AM Station, Technical Standards
Antenna, Directional
Rules, Amendment of
Standard Pattern, Conversion to

Part 73 of rules amended to require all AM directional stations to use standard patterns, to convert existing stations to standard patterns, and to begin the use of the metric system for AM stations. Docket No. 21473

FCC 81-45

BEFORE THE

FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C. 20554

In the Matter of	
Amendment of the Rules Governing the Conversion of Radiation Patterns for AM Broadcast Stations	Docket No. 21473

REPORT AND ORDER (PROCEEDING TERMINATED)

(Adopted: January 29, 1981; Released: February 9, 1981)

BY THE COMMISSION: COMMISSIONERS FERRIS, CHAIRMAN, AND BROWN NOT PARTICIPATING; COMMISSIONER QUELLO CONCURRING IN THE RESULT.

1. The Commission has before it the comments and reply comments responding to our recent *Notice of Proposed Rulemaking (NPRM)*, FCC 80-538, 45 FR 63516, in which we proposed the adoption of Rules leading to the conversion of all directional AM broadcast stations to standard patterns. This proceeding began with our *Notice of Inquiry (NOI)*, 66 FCC 2d 901 (1977). At the present time, most of the AM patterns are under the old system of theoretical patterns, measured patterns, and MEOV (Maximum Expected Operating Values). The Rules requiring the use of standard patterns for new stations and for major changes apply only to stations making application since 1971. *Report and Order in Docket No. 16222*, 27 FCC 2d 77, 20 RR 2d 1745 (1971). Currently, applicants for minor changes use the standard pattern only if they wish, with the majority continuing the use of the older types of pattern.

2. The theoretical patterns depict the radiation pattern that would occur if the station were operating under ideal circumstances. However, since such a situation does not actually occur in nature, applicants proposing theoretical patterns also propose MEOV. The MEOV are chosen based on the consulting engineer's experience and engineering

judgment, and are designed to predict the actual maximum deviations from the ideal. After construction of the station, an r.f. proof of performance is made, in which the actual pattern of the station is measured and plotted. The measured values must be within the MEOV. Under the existing system, measured values are used in allocation studies involving domestic stations while the theoretical values and MEOV are used in allocation studies involving foreign stations. Such allocation studies are tedious because of the manual adjustments that must be made to computerized calculations to consider the measured patterns and the MEOV. Since we wish to take advantage of the available technology by automating our processing as much as possible, and since there is no easy way to define the measured pattern or the MEOV with an equation which could be entered into a computer, we have concluded that the increased use of automation requires that we convert the existing stations to standard patterns. Accordingly, we issued the *NPRM* in this proceeding to examine the possibility of converting the remaining stations to standard patterns.

3. The deadline for filing comments bas November 17, 1980, and the deadline for filing reply comments was December 2, 1980. Comments were filed by the following parties:

News-Press Publishing Co.
S&S Broadcasting Co.
Association for Broadcast Engineering Standards (ABES)
A.D. Ring & Associates
William G. Ball
American Broadcasting Companies, Inc. (ABC)
KFAB Broadcasting Co.
Jefferson-Pilot Broadcasting Co.
Southern Broadcasting Co.
Association of Federal Communications Consulting Engineers (AFCCE)
Great Trails Broadcasting Corporation
WJAC, Inc.

Reply comments were filed by:

Nationwide Communications, Inc.
A.D. Ring & Associates
Westinghouse Broadcasting Co., Inc. (Group W)
American Broadcasting Companies, Inc. (ABC)
General Electric Broadcasting Co., Inc. (GEBCO)
McKenna, Wilkinson & Kittner (MWK)
Clear Channel Broadcasting Service (CCBS)
Scripps-Howard Broadcasting Co.

