

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)
)
An Inquiry Into the Commission’s Policies and) MM Docket No. 93-177
Rules Regarding AM Radio Service)
Directional Antenna Performance Verification)

**COMMENTS OF
THE WIRELESS COMMUNICATIONS ASSOCIATION INTERNATIONAL, INC.**

The Wireless Communications Association International, Inc. (“WCA”), in response to the Commission’s May 23, 2007 *Public Notice* in the above-captioned proceeding,¹ hereby submits its comments on the May 4, 2007 proposal of the AM Directional Antenna Performance Verification Coalition (“AM Coalition”) that, *inter alia*, would impose on wireless broadband service providers unnecessarily burdensome requirements relating to future assessments of the effects of construction or modification of towers and other antenna support structures that are in geographic proximity to AM antenna systems.²

I. INTRODUCTION.

The stated objectives of the AM Coalition Proposal are twofold. First, it seeks to afford AM stations the option of using moment method computer modeling in lieu of field strength measurements to proof and maintain AM directional antenna arrays.³ Since WCA’s constituency

¹ See “Comment Sought on Proposed Rules Permitting Antenna Modeling to Verify AM Directional Antenna Performance,” *Public Notice*, MM Docket No. 93-177 (rel. May 23, 2007).

² See *Ex Parte* Letter from John D. Poutasse, Esq., Counsel to the AM Directional Antenna Performance Verification Coalition, MM Docket No. 93-177 (filed May 4, 2007) [“AM Coalition Proposal”].

³ *Id.* at 2-3.

does not include AM radio stations, WCA takes no position on this aspect of the AM Coalition Proposal.

Second, however, the AM Coalition is proposing to amend the Commission's Rules that define a licensee's regulatory obligations where the licensee constructs or modifies a tower or other antenna support structure near an AM antenna system.⁴ More specifically, the AM Coalition proposes to: (1) consolidate Sections 22.371, 27.63 and 73.1692 into a single, expanded Part 17 rule that would govern all licensees that operate in the "immediate vicinity" of an AM antenna system; (2) define "immediate vicinity" in a manner far more cumbersome to apply than the Commission's current definition of that term; and (3) require licensees to use moment method modeling rather than field strength measurements when evaluating the impact of their towers or other antenna support structures on AM antenna systems. WCA has an immediate interest in these aspects of the AM Coalition Proposal, since, if adopted, they would impose unnecessary burdens on wireless broadband providers who deploy or modify facilities near AM antenna systems. Such adversely impacted providers would include, for example, those using the Lower and Upper 700 MHz bands, the 2.3 GHz band, the 2.5 GHz band and the upper millimeter wave bands.

WCA does not oppose consolidating the aforementioned rules into a single Part 17 rule, or expanding them to expressly include all licensees. It is neither necessary nor prudent, however, to change the Commission's definition of "immediate vicinity," nor should the Commission deviate from longstanding industry practice and force wireless broadband service providers to use moment method modeling when analyzing the impact of their facilities on AM

⁴ *Id.*

antenna systems. Hence, WCA asks that any rules adopted in response to the AM Coalition Proposal be modified accordingly. WCA's proposed revisions to subsections (a)(2) and (a)(3) of the AM Coalition's proposed Part 17 rule, along with a new subsection (c), are set forth in Exhibit A hereto.

II. DISCUSSION.

A. The Commission Need Not and Should Not Change How It Defines "Immediate Vicinity."

As currently written, Section 27.63 of the Commission's Rules requires that Advanced Wireless Service and Wireless Communications Service licensees that construct or modify towers within the "immediate vicinity" of an AM antenna system conduct appropriate analyses, with "immediate vicinity" defined as within one (1) kilometer (0.6 mile) or three (3) kilometers (1.9 miles) of a non-directional or directional AM station tower, respectively.⁵ The 1 km/3 km standard was initially codified in the Commission's Rules over a decade ago and has been used successfully ever since.⁶ It has proven to be a workable and efficient framework for addressing the relatively infrequent cases where a Part 27 wireless service might disrupt an AM station's antenna radiation pattern. Indeed, it is not a coincidence that the rule has never been changed – the Commission has spoken favorably about the "bright-line certainty of [the] rule with regard to

⁵ See 47 C.F.R. § 27.63. Section 22.371, which applies to Public Mobile Service licensees, uses the same definition of "immediate vicinity" *Id.* § 22.371. Section 73.1692, pertaining to broadcast licensees, applies where the licensee proposes to construct facilities within 0.8 km of an AM nondirectional tower or within 3.2 km of an AM directional station. *Id.*, § 73.1692.

