

Federal Communications Commission.  
**Magalie Roman Salas,**  
*Secretary.*

**Rule Changes**

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 13 and 97 as follows:

**PART 13—COMMERCIAL RADIO OPERATORS**

1. The authority citation for part 13 continues to read as follows:

**Authority:** Secs. 4, 303, 48 Stat. 1066, 1082 as amended; 47 U.S.C. 154, 303.

2. Section 13.9 is amended by revising paragraph (d)(2) to read as follows:

**§ 13.9 Eligibility and application for new license or endorsement.**

\* \* \* \* \*

(d) \* \* \*

(2) An expired or unexpired FCC-issued Amateur Extra Class operator license grant granted before April 15, 2000: Telegraphy Elements 1 and 2.

\* \* \* \* \*

3. Section 13.13 is amended by revising paragraph (d)(2) to read as follows:

**§ 13.13 Application for a renewed or modified license.**

\* \* \* \* \*

(d) \* \* \*

(2) An expired or unexpired FCC-issued Amateur Extra Class operator license document granted before April 15, 2000: Telegraphy Elements 1 and 2.

**PART 97—AMATEUR RADIO SERVICE**

4. The authority citation for part 97 continues to read as follows:

**Authority:** 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303. Interpret or apply 48 Stat. 1064–1068, 1081–1105, as amended; 47 U.S.C. 151–155, 301–609, unless otherwise noted.

5. Section 97.3 is amended by revising paragraphs (a)(35) and (b) introductory text to read as follows:

**§ 97.3 Definitions.**

(a) \* \* \*

(35) *Question set.* A series of examination questions on a given examination selected from the question pool.

\* \* \* \* \*

(b) The definitions of technical symbols used in this part are:

\* \* \* \* \*

6. Section 97.119 is amended by removing paragraph (f)(3), revising paragraph (f)(2), and by redesignating

paragraph (f)(4) as (f)(3) and revising newly redesignated paragraph (f)(3) to read as follows:

**§ 97.119 Station identification.**

\* \* \* \* \*

(f) \* \* \*

(2) For a control operator who has requested a license modification from Novice, Technician, or Technician Plus Class to General Class: AG;

(3) For a control operator who has requested a license modification from Novice, Technician, Technician Plus, General, or Advanced Class to Amateur Extra Class: AE.

\* \* \* \* \*

7. Section 97.527 is revised to read as follows:

**§ 97.527 Reimbursement for expenses.**

VEs and VECs may be reimbursed by examinees for out-of-pocket expenses incurred in preparing, processing, administering, or coordinating an examination for an amateur operator license.

[FR Doc. 01–10225 Filed 4–24–01; 8:45 am]

**BILLING CODE 6712-01-U**

**FEDERAL COMMUNICATIONS COMMISSION**

**47 CFR Part 73**

[MM Docket No. 93–177; FCC 01–60]

**An Inquiry Into the Commission's Policies and Rules Regarding AM Radio Service Directional Antenna Performance Verification**

**AGENCY:** Federal Communications Commission.

**ACTION:** Final rule.

**SUMMARY:** In this proceeding the Commission relaxes the technical requirements for directional AM stations. The new rules reduce the number of measurements required as part of directional AM license applications and eliminate outdated operating requirements. The changes, consistent with the Commission's streamlining initiatives, reduce the regulatory burden upon directional AM stations to the extent possible while maintaining the integrity of the service.

**DATES:** Effective May 25, 2001.

**ADDRESSES:** Secretary, Federal Communications Commission, 445 12th Street, SW., Washington, DC 20554, <http://www.fcc.gov>.

**FOR FURTHER INFORMATION CONTACT:** Peter H. Doyle, Audio Services Division, Mass Media Bureau (202) 418–2700.

**SUPPLEMENTARY INFORMATION:** This is a summary of the Commission's *Report and Order* in MM. Docket No. 93–177, adopted February 14, 2001, and released March 7, 2001. The new rules adopted here were proposed in an earlier *Notice of Proposed Rule Making* (NPRM) in this proceeding [See 64 FR 40539, July 27, 1999]. The final rules incorporate comments received in response to the NPRM. The complete text of this *Report and Order* is available for inspection and copying during normal business hours in the FCC Reference Center (Room CY–A257), 445 12th Street, SW., Washington, DC 20554, and may also be purchased from the Commission's copy contractor, International Transcription Service, (202) 857–3800, 1231 20th Street, NW., Washington, DC 20036. The complete text is also available on the Internet at <http://www.fcc.gov/mmb/asd/welcome2.html#NEWBOX>.

