

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D. C. 20554

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FEDERAL COMMUNICATIONS COMMISSION  
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In the Matter of )  
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Amendment of Parts 22, 90 and 94 )  
of the Commission's Rules )  
to Permit Routine Use of Signal Boosters)

WT Docket No. 95-70  
RM-8200

To: The Commission

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AUG 14 1995

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COMMENTS  
OF THE  
FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

PERSONAL COMMUNICATIONS INDUSTRY ASSOCIATION

The Personal Communications Industry Association ("PCIA"),<sup>1</sup> by counsel and pursuant to Section 1.415 of the Commission's rules and regulations, 47 C.F.R. § 1.415, respectfully submits its Comments in response to the Commission's Notice of Proposed Rule Making ("NPRM").<sup>2</sup>

<sup>1</sup>PCIA is an international trade association representing the interests of both commercial mobile radio service ("CMRS") and private mobile radio service ("PMRS") users and businesses involved in all facets of the personal communications industry. PCIA's Federation of Councils include: the Paging and Narrowband PCS Alliance, the Broadband PCS Alliance, the Specialized Mobile Radio Alliance, the Site Owners and Managers Association, the Association of Wireless System Integrators, the Association of Communications Technicians, and the Private System Users Alliance. In addition, PCIA is the FCC-appointed frequency coordinator for the 450-512 MHz bands in the Business Radio Service, the 800 and 900 MHz Business Pools, 800 MHz General Category frequencies for Business eligibles and conventional SMR systems, and for the 929 MHz paging frequencies.

<sup>2</sup>60 FR 33782 (June 29, 1995). An extension of the time to submit Comments was granted by Order of the Chief, Private Wireless Division. 60 FR 36772 (July 18, 1995).

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## I. BACKGROUND

The Commission's proceeding is the result of a Petition for Rule Making by TX RX Systems, Inc. ("TX RX"), and which was supported by Allen Telecomm Group ("ATG"), The Jack Daniel Company ("Daniel"), Motorola, Inc. ("Motorola") and the Utilities Telecommunications Council ("UTC"). In the NPRM, the Commission has proposed to permit the routine use of one-way and two-way signal boosters for Part 22 paging services, Part 90 land mobile radio and paging operations, and Part 94 multiple address system operations.

In the context of this rule making, a radio signal booster can provide assistance for a private land mobile dispatch system, private or common carrier paging system, or multiple address system within the service area of the system where topography or man-made structures block penetration of the radio signals. The purpose of a signal booster is to provide better coverage within an already defined area, not to extend the operational area of a radio system.

The NPRM discusses several types of signal boosters, one-way boosters for paging systems and two-way boosters for bi-directional systems. The Commission also discusses two versions of the boosters, which are available in either narrowband or broadband configurations.<sup>3</sup> A narrowband signal booster is designed to amplify only certain frequencies. In contrast, broadband signal boosters amplify all received frequencies. The Commission proposes to permit the routine use of both types of signal boosters.

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<sup>3</sup>NPRM at para. 2.

Currently, licensees may not routinely install and operate signal boosters to improve radio transmissions throughout a service area or to transmit signals to shielded zones. However, as customers demand greater in-building coverage, more and more licensees are requesting signal boosters to increase the capabilities of their systems.

Current Commission's rules require most private radio licensees to license signal boosters as secondary sites. Unfortunately, this is a time consuming process. In the common carrier services, only cellular licensees in the Domestic Public Cellular Radio Service are permitted to operate "cell boosters" to improve the coverage of a cellular system.

## II. COMMENTS

In general, PCIA supports the use of signal boosters. PCIA recognizes that signal boosters do not result in additional coverage area for licensees, but are designed only to improve service to "fill-in" dead spots or areas where signal coverage is extremely poor. However, PCIA shares ATG's concerns that undesirable frequencies could possibly be amplified and result in interference.<sup>4</sup>

As recognized by the Commission, there should be little chance of co-channel interference from signal boosters in normal operation.<sup>5</sup> However, if signal boosters are used at the outer boundary of a system's operational area, a mobile operating on a

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<sup>4</sup>NPRM at para. 7.

<sup>5</sup>Id. at para. 12.

co-channel system straying into that area could experience interference.

More importantly, a greater likelihood of interference may result from the use of broadband boosters. As pointed out by the Commission, broadband boosters are suited for use in tunnels and other confined areas where the possibility of adjacent channels being received by the booster is unlikely.<sup>6</sup> However, there is nothing in the Commission's rules to prevent a broadband booster from being used in **any** location. Therefore, the Commission **must** consider the impact of a broadband booster being used in an area where adjacent channel signals may be received by the amplifier.