⁶ See *Revision of Part 22 of the Commission's Rules Governing the Public Mobile Services*, Report and Order, 9 FCC Rcd 6513, 6558-9 (1994) (codifying Commission's 1 km/3 km policy in Section 22.371). Notably, in codifying Section 22.371, the Commission deliberately drafted the rule (which essentially is repeated *verbatim* in Section 27.63) to avoid imposing the sort of highly specific measurement techniques that the AM Coalition is recommending in Section (a)(2) of the proposed Part 17 rule. *Id.* at 6559 ("Although we believe before and after measurements are a feasible way to determine whether a pattern distortion results from a particular tower construction, the proposed rule is too specific concerning measurement techniques. Accordingly, we are rewording the rule to refer to the measurements in more general terms.").

notification and technical measurements,” and thus has rejected changes to the rule that could undermine that certainty.⁷

Unfortunately, the definition of “immediate vicinity” proposed by the AM Coalition abandons the straightforward 1 km/3 km test and instead states the following:

[A]n antenna tower or support structure is in the immediate vicinity of an AM antenna system if it is greater than 60 electrical degrees in height in the case of a nondirectional antenna, or 45 electrical degrees in height in the case of a directional antenna, at the AM station frequency, and is located at a distance no greater than the lesser of 10 wavelengths or 3 km from any element of an AM directional antenna or less than 1 wavelength from an AM omnidirectional antenna.⁸

The AM Coalition Proposal does not explain why the proposed Part 17 rule does not retain the 1 km/3 km standard, or why a more complex standard based on factors such as tower height in electrical degrees and distances measured in wavelengths is a better option.⁹ Indeed, whatever benefits might accrue from this more complex approach are clearly outweighed by the additional compliance costs that will be imposed on wireless broadband systems due to the complexity of the calculations involved.

Moving away from “bright-line certainty” afforded by the 1 km/3 km standard will impose substantial unnecessary burdens on wireless broadband providers. It should be remembered that many such providers will be constructing and operating cellularized systems

⁷ *Amendments to Parts 1, 2, 27 and 90 of the Commission’s Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1232 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands*, Report and Order, 17 FCC Rcd 9980, 10027 (2002).

⁸ AM Coalition Proposal, Attachment, “Proposed New Rule Under Part 17 – Construction Near or Installation on an AM Broadcast System or Tower,” Section (a)(2) [“Proposed Part 17 Rule”].

⁹ Also, the *Further Notice of Proposed Rulemaking* which begat the AM Coalition Proposal did not propose to amend Sections 22.371, 27.63 or 73.1692, nor did it suggest that any of those rules should be amended. *See An Inquiry Into the Commission’s Policies and Rules Regarding AM Radio Service Directional Antenna Performance* (continued on next page)

that will provide new wireless broadband service via thousands of towers and other antenna support structures across the country. Because the current 1 km/3km standard is based solely on a fixed geographic distance measured in kilometers, it provides wireless broadband providers with an easy to apply and inexpensive test for determining whether construction or modification of a specific tower or other antenna support structure might trigger any obligations to nearby AM facilities. In contrast, the AM Coalition Proposal would require operators to undertake more costly and time-consuming studies to calculate the heights of their towers or other antenna support structures in electrical degrees and measure the distances of those facilities from AM antennas in wavelengths, all with no apparent additional benefit to the public. Hence, WCA believes that the better solution is to amend Section (a)(2) of the proposed Part 17 rule to retain the 1 km/ 3 km standard in lieu of the more complex formula suggested by the AM Coalition. A draft of the proposed rule with WCA's recommended revision to subsection (a)(2) is attached as Exhibit A.

B. The Commission Should Not Prohibit Licensees From Continuing To Use Field Strength Measurements When Calculating Their Impact On AM Antenna Systems.