4. Mr. Ball wishes to make clear that he commented on his own behalf, and not on behalf of his firm. In its comments, Ring also incorporated by reference its comments in the engineering statement which it prepared as a part of the comments submitted by Jefferson-Pilot. McKenna, Wilkinson & Kittner submitted its reply comments on

behalf of its AM radio broadcast licensee clients. The comments submitted by AFCCE and Great Trails were late, but since they were submitted by the deadline for filing reply comments, we uill accept them. The comments submitted by WJAC were not submitted until December 9, 1980, a week after the deadline for filing reply comments. The reply comments submitted by Scripps-Howard were not submitted until December 5, 1980, three days after the deadline for filing reply comments. For the most part, the WJAC comments and Scripps-Howard reply comments contained much the same discussion as some of the other comments and reply comments, although there were differences in the specifics. Accordingly, we see no extra burden in considering them. Therefore, we will accept them.

5. We wish to thank those who took the time and effort to prepare the comments and reply comments on such short notice. We have analyzed them carefully and found them to be extremely helpful. Rather than discuss them at this point, we find it more appropriate to incorporate them into our discussion as we proceed. Many areas mentioned in the *NPRM* were not addressed in the comments. Except for those few instances which we will raise on our own, we will not repeat the discussion of these items, but rather will simply adopt them as proposed.

6. As mentioned in the *NPRM*, severe time constraints are imposed upon us by the need to be prepared for the Second Session of the Region 2 MF Broadcasting Conference to be held in November and December 1981. Currently, only theoretical patterns, *without* MEOV, are in the inventory of U.S. stations sent to the International Frequency Registration Board (IFRB) because the notification format makes no provision for MEOV, and manual calculations based upon plotted patterns are impractical on a region-wide basis. To retain the radiation rights which our stations now have under existing sub-regional agreements in those cases where notified MEOV and/or measured values exceed the theoretical values, we hope to notify standard patterns (with any necessary augmentation) to IFRB in time for IFRB to conduct its studies prior to the beginning of the Second Session. However, this requires that the conversion to standard patterns be completed by the end of May 1981. Most of the parties commenting recognized these time constraints. There was also general agreement that the conversation should ensure that existing protection and radiation rights not be jeopardized, and that changes in the operation of stations not be required.

7. In paragraph 7 of the *NPRM*, we discussed two possible methods of conversion of Class I and II stations where conversion to the basic standard pattern would result in a paper infringement of the secondary service area of Class I stations. Our alternatives were;

a. Convert the Class I and II stations without regard to whether there is a theoretical increase in "interference," or

b. In those cases where the standard pattern radiation exceeds the

MEOV and the measured radiation in the direction towards a Class I station's skywave service area, require the Class I or Class II station to convert to a different standard pattern which would not increase the radiation beyond that now authorized. This might be accomplished by the use of a lower Q or by negative augmentation or both.

Under either alternative, we envisioned the use of the converted pattern in both allocation studies and the subsequent proof-of-performance process.

8. Jefferson-Pilot, Ring, and AFCCE present a different approach, commenting that we should convert all stations to only the basic standard pattern, without any augmentation, and that this basic standard pattern should be used for allocation purposes only. Class II stations which now do not have standard patterns would continue, in the proof-of-performance process, to be restricted in the direction towards the secondary service areas of Class I stations to the values to which they are now restricted, even if the standard pattern values are greater. This position is basically the same position that Ring took in its comments in the original rulemaking (Docket No. 16222) in which the standard pattern was adopted.

9. Ring advances four reasons for its objection to the use of complex mathematical attempts to synthesize an augmented pattern:

1. As shown by the Commission's study in the Appendix to the *NOI*, the values obtained with the basic standard pattern are quite close to the values obtained with the use of measured patterns. The differences, says Ring, quoting the *NOI*, are imperceptible.
2. The standard pattern, without either augmentation or a reduced Q, has a greater chance for international acceptance, apparently because it is simpler.
3. Conversion to a standard pattern is helpful even if it is used only as an allocations tool, and even if the limits on adjustments of the actual operation are different from the standard pattern values.
4. The Commission is laboring under a false assumption that the use of measured values of radiation are necessarily more accurate than the standard pattern values. For example, the field strength meters are generally accurate to no more than (plus or minus) five percent, the propagation curves are inaccurate, the analysis of measurement data is not perfect, and the "smoothing-in" of measured patterns between measured radials will vary with the draftsman.

AFCCE also notes rough approximations in our allocation methods, and goes on to say that conversion would be quick and inexpensive because it would only be necessary to apply the standard pattern equation to existing directional antenna parameters. These minor changes in computer programs could, we believe, be accomplished with perhaps an hour or two of effort.

