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

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

SECOND FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: October 5, 2018 **Released: October 5, 2018**

Comment Date: (60 days after date of publication in the Federal Register)
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By the Commission: Commissioner O'Rielly issuing a statement.

I. INTRODUCTION

1. This *Second Further Notice of Proposed Rule Making* (*SFNPRM*), as part of our ongoing effort to assist AM broadcast stations in providing full-time service to their local communities, sets forth revised alternative proposals regarding interference protection to Class A AM radio stations. The Commission, in the *Further Notice of Proposed Rule Making* in this proceeding,[1] sought comment on technical proposals to reduce the nighttime protection afforded to wide-area coverage Class A stations, to enable more local AM stations to increase their nighttime service that is currently curtailed by the need to protect Class A stations' service areas. While many commenters supported or rejected the Commission's proposals as set forth in the *AMR FNPRM*, a number of commenters proposed thoughtful and evidence-based alternatives to the Commission's proposals.

2. We therefore present one new proposal for the protection of Class A AM stations during the day, and two alternative proposals for critical hours protection, as well as two alternative proposals for protection of Class A AM stations at night.[2] These alternative proposals are designed to preserve some of Class A stations' wide area coverage, while relieving more local stations of their current obligation to protect Class A stations from interference. Our proposals should enable local stations to provide greater and improved local service to their communities, especially at night. In addition, we ask commenters to provide more detailed information regarding the effect of reduced Class A protection on the functioning of the Emergency Alert System (EAS) and the Integrated Public Alert and Warning System (IPAWS). Finally, although we do not revise the Commission's proposals with regard to daytime protection for Class B, C, and D stations, or for changes to nighttime root-sum-square (RSS) calculation methodology, we invite input on whether commenters' positions on those proposals would change in light of our revised proposals to modify Class A protections.

II. DISCUSSION

A. Change Nighttime and Critical Hours Protection to Class A AM Stations

3. *Background*. Class A AM stations are authorized to broadcast at up to 50 kW both day and night and, by current rule, are designed to render primary and secondary service over extended areas.[3]

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[1] *Revitalization of the AM Radio Service*, First Report and Order, Further Notice of Proposed Rule Making, and Notice of Inquiry, 30 FCC Rcd 12145 (2015) (*AMR FNPRM*).

[2] Critical hours are the two hours after sunrise and the two hours before sunset. 47 CFR § 73.14.

[3] 47 CFR §§ 73.21(a)(1), 73.182(a)(1). There are 57 Class A stations in the continental United States, and 16 in Alaska.

These stations are accordingly afforded extensive daytime and nighttime protection from interference by co- and adjacent-channel AM stations. Specifically, Class A AM stations in the continental United States are protected during the day to their 0.1 mV/m groundwave contour from co-channel stations, and to their 0.5 mV/m groundwave contour from adjacent-channel stations.[4] At night, such Class A stations are protected to their 0.5 mV/m-50 percent skywave contour from co-channel stations and to their 0.5 mV/m groundwave contour from adjacent-channel stations.[5]

4. In the *AMR FNPRM*, the Commission recognized that many of the areas previously receiving only Class A secondary service are now served by FM stations and smaller, more local AM stations.[6] In the latter case, local AM service is often curtailed by the need for a local AM station to protect a (sometimes distant) Class A station's service.[7] The Commission therefore tentatively concluded (1) that all Class A stations should be protected, both day and night, to their 0.1 mV/m groundwave contour, from co-channel stations, thus maintaining daytime protection but reducing protection to secondary coverage service areas at night; (2) that all Class A stations should continue to be protected to the 0.5 mV/m groundwave contour, both day and night, from first adjacent channel stations; and (3) that the critical hours protection of Class A stations should be eliminated completely. The Commission sought comment on these proposals.[8]

5. The *AMR FNPRM* proposals attracted a voluminous and diverse set of comments. Understandably, the licensees of Class A stations, represented primarily by the AM Radio Preservation

[4] Groundwaves, also known as surface waves, propagate along the surface of the earth and depend on currents flowing in the ground, as opposed to skywaves, which propagate through the earth's ionosphere. *See generally* International Telecommunications Union, Handbook on Ground Wave Propagation 1 (2014) (available at https://www.itu.int/dms_pub/itu-r/opb/hdb/R-HDB-59-2014-PDF-E.pdf). The 0.5 mV/m and 0.1 mV/m contours are those areas bounded by the distances at which signal strengths of, respectively, 0.5 and 0.1 mV/m are measured or predicted.

[5] Alaskan Class A stations receive slightly different protection. During daytime hours an Alaskan Class A station is also protected to the 0.1 mV/m groundwave contour from co-channel stations. During nighttime hours, an Alaskan Class A station is protected to the 0.1 mV/m-50 percent skywave contour from co-channel stations. The 0.5 mV/m groundwave contour is protected both daytime and nighttime from stations on adjacent channels. 47 CFR § 73.182(a)(1)(ii).

[6] *AMR FNPRM*, 30 FCC Rcd at 12168, 12170, paras. 51, 55. Secondary AM service is the service area of an AM broadcast station served by the skywave and not subject to objectionable interference and in which the signal is subject to intermittent variations in strength. 47 CFR § 73.14.

[7] For instance, as noted in the *AMR FNPRM*, during daytime hours, over 200 licensed Class B and Class D AM stations are required to reduce power and/or change to a directional antenna system to meet the required critical hours protection afforded to Class A stations. *AMR FNPRM*, 30 FCC Rcd at 12167, para. 50. With regard to nighttime protection, several daytime-only AM stations must forego nighttime service to protect co-channel Class A AM stations. For example, stations WMIC, Sandusky, Michigan, and WLFJ, Greenville, South Carolina, both at 660 kHz, must shut down at night to protect Class A WFAN, New York, New York. Other stations must reduce power to the point that it is tantamount to no nighttime service at all. An example is station WUMY, Memphis, Tennessee, at 830 kHz, which broadcasts with 8 kilowatts nominal power during the day but only 2 watts at night, because it must protect WCCO, Minneapolis, Minnesota, almost 700 miles away.

[8] *AMR FNPRM*, 30 FCC Rcd at 12170, para. 56 ("We seek comment on these proposals. Specifically, we seek comment on the populations that would lose service from Class A stations under this proposal and, to the extent ascertainable, whether such populations currently avail themselves of the service that would be lost. We also seek data on areas and populations in the United States, if any, that receive service only from Class A AM stations, whether day or night. Conversely, we request specific comment as to the numbers of stations that would be able to increase power, daytime and nighttime, under our proposal and what populations would gain service from those power increases.").

Alliance (AMRPA),[9] argue against the proposals and in favor of retaining the current protection rules. AMRPA argues that the Commission's proposal would do "significant harm" to the AM band by creating new interference, resulting in "small islands of service in a sea of interference."[10] AMRPA also points out the vital role that Class A stations have played in prior emergencies, such as Hurricane Katrina,[11] noting further that 25 such stations are Primary Entry Points (PEPs) for IPAWS, 22 of which have been outfitted by the Federal Emergency Management Agency (FEMA) with backup generators and increased fuel capacities, and 10 of which have been given electromagnetic pulse-resistant backup facilities.[12] A number of other commenters join AMRPA in opposing the *AMR FNPRM* proposal. Some believe that reducing protection to Class A AM stations would reduce those stations' utility during national emergencies.[13] Some agree with AMRPA that the proposal will increase nighttime interference in exchange for little in the way of increased nighttime coverage for less-powerful stations.[14] Others object to losing the ability to listen to distant signals, or to listen to programming while driving long distances without having to re-tune radios.[15]

6. On the other hand, a number of commenters supported the Commission's proposal. Many believe that Class A AM stations' current protected status may be an anachronism with little relevance to a world with more FM stations, the Internet, and other forms of communications.[16] Other supporters, understandably, are licensees of AM stations that must reduce nighttime power to protect Class A stations, and wish to improve their local nighttime service.[17] Some point out that the extended skywave service that Class A licensees seek to protect has become increasingly unreliable and prone to interference, particularly given high environmental noise floors caused by power lines, LED and CFL

[9] AMRPA consists of 17 licensees of 56 Class A AM stations: Alpha Media LLC; Bonneville International Corp.; CBS Radio Inc.; Cox Media Group, LLC; Cumulus Media Inc.; Entercom Communications Corp.; Family Stations, Inc.; Grand Ole Opry, LLC; Greater Media, Inc.; Hearst Stations, Inc.; Hubbard Radio, LLC; iHeart Media + Entertainment, Inc.; NRG License Sub, LLC; Scripps Media, Inc.; Townsquare Media, Inc.; Tyler Media, L.L.C.; and Tribune Broadcasting Co., LLC.

[10] AMRPA Comments at 4.

[11] *Id*. at 16-19.

[12] *Id*. at 19-20. AMRPA also contends that reducing protection to Class A AM stations undermines the public interest in high-quality programming, citing examples from three Class A stations. AMRPA Comments at 20-24. Some commenters contest these claims, stating that most Class A stations air primarily syndicated programming at night, and often are not fully staffed during nighttime hours should emergencies arise. *See*, *e.g*., R. Morgan Burrow (Burrow) Comments at 1; Robert Bittner (Bittner) Comments at 1-2. The Commission has long held that "the marketplace is the best way to allocate entertainment formats in radio." *Development of Policy Re: Changes in the Entertainment Formats of Broadcast Stations*, Memorandum Opinion and Order, 60 F.C.C.2d 858, 863 (1976)). *See also FCC v. WNCN Listeners Guild,* 450 U.S. 582 (1981) (upholding Commission policy).

[13] *See*, *e.g.*, Alfred Kenyon (Kenyon) Comments at 1-2; Allen Gilliard III Comments at 1; Cohen, Dippell and Everist (CDE) Comments at 3-4.

[14] *See*, *e.g.*, Kenyon Comments at 2.

[15] *See*, *e.g.*, Chris Campbell Comments at 1; Edgar C. Reihl PE Comments at 4; REC Networks Comments at 2-3.