**Synopsis of Report and Order**

*1. Introduction*

This *Report and Order* relaxes the Commission's technical rules for AM broadcasters using directional antennas. Directional AM stations use antennas which suppress radiated field in some directions and enhance it in others. In order to control interference between stations and assure adequate community coverage, directional AM stations must undergo extensive "proofs of performance" to demonstrate that the antenna system operates as authorized. This *Report and Order* substantially reduces the number of measurements required in a proof of performance, and, consequently, reduces the cost borne by the licensee. The *Report and Order* also eliminates some equipment and measurement requirements for directional AM stations, and eliminates the designation of some directional AM stations as "critical arrays," a classification that imposed additional operating restrictions and expenses upon some licensees.

*2. Proof of Performance Requirements*

An antenna proof of performance establishes whether the radiation pattern of an AM station is in compliance with the station's authorization. An AM station must perform a full proof to verify the pattern shape when a new directional antenna system is authorized. Partial proofs, which require fewer measurements, are occasionally necessary to show that an array continues to operate properly. For both full and partial proofs, the Commission reduced the required number of radials and the number of measurements per radial.

Previously, 47 CFR 73.151 required that a permittee measure a minimum of eight radials in a full proof of performance. For complex patterns, measurements were required on a sufficient number of radials to define the pattern shape completely, i.e., three radials in the main lobe, and one in each null and minor lobe. The *Report and Order* reduces the minimum number of radials from eight to six for simple directional antenna patterns and, generally, requires no more than 12 radials to define complex patterns. The Commission also reduces the number of measurement points along each radial to 15, from the 20 to 30 points previously required, and shortens the minimum length of the radial to 15 kilometers.

Partial proofs of performance are required after the installation of new equipment on an AM tower or when changes in the electrical environment, such as erection of a new tower nearby, could affect the radiation pattern. These proofs are conducted to verify that the array remains properly adjusted. A partial proof consists of measurements taken at selected locations used in the last full proof of performance. The field strength values measured at each point are mathematically compared to values obtained in the last full proof to yield the current value of radiation along each azimuth. The new rules reduce the minimum number of radials measured in a partial proof to four, and also reduce the number of points per radial from 10 to eight. In addition, a partial proof is no longer mandatory when a licensee replaces sampling system components or changes a monitoring point location.

### 3. Monitoring Points

Monitoring points are specific locations on selected radials where licensees regularly take field strength measurements. The measured field strength at each monitoring point shall not exceed a maximum value specified on the station's license. The *Report and Order* deletes the requirement that licensees submit maps and driving directions for each monitoring point. The Commission will allow licensees to designate a replacement monitoring point without a partial proof on the affected radial, provided field strength readings have not changed. In response to comments, the Commission will not identify monitoring points by GPS coordinates alone. However, AM stations may submit GPS coordinates as part of a monitoring point description. Finally, the Commission will include a brief description of the monitoring point on the AM station's license.

### 4. AM Station Equipment and Measurements

The *Report and Order* deletes or modifies certain operating requirements for directional AM stations. Licensees whose directional stations use approved antenna sampling systems are no longer required to maintain base current ammeters. The requirement to measure antenna impedance across a range of frequencies is eliminated. Finally, licensees are no longer required to maintain antenna reactance at zero ohms.