10. Under the proposal advanced by Jefferson-Pilot, Ring, and AFCCE, grants of applications for changes in Class II stations would continue the restrictions on radiation which are now entered on the

construction permit, even if the standard pattern values are greater, except when the use of the standard pattern values does not cause new or additional interference to a Class I station. At the time of construction, the station would have to adjust to the standard pattern value, or the construction permit limit, if the construction permit limit is lower than the standard pattern. Ring goes further to suggest that, if a measured value is greater than the limit, and it cannot be reduced by adjustments, then the permittee would file a request for waiver, including a showing of the interference which would be created by the actual measured value. The Commission would routinely permit measured values of something on the order of 0.5 dB or 1.0 dB greater than the limit. These values were chosen, says Ring, because they are essentially the values that ue have sanctioned in the conversion that is the subject of this proceeding. Measured radiations would not be used in allocation, even if the measured values exceed the standard pattern values. In its reply comments, Ring modifies its proposal slightly to provide for use of a reduced Q and/or theoretical RMS (pattern size) for those stations which must provide wide-angle protection to skywave service areas. In these cases, Ring proposes that we accept the fact that the allocation of a facility with a particular pattern and power will cause a certain amount of interference to other stations. Therefore, when there is a deep suppression in an angular sector of 20 degrees or more, Ring proposes that the average radiation over the sector not exceed the standard pattern value (computed with a reduced Q and/or lower theoretical RMS, if necessary), and that the maximum excursion for any measured radial shall not exceed the standard pattern value by more than 3 dB. AFCCE, on the other hand, would permit augmentation to be used by applicants proposing changes after the conversion.

11. CCBS was the only party to submit an engineering study of the impact of conversion on Class I stations. Because the short period for comments and reply comments precluded a complete study, CCBS studied one case which it considered typical. KRVN, Lexington, Nebraska, 880 kHz, is a Class II-A station operating co-channel with Class I-A station WCBS, New York, New York. Based on the KRVN MEOV, KRVN does not cause interference within the 0.5 mV/m-50 percent skywave contour of WCBS. However, on the site-to-site bearing, the KRVN basic standard pattern radiation (without augmentation or a reduced Q) would cause interference within the WCBS 0.5 mV/m-50 percent contour up to the 0.7 mV/m-50 percent contour. The WCBS service area in this direction would be reduced from 780 miles to 640 miles. CCBS expects that a study of the other Class II-A stations would reveal similar results; we agree.

12. CCBS also points out that, on the Class I-B channels, more than one station would convert to standard patterns. Not only would each station possibly infringe on the secondary service area of the Class I-B station, but there would possibly be a cumulative impact as well.

13. Therefore, CCBS proposes that we adopt what is, in effect, the proposal by Jefferson-Pilot, Ring, and AFCCE. If that is not possible, CCBS asks that we adopt our alternative b, in paragraph 7, above, requiring the use of a reduced Q and/or augmentation to avoid increasing radiation, on paper, towards the skywave service areas of the Class I stations.

14. In its reply comments, ABC takes issue with Ring's proposal, noting that it would continue to embody a dual-pattern concept which is contrary to the purpose of conversion. (See our *Further Notice of Proposed Rulemaking in Docket No. 16222*, 34 FR 18942 at para. 66 (1969).) ABC also notes that use of a standard pattern for allocation purposes only would mean that a station, with more restrictive limits on adjustments than depicted by the standard pattern would be afforded protection outside of their actual service areas, possibly precluding new stations. ABC also raises several unanswered questions concerning Ring's proposal. Finally, ABC states that it is not convinced by Ring's arguments that an essentially theoretical representation is necessarily more correct than a statistically good measurement of fact.

15. We have considered the alternative proposals advanced by Jefferson-Pilot, Ring, AFCCE, and CCBS, and have concluded that they are not acceptable. We base our determination on both international and domestic considerations.

