by a short statement of the reason(s) for this action. We seek comment on this tentative conclusion.

29. Likewise, we believe that the interference mitigation and remediation procedures set forth in the *2010 MB DAB Order* should be sufficient to remedy any reports of inter-station interference as a result of asymmetric sideband operation. We observe that asymmetric sideband operation *per se* should not cause an increase in interference or complaints thereof, as stations employing such operation are already protecting the closer of the adjacent stations to their sideband frequencies, and the only power increases should be toward adjacent channel stations that are more distant, either physically or by frequency. Again, to the extent that commenters believe that more stringent interference mitigation and remediation procedures are required, we ask that such commenters detail the measures they deem necessary as well as the precise reasons why the current procedures are inadequate.

C. Other Issues

30. *Pending Proceedings.* If we authorize the proposals set forth in the Power Increase Petition and the Asymmetric Sideband Petition, we propose that experimental requests and applications for special temporary authorizations that have not been the subject of any staff decision as of the effective date of any rules adopted in any subsequent *Report and Order* in this proceeding will be decided based on the new rules.⁸² We further propose that experimental requests and applications for special temporary authorizations that have been the subject of a staff decision, even if the subject of a pending petition for reconsideration or application for review, will be decided based on the rules in effect at the time staff issued its decision. We further propose that any licensees operating facilities under experimental or special temporary authorizations, that are compliant with any rules adopted in this proceeding, need only file notification on Schedule 335-FM within 30 days of the effective date of any rules adopted in a subsequent *Report and Order* in this proceeding. We seek comment generally on these issues.

31. *Digital Equity and Inclusion.* Finally, the Commission, as part of its continuing effort to advance digital equity for all,⁸³ including people of color, persons with disabilities, persons who live in rural or Tribal areas, and others who are or have been historically underserved, marginalized, or adversely affected by persistent poverty or inequality, invites comment on any equity-related considerations⁸⁴ and benefits (if any) that may be associated with the proposals and issues discussed herein. Specifically, we

⁸² See *Amendment of Part 74 of the Commission's Rules Regarding FM Translator Interference*, Report and Order, 34 FCC Rcd 3457, 3482, para. 49 (2019), citing *Melcher v. FCC*, 134 F.3d 1143, 1165 (D.C. Cir. 1998); *Chadmoore Commc'ns, Inc. v. FCC*, 113 F.3d 235, 241 (D.C. Cir.1997); *Hispanic Inf. & Telecomm. Network, Inc. v. FCC*, 865 F.2d 1289, 1294-95 (D.C.Cir.1989) (“The filing of an application creates no vested right to a hearing; if the substantive standards change so that the applicant is no longer qualified, the application may be dismissed.”).

⁸³ Section 1 of the Communications Act of 1934 as amended provides that the FCC “regulat[es] interstate and foreign commerce in communication by wire and radio so as to make [such service] available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex.” 47 U.S.C. § 151.

⁸⁴ The term “equity” is used here consistent with Executive Order 13985 as the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. See Exec. Order No. 13985, 86 Fed. Reg. 7009, Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (January 20, 2021).

seek comment on how our proposals may promote or inhibit advances in diversity, equity, inclusion, and accessibility, as well the scope of the Commission's relevant legal authority.

IV. PROCEDURAL MATTERS

32. *Regulatory Flexibility Act.* The Regulatory Flexibility Act of 1980, as amended (RFA),⁸⁵ requires that an agency prepare a regulatory flexibility analysis for notice and comment rulemakings, unless the agency certifies that “the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities.”⁸⁶ Accordingly, we have prepared an Initial Regulatory Flexibility Analysis (IRFA) concerning the possible impact of potential rule and/or policy changes contained in this *NPRM* on small entities. The IRFA is set forth in Appendix B. Written public comments are requested on the IRFA. Comments must be filed by the deadlines for comments on the *NPRM* indicated on the first page of this document and must have a separate and distinct heading designating them as responses to the IRFA.

33. *Paperwork Reduction Act.* This document contains new or modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens and pursuant to the Paperwork Reduction Act of 1995, Public Law 104-13, invites the general public and the Office of Management and Budget (OMB) to comment on the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. § 3506(c)(4), we seek specific comment on how we might further reduce the information collection burden for small business concerns with fewer than 25 employees.