Under the Commission's existing rules, licensees are permitted to use field strength measurements when evaluating whether their towers have any impact on an AM station's antenna radiation pattern.¹⁰ However, Section (a)(3) of the Part 17 rule proposed by the AM Coalition, subject to limited exceptions, would eliminate that option and instead mandate that

Verification, Report and Order and Further Notice of Proposed Rulemaking, 16 FCC Rcd 5635, 5647-8 and Appendix D (2001).

¹⁰ See, e.g., 47 C.F.R. § 27.63(a)-(b).

licensees use moment method modeling, and only moment method modeling, when conducting their impact analyses.¹¹

WCA can conceive of no reason to mandate that a licensee use a moment method model to analyze its impact on an AM station antenna radiation pattern, particularly since the AM Coalition Proposal does not always require AM station licensees to use that model in lieu of field measurements.¹² WCA appreciates that AM licensees desire the flexibility to utilize either computer modeling or field testing, and that same option should be afforded licensees in other services that must evaluate their impact on an AM station. Particularly for non-AM licensees, it will be burdensome to acquire and maintain the software and other tools necessary to conduct moment method modeling. Accordingly, licensees should retain the right to continue using field strength measurements when studying their impact on AM facilities, with the option to use moment method modeling where they choose to do so. This approach would provide symmetry with the AM Coalition's proposal that an AM station have the option of using method of moments modeling or field strength measurements to establish its antenna radiation pattern. WCA's suggested revision to subsection (a)(3) of the AM Coalition's proposed Part 17 rule is attached hereto as Exhibit A.

¹¹ See Proposed Part 17 Rule, Section (a)(3) (“[l]icensees proposing construction of or a significant modification to an existing antenna tower or support structure in the immediate vicinity of an AM antenna system *shall* examine the potential effects thereof using a moment method analysis”) (emphasis added).

¹² See AM Coalition Proposal, Attachment, “Proposed Revisions to Section 73.151 – Directional Antenna Performance Verification” (“The performance of a directional antenna system may be verified either by computer modeling and sample system verification *or* by the performance of field strength measurements.”) (emphasis added).

C. The Commission Must Ensure That Licensees Who Elect To Conduct Impact Analyses Via Moment Method Modeling Have Access To All Relevant Technical Data.

One of the ironies of the AM Coalition's proposal is that while it would require a licensee to utilize moment method modeling to evaluate its impact on a nearby AM station, it does not make provision for that licensee to obtain the information necessary to conduct such an analysis. To accurately construct the model of the AM antenna necessary to conduct moment method modeling, a wireless broadband provider must have access to a variety of data not generally available to the public including, for example, tower dimensions, base appurtenances, and impedance matrices, all of which if not disclosed would require actual measurements on the AM equipment. Yet, under the AM Coalition's proposal, a licensee would have no means for securing the data it would need to comply with the proposed rule.

WCA's proposal eliminates that dilemma by giving the licensee the option of utilizing field measurements. However, WCA agrees with the AM Coalition that moment method computer modeling can be an effective and efficient vehicle for conducting analyses, and thus the Commission should take steps to ensure that licensees have the data they need to exercise the option of utilizing moment method modeling.

Section (a)(3) of the proposed Part 17 rule states that where a licensee conducts its impact analysis via moment method modeling, the analysis "shall consist of a model of the AM antenna together with the potential reradiating antenna tower or support structure in a lossless environment."¹³ The Commission can and should take steps to ensure that where an AM station licensee has engaged in moment method modeling, it provides full and expeditious access to the

¹³ Proposed Part 17 Rule, Section (a)(3).

underlying data, so that another licensee proposing to operate in the vicinity of an AM antenna system may conduct the necessary impact analysis, make any adjustments to its own facilities that may be required due to the results of that analysis, and initiate service over the relevant tower or other antenna support structure as quickly as possible. WCA therefore requests that the Part 17 rule proposed by the AM Coalition be revised to state that where an AM station submits an application or other filing to the Commission that includes a technical showing based on moment method modeling, the station must submit with its filing both a paper copy and an electronic copy of all of the underlying technical data inputs used in conducting the computer study. The AM station licensee also should specify the name and release number of the computer modeling program used by the AM station.¹⁴ These requirements will assure that this data is readily accessible to Commission licensees in other services who elect to conduct their future impact analyses via moment method modeling – a licensee should be able to simply transfer the underlying data inputs from the Commission’s database into its own model, without having to secure additional data or manually reenter existing data.