16. We assume that the proposed Region 2 agreement will include essentially the same interference criteria that are included in the *Report of the First Session.* (A copy of the *Report* appears as Appendix I to the *Further Notice of Proposed Rulemaking in BC Docket No. 79–166*, FCC 80–622, released November 25, 1980.) The *Report* defines three classes of station for Region 2 purposes. Class "A" is one of the newly defined Region 2 classes. In the inventory which the U.S. sent to the IFRB, we specified all of the U.S. Class I stations, plus two Class II stations in Alaska, as Class A stations. U.S. Class A stations will be protected in a manner which is different from that in our present Rules, the North American Regional Broadcasting Agreement (NARBA), and the "Agreement Between the United States of America and the United Mexican States Concerning Radio Broadcasting in the Standard Broadcasting Band (535–1605 kHz); (Mexican Agreement). Under the proposed standards, U.S. Class A stations are protected by certain countries (including some of our geographically close neighbors such as Cuba) by the use of RSS calculations on the 0.5 mV/m-50 percent contours. See paragraph 2.3.3.2 of the *Report*. The RSS calculations will include U.S. Class I and Class II stations with the patterns which are in the inventory sent to the IFRB. If we adopt this proposal and notify only the basic standard pattern without augmentation, then the values used in computing nighttime limitations from U.S. Class I and II stations will be inflated beyond the actual values. With higher limitations from U.S. stations, the RSS at points on a Class A station's 0.5 mV/m-50 percent contour will be higher, thereby

allowing stations from certain foreign countries to radiate more towards the secondary service area of a Class A station than would be permitted if we had used negative augmentation or a reduced Q in computing the patterns for U.S. Class I and Class II stations. We believe that full protection of the secondary service areas of our Class A stations in the international arena requires that we use negative augmentation, or a reduced Q, to reduce the calculated radiation to values which more accurately depict adjusted values of radiation. This reasoning leads us to choose our alternative b, rather than alternative a or the modifications suggested in the comments.

17. From a purely domestic standpoint, there is an additional reason why the proposals of Jefferson-Pilot, Ring, and CCBS are unacceptable. The "dual-pattern" approach inherent in those proposals could result in increased interference to the nighttime groundwave service areas of Class I stations. In areas not engulfed by its 0.5 mV/m-50 percent skywave contour, the nighttime groundwave 0.5 mV/m contour of a Class I station is protected on an RSS basis. If the RSS (based on the basic standard pattern, without augmentation or a reduced Q) is less than 0.5 mV/m, a co-channel station applying for a change in facilities could be granted an increase in its adjustment tolerance (MEOV) which would raise the RSS to 0.5 mV/m. However, after grant, the newly granted MEOV would no longer be used in computing the RSS; only the standard pattern value would be used. Thus, any station subsequently proposing a similar increase in its radiation toward the Class I station's primary service area would be permitted a larger increase than would otherwise prevail under a single pattern system. Each successive application could add to the cumulative degradation of the Class I station's primary service area, while calculations pursuant to these proposals would reveal apparently adequate protection, thus masking the actual interference.

18. Also, under these proposals, applications for changes by stations which are on U.S. clear channels would have to be prepared and studied using the present manual methods. While it is true that the calculation of the location of the protected 0.5 mV/m-50 percent contour would be automated, calculation of the allowable horizontal plane radiation from an applicant co-channel Class I or Class II station would continue to require manual calculations and engineering judgment. And the most difficult applications to study manually are those involving protection of a Class I station's secondary service area. Since it is precisely these manual studies which we are trying to eliminate, ue find that these proposals are not acceptable because they would continue many of the presently burdensome manual studies, thus failing to achieve the full level of automation potential we are seeking in this proceeding.

19. Some of the comments were written as though only Class II stations would be required to use negative augmentation and/or a reduced Q to protect the secondary service areas of Class I stations. We

believe that the Class I stations must also use a reduced Q and/or negative augmentation, if necessary, to protect the secondary service area of another, co-channel Class I station. Consider, for example, the two Class I-B stations on 1090 kHz. The 0.025 mV/m-10 percent contour of KAAY, Little Rock, Arkansas, "kisses" the 0.5 mV/m-50 percent contour of WBAL, Baltimore, Maryland, for several hundred miles, and vice-versa. Conversion of both KAAY and WBAL to standard patterns without negative augmentation and/or a reduced Q would result in significant paper increases in mutual interference. Accordingly, the Rules we adopt today regarding protection of Class I stations apply to Class I as well as Class II stations.