34. *Ex Parte Rules - Permit-But-Disclose.* This proceeding shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission's *ex parte* rules.⁸⁷ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda, or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

35. *Filing Requirements—Comments and Replies.* Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

⁸⁵ 5 U.S.C. §§ 601-612. The RFA has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Publ. L. No. 104-121, Title II, 110 Stat. 857 (1996).

⁸⁶ 5 U.S.C. § 605(b).

⁸⁷ 47 CFR §§ 1.1200 *et seq.*

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://apps.fcc.gov/ecfs/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing.
- Filings can be sent by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.
 - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
 - U.S. Postal Service first-class, Express, and Priority mail must be addressed to 45 L Street, NE, Washington DC 20554
- Effective March 19, 2020, and until further notice, the Commission no longer accepts any hand or messenger delivered filings. This is a temporary measure taken to help protect the health and safety of individuals, and to mitigate the transmission of COVID-19.⁸⁸
- During the time the Commission's building is closed to the general public and until further notice, if more than one docket or rulemaking number appears in the caption of a proceeding, paper filers need not submit two additional copies for each additional docket or rulemaking number; an original and one copy are sufficient.

36. *People with Disabilities.* To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

37. *Availability of Documents.* Comments, reply comments, and *ex parte* submissions will be available for public inspection during regular business hours in the FCC Reference Center, Federal Communications Commission, 45 L Street, NE, Washington, DC 20554. These documents will also be available via ECFS. Documents will be available electronically in ASCII, Microsoft Word, and/or Adobe Acrobat.

38. *Additional Information.* For additional information on this proceeding, contact Thomas Nessinger, Thomas.Nessinger@fcc.gov, of the Media Bureau, Audio Division, at (202) 418-2709, or James Bradshaw, James.Bradshaw@fcc.gov of the Media Bureau, Audio Division, at (202) 418-2739.

V. ORDERING CLAUSES

39. Accordingly, **IT IS ORDERED**, pursuant to section 1.407 of the Commission's rules, 47 CFR § 1.407, that the Petition for Rulemaking of the National Association of Broadcasters, Xperi Corporation, and National Public Radio filed on Dec. 9, 2019 and the Petition for Rulemaking of the National Association of Broadcasters and Xperi Corporation filed on Oct. 26, 2022 **ARE GRANTED**.

40. **IT IS FURTHER ORDERED** that, pursuant to the authority contained in sections 1, 4(i), 4(j), 301, 302a, 303, 307, 308, 309, 316, 319, and 324 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 154(j), 301, 302a, 303, 307, 308, 309, 316, 319, and 324 this Notice of Proposed Rulemaking **IS ADOPTED**.

41. **IT IS FURTHER ORDERED** that the Commission's Office of the Secretary, Reference Information Center, **SHALL SEND** a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

⁸⁸ See *FCC Announces Closure of FCC Headquarters Open Window and Change in Hand-Delivery Policy*, Public Notice, 35 FCC Red 2788 (2020).

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Proposed Rule Changes

Part 73 and Part 74 of Chapter I of Title 47 of the Code of Federal Regulations are proposed to be amended as follows:

PART 73 – RADIO BROADCAST SERVICES

1. The authority citation for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 155, 301, 303, 307, 309, 310, 334, 336, 339.

2. Amend § 73.310 by: (1) adding introductory language to paragraph (a); (2) redesignating the definitions in paragraph (a), “Antenna height above average terrain (HAAT)” through “Percentage modulation” as paragraphs (a)(1) through (a)(20); (3) adding paragraph (a)(21); (4) adding introductory language to paragraph (b); and (5) redesignating the definitions in paragraph (b) as paragraphs (b)(1) through (b)(10) to read as follows:

§ 73.310 FM technical definitions.

(a) *Frequency modulation.* The following definitions pertain to frequency modulation, as defined in § 73.310(a)(17).

(1) *Antenna height above average terrain (HAAT).* HAAT is calculated by: determining the average of the antenna heights above the terrain from 3 to 16 kilometers (2 to 10 miles) from the antenna for the eight directions evenly spaced for each 45° of azimuth starting with True North (a different antenna height will be determined in each direction from the antenna); and computing the average of these separate heights. In some cases less than eight directions may be used. (*See* § 73.313(d).) Where circular or elliptical polarization is used, the antenna height above average terrain must be based upon the height of the radiation of the antenna that transmits the horizontal component of radiation.