[16] *See*, *e.g.*, Hatfield & Dawson Consulting Engineers, LLC (H&D) Comments at 1-2; Butte Broadcasting Co., Inc. Comments at 1; Don Elliot Comments at 1.

[17] *See*, *e.g*., MBC Grand Broadcasting, Inc. Comments at 2-3; K-Zone Media Group LLC Comments at 1; Andrew Skotdal Comments at 1-2. *See also* New World, Inc., Global Radio, LLC, and Potomac Radio, LLC (New World) Comments at 2-3 (Commenter's Class D stations must protect Class A AM stations up to 2,300 miles away at night). New World also notes that, while stations such as its are allowed to provide nighttime service via cross-service translators, its stations are located in FM spectrum-limited markets where there is no room to establish new FM translator stations, as is the case with other AM stations in larger markets. New World Comments at 5.

lights, computers, and other sources of radiofrequency noise.[18] Many also criticize some of the opponents' calculations of potential signal losses due to the proposed rule changes, questioning the contour overlap maps those commenters used to predict interference, rather than calculations of desired-to-undesired signal ratios.[19] As for emergency communications, some commenters note that Class A stations seldom broadcast weather or other alerts for distant areas beyond their immediate communities of license. Thus, they contend that it is more valuable for local stations to have the ability to broadcast emergency alerts and other locally relevant emergency information at night.[20]

7. There is a third category of commenters, who believe that changes to Class A protections are necessary, but who do not believe the Commission's proposals to be the correct approach. Many of these comments are based on extensive analyses of the effects of various approaches on Class A and other stations. Most share certain premises: that a 0.1 mV/m signal is not listenable under most circumstances;[21] that nighttime skywave service is sporadic and unreliable;[22] and that the wide-area coverage of Class A stations written into the rules should be preserved to at least some extent.[23] At the same time, these commenters propose solutions that they believe will offer some relief to AM broadcasters currently protecting Class A stations that are sometimes many hundreds of miles away.

8. As noted, the majority of the third category of commenters state that protecting Class A stations to their 0.1 mV/m groundwave contours is pointless, as such a low-level signal cannot be heard over environmental noise.[24] The majority of these commenters propose instead that Class A stations be protected to their 0.5 mV/m groundwave contour, both day and night, from co-channel stations and, in some cases, first-adjacent channel stations as well.[25] Carl T. Jones Corp. proposes nighttime protection of a Class A station's 0.5 mV/m groundwave contour based on the RSS values calculated for Class A stations in the continental United States, and further proposes that the interfering contour should be the 0.025 mV/m-10 percent skywave contour based on single signal calculations.[26] duTreil, Lundin & Rackley propose that Class A stations be protected to their nighttime 0.5 mV/m groundwave contours in a similar fashion to the way that Class B stations are currently protected to their 2.0 mV/m nighttime

[18] *See*, *e.g.*, Metro Radio, Inc. (Metro Radio) Comments at 2; Mt. Wilson FM Broadcasters, Inc. (Mt. Wilson) Comments at 2; Edward Paul De La Hunt / Bemidji Radio (Bemidji) Comments at 6; James B. Potter Reply at 3-4.

[19] *See*, *e.g.*, Association of Federal Communications Consulting Engineers Apr. 17, 2016, Reply at 1-3; AM Broadcast Licensees (AMBL) Reply at 2; Crawford Broadcasting Co. (Crawford) Reply at 1-2.

[20] *See* David Brown Comments at 1; Gary Scott Comments at 1; Roger Mock Comments at 1.

[21] *See*, *e.g.*, AMBL Comments at 2-3; Crawford Comments at 2.

[22] *See*, *e.g.*, Mt. Wilson Comments at 2; Bemidji Comments at 6.

[23] *See*, *e.g.*, duTreil, Lundin, & Rackley, Inc. (dLR) Mar. 21, 2016, Comments at 4.

[24] *See*, *e.g.*, Communications Technologies, Inc. (CTI) Comments at 2; AMBL Reply at 2; Mark Humphrey Reply at 1; Crawford Comments at 2; Mt. Wilson Comments at 2.

[25] *See* Crawford Comments at 2, H&D Comments at 2-3, (both co- and first-adjacent-channel stations); AMBL Comments at 2-3, dLR Comments at 4, Metro Radio Comments at 2; Mt. Wilson Comments at 3-4 (protect to 0.5 mV/m groundwave contour from co-channel stations, protect Class A stations from first- and second-adjacent channel stations to same extent as Class B, C, and D stations are protected).

[26] Carl T. Jones Corp. (CTJ) Mar. 21, 2016, Comments at 3. RSS is defined in *Review of the Technical Assignment Criteria for the AM Broadcast Service*, Report and Order, 6 FCC Rcd 6273, 6293 n.32 (1991) (*Technical Assignment Criteria*) ("The RSS is a mathematical procedure which involves taking the square-root of the sum of the squares of interfering signals. This is often referred to as the E_u for the subject station and represents the usable field strength for the station in the presence of interference from other stations. It is used for both interference and coverage purposes."). The single signal calculation method considers each individual signal as an interference source and evaluates its acceptability without regard to the presence of other interfering signals. This method merely requires that the values of the protected and interfering contour be known. *See id.*, 6 FCC Rcd at 6292, para. 62.

groundwave contours.[27] Under dLR's proposal, other stations making facility changes would have to show that they do not increase interference above the 0.5 mV/m groundwave contour, or the 50 percent exclusion RSS nighttime interference-free (NIF) level, if higher, of any Class A station.[28] dLR contends that its proposal more fairly protects the actual interference-free service enjoyed by Class A AM stations, rather than the theoretical service being protected by the current rules or the Commission's proposed rules.[29] dLR does not agree with the Commission's proposal to eliminate critical hours protection to Class A AM stations, favoring instead protection to the Class A stations' 0.5 mV/m groundwave contours during those hours.[30]

9. Hatfield & Dawson Consulting Engineers, LLC, likewise provides evidence that current rules protecting Class A AM skywave service are anachronistic, and the service being protected is nonexistent.[31] H&D proposes that Class A AM stations should be protected against nighttime skywave interference to their 0.5 mV/m groundwave contour on an RSS basis, just as Class B stations are protected to their nominal 2.0 mV/m contour.[32] H&D agrees with the Commission that Class A stations should be protected to their 0.5 mV/m nighttime groundwave contour from first-adjacent channel stations, but contends that Class A stations should be protected during critical hours to their 0.5 mV/m groundwave contours.[33]

10. *Discussion*. We seek comment on revised proposals for amending protections to Class A AM stations. We remain committed to the Commission's decision, in the *AMR FNPRM*, to explore a reduction in the extensive distance protections afforded to Class A stations to enable improvements to local service by the other station classes. We recognize the value of wide-area service but, at the same time, commenters suggest that much of the wide-area service that was once the exclusive province of Class A AM stations has been supplanted by FM stations, satellite radio, and other media.[34] Additionally, while nighttime AM skywave service does exist, as evidenced by comments, commenters also suggest that AM skywave service is sporadic and unreliable, that distant skywave service is often subject to overwhelming environmental interference, and that any such service received hundreds of miles from a

[27] dLR Comments at 4. *See also* Radio Vision Cristiana Management (RVCM) Comments at 2; Sunrise Broadcasting Corp. (Sunrise) Comments at 2; Mt. Wilson Comments at 2; Metro Radio Comments at 2 (proposing to protect Class A AM stations to their 0.5 mV/m groundwave contour both day and night for co-channels, and to same extent as Class B, C, and D stations are protected for adjacent channels, while eliminating both critical hours and skywave protection for Class A stations).

[28] dLR Comments at 4. In an RSS calculation of NIF service, the interfering effects of each station are considered in order of decreasing magnitude. The actual RSS is composed of all the interfering signals and is called the RSS 0 percent exclusion value since no signals are excluded from the calculations. Applying a 50 percent exclusion principle to the RSS calculation means that each succeeding signal is compared to the Running RSS and if it is less than 50 percent of the Running RSS its value is excluded from the RSS. *See Technical Assignment Criteria*, 6 FCC Rcd at 6352, Appendix C (illustrating RSS calculation).

[29] *Id*. at 4-5.

[30] *Id*. at 5.

[31] H&D Comments at 2. *See also* TZ Sawyer Technical Consultants LLC (TZS) Comments at 3-6, in which TZS produces calculations demonstrating that Class A AM secondary nighttime skywave service (*see* 47 CFR § 73.14 and *supra* note 6) is in most cases already compromised by interference, thus arguing that protecting such service is of "limited public value." TZS thus favors protecting Class A AM stations in the continental U.S. to their 0.5 mV/m daytime and nighttime groundwave contours. *Id*. at 3.

[32] H&D Comments at 2-3.

[33] *Id*. at 3. *See also* Burrow Comments at 3 (proposing to protect a Class A station's 0.5 mV/m nighttime groundwave contour from co-channel stations based on the current 20:1 ratio found in 47 CFR § 73.182(r), with first adjacent channel protection based on a 1:1 ratio, rather than the current 2:1 ratio; the first adjacent channel interfering contour under this proposal would be the interfering station's 0.5 mV/m 10 percent skywave contour).

[34] *See*, *e.g*., New World Comments at 4.

Class A station is unlikely to consist of programming tailored to the needs of distant communities. Further, some commenters contend that many of the proponents of retaining the current protection to Class A stations have misstated the amount of interference that would result from amending those rules and have not convincingly presented accurate figures for nighttime skywave listenership.

11. Some commenters purport to demonstrate that protection of the 0.1 mV/m contour as proposed in the *AMR FNPRM* would be excessive because a 0.1 mV/m signal cannot be heard under current noise conditions.[35] These commenters suggest that it is only necessary to protect Class A stations to their 0.5 mV/m groundwave contour. However, other commenters – in particular, engineers representing Class A AM stations, disagree.[36] We therefore seek further comment on this determination.