### 5. Critical Array Designation

Because the current and phase measured for each tower in a directional antenna system tend to fluctuate, our rules specify operating tolerances for these values. In most cases, maintaining current and phase variations within normal tolerance will ensure that radiated fields remain within authorized limits. The Commission had designated as "critical arrays" those directional antenna systems that were more likely to produce excessive field when operating parameters vary. Licensees of critical arrays were required to maintain tighter operating tolerances in order to limit potential interference. The Commission had proposed to relax the criteria defining a critical array, and to apply the revised criteria to all proposals for new or modified directional antennas. However, the Commission was persuaded by comments to eliminate the critical array designation entirely, consistent with recent technical streamlining initiatives. The Commission also deletes the critical array designation in all outstanding authorizations.

### Final Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act ("RFA"),<sup>1</sup> the Commission has prepared this present Final Flexibility Analysis ("FRFA") of the possible significant economic impact on small entities by the policies and rules adopted in this *Report and Order*. Written and electronically filed public comments were requested in our Initial Regulatory Flexibility Analysis (IRFA). None were received. The Commission will send a copy of the *Report and Order*, including this FRFA, to the Chief Counsel for Advocacy of the Small Business Administration. In addition, the *Report and Order* and FRFA (or summaries thereof) will be

<sup>1</sup> See 5 U.S.C. 603. The RFA, see 5 U.S.C. 601 *et. seq.*, has been amended by the Contract with America Advancement Act of 1996, Public Law 104-12, 110 Stat. 848 (1996) ("CWAA"). Title II of the CWAA is the Small Business Regulatory Enforcement Fairness Act of 1996 ("SBREFA").

published in the **Federal Register**. See 5 U.S.C. 604(a).

### Need for and Objectives of the Rules

This *Report and Order* eliminates some of Commission's technical rules and relaxes others to materially reduce the regulatory and compliance burdens on AM broadcasters using directional antennas. For instance, in order to control interference between stations and assure adequate community coverage, directional AM stations currently must undergo extensive "proofs of performance" to demonstrate that the antenna system operates as authorized. The field strength measurements and technical exhibits which our current rules require as part of a "proof" impose a substantial financial burden upon these AM broadcasters, a burden not incurred by licensees in the other broadcast services.

This *Report and Order* reduces this particular burden, and generally reduces the Commission's regulatory requirements to the minimum necessary to achieve our policy objectives of controlling interference and assuring adequate community coverage.

### Legal Basis

Authority for the actions proposed in this *Report and Order* may be found in sections 4(i), 4(j), 303, 308, 309, 316 and 319 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 154(j), 303, 308, 309, 316 and 319.

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

The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted. 5 U.S.C. 603(b)(3). 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. See 5 U.S.C. 601(3); 15 U.S.C. 632. 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). Small Business Act, 15 U.S.C. 632 (1996). A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field." 5 U.S.C. 601(4). Nationwide, as of 1992, there were approximately 275,801 small

organizations. 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of U.S. Small Business Administration). "Small governmental jurisdiction" generally means "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000." 5 U.S.C. 601(5). As of 1992, there were approximately 85,006 such jurisdictions in the United States. U.S. Department of Commerce, Bureau of the Census, "1992 Census of Governments." This number includes 38,978 counties, cities, and towns; of these, 37,566, or 96 percent, have populations of fewer than 50,000. The Census Bureau estimates that this ratio is approximately accurate for all governmental entities. Thus, of the 85,006 governmental entities, we estimate that 81,600 (91 percent) are small entities.

The rules and policies will apply to certain AM radio broadcasting licensees and potential licensees. The Small Business Administration defines a radio broadcasting station that has no more than \$5 million in annual receipts as a small business. 13 CFR 121.201, SIC 4832. A radio broadcasting station is an establishment primarily engaged in broadcasting aural programs by radio to the public. Executive Office of the President, Office of Management and Budget, Standard Industrial Classification Manual (1987), SIC 4832. Included in this industry are commercial, religious, educational, and other radio stations. Radio broadcasting stations which primarily are engaged in radio broadcasting and which produce radio program materials are similarly included. However, radio stations which are separate establishments and are primarily engaged in producing radio program material are classified under another SIC number. The 1992 Census indicates that 96 percent (5,861 of 6,127) of radio station establishments produced less than \$5 million in revenue in 1992. The Census Bureau counts radio stations located at the same facility as one establishment. Therefore, each colocated AM/FM combination counts as one establishment. Official Commission records indicate that 11,334 individual radio stations were operating in 1992. FCC News Release, No. 31327 (January 13, 1993). As of February 1, 2001, official Commission records indicate that 12,751 radio stations were operating, of which 4,674 were AM stations.