(2) *Antenna power gain.* The square of the ratio of the root-mean-square (RMS) free space field strength produced at 1 kilometer in the horizontal plane in millivolts per meter for 1 kW antenna input power to 221.4 mV/m. This ratio is expressed in decibels (dB). If specified for a particular direction, antenna power gain is based on that field strength in the direction only.

(3) *Auxiliary facility.* An auxiliary facility is an antenna separate from the main facility’s antenna, permanently installed on the same tower or at a different location, from which a station may broadcast for short periods without prior Commission authorization or notice to the Commission while the main facility is not in operation (e.g., where tower work necessitates turning off the main antenna or where lightning has caused damage to the main antenna or transmission system) (*See* § 73.1675).

(4) *Center frequency.* The term “center frequency” means:

- (i) The average frequency of the emitted wave when modulated by a sinusoidal signal.
- (ii) The frequency of the emitted wave without modulation.

(5) *Composite antenna pattern.* The composite antenna pattern is a relative field horizontal plane pattern for 360 degrees of azimuth, for which the value at a particular azimuth is the greater of the horizontally polarized or vertically polarized component relative field values. The composite antenna pattern is normalized to a maximum of unity (1.000) relative field.

(6) *Composite baseband signal.* A signal which is composed of all program and other communications signals that frequency modulates the FM carrier.

(7) *Effective radiated power.* The term “effective radiated power” means the product of the antenna power (transmitter output power less transmission line loss) times:

(i) The antenna power gain, or

(ii) the antenna field gain squared. Where circular or elliptical polarization is employed, the term effective radiated power is applied separately to the horizontal and vertical components of radiation. For allocation purposes, the effective radiated power authorized is the horizontally polarized component of radiation only.

(8) *Equivalent isotropically radiated power (EIRP).* The term “equivalent isotropically radiated power (also known as “effective radiated power above isotropic) means the product of the antenna input power and the antenna gain in a given direction relative to an isotropic antenna.

(9) *FM Blanketing.* Blanketing is that form of interference to the reception of other broadcast stations which is caused by the presence of an FM broadcast signal of 115 dB μ (562 mV/m) or greater signal strength in the area adjacent to the antenna of the transmitting station. The 115 dB μ contour is referred to as the blanketing contour and the area within this contour is referred to as the blanketing area.

(10) *FM broadcast band.* The band of frequencies extending from 88 to 108 MHz, which includes those assigned to noncommercial educational broadcasting.

(11) *FM broadcast channel.* A band of frequencies 200 kHz wide and designated by its center frequency. Channels for FM broadcast stations begin at 88.1 MHz and continue in successive steps of 200 kHz to and including 107.9 MHz.

(12) *FM broadcast station.* A station employing frequency modulation in the FM broadcast band and licensed primarily for the transmission of radiotelephone emissions intended to be received by the general public.

(13) *Field strength.* The electric field strength in the horizontal plane.

(14) *Free space field strength.* The field strength that would exist at a point in the absence of waves reflected from the earth or other reflecting objects.

(15) *Frequency departure.* The amount of variation of a carrier frequency or center frequency from its assigned value.

(16) *Frequency deviation.* The peak difference between modulated wave and the carrier frequency.

(17) *Frequency modulation.* A system of modulation where the instantaneous radio frequency varies in proportion to the instantaneous amplitude of the modulating signal (amplitude of modulating signal to be measured after pre-emphasis, if used) and the instantaneous radio frequency is independent of the frequency of the modulating signal.

(18) *Frequency swing.* The peak difference between the maximum and the minimum values of the instantaneous frequency of the carrier wave during modulation.

(19) *Multiplex transmission.* The term “multiplex transmission” means the simultaneous transmission of two or more signals within a single channel. Multiplex transmission as applied to FM broadcast stations means the transmission of facsimile or other signals in addition to the regular broadcast signals.

(20) *Percentage modulation.* The ratio of the actual frequency deviation to the frequency deviation defined as 100% modulation, expressed in percentage. For FM broadcast stations, a frequency deviation of $\pm 75\text{kHz}$ is defined as 100% modulation.

(21) *Previously authorized superpowered FM station.* An FM station authorized to operate with facilities that exceed the Effective Radiated Power/Height Above Average Terrain limitations of §§ 73.211 or 73.511 for their specific class.

(b) *Stereophonic sound broadcasting.* The following definitions pertain to stereophonic sound broadcasting, as defined in § 73.310(b)(8).

(1) *Cross-talk.* An undesired signal occurring in one channel caused by an electrical signal in another channel.