12. Moreover, commenters argue that some skywave protection of Class A stations is desirable.[37] Based upon our review of these comments, we seek comment on revised proposals for amending protections to Class A AM stations, which include alternative protection standards for critical hours and nighttime hours. The following proposals all provide Class A stations with less protection than they currently enjoy;[38] in the case of the critical hours proposals, Alternative 1 provides Class A stations with less protection than does Alternative 2, and in the case of the nighttime protection proposals, Alternative 2 in some cases provides Class A stations with less protection than does Alternative 1:

Daytime hours proposal:

- During daytime hours, Class A AM stations are protected to their 0.5 mV/m daytime groundwave contour, from both co-channel and first-adjacent channel stations;[39]

Critical hours proposals:

- *Alternative 1*: During critical hours, Class A AM stations are afforded no protection from

[35] *See*, *e.g.*, dLR Jan. 10, 2014, Comments at 5; dLR Mar. 21, 2016, Comments at 4-6 and Attachments. *See also* CTJ Mar. 21, 2016, Comments at 2-3 (presenting sample study results purporting to demonstrate "devastating and unacceptable" reductions in Class A NIF coverage if proposed groundwave-only nighttime protection were adopted).

[36] *See* Powell E. Way III Comments at 1; AMRPA Reply at 18-19.

[37] *See*, *e.g.*, dLR Mar. 21, 2016, Comments at 4.

[38] Currently, Class A stations located in the continental United States are protected during the day to their 0.1 mV/m groundwave contour by co-channel stations, and to their 0.5 mV/m groundwave contour by adjacent channel stations. 47 CFR § 73.182(a)(1)(i)(A). At night, these stations are protected to their 0.5 mV/m-50 percent skywave contour by co-channel stations, and to their 0.5 mV/m groundwave contour by adjacent channel stations. 47 CFR §§ 73.182(a)(1)(i)(B); 73.182(q). All Class A stations are protected to their 0.1 mV/m groundwave contour during critical hours. 47 CFR § 73.187(a)(1).

[39] The proposed reduction in protection of Class A stations to the 0.5 mV/m daytime groundwave contour will only require a simple label change on Figures 9, 10 and 11 of 47 CFR § 73.190 (which set forth curves specifically for frequencies of 500 kilocycles, 1000 kilocycles, and 1600 kilocycles, respectively). The curves are not affected by the change in the protected contour value from 0.1 mV/m to 0.5 mV/m; only the location on the curve where the permissible radiation is calculated will change. This is because the distance from the site of a potential interferer to the 0.5 mV/m protected contour of a Class A station will be larger than the distance to a 0.1 mV/m protected contour of the same Class A station. Thus, the only change needed to the Figures 9, 10, and 11 is to change the label "Distance from 0.1 mV/m" to "Distance from 0.5 mV/m."

The interpolation factors in 47 CFR § 73.187(c) will not be impacted by the change in Class A daytime protection from 0.1 mV/m to 0.5 mV/m, as the values in the tables of this paragraph are merely linear interpolations between frequencies. As noted above, Figures 9, 10, and 11 of 47 CFR § 73.190 are specifically for frequencies of 500 kc, 1000 kc, and 1600 kc. Thus, the interpolation factors of section 73.187(c) are used to determine permissible daytime radiation toward Class A stations on frequencies that differ from the three set forth in section 73.190, Figures 9-11. The only necessary change to section 73.187 will be to update the instances of "0.1 mV/m" in sections 73.187(a)(1), (a)(2)(ii), and (a)(3) to "0.5 mV/m" to reflect the new contour protection.

other AM stations, as proposed in the *AMR NPRM*, or

- *Alternative 2*: During critical hours, Class A AM stations are protected to their 0.5 mV/m groundwave contour;

Nighttime hours proposals:

- *Alternative 1*: During nighttime hours, there may be no overlap between a Class A AM station's 0.5 mV/m nighttime groundwave contour and any interfering AM station's 0.025 mV/m 10 percent skywave contour (calculated using the single station method);[40] or
- *Alternative 2*: During nighttime hours, Class A AM stations are protected from other AM stations in the same manner as Class B AM stations are protected, that is, interference may not be increased above the greater of the 0.5 mV/m nighttime groundwave contour or the 50 percent exclusion RSS NIF level (calculated using the multiple station method).[41]

13. We seek comment on these alternative proposals, and ask once again for the comments to address those issues set forth in the *AMR FNPRM* concerning the effects on licensees and listeners of each type of station that could result from the combination of reduced protection to Class A stations and power increases by co- and adjacent-channel stations that this proposal would allow.[42] We ask that commenters be mindful of the engineering comments already submitted concerning the calculation of listener interference, and, with this in mind, request realistic estimates of the numbers of listeners that may lose primary service, as opposed to secondary or sporadic service, under each of the alternatives. Is there common agreement that protection of the 0.1 mV/m contour is excessive because a 0.1 mV/m signal cannot be heard under current noise conditions or are there studies to the contrary?[43] Is the appropriate level of protection to the 0.5 mV/m groundwave contour? Likewise, we seek realistic estimates of the populations that could receive new primary local service, especially nighttime service, under each of these alternatives. We also seek comment on whether our statutory authority imposes any limitations on implementation of these proposals, and whether such implementation is consistent with the public interest. Finally, we ask for comment on the effect of these proposals on AM broadcasters that are small entities and seek comment as to alternatives that would minimize burdens on such small entities.

14. We additionally ask for specific comments addressing the effect of these proposals, if any, on the functioning of the EAS and IPAWS systems. FEMA's IPAWS Office notes that twenty-five Class A stations are PEP (Primary Entry Point) stations,[44] and states that under certain circumstances, the

[40] *See supra* notes 29, 31.

[41] *Id*.

[42] 30 FCC Rcd at 12170, paras. 56-57.

[43] *See*, *e.g*., dLR Jan. 10, 2014, Comments at 5; dLR Mar. 21, 2016, Comments at 4-6 and Attachments. *See also* CTJ Mar. 21, 2016, Comments at 2-3 (presenting sample study results purporting to demonstrate "devastating and unacceptable" reductions in Class A NIF coverage if proposed groundwave-only nighttime protection were adopted).

[44] FEMA defines PEP as a national level dissemination node provided with a direct connection from the FEMA Operating Center and the FEMA Alternate Operating Center. FEMA IPAWS Program Management Office Comments at 2.

Commission's original proposal would diminish the reach of EAS alerts from these stations.[45] We seek comment as to the effect of our alternative proposals on emergency communications. In particular, we ask that any such evaluation include specifics as to what effect, if any, our proposals would have on the ability of other radio stations to receive EAS alerts from Class A stations that function as PEPs. We ask that commenters identify the affected stations and the populations covered by such stations to the extent possible. Such comments should also include an evaluation of the current reliability of Class A nighttime skywave service in providing emergency communications to distant listeners and to other radio stations that are not PEPs, compared to the expected reliability and reach of such communications if any of our alternative proposals are adopted. We also ask commenters to address the potential benefits during emergencies of having more local service on the AM band available to listeners.

B. Change Nighttime RSS Calculation Methodology; Change Daytime Protection to Class B, C, and D Stations

15. *Background*. The *AMR FNPRM* included a tentative conclusion to roll back 1991 rule changes pertaining to calculation of nighttime RSS values of interfering field strengths and nighttime interference-free service.[46] The item also proposed a return to predicting the nighttime interference-free coverage area using only the interference contributions from co-channel stations and the 50 percent exclusion method.[47] The Commission found that the interference reduction the 1991 rule changes achieved was small compared to the resulting impediment the rules placed on AM stations' ability to make signal improvements.[48] The *AMR FNPRM* also included a proposed revision to daytime protection to Class B, C, and D AM stations, to return to the pre-1991 0 dB daytime 1:1 protection ratio for first adjacent channels;[49] change second adjacent channel groundwave protection to match the current levels for third adjacent channel protection;[50] and eliminate third adjacent channel groundwave protection. Additionally, the *AMR FNPRM* included a proposal to change the daytime protected contour for Class B, C, and D stations to the 2.0 mV/m contour.[51] These proposals were intended to allow AM broadcasters greater flexibility to make station modifications designed to increase signal strength to their primary service areas.[52]

16. *Discussion*. We are not revising these proposals at this time. We request, however, that in light of the alternative Class A protection proposals set forth above, commenters state whether they would revise their previously submitted comments regarding calculation of RSS values and changes to Class B, C, and D daytime protection and, if so, in what way and for what reasons. Essentially, we request that commenters consider the proposed revisions to AM station protection in terms of a new system designed to maximize local radio service without unduly jeopardizing wide-area service.

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[45] FEMA IPAWS Office states that the original proposal would create "extended areas where stations with which FEMA does not have direct communications pathways may cause interference to currently protected skywave service areas. These stations, while serving their local area with their own commercially robust facilities, may or may not receive a Presidential message for relay as they most likely depend on a relay of the Presidential message through one or more stations from a PEP source." *Id*.

[46] *AMR FNPRM*, 30 FCC Rcd at 12170-73, paras. 58-65.

[47] *Id.* at 12172, para. 62 (referencing 47 CFR § 73.182(k)).

[48] *AMR FNPRM*, 30 FCC Rcd at 12172, para. 62.

[49] The protection ratio is the ratio of desired to undesired signals, and prescribes the maximum permissible interference from one station to another. In the case of a 1:1 ratio for daytime protection of first adjacent Class B, C, and D stations, if a station's protected contour is the 2 mV/m daytime groundwave contour, then the 2 mV/m daytime groundwave contour of the interfering station would be prohibited from overlapping the protected contour.

[50] 47 CFR § 73.37(a). (current third adjacent channel protection prohibits overlap of a station's 25 mV/m daytime groundwave contour and the 25 mV/m daytime groundwave contour of any other AM station).

[51] *AMR FNPRM* at 12172-73, paras. 64-65.

[52] *Id*.

C. Conclusion

17. We seek comment on the rule changes proposed above, including the costs and benefits associated with the daytime proposal, the alternative nighttime and critical hours proposals, the nighttime RSS calculation methodology and the daytime protection to Class B, C and D stations. We also seek comment on the costs and benefits of any other alternative approaches to addressing the issues raised in the record. To the extent possible, commenters should quantify the claimed costs and benefits and provide supporting information.