The effects of amplification of adjacent channel signals could be devastating to other operators. It is possible that such interference could prevent adjacent channel public safety communications (a service that would particularly benefit from booster use) from being properly received or transmitted. Further, it would be difficult for the adjacent channel licensee to determine the source of the interference. In fact, the adjacent channel licensee may not even be able to determine that a signal booster is causing the problem. The Commission's proposal to require users of signal boosters to resolve interference complaints is important,<sup>7</sup> however the requirement may be ineffective to cure the problem where the interference source cannot be identified. Thus, it is critical that the Commission ensure that the rules

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<sup>6</sup>Id. at n. 5.

<sup>7</sup>See, for example, proposed Section 90.219(a).

created in this proceeding be crafted in a manner to prevent interference.<sup>8</sup>

In its Comments, ATG suggested that the Commission require the use of directional antennas to reduce the possibility of amplification of unwanted signals.<sup>9</sup> However, even a directional antenna may not eliminate the interference potential. Specifically, if multiple transmitting systems are located on the same tower that the booster antenna is "looking at", the undesired channels on that tower will also be boosted.

Part 22 paging services and the Part 90 and Part 94 services are characterized by small (or single) frequency blocks with a variety of licensees in different geographic areas on each channel. Therefore, there are many possible undesired signals that could be amplified by uncontrolled signal booster use. Further, determining the source of interference could be a daunting task.<sup>10</sup>

PCIA recommends that the Commission approach this issue with caution. Although there have been few, if any, problems to date, boosters have been used primarily in a service where little interference could be expected. However, as signal boosters begin to proliferate in other services, particularly broadband boosters

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<sup>8</sup>See, footnote 5, above.

<sup>9</sup>Id. at para. 7.

<sup>10</sup>The need for concern is different in this instance as compared to the cellular area. In the cellular service, licensees are authorized large blocks of contiguous channels in large geographic areas. As a result, the chance for interference from even a broadband amplifier is remote, and where interference does occur, can only occur from a single co-channel or adjacent channel source that is more readily traced.

used outside of buildings, there is a significant potential for intermodulation and heterodyne interference. Therefore, The Commission should consider limiting the use of broadband boosters.

On this basis, PCIA recommends that the Commission authorize signal boosters, but with the following changes to the proposed rules: (1) modify proposed Sections 90.219(e) and 94.95(e) to provide that licensees employing **both** Class A (narrowband) and Class B (broadband) signal boosters correct interference caused to other licensees; (2) modify proposed Sections 90.219(d), 94.95(d) and add Section 22.385(d) to require that licensees who obtain blanket authorization for boosters be assigned an additional letter to their station class (as suggested by Motorola);<sup>11</sup> (3) require that licensees provide the Commission with a booster deployment letter (as recommended by UTC); and (4) that the licensee provide a copy of such letter to any adjacent licensees.

PCIA believes that its recommended changes will significantly reduce potential interference problems. Notification letters are a minimal burden placed on licensees in relation to the difficulties which could be posed from a failure to impose a notification system.

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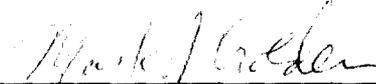
<sup>11</sup>Licenses should not be required to wait for Commission action on their license modifications prior to the use of signal boosters. Rather, licensees should be able to construct such boosters immediately upon filing of the application and mailing of the deployment list. This would eliminate any problems associated with Commission delay in processing applications.

**III. CONCLUSION**

WHEREFORE, the Personal Communications Industry Association respectfully requests that the Commission act in accordance with the views expressed herein.

Respectfully submitted,

**PERSONAL COMMUNICATIONS  
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Date: August 14, 1995

**CERTIFICATE OF SERVICE**

I, Sarah Locke, a secretary in the law office of Meyer, Faller, Weisman & Rosenberg, P.C. hereby certify that I have on this 14th day of August, 1995 sent via hand delivery, a copy of the foregoing "Comments of the Personal Communications Industry Association" to the following:

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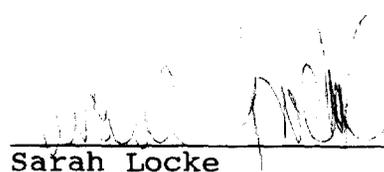
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