(2) *FM stereophonic broadcast.* The transmission of a stereophonic program by a single FM broadcast station utilizing the main channel and a stereophonic subchannel.

(3) *Left (or right) signal.* The electrical output of a microphone or combination of microphones placed so as to convey the intensity, time, and location of sounds originating predominately to the listener’s left (or right) of the center of the performing area.

(4) *Left (or right) stereophonic channel.* The left (or right) signal as electrically reproduced in reception of FM stereophonic broadcasts.

(5) *Main channel.* The band of frequencies from 50 to 15,000 Hz which frequency-modulate the main carrier.

(6) *Pilot subcarrier.* A subcarrier that serves as a control signal for use in the reception of FM stereophonic sound broadcasts.

(7) *Stereophonic separation.* The ratio of the electrical signal caused in sound channel A to the signal caused in sound channel B by the transmission of only a channel B signal. Channels A and B may be any two channels of a stereophonic sound broadcast transmission system.

(8) *Stereophonic sound.* The audio information carried by plurality of channels arranged to afford the listener a sense of the spatial distribution of sound sources. Stereophonic sound broadcasting includes, but is not limited to, biphonic (two channel), triphonic (three channel) and quadrophonic (four channel) program services.

(9) *Stereophonic sound subcarrier.* A subcarrier within the FM broadcast baseband used for transmitting signals for stereophonic sound reception of the main broadcast program service.

(10) *Stereophonic sound subchannel.* The band of frequencies from 23 kHz to 99 kHz containing sound subcarriers and their associated sidebands.

* * * * *

3. Add § 73.402(i) to read as follows:

§ 73.402 Definitions.

* * * * *

(i) *Asymmetric sideband operation.* For digital FM stations, the use of different power levels on the upper and lower digital sidebands in a hybrid or extended hybrid DAB system.

4. Add § 73.404(e), (f), and (g) to read as follows:

§73.404 IBOC DAB operation.

* * * * *

(e) All FM stations transmitting hybrid IBOC signals may operate with total effective radiated power of up to -14 dBc. No station may operate its digital carriers with a total effective radiated power in excess of -10 dBc. A station using symmetric sidebands planning to operate with a total radiated power in excess of -14 dBc must confirm compliance with Table 1 below by calculating the signal strength of its analog signal at the first adjacent station’s 60 dBμ contour. All calculations must be made using the standard FCC contour prediction methodology.

Table 1 to Paragraph (e) – Maximum Permissible FM Digital ERP for Symmetric Sideband Operation

Proponent Analog F(50,10) Field Strength at First Adjacent Station’s Analog 60 dBμ F(50,50) Contour (Symmetric Sideband Operation)	Maximum Permissible FM Digital ERP
57.9 dBμ and above	-14 dBc
56.5 dBμ to 57.8 dBμ	-13 dBc
55.6 dBμ to 56.4 dBμ	-12 dBc
54.1 dBμ to 55.5 dBμ	-11 dBc
54.0 dBμ or less	-10 dBc

(f) FM stations may transmit hybrid IBOC signals with asymmetric power on the digital sidebands, as defined in § 73.402(i). Where asymmetric operation is used, the Effective Radiated Power at each sideband must be adjusted so that the total sideband powers do not exceed the total power that would be authorized for the station operating in symmetric sideband mode. A station using asymmetric sidebands planning to operate with a radiated power in excess of -17 dBc on either sideband (upper or lower) must confirm compliance with Table 1 below by calculating the signal strength of its analog signal at the respective (upper or lower) first adjacent station’s 60

dB μ contour. All calculations must be made using the standard FCC contour prediction methodology.

Table 1 to Paragraph (f) – Maximum Permissible FM Digital ERP for Asymmetric Sideband Operation

Proponent Analog F(50,10) Field Strength at the Upper or Lower First Adjacent Station's Analog 60 dBμ F(50,50) Contour (Asymmetric Sideband Operation)	Maximum Permissible FM Digital ERP for the Respective (Upper or Lower) Sideband
54.9 dB μ and above	-17 dBc
53.5 dB μ to 54.8 dB μ	-16 dBc
52.6 dB μ to 53.4 dB μ	-15 dBc
51.1 dB μ to 52.5 dB μ	-14 dBc
51.0 dB μ or less	-13 dBc

(g) The digital effective radiated power of a previously authorized superpowered FM station, as defined in § 73.310(a)(7) and (a)(21), must be limited to the class maximum set forth in §§ 73.211 and 73.511.