III. PROCEDURAL MATTERS

18. *Ex Parte Rules–Permit But Disclose*–This proceeding shall continue to be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules. 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 Section 1.1206(b) of the rules.[53] In proceedings governed by Section 1.49(f) of the rules 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.

19. *Filing Requirements–Comments and Reply Comments*–Pursuant to Sections 1.415 and 1.419 of the rules,[54] 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).[55]

20. *Electronic Filers*–Comments may be filed electronically using the Internet by accessing the ECFS: https://www.fcc.gov/ecfs/filings.

21. *Paper Filers*–Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

22. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th Street, SW, Room TW-A325, Washington, D.C. 20554. The filing hours at this location are 8:00

[53] 47 CFR § 1.1206(b).

[54] 47 CFR §§ 1.415, 1.419.

[55] *See Electronic Filing of Documents in Rulemaking Proceedings*, Memorandum Opinion and Order, 63 Fed. Reg. 24121 (1998).

a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building.

- 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 445 12th Street, SW, Washington, D.C. 20554.

23. *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).

24. *Additional Information*–For additional information on this proceeding, contact Thomas S. Nessinger, Thomas.Nessinger@fcc.gov, of the Media Bureau, Audio Division, (202) 418-2700.

25. *Initial Regulatory Flexibility Act Analysis*–The Regulatory Flexibility Act of 1980, as amended (RFA), requires that a regulatory flexibility analysis be prepared for notice and comment rule making proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities." The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction." In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act. 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 Small Business Administration (SBA).

26. With respect to this *SFNPRM*, an Initial Regulatory Flexibility Analysis (IRFA) under the Regulatory Flexibility Act[56] is contained in Appendix B. Written public comments are requested in the IFRA, and must be filed in accordance with the same filing deadlines as comments on the *SFNPRM*, with a distinct heading designating them as responses to the IRFA. The Commission will send a copy of this *SFNPRM*, including the IRFA, in a report to Congress pursuant to the Congressional Review Act. In addition, a copy of this *SFNPRM* and the IRFA will be sent to the Chief Counsel for Advocacy of the SBA, and will be published in the *Federal Register*.

27. *Paperwork Reduction Act Analysis*–This document, and the *Further Notice of Proposed Rule Making* on which it is based, contains proposed new information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, 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 (PRA), 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." Written comments on possible new and modified information collections must be submitted on or before 60 days after date of publication in the *Federal Register*. In addition to filing comments with the Secretary, a copy of any Paperwork Reduction Act comments on the information collection(s) contained herein should be submitted to Cathy Williams, Federal Communications Commission, via the Internet to Cathy.Williams@fcc.gov, and to Nicholas Fraser, OMB Desk Officer, via the Internet to Nicholas_A._Fraser@omb.eop.gov or by fax to 202-395-5167.

28. For additional information concerning the information collection(s) contained in this document, contact Cathy Williams at 202-418-2918, or via the Internet at Cathy.Williams@fcc.gov.

[56] *See* 5 U.S.C. § 603.

IV. ORDERING CLAUSES

29. Accordingly, **IT IS ORDERED** that, pursuant to the authority contained in sections 1, 2, 4(i), 301, 303(r), 307, 316, and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 301, 303(r), 307, 316, and 403, this *Second Further Notice of Proposed Rule Making* **IS ADOPTED**.

30. **IT IS FURTHER ORDERED** that the Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Second Further Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration, and shall cause it to be published in the Federal Register.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Proposed Rule Changes

Part 73 of Chapter 1 of Title 47 of the Code of Federal Regulations is proposed to be amended as follows:

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

   Authority: 47 U.S.C. 154, 303, 334, 336, and 339.

2. Revise paragraph (a) of Section 73.21 to read as follows:

   § 73.21 Classes of AM broadcast channels and stations.

   (a) * * * These stations are protected from objectionable interference within their primary service areas. Stations operating on these channels are classified as follows:

   (1) *Class A Station*. A Class A station is an unlimited time station that operates on a clear channel and is designed to render primary service over an extended area at relatively long distances from its transmitter. Its primary service area is protected from objectionable interference from other stations on the same and adjacent channels. (See §73.182). The operating power shall not be less than 10 kW nor more than 50 kW. (Also see §73.25(a)).

   * * * * *

3. *Alternative 1*. Remove paragraph (h) of Section 73.24 and redesignate paragraphs (i) and (j) as paragraphs (h) and (i), respectively, to read as follows:

   § 73.24 Broadcast facilities; showing required.

   * * * * *

   (h) [Remove]

   (i) [Redesignate as (h)]

   * * * * *

   (j) [Redesignate as (i)]

   * * * * *

   Alternative 2. Revise paragraph (h) of Section 73.24 to read as follows:

   § 73.24 Broadcast facilities; showing required.

   * * * * *

   (h) That, in the case of an application for a Class B or Class D station on a clear channel, the proposed station would radiate, during two hours following local sunrise and two hours preceding local sunset, in any direction toward the 0.5 mV/m groundwave contour of a co-channel United States Class A station, no more than the maximum value permitted under the provisions of §73.187.

   * * * * *

4. Revise paragraph (a) of Section 73.37 to read as follows:

§ 73.37 Applications for broadcast facilities, showing required.

(a) No application will be accepted for a new station if the proposed operation would involve overlap of signal strength contours with any other station as set forth below in this paragraph; and no application will be accepted for a change of the facilities of an existing station if the proposed change would involve such overlap where there is not already such overlap between the stations involved:

Frequency Separation (kHz)	Contour of proposed station (classes B, C and D) (mV/m)	Contour of any other station (mV/m)
0	0.025 0.5 0.100 2.0	0.500 (Class A) 0.025 (Class A) 2.0 (Other classes) 0.100 (Other classes)
10	0.500 2.0	0.500 (Class A) 2.0 (Other classes)
20	25.0	25.0 (All classes)

* * * * *

5. *Alternative 1*. No change to current rule.

Alternative 2. Revise Section 73.99(a) – (e) and (f)(1) – (f)(3) to read as follows:

§ 73.99 Presunrise service authorization (PSRA) and postsunset service authorization (PSSA).

(a) To provide maximum uniformity in early morning operation compatible with interference considerations, and to provide for additional service during early evening hours for Class D stations, provisions are made for presunrise service and postsunset service. The permissible power for presunrise or postsunset service authorizations shall not exceed 500 watts, or the authorized daytime or critical hours power (whichever is less). Calculation of the permissible power shall consider only co-channel stations for interference protection purposes.

(b) Presunrise service authorizations (PSRA) permit:

(1) Class D stations operating on Mexican, Bahamian, and Canadian priority Class A clear channels to commence PSRA operation at 6 a.m. local time and to continue such operation until the sunrise times specified in their basic instruments of authorization.

(2) Class D stations situated outside the 0.5 mV/m nighttime groundwave contours of co-channel U.S. Class A stations to commence PSRA operation at 6 a.m. local time and to continue such operation until sunrise times specified in their basic instruments of authorization.

(3) Class D stations located within the co-channel 0.5 mV/m groundwave contours of U.S. Class A stations, to commence PSRA operation either at 6 a.m. local time, or at sunrise at the nearest Class A station located east of the Class D station (whichever is later), and to continue such operation until the sunrise times specified in their basic instruments of authorization.

(4) Class B and Class D stations on regional channels to commence PSRA operation at 6 a.m. local time and to continue such operation until local sunrise times specified in their basic

instruments of authorization.

(c) Extended Daylight Saving Time Pre-Sunrise Authorizations:

(1) Between the first Sunday in April and the end of the month of April, Class D stations will be permitted to conduct pre-sunrise operation beginning at 6 a.m. local time with a maximum power of 500 watts (not to exceed the station's regular daytime or critical hours power), reduced as necessary to comply with the following requirements:

(i) Full protection is to be provided as specified in applicable international agreements.

(ii) Protection is to be provided to the 0.5 mV/m groundwave contours of co-channel U.S. Class A stations or the NIF groundwave contour based on the 50 percent RSS exclusion method, whichever is greater.

(iii) In determining the protection to be provided, the effect of each interfering signal will be evaluated such that interference may not be increased above the 0.5 mV/m nighttime groundwave contour or the NIF groundwave contour based on the 50 percent RSS exclusion method, whichever is greater.

(iv) Notwithstanding the requirements of paragraph (c)(1) (ii) and (iii) of this section, the stations will be permitted to operate with a minimum power of 10 watts unless a lower power is required by international agreement.

(2) The Commission will issue appropriate authorizations to Class D stations not previously eligible to operate during this period. Class D stations authorized to operate during this presunrise period may continue to operate under their current authorization.

(d) Postsunset service authorizations (PSSA) permit:

(1) Class D stations located on Mexican, Bahamian, and Canadian priority Class A clear channels to commence PSSA operation at sunset times specified in their basic instruments of authorization and to continue for two hours after such specified times.

(2) Class D stations situated outside the 0.5 mV/m groundwave contours of co-channel U.S. Class A stations to commence PSSA operations at sunset times specified in their basic instruments of authorization and to continue for two hours after such specified times.

(3) Class D stations located within the co-channel 0.5 mV/m groundwave contours of U.S. Class A stations to commence PSSA operation at sunset times specified in their basic instruments of authorization and to continue such operation until two hours past such specified times, or until sunset at the nearest Class A station located west of the Class D station, whichever is earlier. Class D stations located west of the Class A station do not qualify for PSSA operation.

(4) Class D stations on regional channels to commence PSSA operation at sunset times specified on their basic instruments of authorization and to continue such operation until two hours past such specified times.