Thus, because only 40 percent of AM stations operate with directional antennas, the rules affect 1,870 radio stations. We use the 96% figure of radio

station establishments with less than \$5 million revenue from the Census data and apply it to the 1,870 radio stations using directional antennas to arrive at 1,795 individual AM stations as small businesses. These estimates may overstate the number of small entities since the revenue figures on which they are based do not include or aggregate revenues from non-radio affiliated companies.

In addition to owners of operating radio stations, any entity that seeks or desires to obtain a radio broadcast license may be affected by rule changes adopted in this *Report and Order*. The number of entities that may seek to obtain a radio broadcast license is unknown.

#### *Description of Projected Recording, Recordkeeping, and Other Compliance Requirements*

A number of rule changes adopted in this *Report and Order* reduce the reporting requirements of prospective and current AM licensees. In order to control interference between stations and assure adequate community coverage, directional AM stations must undergo extensive "proofs of performance" when initially constructed, and from time to time thereafter, to verify conformance with authorized operating parameters. AM licensees incur substantial costs in performing the measurements and preparing the required technical exhibits for a proof of performance. This *Report and Order* reduces the number of measurement radials required and shortens the length of measured radials. We have deleted the requirement to include maps showing each field measurement location with a license application. In addition, we have eliminated the requirement for a proof of performance in certain circumstances. Taken together, these changes reduce the cost of a proof of performance for all AM licensees and for prospective new applicants. We also delete the requirement for base current ammeters, and eliminate the designation of some directional antenna systems as critical arrays. These measures reduce operating costs for directional AM stations. None of the rule changes adopted here impose new recording, record keeping, or other compliance requirements on prospective or current AM licensees. Overall, the changes we are adopting are designed to reduce the overall administrative burdens of the Commission's rules on both regulatees and the Commission staff.

#### *Steps Taken To Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered*

This *Report and Order* enhances opportunities for improvement of technical facilities and service and minimizes the administrative burdens and delays associated with our radio broadcast licensing processes. The changes adopted in this *Report and Order* will reduce the costs of operating a directional AM station, of modifying the station's facilities, and of constructing a new AM station. While we expect that the changes adopted here will benefit directional AM stations regardless of size, we note that the cost reductions may be of particular value to small entities.

All significant alternatives presented in the comments were considered. In particular, several commenters dissented from our proposal to relax the criteria for designating critical arrays, and to apply the new criteria to all applications for new or modified directional AM facilities. After considering this alternative suggested by the commenters, we were persuaded that we could eliminate the critical array designation entirely without compromising the integrity of the AM service. This rule change eases operating requirements for those AM stations which might have been designated as critical arrays, a benefit which is irrespective of the station's size or ownership, but which may be a boon to a small business.

#### **Report to Congress**

The Commission will send a copy of *An Inquiry Into the Commission's Policies and Rules Regarding AM Radio Service Directional Antenna Performance Verification*, including this FRFA, in a report to be sent to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996. See 5 U.S.C. 801(a)(1)(A). In addition, the Commission will send a copy of this *Report and Order*, including this FRFA, to the Chief Counsel for Advocacy of the Small Business Administration. A copy of this *Report and Order*, including this FRFA, (or summaries thereof) will also be published in the **Federal Register**. See 5 U.S.C. 604(b).

#### **List of Subjects in 47 CFR Part 73**

Radio.

Federal Communications Commission.

**William F. Caton,**  
Deputy Secretary.

### Rules Changes

For the reasons discussed in the preamble, the Federal Communications Commission amends part 73 of title 47 of the Code of Federal Regulations as follows:

#### **PART 73—RADIO BROADCAST SERVICES**

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

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

#### **§ 73.14 [Revised]**

2. Section 73.14 is revised by removing the definition of "Critical directional antenna."

3. Section 73.53 is amended by revising paragraphs (b)(5) and (b)(12) and by removing paragraph (c).

#### **§ 73.53 Requirements for authorization of antenna monitors.**

\* \* \* \* \*

(b) \* \* \*

(5) The device used to indicate relative amplitudes shall be graduated in increments which are 1 percent, or less, of the full scale value. If a digital indicator is provided, the smallest increment shall be 0.1 percent, or less, of the full scale value.