5. Add § 73.406(d)(5), (d)(6), (d)(7), and (d)(8), to read as follows:

§73.406 Notification.

* * * * *

(d) * * *

(5) If applicable, for FM stations planning to operate with symmetric sidebands in excess of -14 dBc, a certification that the proposed FM digital Effective Radiated Power is permitted, using the table set forth in Table 1 to § 73.404(e). Certifications must be based on the most restrictive analog field strength of the proponent at any nearby first-adjacent channel station's 60 dB μ contour.

(6) If applicable, for FM stations employing asymmetric sideband operation as defined in § 73.402(i), a certification that the proposed digital sideband power on each sideband conforms to the Maximum Permissible FM Digital ERP set forth in Table 1 to § 73.404(f), and that the total digital sideband power will not exceed the total power if the digital sideband operation were symmetric.(7) Any digital FM station permanently reducing digital power must notify the Commission of such digital power reduction on Form 2100, Schedule 335-FM. Any such notification of digital FM power reduction must include a short statement of the reason(s) for the power reduction.

(8) Any digital FM station permanently discontinuing asymmetric sideband operation and returning to symmetric sideband operation must notify the Commission of such return to symmetric sideband operation on Form 2100, Schedule 335-FM. Any such notification of discontinuing asymmetric sideband operation must include a short statement of the reason(s) for such action.

APPENDIX B

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ the Federal Communications Commission (Commission) has prepared this Initial Regulatory Flexibility Analysis (IRFA) concerning the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in the *Notice of Proposed Rulemaking (NPRM)*. Written public comments are requested on this IRFA. Comments must be identified as responses to this IRFA and must be filed by the deadlines for comments provided on the first page of the *NPRM*. The Commission will send a copy of the *NPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).² In addition, the *NPRM* and IRFA (or summaries thereof) will be published in the Federal Register.³

A. Need for, and Objectives of, the Proposed Rules

2. In the *NPRM*, the Commission proposes to revise its methodology for determining whether a digital FM station may increase the effective radiated power (ERP) on its digital sidebands; to allow a digital FM station to implement or increase digital ERP from 14 dB below the analog carrier ERP (expressed as -14 dBc) to -10 dBc, without the need to do more than notify the Commission of such operation by FCC form; and to allow a digital FM station to operate with different power levels on its upper and lower digital sidebands, without first having to seek experimental authorization for such operation. The Commission initiated the *NPRM* in response to two Petitions for Rulemaking that were consolidated by the Media Bureau (Bureau) because the proposed rule changes both relate to improving digital FM signal quality and minimizing the effect of the digital FM station signal on adjacent channel FM transmissions. In the earlier of the two petitions, filed December 9, 2019, petitioners National Association of Broadcasters (NAB), Xperi Corporation (Xperi), and National Public Radio (NPR) request blanket authorization to set digital power at different levels on each digital sideband, thus allowing a digital FM station to protect, for example, an analog FM station on a lower first adjacent channel, while enabling an increase in digital power on the upper sideband where there is no adjacent analog FM station or a more distant adjacent station.⁴ In the second petition, filed October 26, 2022, NAB and Xperi request that the FCC adopt an updated methodology to determine digital FM power levels for stations seeking to exceed the currently authorized FM digital effective radiated power (ERP) of -14 dBc.⁵ The Commission seeks comment on whether the rule changes proposed, based on the Asymmetric Sideband Petition and Power Increase Petition, would serve the public interest by providing digital FM stations with the ability to increase power and, concomitantly, increase coverage area, building penetration, and provide a more robust digital signal. Petitioners, and most commenters on the petitions, maintain that the current method for determining digital FM power overprotects analog FM stations on adjacent frequencies from digital interference, and that higher digital FM power levels would enable digital FM stations to more closely replicate their analog FM coverage with digital coverage. With regard to the Asymmetric Sideband Petition, petitioners contend that allowing calculation of the maximum allowable digital FM power on a per-sideband basis allows such stations to optimize their digital signal coverage while still protecting

¹ See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

² 5 U.S.C. § 603(a).

³ *Id.*

⁴ Petition for Rulemaking of Nat'l Ass'n of Broad., Xperi Corp., and Nat'l Public Radio, MB Docket No. 22-405 (filed Dec. 9, 2019), <https://www.fcc.gov/ecfs/document/1125972022299/1> (Asymmetric Sideband Petition).