(e) Procedural Matters. (1) Applications for PSRA and PSSA operation are not required. Instead, the FCC will calculate the periods of such operation and the power to be used pursuant to the provisions of this section and the protection requirements contained in applicable international

agreements. Licensees will be notified of permissible power and times of operation. Presunrise and Postsunset service authority permits operation on a secondary basis and does not confer license rights. No request for such authority need be filed. However, stations intending to operate PSRA or PSSA shall submit by letter, signed as specified in §73.3513, the following information:

(i) Licensee name, station call letters and station location,

(ii) Indication as to whether PSRA operation, PSSA operation, or both, is intended by the station,

(iii) A description of the method whereby any necessary power reduction will be achieved.

(2) Upon submission of the required information, such operation may begin without further authority.

(f) Technical criteria. Calculations to determine whether there is objectionable interference will be determined in accordance with the AM Broadcast Technical Standards, §§73.182 through 73.190, and applicable international agreements. Calculations will be performed using daytime antenna systems, or critical hours antenna systems when specified on the license. In performing calculations to determine assigned power and times for commencement of PSRA and PSSA operation, the following standards and criteria will be used:

(1) Class D stations operating in accordance with paragraphs (b)(1), (b)(2), (d)(1), and (d)(2) of this section are required to protect the 0.5 mV/m groundwave contours or the NIF groundwave contour of co-channel Class A stations based on the 50 percent RSS exclusion method, whichever is greater.

(2) Class D stations are required to fully protect foreign Class B and Class C stations when operating PSRA and PSSA; Class D stations operating PSSA are required to fully protect U.S. Class B stations. For purposes of determining protection, the nighttime RSS limit will be used in the determination of maximum permissible power.

(3) Class D stations operating in accordance with paragraphs (d)(2) and (d)(3) of this section are required to limit the extent of the 0.025 mV/m skywave 10% contour to the co-channel Class A 0.5 mV/m ground wave or the NIF groundwave contour based on the 50%-RSS exclusion method, whichever is greater. The location of the 0.5 mV/m contour or the NIF contour of a Class A station will be determined by use of Figure M3, *Estimated Ground Conductivity in the United States.* When the 0.5 mV/m contour extends beyond the national boundary, the international boundary shall be considered the 0.5 mV/m contour. * * *

* * * * *

6. *Alternative 1*: Revise Section 73.182 as follows:

§ 73.182 Engineering standards of allocation.

(a) Sections 73.21 to 73.37, inclusive, govern allocation of facilities in the AM broadcast band 535-1705 kHz. §73.21 establishes three classes of channels in this band, namely, clear, regional and local. The classes and power of AM broadcast stations which will be assigned to the various channels are set forth in §73.21. The classifications of the AM broadcast stations are as follows:

(1) Class A stations operate on clear channels with powers between 10 kW and 50 kW. These stations are designed to render primary service over a large area protected from objectionable

interference from other stations on the same and adjacent channels. Class A stations may be divided into two groups: those located in any of the conterminous United States and those located in Alaska.

(i) Class A stations in the conterminous United States operate on the channels assigned by §73.25 with minimum power of 10 kW, maximum power of 50 kW, and minimum antenna efficiency of 275 mV/m/kW at 1 kilometer. The Class A stations in this group are afforded protection as follows:

(A) Daytime. To the 0.5 mV/m groundwave contour from stations on the same or adjacent channels.

(B) Nighttime. There shall be no overlap between the Class A station's 0.5 mV/m nighttime groundwave contour and any interfering AM station's 0.025 mV/m-10 % skywave contour, calculated based on a single station method.

(ii) Class A stations in Alaska operate on the channels assigned by §73.25 with minimum power of 10 kW, maximum power of 50 kW, and minimum antenna efficiency of 215 mV/m/kW at 1 kilometer. The Class A stations in this group are afforded protection, both daytime and nighttime, to the 0.1 mV/m groundwave contour from other co-channel stations and to the 0.5 mV/m groundwave contour from other stations on first adjacent channels.

(2) Class B stations are stations which operate on clear and regional channels with powers not less than 0.25 kW or greater than 50 kW. These stations render primary service, the area of which depends on their geographic location, power, and frequency. It is recommended that Class B stations be located so that the interference received from other stations will not limit the service area to a groundwave contour value greater than 2.0 mV/m groundwave contour both daytime and nighttime, which are the values for the mutual protection between this class of stations and other stations of the same class.

Note: See §§73.21(b)(1) and 73.26(b) concerning power restrictions and classifications relative to Class B, Class C, and Class D stations in Alaska, Hawaii, Puerto Rico and the U.S. Virgin Islands. Stations in the above-named places that are reclassified from Class C to Class B stations under §73.26(b) shall not be authorized to increase power to levels that would increase the nighttime interference-free limit of co-channel Class C stations in the conterminous United States.

(3) Class C stations operate on local channels, normally rendering primary service to a community and the suburban or rural areas immediately contiguous thereto, with powers not less than 0.25 kW or greater than 1 kW, except as provided in §73.21(c)(1). Such stations are normally protected to the daytime 2.0 mV/m contour. On local channels the separation required for the daytime protection shall also determine the nighttime separation. Where directional antennas are employed daytime by Class C stations operating with power equal to or greater than 0.25 kW, the separations required shall in no case be less than those necessary to afford protection assuming nondirectional operation with power of 0.25 kW. In no case will nighttime power of 0.25 kW or greater be authorized to a station unable to operate nondirectionally with power of 0.25 kW during daytime hours. The actual nighttime limitation will be calculated. For nighttime protection purposes, Class C stations in the 48 conterminous United States may assume that stations in Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands operating on 1230, 1240, 1340, 1400, 1450, and 1490 kHz are Class C stations.

(4) Class D stations operate on clear and regional channels with daytime powers of not less than 0.25 kW (or equivalent RMS field of 107.5 mV/m at 1 kilometer if less than 0.25 kW) and not more than 50 kW. Class D stations that have previously received nighttime authority to operate with powers of less 0.25 kW (or equivalent RMS fields of less than 107.5 mV/m at 1 kilometer) are not required to provide nighttime coverage in accordance with § 73.24(i) and are not protected from interference during nighttime hours. Such nighttime authority is permitted on the basis of

full nighttime protection being afforded to all Class A and Class B stations.

(b) When a station is already limited by interference from other stations to a contour value greater than that normally protected for its class, the individual received limits shall be the established standard for such station with respect to interference from each other station.

(c) All classes of AM broadcast stations have in general three types of service areas, i.e., primary, secondary and intermittent. (See §73.14 for the definitions of primary, secondary and intermittent service areas.) All classes of AM stations render service to a primary area but the secondary and intermittent service areas may be materially limited or destroyed due to interference from other stations, depending on the station assignments involved.

(d) The groundwave signal strength required to render primary service is 2 mV/m for communities with populations of 2,500 or more and 0.5 mV/m for communities with populations of less than 2,500. Because only Class A stations have protected primary service extending beyond the 2 mV/m contour, the groundwave signal strength constituting primary service for Class A stations is that set forth in paragraphs (a)(1)(i) and (a)(1)(ii) of this section. See §73.184 for curves showing distance to various groundwave field strength contours for different frequencies and ground conductivities, and also see §73.183, "Groundwave signals."

(e) A Class C station may be authorized to operate with a directional antenna during daytime hours providing the power is at least 0.25 kW. In computing the degrees of protection which such antenna will afford, the radiation produced by the directional antenna system will be assumed to be no less, in any direction, than that which would result from non-directional operation using a single element of the directional array, with 0.25 kW.

(f) All classes of broadcast stations have primary service areas subject to limitation by fading and noise, and interference from other stations to the contours set out for each class of station.

(g) Broadcast stations are licensed to operate unlimited time, limited time, daytime, share time, and specified hours. (See §§73.1710, 73.1725, 73.1720, 73.1715, and 73.1730.) Applications for new stations shall specify unlimited time operation only.

(h) Section 73.24 sets out the general requirements for modifying the facilities of a licensed station and for establishing a new station. Sections 73.24(b) and 73.37 include interference related provisions that be considered in connection with an application to modify the facilities of an existing station or to establish a new station. Section 73.30 describes the procedural steps required to receive an authorization to operate in the 1605-1705 kHz band.

(i) Objectionable nighttime interference from a broadcast station occurs when, at a specified field strength contour with respect to the desired station, the field strength of an undesired co-channel station exceeds for 10% or more of the time the values set forth in these standards. The value derived from the root-sum-square of all interference contributions represents the extent of a station's interference-free coverage.

(1) With respect to the root-sum-square (RSS) values of interfering field strengths referred to in this section, calculation of nighttime interference-free service is accomplished by considering co-channel signals in order of decreasing magnitude, adding the squares of the values and extracting the square root of the sum, excluding those signals which are less than 50% of the RSS values of the higher signals already included. This is known as the "50% Exclusion Method."

(2) The RSS value will not be considered to be increased when a new interfering signal is added which is less than the appropriate exclusion percentage as applied to the RSS value of the interference from existing stations, and which at the same time is not greater than the smallest signal included in the RSS value of interference from existing stations.

(3) It is recognized that application of the 50% Exclusion Method for calculating the RSS interference may result in some cases in anomalies wherein the addition of a new interfering

signal or the increase in value of an existing interfering signal will cause the exclusion of a previously included signal and may cause a decrease in the calculated RSS value of interference. In order to provide the Commission with more realistic information regarding gains and losses in service (as a basis for determination of the relative merits of a proposed operation) the following alternate method for calculating the proposed RSS values of interference will be employed wherever applicable.

(4) In cases where it is proposed to add a new interfering signal which is not less than 50% of the RSS value of interference from existing stations or which is greater than the smallest signal already included to obtain this RSS value, the RSS limitation after addition of the new signal shall be calculated without excluding any signal previously included. Similarly, in cases where it is proposed to increase the value of one of the existing interfering signals which has been included in the RSS value, the RSS limitation after the increase shall be calculated without excluding the interference from any source previously included.

(5) If the new or increased signal proposed in such cases is ultimately authorized, the RSS values of interference to other stations affected will thereafter be calculated by the 50% Exclusion Method without regard to this alternate method of calculation.

(6) Examples of RSS interference calculations:

(i) Existing interferences:

Station No. 1—1.00 mV/m.