\* \* \* \* \*

(12) The performance specifications set forth in paragraph (b)(11) of this section, shall be met when the monitor is operated and tested under the following conditions.

\* \* \* \* \*

4. Section 73.54 is revised to read as follows:

#### **§ 73.54 Antenna resistance and reactance measurements.**

(a) The resistance of an omnidirectional series fed antenna is measured at either the base of the antenna without intervening coupling or tuning networks, or at the point the transmission line connects to the output terminals of the transmitter. The resistance of a shunt excited antenna may be measured at the point the radio frequency energy is transferred to the feed wire circuit or at the output terminals of the transmitter.

(b) The resistance and reactance of a directional antenna shall be measured at the point of common radiofrequency input to the directional antenna system after the antenna has been finally adjusted for the required radiation pattern.

(c) A letter of notification must be filed with the FCC in Washington, DC, Attention: Audio Services Division, Mass Media Bureau, when determining power by the direct method pursuant to § 73.51. The letter must specify the antenna or common point resistance at the operating frequency. The following information must also be kept on file at the station:

(1) A full description of the method used to make measurements.

(2) A schematic diagram showing clearly all components of coupling circuits, the point of resistance measurement, the location of the antenna ammeter, connections to and characteristics of all tower lighting isolation circuits, static drains, and any other fixtures connected to and supported by the antenna, including other antennas and associated networks. Any network or circuit component used to dissipate radio frequency power shall be specifically identified, and the impedances of all components which control the level of power dissipation, and the effective input resistance of the network must be indicated.

(d) AM stations using direct reading power meters in accordance with § 73.51, can either submit the information required by paragraph (c) of this section or submit a statement indicating that such a meter is being used. Subsequent station licenses will indicate the use of a direct reading power meter in lieu of the antenna resistance value in such a situation.

5. Section 73.58 is amended by removing paragraph (b), redesignating paragraphs (c) through (f) as paragraphs (b) through (e), and by revising newly redesignated paragraph (d) to read as follows:

#### **§ 73.58 Indicating instruments.**

\* \* \* \* \*

(d) In the event that any one of these indicating instruments becomes defective when no substitute which conforms with the required specifications is available, the station may be operated without the defective instrument pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission. If the defective instrument is the antenna current meter of a nondirectional station which does not employ a remote antenna ammeter, or if the defective instrument is the common point meter of a station which employs a directional antenna and does not employ a remote common point meter, the operating power shall be determined by a method described in § 73.51(a)(1) or § 73.51(d) during the entire time the station is operated

without the antenna current meter or common point meter. However, if a remote meter is employed and the antenna current ammeter or common point meter becomes defective, the remote meter can be used to determine operating power pending the return to service of the regular meter.

\* \* \* \* \*

6. Section 73.62 is amended by revising paragraph (a) to read as follows:

#### **§ 73.62 Directional antenna system tolerances.**

(a) Each AM station operating a directional antenna must maintain the indicated relative amplitudes of the antenna monitor currents within 5% of the values specified therein. Directional antenna relative phase currents must be maintained to within  $\pm 3$  deg. of the values specified on the instrument of authorization.

\* \* \* \* \*

7. Section 73.68 is amended by revising paragraphs (a)(2), (d)(2), and (d)(3) to read as follows:

#### **§ 73.68 Sampling systems for antenna monitors.**

(a) \* \* \*

(2) Sampling lines for directional antennas may be of different lengths provided the phase difference of signals at the monitor are less than 0.5 degrees between the shortest and longest cable lengths due to temperature variations to which the system is exposed.

\* \* \* \* \*

(d) \* \* \*

(2) Immediately prior to modification or replacement of components of the sampling system, and after a verification that all monitoring point values and operating parameters are within the limits or tolerances specified in the rules, the following indications must be recorded for each radiation pattern: Final plate current and plate voltage, common point current, antenna monitor phase and current indications, and the field strength at each monitoring point. Subsequent to these modifications or changes the procedure must be repeated.