⁵ Petition for Rulemaking of Nat'l Ass'n of Broad. and Xperi Corp., MB Docket No. 22-405 (filed Oct. 26, 2022), <https://www.fcc.gov/ecfs/document/10261669202264/1> (Power Increase Petition).

analog FM stations on adjacent channels.⁶ For example, a digital FM station with an analog station only on the first adjacent channel above its frequency could selectively reduce power on the upper sideband to avoid causing interference, while maintaining or even increasing digital power on the lower sideband to enhance signal coverage without interfering with a nearby station. Alternatively, a digital FM station in the same situation could maintain its digital power on the upper sideband while increasing power on the lower sideband.

3. The Commission seeks comment on the following issues relating to digital FM station operations: (1) to change the methodology used by digital FM stations to determine whether they are eligible to increase digital FM ERP up to -10 dBc, or 10% of analog power, upon basic notification to the Commission and without the need for additional individual special authorization; (2) to allow a power increase up to -10 dBc by notifying the Commission in the Bureau's Licensing and Management System (LMS), utilizing the same notification procedures as currently used; (3) whether changing the method for calculating whether a digital FM station can increase its digital power will create an unacceptable risk of interference to adjacent-channel stations; (4) whether to continue to limit the power level for previously authorized superpowered FM stations to their class maximum; (5) the type of notification, if any, we should require of a digital FM station increasing digital power, and whom should be notified; (6) whether the interference mitigation and remediation procedures currently used for inter-station digital FM interference should be sufficient to remedy any reports of inter-station interference as a result of a station's increase in its digital power; (7) whether to grant blanket authorization to digital FM stations to originate digital transmissions at different power levels on the upper and lower digital sidebands without having to request experimental authorization; and (8) whether the interference mitigation and remediation procedures currently used for inter-station digital FM interference should be sufficient to remedy any reports of inter-station interference as a result of asymmetric sideband operation.

B. Legal Basis

4. The proposed action is authorized pursuant to sections 1, 4(i), 4(j), 301, 302a, 303, 307, 308, 309, 316, 319, and 324 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 154(j), 301, 302a, 303, 307, 308, 309, 316, 319, and 324.

C. Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply

5. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.⁷ The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."⁸ In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.⁹ A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.¹⁰

⁶ *Id.* at 8-9.

⁷ 5 U.S.C. § 603(b)(3).

⁸ *Id.* § 601(6).

⁹ *Id.* § 601(3) (incorporating by reference the definition of "small-business concern" in 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." *Id.* § 601(3).

¹⁰ 15 U.S.C. § 632.

6. *Radio Stations.* This industry is comprised of “establishments primarily engaged in broadcasting aural programs by radio to the public.”¹¹ Programming may originate in their own studio, from an affiliated network, or from external sources.¹² The SBA small business size standard for this industry classifies firms having \$41.5 million or less in annual receipts as small.¹³ U.S. Census Bureau data for 2017 show that 2,963 firms operated in this industry during that year.¹⁴ Of this number, 1,879 firms operated with revenue of less than \$25 million per year.¹⁵ Based on this data and the SBA’s small business size standard, we estimate a majority of such entities are small entities.

7. The Commission estimates that as of March 31, 2023, there were 4,472 licensed commercial AM radio stations and 6,681 licensed commercial FM radio stations, for a combined total of 11,153 commercial radio stations.¹⁶ Of this total, 11,151 stations (or 99.98 %) had revenues of \$41.5 million or less in 2022, according to Commission staff review of the BIA Kelsey Inc. Media Access Pro Database (BIA) on April 7, 2023, and therefore these licensees qualify as small entities under the SBA definition. In addition, the Commission estimates that as of March 31, 2023, there were 4,219 licensed noncommercial (NCE) FM radio stations, 1,999 low power FM (LPFM) stations, and 8,939 FM translators and boosters.¹⁷ The Commission however does not compile, and otherwise does not have access to financial information for these radio stations that would permit it to determine how many of these stations qualify as small entities under the SBA small business size standard. Nevertheless, given the SBA’s large annual receipts threshold for this industry and the nature of radio station licensees, we presume that all of these entities qualify as small entities under the above SBA small business size standard.