Station No. 2—0.60 mV/m.

Station No. 3—0.59 mV/m.

Station No. 4—0.58 mV/m.

The RSS value from Nos. 1, 2 and 3 is 1.31 mV/m; therefore interference from No. 4 is excluded for it is less than 50% of 1.31 mV/m.

(ii) Station A receives interferences from:

Station No. 1—1.00 mV/m.

Station No. 2—0.60 mV/m.

Station No. 3—0.59 mV/m.

It is proposed to add a new limitation, 0.68 mV/m. This is more than 50% of 1.31 mV/m, the RSS value from Nos. 1, 2 and 3. The RSS value of Station No. 1 and of the proposed station would be 1.21 mV/m which is more than twice as large as the limitation from Station No. 2 or No. 3. However, under the above provision the new signal and the three existing interferences are nevertheless calculated for purposes of comparative studies, resulting in an RSS value of 1.47 mV/m. However, if the proposed station is ultimately authorized, only No. 1 and the new signal are included in all subsequent calculations for the reason that Nos. 2 and 3 are less than 50% of 1.21 mV/m, the RSS value of the new signal and No. 1.

(iii) Station A receives interferences from:

Station No. 1—1.00 mV/m.

Station No. 2—0.60 mV/m.

Station No. 3—0.59 mV/m.

No. 1 proposes to increase the limitation it imposes on Station A to 1.21 mV/m. Although the limitations from stations Nos. 2 and 3 are less than 50% of the 1.21 mV/m limitation, under the above provision they are nevertheless included for comparative studies, and the RSS limitation is calculated to be 1.47 mV/m. However, if the increase proposed by Station No. 1 is authorized, the RSS value then calculated is 1.21 mV/m because Stations Nos. 2 and 3 are excluded in view of the fact that the limitations they impose are less than 50% of 1.21 mV/m.

(j) Objectionable nighttime interference from a station shall be considered to exist to a station when, at the field strength contour specified in paragraph (o) of this section with respect to the class to which the station belongs, the field strength of an interfering station operating on the same channel exceeds for 10% or more of the time the value of the permissible interfering signal set forth opposite such class in paragraph (o) of this section.

(k) For the purpose of estimating the coverage and the interfering effects of stations in the absence of field strength measurements, use shall be made of Figure 8 of §73.190, which describes the estimated effective field (for 1 kW power input) of simple vertical omnidirectional antennas of various heights with ground systems having at least 120 quarter-wavelength radials. Certain approximations, based on the curve or other appropriate theory, may be made when other than such antennas and ground systems are employed, but in any event the effective field to be employed shall not be less than the following:

Class of station	Effective field (at 1 km)
All Class A (except Alaskan) ……	275 mV/m.
Class A (Alaskan), B and D ……..	215 mV/m.
Class C ……..	180 mV/m.

Note (1): When a directional antenna is employed, the radiated signal of a broadcasting station will vary in strength in different directions, possibly being greater than the above values in certain directions and less in other directions depending upon the design and adjustment of the directional antenna system. To determine the interference in any direction, the measured or calculated radiated field (unattenuated field strength at 1 kilometer from the array) must be used in conjunction with the appropriate propagation curves. (See §73.185 for further discussion and solution of a typical directional antenna case.)

Note (2): For Class B stations in Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands, 180 mV/m shall be used.

(l) The existence or absence of objectionable groundwave interference from stations on the same or adjacent channels shall be determined by actual measurements made in accordance with the method described in §73.186, or in the absence of such measurements, by reference to the propagation curves of §73.184. The existence or absence of objectionable interference due to skywave propagation shall be determined by reference to Formula 2 in §73.190.

(m) Computation of skywave field strength values:—(1) Fifty percent skywave field strength values. To compute fifty percent skywave field strength values, Formula 1 of § 73.190, entitled "Skywave field strength, 50% of the time (at SS+6)" shall be used.

(2) Ten percent skywave field strength values. In computing the 10% skywave field strength for stations on a single signal or an RSS basis, Formula 2 in §73.190 shall be used.

(3) Determination of angles of departure. In calculating skywave field strength for stations on all channels, the pertinent vertical angle shall be determined by use of the formula in §73.190(d).

(n) The distance to any specified groundwave field strength contour for any frequency may be determined from the appropriate curves in §73.184 entitled "Ground Wave Field Strength vs. Distance."

(o) Normally protected service contours and permissible interference signals for broadcast stations are as follows (for Class A stations, see also paragraph (a) of this section):

Class of station	Class of channel used	Signal strength contour of area protected from objectionable interference (μV/m)		Permissible interfering signal (μV/m)	
		Day[1]	Night[1]	Day[1]	Night[2]
A	Clear	SC 500 AC 500	SC 500 AC 500	SC 25 AC 500	SC 25 AC 500
B	Regional	SC 2000 AC 2000	SC 2000 AC 2000	SC 100 AC 2000	Not presc. Not presc.
C	Local	2000	Not presc.[3]	SC 100	Not presc.
D	Regional	2000	Not presc.	SC 100 AC 2000	Not presc. Not presc.

[1] Groundwave.

[2] Skywave field strength for 10 percent or more of the time.

[3] During nighttime hours, Class C stations in the contiguous 48 States may treat all Class B stations assigned to 1230, 1240, 1340, 1400, 1450, and 1490 kHz in Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands as if they were Class C stations.

Note: SC = Same channel; AC = Adjacent channel; SW = Skywave; GW = Groundwave

(p) The following table of logarithmic expressions is to be used as required for determining the minimum permissible ratio of the field strength of a desired to an undesired signal. This table shall be used in conjunction with the protected contours specified in paragraph (q) of this section.

Frequency separation of desired to undesired signals (kHz)	Desired Groundwave to:	
	Undesired groundwave (dB)	Undesired 10% Skywave (dB)
0	26	26
10	0	0

(q) Two stations, one with a frequency twice of the other, should not be assigned in the same groundwave service area unless special precautions are taken to avoid interference from the second harmonic of the station operating on the lower frequency. Additionally, in selecting a frequency, consideration should be given to the fact that occasionally the frequency assignment of

two stations in the same area may bear such a relation to the intermediate frequency of some broadcast receivers as to cause "image" interference, However, since this can usually be rectified by readjustment of the intermediate frequency of such receivers, the Commission, in general, will not take this kind of interference into consideration when authorizing stations.

(r) The groundwave service of two stations operating with synchronized carriers and broadcasting identical programs will be subject to some distortion in areas where the signals from the two stations are of comparable strength. For the purpose of estimating coverage of such stations, areas in which the signal ratio is between 1:2 and 2:1 will not be considered as receiving satisfactory service.

Note: Two stations are considered to be operated synchronously when the carriers are maintained within 0.2 Hz of each other and they transmit identical programs.

Alternative 2: Revise Section 73.182 as follows:

§ 73.182 Engineering standards of allocation.

(a) Sections 73.21 to 73.37, inclusive, govern allocation of facilities in the AM broadcast band 535-1705 kHz. §73.21 establishes three classes of channels in this band, namely, clear, regional and local. The classes and power of AM broadcast stations which will be assigned to the various channels are set forth in §73.21. The classifications of the AM broadcast stations are as follows:

(1) Class A stations operate on clear channels with powers between 10 kW and 50 kW. These stations are designed to render primary service over a large area protected from objectionable interference from other stations on the same and adjacent channels. Class A stations may be divided into two groups: those located in any of the conterminous United States and those located in Alaska.

(i) Class A stations in the conterminous United States operate on the channels assigned by §73.25 with minimum power of 10 kW, maximum power of 50 kW, and minimum antenna efficiency of 275 mV/m/kW at 1 kilometer. The Class A stations in this group are afforded protection as follows:

(A) Daytime. To the 0.5 mV/m groundwave contour from stations on the same or adjacent channels.

(B) Nighttime. Interference may not be increased above the 0.5 mV/m nighttime groundwave contour or the NIF groundwave contour based on the 50 percent RSS exclusion method, whichever is greater.

(ii) Class A stations in Alaska operate on the channels assigned by §73.25 with minimum power of 10 kW, maximum power of 50 kW, and minimum antenna efficiency of 215 mV/m/kW at 1 kilometer. The Class A stations in this group are afforded protection, both daytime and nighttime, to the 0.1 mV/m groundwave contour from other stations on the same channel and to the 0.5 mV/m groundwave contour from other stations on first adjacent channels.

(2) Class B stations are stations which operate on clear and regional channels with powers not less than 0.25 kW or greater than 50 kW. These stations render primary service, the area of which depends on their geographic location, power, and frequency. It is recommended that Class B stations be located so that the interference received from other stations will not limit the service area to a groundwave contour value greater than 2.0 mV/m groundwave contour both daytime and nighttime, which are the values for the mutual protection between this class of stations and other stations of the same class.

Note: See §§73.21(b)(1) and 73.26(b) concerning power restrictions and classifications

relative to Class B, Class C, and Class D stations in Alaska, Hawaii, Puerto Rico and the U.S. Virgin Islands. Stations in the above-named places that are reclassified from Class C to Class B stations under §73.26(b) shall not be authorized to increase power to levels that would increase the nighttime interference-free limit of co-channel Class C stations in the conterminous United States.

(3) Class C stations operate on local channels, normally rendering primary service to a community and the suburban or rural areas immediately contiguous thereto, with powers not less than 0.25 kW or greater than 1 kW, except as provided in §73.21(c)(1). Such stations are normally protected to the daytime 2.0 mV/m contour. On local channels the separation required for the daytime protection shall also determine the nighttime separation. Where directional antennas are employed daytime by Class C stations operating with power equal to or greater than 0.25 kW, the separations required shall in no case be less than those necessary to afford protection assuming nondirectional operation with power of 0.25 kW. In no case will nighttime power of 0.25 kW or greater be authorized to a station unable to operate nondirectionally with power of 0.25 kW during daytime hours. The actual nighttime limitation will be calculated. For nighttime protection purposes, Class C stations in the 48 conterminous United States may assume that stations in Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands operating on 1230, 1240, 1340, 1400, 1450, and 1490 kHz are Class C stations.