20. The proposal by Ring and AFCCE concerning the use of the basic standard pattern, discussed above, does not apply only to Class II stations. They also propose that Class III stations be converted to simply the basic standard pattern, without the use of negative augmentation and/or a reduced Q. Furthermore, the basic standard pattern would be used only for allocation purposes, and not in the proof-of-performance process. AFCCE would continue the present limitations on the authorizations of the Class III stations. Ring, on the other hand, would restrict the actual adjustment of Class III stations to the basic standard pattern values, allowing the same types of tolerance (0.5 dB or 1.0 dB). Taking a different approach, ABES suggests that use of negative augmentation or a reduced Q may be appropriate for Class III stations as well as those on the clear channels.

21. One of the reasons that we are so concerned with the standard pattern (as augmented) encompassing the actual, measured pattern is because of our present and proposed international agreements. Although these agreements deal with frequency, channel spacing, protected service areas, etc., the bottom line of any such agreement is radiation rights or limits. If we were to permit stations to radiate, in fact, more than is permitted pursuant to an agreement, then we have struck at the heart of the agreement. Detailed studies and extensive negotiations with other countries lead to the limits on radiation. We cannot reach an agreement and then permit stations to radiate more than the values which were agreed upon in our negotiations. To do so would be a violation of both the letter and the spirit of the agreement. CCBS comments that concerns such as these are valid only if other countries also agree to restrict the actual radiation from their stations to the values which are used in the studies and the negotiations. Otherwise, says CCBS, U.S. stations with standard patterns will provide more protection to foreign stations than they receive from foreign stations. CCBS did not discuss the minor, but nonetheless important, point that the protected service areas of U.S. stations are increased by use of the standard pattern.

22. Great Trails notes that the measured pattern of its station, WCII, Louisville, Kentucky, 1080 kHz, exceeds the basic standard pattern, and that if a non-augmented pattern superseded the currently

authorized pattern, then WCII could not conform to our Rules. Moreover, the international implications are perceived by Great Trails to be significant, particularly if the channel spacing is shifted to 9 kHz from the present 10 kHz. Readjustments (if a shift to 9 kHz spacing is required) and the potential for power increases require the use of augmentation to retain the presently authorized radiation limits and to maintain maximum flexibility. It also points out that there are many other stations, in addition to WCII, which fall into this category. WJAC makes similar comments.

23. Nationwide, in its reply comments, continues this argument, particularly with regard to the international implications. Nationwide, the licensee of WLEE, Richmond, Virginia, 1480 kHz, and WGAR, Cleveland, Ohio, 1220 kHz, notes that it wishes to increase the power of WLEE above its present five kilowatts, should the Region 2 agreement and the implementing amendments to our Rules permit such an increase. To preserve the flexibility for the potential power increase, WLEE wishes to retain the presently authorized radiation values in the form of an augmented standard pattern. Paragraph B(2)(f) of Annex II of the Mexican Agreement provides that WGAR not increase its radiation over the current value in the arc from 193 degrees true to 264 degrees true. Conversion to the basic standard pattern would, according to Nationwide, reduce the WGAR radiation in this arc, thus losing current internationally recognized radiation rights. Recent power line construction makes it essential that WGAR retain its present flexibility in adjusting its pattern, argues Nationwide. Scripps-Howard echoes these comments with respect to its stations, WMC, Memphis, Tennessee, 790 kHz; and WNOX, Knoxville, Tennessee, 990 kHz.