(3) If monitoring point field strengths or antenna monitor parameters exceed allowable limits following the replacement or modification of that portion of the sampling system above the base of the towers, a partial proof of performance shall be executed in accordance with § 73.154. The partial proof of performance shall be accompanied by common point impedance measurements made in accordance with § 73.54.

\* \* \* \* \*

8. Section 73.69 is amended by revising paragraphs (a), (d)(2), and (d)(4) to read as follows:

**§ 73.69 Antenna monitors.**

(a) Each station using a directional antenna must have in operation at the transmitter site an FCC authorized antenna monitor.

\* \* \* \* \*  
(d) \* \* \*

(2) Immediately before the replacement of the antenna monitor, after a verification that all monitoring point values and the common point current reading are within the limits or tolerances specified in the rules, the following indications must be recorded for each radiation pattern: Final plate current and plate voltage, common point current, antenna monitor phase and current indications, and the field strength at each monitoring point.

\* \* \* \* \*

(4) If it cannot be established by the observations required in paragraph (d)(2) of this section that the common point current reading and the monitoring point values are within the tolerances or limits prescribed by the rules and the instrument of authorization, or if the substitution of the new antenna monitor for the old results in changes in these parameters, a partial proof of performance shall be executed and analyzed in accordance with § 73.154.

\* \* \* \* \*

9. Section 73.151 is amended by revising paragraph's (a)(1), (a)(2), and (a)(3) to read as follows:

**§ 73.151 Field strength measurements to establish performance of directional antennas.**

(a) \* \* \*

(1) A tabulation of inverse field strengths in the horizontal plane at 1 km, as determined from field strength measurements taken and analyzed in accordance with § 73.186, and a statement of the effective measured field strength (RMS). Measurements shall be made in the following directions:

- (i) Those specified in the instrument of authorization.
- (ii) In major lobes. Generally, one radial is sufficient to establish a major lobe; however, additional radials may be required.
- (iii) Along additional radials to establish the shape of the pattern. In the case of a relatively simple directional antenna pattern, a total of six radials is sufficient. If two radials would be more than 90° apart, then an additional radial must be specified within that arc. When more complicated patterns are involved,

that is, patterns having several or sharp lobes or nulls, measurements shall be taken along as many as 12 radials to definitely establish the pattern(s). Pattern symmetry may be assumed for complex patterns which might otherwise require measurements on more than 12 radials.

(2) A tabulation of:

(i) The phase difference of the current in each element with respect to the reference element, and whether the current leads (+) or lags (-) the current in the reference element, as indicated by the station's antenna monitor.

(ii) The ratio of the amplitude of the radio frequency current in each element to the current in the reference element, as indicated on the station's antenna monitor.

(3) A monitoring point shall be established on each radial for which the construction permit specifies a limit. The following information shall be supplied for each monitoring point:

- (i) Measured field strength.
- (ii) An accurate and detailed description of each monitoring point. The description may include, but shall not be limited to, geographic coordinates determined with a Global Positioning System receiver.
- (iii) Clear photographs taken with the field strength meter in its measuring position and with the camera so located that its field of view takes in as many pertinent landmarks as possible.

\* \* \* \* \*

10. Section 73.152 is amended by:

- A. Revising paragraph (a).
- B. Redesignating paragraphs (b) through (d) as paragraphs (c) through (e).
- C. Adding a new paragraph (b).
- D. Revising newly redesignated paragraphs (d) introductory text, (d)(2) introductory text, (d)(2)(iii), and (d)(2)(iv).

The revisions and additions read as follows:

**§ 73.152 Modification of directional antenna data.**

(a) If, after construction and final adjustment of a directional antenna, a measured inverse distance field in any direction exceeds the field shown on the standard radiation pattern for the pertinent mode of directional operation, an application shall be filed, specifying a modified standard radiation pattern and/or such changes as may be required in operating parameters so that all measured effective fields will be contained within the modified standard radiation pattern. Permittees may also file an application specifying a modified standard radiation pattern, even when measured radiation has not exceeded

the standard pattern, in order to allow additional tolerance for monitoring point limits.