(4) Class D stations operate on clear and regional channels with daytime powers of not less than 0.25 kW (or equivalent RMS field of 107.5 mV/m at 1 kilometer if less than 0.25 kW) and not more than 50 kW. Class D stations that have previously received nighttime authority to operate with powers of less 0.25 kW (or equivalent RMS fields of less than 107.5 mV/m at 1 kilometer) are not required to provide nighttime coverage in accordance with § 73.24(i) and are not protected from interference during nighttime hours. Such nighttime authority is permitted on the basis of full nighttime protection being afforded to all Class A and Class B stations.

(b) When a station is already limited by interference from other stations to a contour value greater than that normally protected for its class, the individual received limits shall be the established standard for such station with respect to interference from each other station.

(c) All classes of AM broadcast stations have in general three types of service areas, i.e., primary, secondary and intermittent. (See §73.14 for the definitions of primary, secondary and intermittent service areas.) All classes of AM stations render service to a primary area but the secondary and intermittent service areas may be materially limited or destroyed due to interference from other stations, depending on the station assignments involved.

(d) The groundwave signal strength required to render primary service is 2 mV/m for communities with populations of 2,500 or more and 0.5 mV/m for communities with populations of less than 2,500. Because only Class A stations have protected primary service extending beyond the 2 mV/m contour, the groundwave signal strength constituting primary service for Class A stations is that set forth in paragraphs (a)(1)(i) and (a)(1)(ii) of this section. See §73.184 for curves showing distance to various groundwave field strength contours for different frequencies and ground conductivities, and also see §73.183, "Groundwave signals."

(e) A Class C station may be authorized to operate with a directional antenna during daytime hours providing the power is at least 0.25 kW. In computing the degrees of protection which such antenna will afford, the radiation produced by the directional antenna system will be assumed to be no less, in any direction, than that which would result from non-directional operation using a single element of the directional array, with 0.25 kW.

(f) All classes of broadcast stations have primary service areas subject to limitation by fading and noise, and interference from other stations to the contours set out for each class of station.

(g) Broadcast stations are licensed to operate unlimited time, limited time, daytime, share time, and specified hours. (See §§73.1710, 73.1725, 73.1720, 73.1715, and 73.1730.) Applications for

new stations shall specify unlimited time operation only.

(h) Section 73.24 sets out the general requirements for modifying the facilities of a licensed station and for establishing a new station. Sections 73.24(b) and 73.37 include interference related provisions that be considered in connection with an application to modify the facilities of an existing station or to establish a new station. Section 73.30 describes the procedural steps required to receive an authorization to operate in the 1605-1705 kHz band.

(i) Objectionable nighttime interference from a broadcast station occurs when, at a specified field strength contour with respect to the desired station, the field strength of an undesired co-channel station exceeds for 10% or more of the time the values set forth in these standards. The value derived from the root-sum-square of all interference contributions represents the extent of a station's interference-free coverage.

(1) With respect to the root-sum-square (RSS) values of interfering field strengths referred to in this section, calculation of nighttime interference-free service is accomplished by considering co-channel signals in order of decreasing magnitude, adding the squares of the values and extracting the square root of the sum, excluding those signals which are less than 50% of the RSS values of the higher signals already included. This is known as the "50% Exclusion Method."

(2) The RSS value will not be considered to be increased when a new interfering signal is added which is less than the appropriate exclusion percentage as applied to the RSS value of the interference from existing stations, and which at the same time is not greater than the smallest signal included in the RSS value of interference from existing stations.

(3) It is recognized that application of the 50% Exclusion Method for calculating the RSS interference may result in some cases in anomalies wherein the addition of a new interfering signal or the increase in value of an existing interfering signal will cause the exclusion of a previously included signal and may cause a decrease in the calculated RSS value of interference. In order to provide the Commission with more realistic information regarding gains and losses in service (as a basis for determination of the relative merits of a proposed operation) the following alternate method for calculating the proposed RSS values of interference will be employed wherever applicable.

(4) In cases where it is proposed to add a new interfering signal which is not less than 50% of the RSS value of interference from existing stations or which is greater than the smallest signal already included to obtain this RSS value, the RSS limitation after addition of the new signal shall be calculated without excluding any signal previously included. Similarly, in cases where it is proposed to increase the value of one of the existing interfering signals which has been included in the RSS value, the RSS limitation after the increase shall be calculated without excluding the interference from any source previously included.

(5) If the new or increased signal proposed in such cases is ultimately authorized, the RSS values of interference to other stations affected will thereafter be calculated by the 50% Exclusion Method without regard to this alternate method of calculation.

(6) Examples of RSS interference calculations:

(i) Existing interferences:

Station No. 1—1.00 mV/m.

Station No. 2—0.60 mV/m.

Station No. 3—0.59 mV/m.

Station No. 4—0.58 mV/m.

The RSS value from Nos. 1, 2 and 3 is 1.31 mV/m; therefore interference from No. 4 is excluded for it is less than 50% of 1.31 mV/m.

(ii) Station A receives interferences from:

Station No. 1—1.00 mV/m.

Station No. 2—0.60 mV/m.

Station No. 3—0.59 mV/m.

It is proposed to add a new limitation, 0.68 mV/m. This is more than 50% of 1.31 mV/m, the RSS value from Nos. 1, 2 and 3. The RSS value of Station No. 1 and of the proposed station would be 1.21 mV/m which is more than twice as large as the limitation from Station No. 2 or No. 3. However, under the above provision the new signal and the three existing interferences are nevertheless calculated for purposes of comparative studies, resulting in an RSS value of 1.47 mV/m. However, if the proposed station is ultimately authorized, only No. 1 and the new signal are included in all subsequent calculations for the reason that Nos. 2 and 3 are less than 50% of 1.21 mV/m, the RSS value of the new signal and No. 1.

(iii) Station A receives interferences from:

Station No. 1—1.00 mV/m.

Station No. 2—0.60 mV/m.

Station No. 3—0.59 mV/m.

No. 1 proposes to increase the limitation it imposes on Station A to 1.21 mV/m. Although the limitations from stations Nos. 2 and 3 are less than 50% of the 1.21 mV/m limitation, under the above provision they are nevertheless included for comparative studies, and the RSS limitation is calculated to be 1.47 mV/m. However, if the increase proposed by Station No. 1 is authorized, the RSS value then calculated is 1.21 mV/m because Stations Nos. 2 and 3 are excluded in view of the fact that the limitations they impose are less than 50% of 1.21 mV/m.

(j) Objectionable nighttime interference from a station shall be considered to exist to a station when, at the field strength contour specified in paragraph (o) of this section with respect to the class to which the station belongs, the field strength of an interfering station operating on the same channel exceeds for 10% or more of the time the value of the permissible interfering signal set forth opposite such class in paragraph (o) of this section.

(k) For the purpose of estimating the coverage and the interfering effects of stations in the absence of field strength measurements, use shall be made of Figure 8 of §73.190, which describes the estimated effective field (for 1 kW power input) of simple vertical omnidirectional antennas of various heights with ground systems having at least 120 quarter-wavelength radials. Certain approximations, based on the curve or other appropriate theory, may be made when other than such antennas and ground systems are employed, but in any event the effective field to be employed shall not be less than the following:

Class of station	Effective field (at 1 km)
All Class A (except Alaskan) ……	275 mV/m.
Class A (Alaskan), B and D ……..	215 mV/m.

Class C ……..	180 mV/m.

Note (1): When a directional antenna is employed, the radiated signal of a broadcasting station will vary in strength in different directions, possibly being greater than the above values in certain directions and less in other directions depending upon the design and adjustment of the directional antenna system. To determine the interference in any direction, the measured or calculated radiated field (unattenuated field strength at 1 kilometer from the array) must be used in conjunction with the appropriate propagation curves. (See §73.185 for further discussion and solution of a typical directional antenna case.)

Note (2): For Class B stations in Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands, 180 mV/m shall be used.

(l) The existence or absence of objectionable groundwave interference from stations on the same or adjacent channels shall be determined by actual measurements made in accordance with the method described in §73.186, or in the absence of such measurements, by reference to the propagation curves of §73.184. The existence or absence of objectionable interference due to skywave propagation shall be determined by reference to Formula 2 in §73.190.

(m) Computation of skywave field strength values:—(1) Fifty percent skywave field strength values. To compute fifty percent skywave field strength values, Formula 1 of § 73.190, entitled "Skywave field strength, 50% of the time (at SS+6)" shall be used.

(2) Ten percent skywave field strength values. In computing the 10% skywave field strength for stations on a single signal or an RSS basis, Formula 2 in §73.190 shall be used.

(3) Determination of angles of departure. In calculating skywave field strength for stations on all channels, the pertinent vertical angle shall be determined by use of the formula in §73.190(d).

(n) The distance to any specified groundwave field strength contour for any frequency may be determined from the appropriate curves in §73.184 entitled "Ground Wave Field Strength vs. Distance."

(o) Normally protected service contours and permissible interference signals for broadcast stations are as follows (for Class A stations, see also paragraph (a) of this section):

Class of station	Class of channel used	Signal strength contour of area protected from objectionable interference (μV/m)		Permissible interfering signal (μV/m)	
		Day[1]	Night[1]	Day[1]	Night[2]
A	Clear	SC 500 AC 500	SC 500[3] AC 500	SC 25 AC 500	SC 25 AC 500
B	Regional	SC 2000 AC 2000	SC 2000 AC 2000	SC 100 AC 2000	Not presc. Not presc.
C	Local	2000	Not presc.[3]	SC 100	Not presc.
D	Regional	2000	Not presc.	SC 100 AC 2000	Not presc. Not presc.

[1] Groundwave.

[2] Skywave field strength for 10 percent or more of the time.

[3] Class A AMs are protected such that interference may not be increased above the greater of the 0.5 mV/m nighttime ground wave contour or the 50% exclusion RSS NIF level.