The Commission has already had experience with this type of approach. In its 1998 adoption of comprehensive rules that permitted Multipoint Distribution Service (“MDS”) and Instructional Television Fixed Service (“ITFS”) licensees to deploy their spectrum for two-way services, the Commission’s methodology for preparing and filing response hub (base station) applications included a requirement that applicants use a specific computer file format when

¹⁴ This is necessary due to the fact that there are several related but distinct moment method modeling programs currently offered by different companies. Specification of the name and release version of the AM station’s program will assist a licensee in resolving any discrepancies between its own moment method analysis and that provided by the AM station that is the subject of the licensee’s impact study.

submitting supporting technical data, and that such file be submitted in electronic form.¹⁵ The Commission adopted the requirement “[t]o facilitate the exchange of data on two-way MDS and ITFS systems permissible under Parts 21 and 74,” such that all potentially affected MDS or ITFS licensees could have easy access to that data and properly evaluate whether a response hub application posed any risk of interference.¹⁶ WCA is asking the Commission to apply the same principle to AM station licensees who use moment method modeling, so that the underlying data inputs are readily on hand when any other Commission licensee chooses to use moment method modeling when conducting its impact analysis per the proposed Part 17 rule. A new proposed subsection (c) is annexed as Exhibit A.

¹⁵ *See Amendment of Parts 1, 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions*, Report and Order on Reconsideration, 14 FCC Rcd 12764, 12892-12902 (1998).

¹⁶ *Id.* at 12892 (requiring that the formatted data “be provided to the Commission’s copy contractor and to all parties which must be served with notice of the application and/or engineering studies”).

WHEREFORE, for the reasons set forth above, WCA requests that any further action by the Commission on the AM Coalition Proposal be taken in accordance with these comments.

Respectfully submitted,

**THE WIRELESS COMMUNICATIONS
ASSOCIATION INTERNATIONAL, INC.**

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EXHIBIT A

WCA RECOMMENDED REVISION TO PROPOSED PART 17 RULE

- (a) *Construction near an AM broadcast antenna system.* All Commission licensees that construct or make a significant modification to an antenna tower or support structure in the immediate vicinity of an AM antenna system are responsible for measures necessary to correct disturbances of the AM antenna radiation pattern that causes operation of the AM station outside of the radiation parameters specified by the FCC, if the disturbance occurs as a result of such construction or modification. The proponent of such construction or modification shall notify the licensee of the AM station in advance of the proposed construction or modification.
- ...
- (2) An antenna tower or support structure is in the immediate vicinity of an AM antenna system if it is within 1 kilometer (0.6 mile) of a non-directional AM broadcast station tower or within 3 kilometers (1.9 miles) of a directional AM broadcast station array.
- (3) Where a licensee proposes to construct or undertake a significant modification in the immediate vicinity of an AM antenna system, a licensee shall examine the potential effects of such construction or modification either, at its sole option, by taking field measurements to determine whether the construction or modification would affect the AM station antenna pattern or by using a moment method analysis.
- (i) Where a licensee elects to use a moment method analysis, such analysis shall consist of a model of the AM antenna together with the potential reradiating antenna tower or support structure in a lossless environment. The construction or modification shall be deemed to have no adverse effect on the AM antenna system, and no remedial measures will be required, if the model shows that:
1. the omnidirectional radiation pattern of the AM station would not be made non-circular by more than 2 dB; or
 2. the theoretical radiation pattern of an AM directional antenna would not be distorted outside the licensed standard or augmented radiation pattern.
- (ii) Where a licensee elects to utilize field strength measurements, the proponent of the construction or modification may demonstrate through measurements taken both prior to and upon completion of the construction or modification that (A) the monitor point values of the AM antenna do not exceed the licensed values, or (B) in the

event that the pre-construction or modification monitor point values exceed the licensed values, the post-construction or modification monitor point values do not exceed the pre-construction or modification monitor point values. Alternatively, the proponent may file for authority to increase the relevant monitor point value after performing a partial proof of performance in accordance with § 73.154 that establishes that the licensed radiation limits on the applicable radial are not exceeded.

...

- (c) Any AM station application or other filing that includes technical information based on moment method modeling shall include identification of all data inputs utilized in such modeling in both paper and electronic format. All submissions under this subsection shall also specify the name and release number of the computer modeling program used by the AM station.