(b) If, following a partial proof of performance, a licensee discovers that radiation exceeds the standard pattern on one or more radials because of circumstances beyond the licensee's control, a modified standard pattern may be requested. The licensee shall submit, concurrently, Forms 301-AM and 302-AM. Form 301-AM shall include an exhibit demonstrating that no interference would result from the augmentation. Form 302-AM shall include the results of the partial proof, along with full directional and nondirectional measurements on the radial(s) to be augmented, including close-in points and a determination of the inverse distance field in accordance with § 73.186.

\* \* \* \* \*

(d) The following general principles shall govern the situations in paragraphs (a), (b), and (c) in this section:

\* \* \* \* \*

(2) Where any excessive field does not result in objectionable interference to another station, a modification of construction permit application may be submitted with a modified standard pattern encompassing all augmented fields. The modified standard pattern shall supersede the previously submitted standard radiation pattern for that station in the pertinent mode of directional operation. Following are the possible methods of creating a modified standard pattern:

\* \* \* \* \*

(iii) A combination of paragraphs (d)(2)(i) and (d)(2)(ii), of this section, with (d)(2)(i) being applied before (d)(2)(ii) is applied.

(iv) Where augmentation is allowable under the terms of this section, the requested amount of augmentation shall be centered upon the measured radial and shall not exceed the following:

(A) The actual measured inverse distance field value, where the radial does not involve a required monitoring point.

(B) 120% of the actual measured inverse field value, where the radial has a monitoring point required by the instrument of authorization.

\* \* \* \* \*

11. Section 73.154 is revised to read as follows:

**§ 73.154 AM directional antenna partial proof of performance antennas.**

(a) A partial proof of performance consists of at least 8 field strength measurements made on each of the radials that includes a monitoring point.

If the directional pattern has fewer than 4 monitored radials, the partial proof shall include measurements on those radials from the latest complete proof of performance which are adjacent to the monitored radials.

(b) The measurements are to be made within 3 to 15 kilometers from the center of the antenna array. When a monitoring point as designated on the station authorization lies on a particular radial, one of the measurements must be made at that point. One of the following methods shall be used for the partial proof:

(1) Measurement points shall be selected from the points measured in latest full proof of performance provided that the points can be identified with reasonable certainty, and that land development or other factors have not significantly altered propagation characteristics since the last full proof. At each point, the licensee shall measure directional field strength for comparison to either the directional or the nondirectional field strength measured at that point in the last full proof.

(2) In the event that a meaningful comparison to full proof measurements cannot be made, the licensee shall measure both directional and nondirectional field strength at eight points on each radial. The points need not be limited to those measured in the last full proof of performance.

(c) The results of the measurements are to be analyzed as follows. Either the arithmetic average or the logarithmic average of the ratios of the field strength at each measurement point to the corresponding field strength in the most recent complete proof of performance shall be used to establish the inverse distance fields. (The logarithmic average for each radial is the antilogarithm of the mean of the logarithms of the ratios of field strength (new to old) for each measurement location along a given radial). When new nondirectional measurements are used as the reference, as described in paragraph (b)(2) of this section, either the arithmetic or logarithmic averages of directional to nondirectional field strength on each radial shall be used in conjunction with the measured nondirectional field from the last proof to establish the inverse distance field.

(d) The result of the most recent partial proof of performance measurements and analysis is to be retained in the station records available to the FCC upon request. Maps showing new measurement points, i.e., points not measured in the last full proof, shall be associated with the partial proof in

the station's records, and shall be provided to the FCC upon request.

12. Section 73.158 is revised to read as follows:

**§ 73.158 Directional antenna monitoring points.**

(a) When a licensee of a station using a directional antenna system finds that a field monitoring point, as specified on the station authorization, is no longer accessible or is unsuitable because of nearby construction or other disturbances to the measured field, an application to change the monitoring point location, including FCC Form 302-AM, is to be promptly submitted to the FCC in Washington, DC.