[4] During nighttime hours, Class C stations in the contiguous 48 States may treat all Class B stations assigned to 1230, 1240, 1340, 1400, 1450, and 1490 kHz in Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands as if they were Class C stations.

Note: SC = Same channel; AC = Adjacent channel; SW = Skywave; GW = Groundwave

(p) The following table of logarithmic expressions is to be used as required for determining the minimum permissible ratio of the field strength of a desired to an undesired signal. This table shall be used in conjunction with the protected contours specified in paragraph (q) of this section.

Frequency separation of desired to undesired signals (kHz)	Desired Groundwave to:	
	Undesired groundwave (dB)	Undesired 10% Skywave (dB)
0	26	26
10	0	0

(q) Two stations, one with a frequency twice of the other, should not be assigned in the same groundwave service area unless special precautions are taken to avoid interference from the second harmonic of the station operating on the lower frequency. Additionally, in selecting a frequency, consideration should be given to the fact that occasionally the frequency assignment of two stations in the same area may bear such a relation to the intermediate frequency of some broadcast receivers as to cause "image" interference, However, since this can usually be rectified by readjustment of the intermediate frequency of such receivers, the Commission, in general, will not take this kind of interference into consideration when authorizing stations.

(r) The groundwave service of two stations operating with synchronized carriers and broadcasting identical programs will be subject to some distortion in areas where the signals from the two stations are of comparable strength. For the purpose of estimating coverage of such stations, areas in which the signal ratio is between 1:2 and 2:1 will not be considered as receiving satisfactory service.

Note: Two stations are considered to be operated synchronously when the carriers are maintained within 0.2 Hz of each other and they transmit identical programs.

9. Revise Section 73.187 as follows:

§ 73.187 Limitation on daytime radiation.

(a)(1) Except as otherwise provided in paragraphs (a)(2) and (3) of this section, no authorization will be granted for a Class B or Class D station on a frequency specified in §73.25 if the proposed operation would radiate during the period of critical hours (the two hours after local sunrise and the two hours before local sunset) toward any point on the 0.5 mV/m contour of a co-channel U.S. Class A station, at or below the pertinent vertical angle determined from Curve 2 of Figure 6a of §73.190, values in excess of those obtained as provided in paragraph (b) of this section.

(2) The limitation set forth in paragraph (a)(1) of this section shall not apply in the following cases:

(i) Any Class B or Class D operation authorized before November 30, 1959; or

(ii) For Class B and Class D stations authorized before November 30, 1959, subsequent changes of facilities which do not involve a change in frequency, an increase in radiation toward any point on the 0.5 mV/m contour of a co-channel U.S. Class A station, or the move of transmitter site materially closer to the 0.5 mV/m contour of such Class A station.

(3) A Class B or Class D station authorized before November 30, 1959, and subsequently authorized to increase daytime radiation in any direction toward the 0.5 mV/m contour of a co-channel U.S. Class A station (without a change in frequency or a move of transmitter site materially closer to such contour), may not, during the two hours after local sunrise or the two hours before local sunset, radiate in such directions a value exceeding the higher of:

(i) The value radiated in such directions with facilities last authorized before November 30, 1959, or

(ii) The limitation specified in paragraph (a)(1) of this section.

* * * * *

10. Revise Figures 9, 10, and 11 of Section 73.190 as follows:

§ 73.190 Engineering charts and related formulas

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Figure 9: Revise axis label on right-hand side of Figure to read: "Distance from 0.5 mV/m Contour in Miles."

Figure 10: Revise axis label on right-hand side of Figure to read: "Distance from 0.5 mV/m Contour in Miles."

Figure 11: Revise axis label on right-hand side of Figure to read: "Distance from 0.5 mV/m Contour in Miles."

APPENDIX B

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA)[1] the Commission has prepared this Initial Regulatory Flexibility Analysis ("IRFA") of the possible significant economic impact on a substantial number of small entities by the policies proposed in the *Second Further Notice of Proposed Rulemaking* (*SFNPRM*). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *SFNPRM* provided in paragraph 18. The Commission will send a copy of this entire *SFNPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the *SFNPRM* and the IRFA (or summaries thereof) will be published in the Federal Register.[3]

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

2. This rulemaking proceeding is initiated to obtain further comments concerning certain proposals designed to revitalize the AM broadcast radio service. It is based in substantial part on proposals raised by commenters in this rulemaking proceeding, in response to the Commission's call in the original *NPRM* in this proceeding for further ideas and proposals.

3. Specifically, the Commission seeks comment on the following: (1) whether to change the nighttime and critical hours signal protection to Class A AM stations, based on new alternative proposals; (2) whether to change the methodology for calculating nighttime root sum square (RSS) values, based on the new alternative proposals for protection to Class A AM stations; and (3) whether to change daytime signal protection to Class B, C, and D stations, based on the new alternative proposals for protection to Class A AM stations.

B. Legal Basis

4. The authority for this proposed rulemaking is contained in Sections 1, 2, 4(i), 301, 303(r), 307, 316, and 403 of the Communications Act of 1934, 47 U.S.C §§ 151, 152, 154(i), 301, 303(r), 307, 316, and 403.

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

5. The RFA directs the Commission to provide a description of and, where feasible, an estimate of the number of small entities that will be affected by the proposed rules.[4] The RFA generally defines the term "small entity" as encompassing the terms "small business," "small organization," and "small governmental entity."[5] In addition, the term "small business" has the same meaning as the term

[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] *See* 5 U.S.C. § 603(a).

[3] *See id*. § 603(a).

[4] *Id*. § 603(b)(3).

[5] *Id*. § 601(6).

"small business concern" under the Small Business Act.[6] 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 Small Business Administration (SBA).[7]

D. Radio Stations

6. The proposed rules and policies could apply to AM radio broadcast licensees, and potential licensees of the AM radio service. A radio broadcasting station is an establishment primarily engaged in broadcasting aural programs by radio to the public.[8] Included in this industry are commercial, religious, educational, and other radio stations.[9] Radio broadcasting stations which primarily are engaged in radio broadcasting and which produce radio program materials are similarly included.[10] However, radio stations that are separate establishments and are primarily engaged in producing radio program material are classified under another NAICS number.[11] The SBA has established a small business size standard for this category, which is: firms having $38.5 million or less in annual receipts.[12] According to the BIA/Kelsey, MEDIA Access Pro Database on May 14, 2018, 4,630 (99.94%) of 4,633 AM radio stations have revenues of $38.5 million or less. Therefore, the majority of such entities are small entities. We note, however, that, in assessing whether a business concern qualifies as small under the above definition, business (control) affiliations[13] 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.

7. In addition, an element of the definition of "small business" is that the 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 station is dominant in its field of operation. Accordingly, the estimate of small businesses to which rules may apply do not exclude any radio station from the definition of a small business on this basis and therefore may be over-inclusive to that extent. Also as noted, an additional element of the definition of "small business" is that the entity must be independently owned and operated. We note that it is difficult at times to assess these criteria in the context of media entities and our estimates of small businesses to which they apply may be over-inclusive to this extent.

E. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements

8. The proposed rule and procedural changes may, in some cases, impose different reporting, recordkeeping, or other requirements on existing and potential AM radio licensees and permittees. In the case of proposed changes to the technical rules regarding calculation of daytime and

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[6] *Id*. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 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."

[7] 15 U.S.C. § 632.

[8] *Id*.

[9] *Id.*

[10] *Id.*

[11] *Id.*

[12] 13 C.F.R. § 121.201, NAICS code 515112 (updated for inflation in 2008).

[13] "[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 to power to control both." 13 C.F.R. § 121.103(a)(1).

nighttime interfering contours, and changes to daytime, nighttime, and critical hours protection to some stations, there would be changes in the calculation of inter-station interference and reporting of same. However, the information to be filed is already familiar to broadcasters, and the nature of the interference calculations would not change, only the values that are acceptable, so any additional burdens would be minimal.

F. Steps Taken to Minimize Significant Impact on Small Entities, and Significant Alternatives Considered

9. The RFA requires an agency to describe any significant 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 or reporting requirements under the rule for 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 small entities.[14] In the *Second Further Notice of Proposed Rulemaking*, the Commission seeks to assist AM broadcasters by changing certain daytime, nighttime, and critical hours interference protection standards as they apply to certain classes of AM stations. The Commission seeks comment as to whether its goal of revitalizing the AM service could be effectively accomplished through these means. The Commission is open to consideration of alternatives to the proposals under consideration, as set forth herein, including but not limited to alternatives that will minimize the burden on AM broadcasters, most of which are small businesses. There may be unique circumstances these entities may face, and we will consider appropriate action for small broadcasters when preparing a *Fourth Report and Order* in this matter.

G. Federal Rules Which Duplicate, Overlap, or Conflict With, the Commission's Proposals

10. None.

[14] 5 U.S.C. § 603(b).

STATEMENT OF
COMMISSIONER MICHAEL O'RIELLY

Re: *Revitalization of the AM Radio Service*, MB Docket No. 13-249

In this Second Further Notice of Proposed Rule Making, the Commission is considering further reducing the contour by which Class A stations are protected at night, in order to represent a more realistic view of where a listenable signal is, and, therefore, actual listeners. At the same time, the Commission also has proposed to enhance Class A stations' co-channel interference protections, thereby reducing the potential impact on Class A stations' nighttime service.

The Commission bases its new proposal on engineering data in the record indicating that protection of the 0.1 mV/m Groundwave contour cannot be heard under current noise conditions. Therefore, it is contended, that it is only necessary to protect Class A AM stations to their 0.5 mV/m Groundwave contour. If true, I would be more sympathetic to this change as it wouldn't alter the realistic reach or expectations of those holding existing licenses. I appreciate the Chairman accommodating my request to clarify that, at this time, this is not a universally held viewpoint. I hope the record will reflect a consensus by engineers on how far a listenable signal extends. I will be hesitant to support a final order on this proposal without such consensus. However, at this stage, I support moving forward and developing a record on this, and other, important questions presented in the SFNPRM.