8. We note, however, that in assessing whether a business concern qualifies as “small” under the above definition, business (control) affiliations¹⁸ must be included. Our estimate, therefore, likely overstates the number of small entities that might be affected by our action, because the revenue figure on which it is based does not include or aggregate revenues from affiliated companies. In addition, another element of the definition of “small business” requires that an entity not be dominant in its field of operation. We are unable at this time to define or quantify the criteria that would establish whether a specific radio or television broadcast station is dominant in its field of operation. Accordingly, the estimate of small businesses to which the rules may apply does not exclude any radio or television station

¹¹ See U.S. Census Bureau, *2017 NAICS Definition, “515112 Radio Stations,”* <https://www.census.gov/naics/?input=515112&year=2017&details=515112>.

¹² *Id.*

¹³ 13 CFR § 121.201, NAICS Code 515112 (as of 10/1/22 NAICS Code 516110).

¹⁴ U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 515112, <https://data.census.gov/cedsci/table?y=2017&n=515112&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>. We note that the US Census Bureau withheld publication of the number of firms that operated for the entire year.

¹⁵ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We note that the U.S. Census Bureau withheld publication of the number of firms that operated with sales/value of shipments/revenue in the individual categories for less than \$100,000, and \$100,000 to \$249,999 to avoid disclosing data for individual companies (see Cell Notes for the sales/value of shipments/revenue in these categories). Therefore, the number of firms with revenue that meet the SBA size standard would be higher than noted herein. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see https://www.census.gov/glossary/#term_ReceiptsRevenueServices.

¹⁶ See *Broadcast Station Totals as of March 31, 2023*, Public Notice, DA 23-300 (MB rel. Apr. 6, 2023) (*March 2023 Broadcast Station Totals PN*).

¹⁷ See *March 2023 Broadcast Station Totals PN*.

¹⁸ “[Business concerns] are affiliates of each other when one concern controls or has the power to control the other or a third party or parties controls or has the power to control both.” 13 CFR § 21.103(a)(1).

from the definition of a small business on this basis and is therefore possibly over-inclusive. An additional element of the definition of “small business” is that the entity must be independently owned and operated. Because it is difficult to assess these criteria in the context of media entities, the estimate of small businesses to which the rules may apply does not exclude any radio or television station from the definition of a small business on this basis and similarly may be over-inclusive.

9. *Low Power FM Stations.* The SBA small business size standard for Radio Stations¹⁹ applies to low power FM stations. The Radio Stations industry comprises establishments primarily engaged in broadcasting aural programs by radio to the public.²⁰ Programming may originate in their own studio, from an affiliated network, or from external sources.²¹ The SBA small business size standard for this industry classifies firms having \$41.5 million or less in annual receipts as small.²² U.S. Census Bureau data for 2017 show that 2,963 firms in this industry operated during that year.²³ Of this number, 1,879 firms operated with revenue of less than \$25 million per year.²⁴ Therefore, based on the SBA’s size standard we conclude that the majority of low power FM stations are small.

10. Additionally, according to Commission data as of March 31, 2023, there were 1,999 Low Power FM licensed broadcast stations and 8,939 FM Translator Stations.²⁵ The Commission does not compile and otherwise does not have access to financial information for these stations that would permit it to determine how many of the stations would qualify as small entities under the SBA size standard. However, given that low power FM stations and FM translators and boosters are very small and limited in their operations and unlikely to have annual receipts anywhere near the SBA small size standard, we will presume that these licensees qualify as small entities under the SBA size standard.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

11. In this section, we identify the reporting, recordkeeping, and other compliance requirements proposed in the *NPRM* and consider whether small entities are affected disproportionately by any such requirements. As discussed above, the *NPRM* seeks comment on changes to the Commission’s rules governing digital FM broadcast stations. Allowing some broadcasters that are small entities to increase digital FM power, or to operate with asymmetric sideband power, as proposed in the *NPRM* would be a voluntary process. Each FM station that meets the proposed requirements can make an individual decision about whether operating with higher digital power and/or asymmetric sideband power is a feasible technical and economic upgrade option. The Commission does not propose to compel, but rather

¹⁹ See U.S. Census Bureau, *2017 NAICS Definition, “515112 Radio Stations,”* <https://www.census.gov/naics/?input=515112&year=2017&details=515112>.

²⁰ *Id.*

²¹ *Id.*

²² 13 CFR § 121.201, NAICS Code 515112 (as of 10/1/22 NAICS Code 516110).