(1) If the monitoring point has become inaccessible or otherwise unsuitable, but there has been no significant construction or other change in the vicinity of the monitoring point which may affect field strength readings, the licensee shall select a new monitoring point from the points measured in the last full proof of performance. A recent field strength measurement at the new monitoring point shall also be provided.

(2) Alternatively, if changes in the electromagnetic environment have affected field strength readings at the monitoring point, the licensee shall submit the results of a partial proof of performance, analyzed in accordance with § 73.154, on the affected radial.

(3) The licensee shall submit an accurate, written description of the new monitoring point in relation to nearby permanent landmarks.

(4) The licensee shall submit a photograph showing the new monitoring point in relation to nearby permanent landmarks that can be used in locating the point accurately at all times throughout the year. Do not use seasonal or temporary features in either the written descriptions or photographs as landmarks for locating field points.

(b) When the description of the monitoring point as shown on the station license is no longer correct due to road or building construction or other changes, the licensee must prepare and file with the FCC, in Washington, DC, a request for a corrected station license showing the new monitoring point description. The request shall include the information specified in paragraphs (a)(3) and (a)(4) of this section, and a copy of the station's current license. A copy of the description is to be posted with the existing station license.

13. Section 73.186 is amended by revising paragraphs (a)(1) and (b) to read as follows:

**§ 73.186 Establishment of effective field at one kilometer.**

(a) \* \* \*

(1) Beginning as near to the antenna as possible without including the induction field and to provide for the fact that a broadcast antenna is not a point source of radiation (not less than one wave length or 5 times the vertical height in the case of a single element, i.e., nondirectional antenna or 10 times the spacing between the elements of a directional antenna), measurements shall be made on six or more radials, at intervals of approximately 0.2 kilometer up to 3 kilometers from the antenna, at intervals of approximately one kilometer from 3 kilometers to 5 kilometers from the antenna, at intervals of approximately 2 kilometers from 5 kilometers to 15 kilometers from the antenna, and a few additional measurements if needed at greater distances from the antenna. Where the antenna is rurally located and unobstructed measurements can be made, there shall be at least 15 measurements on each radial. These shall include at least 7 measurements within 3 kilometers of the antenna. However, where the antenna is located in a city where unobstructed measurements are difficult to make, measurements shall be made on each radial at as many unobstructed locations as possible, even though the intervals are considerably less than stated above, particularly within 3 kilometers of the antenna. In cases where it is not possible to obtain accurate measurements at the closer distances (even out to 8 or 10 kilometers due to the character of the intervening terrain), the measurements at greater distances should be made at closer intervals.

\* \* \* \* \*

(b) Complete data taken in conjunction with the field strength measurements shall be submitted to the Commission in affidavit form including the following:

(1) Tabulation by number of each point of measurement to agree with the maps required in paragraph (c) of this section, the date and time of each measurement, the field strength (E), the distance from the antenna (D) and the product of the field strength and distance (ED) (if data for each radial are plotted on semilogarithmic paper, see paragraph (a)(2)(ii) of this section) for each point of measurement.

(2) Description of method used to take field strength measurements.

(3) The family of theoretical curves used in determining the curve for each radial properly identified by conductivity and dielectric constants.

(4) The curves drawn for each radial and the field strength pattern.

(5) The antenna resistance at the operating frequency.

(6) Antenna current or currents maintained during field strength measurements.

(c) Maps showing each measurement point numbered to agree with the required tabulation shall be retained in the station records and shall be available to the FCC upon request.

14. Section 73.3538 is amended by revising paragraph (b) to read as follows:

**§ 73.3538 Application to make changes in an existing station.**

\* \* \* \* \*

(b) An informal application filed in accordance with § 73.3511 is to be used to obtain authority to make the following changes in the station authorization:

(1) To modify or discontinue the obstruction marking or lighting of the antenna supporting structure where that

specified on the station authorization either differs from that specified in 47 CFR 17, or is not appropriate for other reasons.

(2) Relocation of a main studio outside the principal community contour may require the filing and approval of a letter request for authority to make this change prior to implementation. See § 73.1125.

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