24. After giving a great deal of thought to the alternative proposals presented in the comments, we conclude that we must remain with our original proposal. Ring's proposal does not provide an acceptable method of dealing with those stations whose existing measured patterns exceed the basic standard pattern by more than 0.5 dB or 1.0 dB. And it would apparently lead to the need for augmentation analysis, in any event, for those stations whose measured patterns exceed the basic standard pattern by more than 1.0 dB, assuming that we honor our desire to avoid readjustments of directional antennas as part of this proceeding. Ring suggests the use of a waiver process in these cases. However, that only adds complexity and delay to the final licensing process, adding further burdens to the Commission staff where speed, automation, and a reduction in manual processing are our goals. Furthermore, with augmentation, it is less likely that the measured values uill exceed authorized values. Similarly, the AFCCE proposal does not provide an acceptable method of dealing with those stations whose existing measured patterns exceed the basic standard pattern by any amount. Moreover, neither provides a means by which MEOV in excess of the basic standard pattern can be

retained internationally. Also, the use of a tolerance of 0.5 dB or 1.0 dB (or even 3.0 dB in the case of protection of Class I stations) is tantamount to changing the value of 1.05 in the standard pattern formula, to 1.18, for example, if a 1.0 dB tolerance is allowed. It must be remembered that the basic standard pattern formula already includes a five percent tolerance plus the value of Q added in quadrature. We see no need to add a tolerance to a tolerance, which would result in an actual tolerance of 18 percent, in the case of 1.0 dB. Also, with the use of a 3.0 dB tolerance over arcs of 20 degrees or more, as proposed by Ring for certain stations, we see an added element of complexity, not a reduction of complexity. The Ring method also masks interference. We previously discussed how the dual-pattern approach not only allows cumulative increases in interference to the nighttime 0.5 mV/m primary groundwave service area of a Class I station, but also shows no apparent degradation. An analogous analysis would lead to a similar conclusion in the case of a Class II or Class III-A station with an RSS below 2.5 mV/m or a Class III-B station with an RSS below 4.0 mV/m. Finally, both methods would lead to violations of both our present and proposed international agreements if the measured values exceeded the basic standard pattern. We will not adopt rules which will lead to certain violations of our present and proposed international agreements.

25. With regard to the ABES proposal for use of a reduced Q and/or negative augmentation for Class III stations, we first note that the suggestion was not supported by any studies showing the need for such additional compensation. Indeed, our study in the Appendix to the *NOI, supra,* showed relatively small changes as a result of conversion of Class III stations. Accordingly, we conclude that negative augmentation and/or a reduced Q should not be used in converting Class III stations, except when required by international considerations. The distinction between the method of handling Class III stations and those on the clear channels relates to the different methods of protection. The change in service area of a Class I station as a result of an increase in radiation towards the Class I station's secondary service area is greater than the change in service area of a Class II or Class III station as a result of the same increase in radiation. This is because the Class I station has a skywave service area protected on a single signal basis while a Class II or Class III station has a groundwave service area protected on an RSS basis.

26. The conversion to the standard pattern would begin by use of the existing theoretical RMS to determine the size of the pattern. Contrary to the statements by S&S, the theoretical RMS would not normally correspond to the RMS achieved with an assumed loss resistance of one ohm per tower. However, we did discuss the possibility of reducing the theoretical RMS for those stations where it appears to be unrealistically high. See paragraphs 24 and 25 of the *NPRM*. Specifically, we proposed that the theoretical RMS used with

the standard pattern be restricted so that it is no greater than 3.9 percent more than the no loss or one-ohm-loss RMS for stations with nominal powers of five kilowatts or less, and no greater than 2.6 percent more than the no loss or one-ohm-loss RMS for stations with nominal powers above five kilowatts.