²³ U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 515112, <https://data.census.gov/cedsci/table?y=2017&n=515112&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>. We note that the US Census Bureau withheld publication of the number of firms that operated for the entire year.

²⁴ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We note that the U.S. Census Bureau withheld publication of the number of firms that operated with sales/value of shipments/revenue in the individual categories for less than \$100,000, and \$100,000 to \$249,999 to avoid disclosing data for individual companies (see Cell Notes for the sales/value of shipments/revenue in these categories). Therefore, the number of firms with revenue that meet the SBA size standard would be higher than noted herein. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see https://www.census.gov/glossary/#term_ReceiptsRevenueServices.

²⁵ See *March 2023 Broadcast Station Totals PN*.

merely to authorize, the proposed digital power increases and operations. The *NPRM* proposes new mandatory reporting, recordkeeping, and compliance requirements for small entities that are FM licensees and choose to increase their power and/or adopt asymmetric sideband operation. We note that the adoption of the proposed rules may require modification of current requirements and processes for small entities that choose to implement these operational changes, and may require modification of FCC forms, including but not limited to, FCC Form 2100, Schedule 335-FM, which is the form currently used to notify the Commission of the initiation of digital operations. The *NPRM* thus may impose additional obligations or expenditure of resources on small businesses that elect to modify their digital service, and may require small entities to hire professionals to comply with the proposed rules.

12. The *NPRM* seeks comment on the notification and interference mitigation and remediation obligations of digital FM stations, including small entities. For example, our proposal to amend our rules to modify the methodology a digital FM station must use to determine whether it is eligible to increase its power above -14 dBc, if adopted, would reduce compliance obligations for small entities by allowing them to increase power up to -10 dBc without submitting a contour analysis. Small entity stations that seek to increase digital sideband power by the addition of 4 dB would need to notify the Commission by filing Schedule 335-FM. At this time the Commission cannot quantify the cost of compliance for small entities that choose to modify their operations pursuant to the *NPRM* proposals. However, we expect the information we receive in comments to help the Commission identify and evaluate relevant compliance matters for small entities, including compliance costs and other burdens that may result from potential changes discussed in the *NPRM*.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered

13. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance, rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.”²⁶

14. The *NPRM* considers a voluntary process by which some FM stations may operate at increased digital power and/or with differing power levels on each digital sideband. According to commenters, the proposal would benefit digital FM broadcasters and listeners alike by promoting greater adoption of FM digital transmission systems. Commenters also assert that adoption of the *NPRM* proposals would increase the robustness of the digital FM broadcast service by improving stations’ signal quality, including building penetration and allowing a digital FM licensee to expand its digital service area to approximate more closely its analog service area. Other commenters caution that the proposed change may harm small entities by causing surrounding interference for smaller stations such as Class A FM stations, LPFM stations, and stations broadcasting over FM translators.

15. In the *NPRM*, the Commission considers specific steps it could take and alternatives to the proposed rules that could minimize potential economic impact on small entities that might be affected by the proposed rule change, as well as any other rule changes that may be required. For example, to avoid increasing burdens on digital FM broadcasters, the Commission proposes that any notification of increases in digital FM ERP and/or initiation of asymmetric sideband operation be made by filing FCC Form 2100, Schedule 335-FM, in the searchable LMS database. This is the same form currently used to notify the Commission of the initiation of digital operations. Under the proposed rule changes fewer stations would be required to submit a contour study with Schedule 335-FM, as is currently the case for digital FM stations proposing digital power levels above -14 dBc. Therefore, the administrative impact of the proposed rule changes will be similar to that of existing digital FM service, will be less burdensome

²⁶ 5 U.S.C. § 603(c)(1)-(c)(4).

for most digital FM broadcasters, and thus is not likely to have an additional adverse economic impact on small entities.

16. The Commission also considers alternatives to its current interference remediation procedures, including whether station complaints should be assessed based on listener complaints or based on studies and/or measurements demonstrating that a digital FM signal within the complaining station's protected contour exceeds allowable limits. Another alternative considered in relation to interference that may impact small entities is whether protection of incumbent analog FM stations on adjacent channels should be increased beyond the 60 dB μ contour. We tentatively conclude that this protection is not necessary, however, we also consider whether this protection should be increased and, if so, to what contour. The Commission expects to more fully consider the economic impact and alternatives for small entities following the review of comments filed in response to the *NPRM*.

F. Federal Rules that May Duplicate, Overlap, or Conflict With the Proposed Rules

17. None.