27. ABES supports the general concept of restricting the RMS in those cases where it is unreasonably high, but did not comment on the specifics. Mr. Ball favors the required reduction in RMS if the r.f. proof of performance is more than 10 years old, or if it does not include non-directional measurements with sufficient close-in points. However, we would allow three to five years for the station to submit a new proof to recapture the higher RMS. ABC suggests that some stations have an efficiency which is higher than predicted, noting that two of its stations have recent proofs showing higher RMS than predicted. ABC also points out that the older proofs for these stations indicate higher RMS. Therefore, in those cases where the theoretical RMS is greater than the measured RMS, ABC would use the greater of the measured and the one-ohm loss RMS. But if the measured RMS is greater than the theoretical RMS, or the one-ohm-loss RMS, ABC uould evaluate the proof. If the proof were made within the last 10 years, ABC would retain the RMS in the proof. However, if the proof were over 10 years old, ABC would reduce the RMS to the lesser of the one-ohm-loss RMS and the theoretical RMS. KFAB is concerned about the impact of reducing the RMS of its station, KFAB, Omaha, Nebraska, 1110 kHz, since its measured RMS is greater than the no-loss RMS. Therefore, says KFAB, it would have to augment over the entire main lobe to retain the measured and notified values of radiation. Group W is concerned about one of its stations, WINS, New York, New York, 1010 kHz. Its theoretical, notified RMS is greater than would be permitted under our proposal. Therefore, augmentation would have to be applied in its major lobe. Jefferson-Pilot (and Ring via its incorporation by reference) suggests that taller towers have an actual efficiency which is higher than predicted because of the lower propagation velocity in the towers. When the propagation velocity is properly considered, says Jefferson-Pilot, the measured pattern would fit within the standard pattern. Jefferson-Pilot suggests that we modify our Rules to take account of the differences in propagation velocity and its impact on tall towers. In its reply comments, Ring specifically requests that we modify the formulas in proposed Section 73.160 to take account of a standard propagation velocity equal to 93 percent of the speed of light. New-Press, licensee of KTMS, Santa Barbara, California, 1250 kHz, also points out that a velocity factor should be considered, although News-Press indicates that it could be as low as 0.87.

28. We have analyzed the comments, particularly those dealing with the differences in propagation velocity, and have concluded that additional study is required. Ue would like to issue a *Further Notice of Proposed Rulemaking* to examine this issue in more detail so that we

might reach a decision prior to the conversion. However, in view of the international time constraints involving our preparation for the Second Session, we do not have that luxury. The international time constraints also preclude implementation of Mr. Ball's proposal to allow three to five years to recapture a higher RMS. Therefore, we will convert the stations to standard patterns using the authorized theoretical RMS, and we will not pursue the matter of reducing excessively high RMS values in this proceeding. Also, we will adopt the formulas in Section 73.160 as proposed. Special cases can be handled pursuant to Section 73.160(c). We intend to revisit this issue in a separate proceeding, however, when time permits.

29. Group W, with respect to WINS, presents the situation where the MEOV specified on the construction permit is greater, at a particular azimuth, than the MEOV (if any) on the actual plotted pattern authorized by that construction permit. In these cases, the greater value will control, and should be used in developing augmentation parameters. However, when the MEOV on the construction permit is specified only at an individual azimuth, it would appear that the augmentation would be an infinitely thin spike. Since that, if course, is unreasonable, we will adopt our proposal that a span of 10 degrees be used in these circumstances. Indeed, we believe that a span with a minimum of 10 degrees should be used in all cases.

30. Scripps-Howard is concerned that the conversion will not take into account the outstanding construction permit for WMC. That construction permit involves only changes in MEOV, and Scripps-Howard wants to ensure that the MEOV on the permit are not overlooked. They will not be. The conversion will be performed separately for each existing or proposed operation. The conversion of a station's daytime licensed operation, for example, will be independent of the conversion of its daytime construction permit operation. There will be no attempts during the conversion to combine a licensed and construction permit operation into a single operation. It should be noted, however, that the conversion for a licensed operation will consider the construction permit limits associated with that license; these limits are different than those on the outstanding construction permit.

31. In paragraph 11 of the *NPRM*, we discussed the effect of conversion on certain Class III stations. These stations, which operate with a nighttime nominal power of one kilowatt, could be changed from Class III-A to Class III-B stations, or vice-versa, if the RSS moves above or below 2.5 mV/m as a result of the conversion. A Class III-A station may have its RSS raised no higher than 2.5 mV/m, while a Class III-B station may have its RSS raised to as much as 4.0 mV/m. (A Class III station with an existing RSS higher than 2.5 mV/m or 4.0 mV/m, depending on whether it is a Class III-A or Class III-B station, is protected against any increases in RSS.) The determination of whether a station is a Class III-A station or a Class III-B station

depends on whether its RSS is above or below 2.5 mV/m. Our proposed Rules would simply redefine all Class III stations with a nighttime power of one kilowatt to be Class III-A stations. This would provide additional protection to those stations which are currently Class III-B stations with an RSS between 2.5 mV/m and 4.0 mV/m, but would not affect any other stations.

32. ABES agrees with our proposal, while ABC agrees with the proposal made by Kenneth Williams in his comments in response to our *Notice of Inquiry* in this proceeding. As discussed in paragraph 11 of the *NPRM*, Mr. Williams, and now ABC, prefer that we determine whether a particular Class III station is presently a Class III-A or a Class III-B station. This determination would become a part of its license, and the RSS of the station after conversion would be irrelevant to its class. ABC suggests that calculation of the RSS for the affected stations would not be time-consuming, and also suggests that the licensees may be willing to assist with the calculations, providing that the Commission cooperate by making recently filed night studies and current measured patterns somewhat more easily available than they presently are. GEBCO and MWK both state, without specifically referring to this issue, that they favor conversion to standard patterns if, among other things, conversion can be accomplished without changing the classification of any station or the level of protection against interference to which it is now entitled.

33. There are approximately 600 Class III stations with a nighttime power of one kilowatt. Computing the RSS of each of these stations by current methods would, be believe, indeed be time-consuming. There would have to be adjustments for measured patterns, which is the very practice we are trying to eliminate in this proceeding. Again, looking at the time constraints related to preparation for the Second Session, we must conclude that our proposal to redefine the stations as Class III-A stations should be adopted. We again note that there would be no impact on existing stations, except that those converting from Class III-B to Class III-A would receive even more protection than they do at present. New stations and changes in existing stations may be slightly more restricted than they are now because they will now have to protect an RSS below 4.0 mV/m, instead of 4.0 mV/m, in some cases. We believe that the improvements in protection requirements (resulting from reclassification from Class III-B to Class III-A) will not be objectionable to GEBCO and MWK.

34. Since the Commission does not have adequate staff to perform the conversion to standard patterns within the internationally imposed time constraints, and since it would be an administrative nightmare to attempt to have each station perform its own conversion in such a short time, we concluded that the only feasible method of performing the conversion is with a contractor. Except for AFCCE, all parties commenting on this issue agreed that the only method, given the restrictive time frame, is with the use of a contractor. As discussed

above, AFCCE has proposed a method of conversion (to only the basic standard pattern) that would require only minimal effort to complete. Therefore, AFCCE believes that a contract is unnecessary; we agree that a contract would be unnecessary if we followed the AFCCE proposal. However, AFCCE does agree that the use of a contractor would be the only feasible method of performing the conversion if we follow the approach outlined in the *NPRM*. We have decided to do just that, except for eliminating the reduction of apparently excessively high RMS values.

35. S&S suggests that the Commission staff bould be the only beneficiary of the conversion. However, ABC points out that the benefits of conversion would accrue both to neu applicants and to the Commission. We would note, also, that existing stations benefit to the extent that they are better protected from interference from foreign stations and by virtue of retention of their existing radiation rights which would otherwise be lost internationally. And existing stations would, of course, benefit if the licensee were a party to a change in operation. Apparently because we were silent about responsibility for funding in our *NPRM*, ABC felt it prudent to suggest that the Commission, rather than the individual licensees, pay for the conversion by the contractor. Since we originally intended that the Commission pay for the conversion, although not stated in the *NPRM*, we have no objection to stating unequivocally that the Commission will pay for the contractor to perform the conversion.

36. Similarly, because of the short time, there was general agreement that a conversion by frequency would be preferable to conversion over the renewal cycle.

37. Several of the parties, while agreeing that the use of a contractor would be appropriate, noted that it would be necessary to have a means by which the individual stations would be able to receive the parameters developed by the contractor, and have a time to request modifications in the parameters. ABC also suggests that private negotiations between affected parties may be appropriate in certain circumstances. We agree that a notification would be beneficial. Indeed, in our solicitation directed to prospective contractors, we included a notification procedure as one of the tasks to be performed. Our solicitation included the following:

> a. The contractor shall prepare a Public Notice announcing the new parameters.
>
> b. The Commission will distribute the Public Notice via our Public Information Office.
>
> c. Any party (licensees, permittees, applicants, or others) may submit proposed corrections to the developed parameters within 30 days after publication by the Commission. The proposed corrections would be submitted both to the Commission and to the contractor. In addition, if the request for modification came from