

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20554

In the Matter of	)	
	)	
Unlicensed Operation in the TV Broadcast Bands	)	<b>ET Docket No. 04-186</b>
	)	
Additional Spectrum for Unlicensed devices	)	<b>ET Docket No. 02-380</b>
Below 900 MHz and in the 3 GHz Band	)	
To: The Commission		

**COMMENTS OF THE COMMUNITY BROADCASTERS ASSOCIATION**

Introduction

1. The Community Broadcasters Association (“CBA”) hereby submits these Comments in response to the Commission’s Notice of Proposed Rule Making (“NPRM”) in the above-captioned proceeding, FCC 04-113, released May 25, 2004. CBA is the trade association of the nation’s Class A and Low Power Television (“LPTV”) stations and represents the interests of these stations in legislative, administrative, and judicial forums.

2. Some of CBA’s members are extremely interested in the prospect of new and innovative wireless services in the television broadcast bands, including two-way services; and they are ready, willing, and often eager to participate in the provision of these new services. It is important, however, that any new services remain secondary and not be permitted to erode the quality or quantity of basic television (“TV”) broadcast services, both analog and digital. The Commission must also not treat the interference issue casually on the theory that most of the public receives television broadcasting by cable or satellite, because that assumption is not universally valid and is especially not valid with respect to Class A/LPTV systems, most of which have no cable carriage rights, and none of which has any satellite carriage rights. There are 2,655 licensed Class A and LPTV stations – 60% of the nation’s television stations (not

including TV translators).<sup>1</sup> Class A and LPTV stations depend primarily on over-the-air reception to reach their viewers, as will many full power digital television (“DTV”) stations while the issue of DTV cable and satellite carriage remains unresolved. These signals must be adequately protected, wherever they are viewed in practice, by a regulatory scheme that can be realistically administered and enforced.

### Availability of TV Spectrum

3. It is likely that the TV broadcast band has the capacity to sustain some new wireless services, although there are some geographic areas where spectrum availability will be very limited. However, in the more densely populated areas, where TV spectrum is most scarce, it should be possible to provide wireless services in other bands now being considered, such as the 2.5 GHz ITFS/MMDS band. The principal benefit of using the TV spectrum is its superior propagation compared to higher frequencies. Longer distance propagation will be most important in rural areas, which do not have the economic base to sustain large numbers of hubs or other transmit points operated by wireless service providers. In rural areas, where the longest range signals are most needed, TV spectrum is most likely to be available; and in urban areas, where TV spectrum is the least available, an economic base should exist to sustain more hubs, thus permitting the use of higher frequencies despite their shorter propagation range.<sup>2</sup>

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<sup>1</sup> See the statistics as of September 30, 2004, published by the Commission in a New Release from November 3, 2004, showing 1,748 licensed full power TV stations, 602 Class A stations, and 2,053 LPTV stations.

<sup>2</sup> Thus, CBA suggests that spectrum be conserved by confining operation in the TV band to community-wide networks, which, as discussed *infra*, should be licensed. Broadband wireless networks within a building or a small group of buildings and all unlicensed systems should be required to use frequencies currently available or to be made available at 2 GHz and above.

### Method of Protection of Existing Services

4. TV broadcasting is the most important service in the band that must be protected. However, there are other services that use the TV broadcast band, including services that are critical to the support of TV broadcasting. These include wireless microphones and TV studio-transmitter links (“STLs”) and Intercity Relay stations (“ICRs”) that are permitted to operate under Part 74 of the Rules on a secondary basis. Destroying an STL or ICR can take a Class A or LPTV station off the air, so the existence of these services must be taken into account and their survival assured.

5. Protection of existing services requires the compilation of a complete database of information about those services, strict control of wireless services so that they respect the database, and a realistic system that minimizes opportunities for abuse and is realistically enforceable. The Commission has suggested three approaches: (a) a beacon-based system where individual wireless units may operate only in accordance with instructions received from a beacon, (b) a GPS-based system, and (c) a signal-sensing system that forbids operation on any channel on which an existing signal is sensed at the wireless transmit site. CBA suggests that the first approach is the only one likely to work properly. A GPS-based system will only tell a unit where it is located. That unit will then have to look up available channels in a database, which means that a reliable connection to a database without using the TV band will be necessary. A signal-sensing system is too likely to make errors, because the antenna in a computer card is so inefficient compared to a good television receiving antenna that the computer card cannot be expected to sense all signals that will display on a television receiver.<sup>3</sup>

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<sup>3</sup> A computer card will operate indoors, perhaps even in a basement, and will have low gain. In contrast, an outdoor television receiving antenna will be on a rooftop, or even a small home-based tower, and will be physically much larger and have a much higher gain. The use of outdoor receiving antennas, including very high-gain antennas, is (continued on next page.)  
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6. A beacon-based system will be the most efficient, because it will both authorize an individual unit to transmit and will provide information about available frequencies at the same time over the same link. It will also not be necessary to consult a national database, because each beacon will need to know information about only its local service area.<sup>4</sup> A beacon-based system also allows for the real-time control of wireless frequencies and avoids the problem of a wireless system selecting a transmit channel based on out-of-date information. A beacon on TV broadcast frequencies should require less expensive receiving circuitry than a GPS-based system. Class A and LPTV stations are interested in serving as beacons, using their vertical blanking interval in the analog mode and ancillary capacity in their digital signals after the transition to DTV operation. Because so many of these stations are not carried on cable or satellite services, the licensees are experienced in maximizing signal reception by over-the-air antennas and will be able to do a good job of providing beacon services.

#### Extent of Protection to Existing Services

7. At paragraph 30 of the NPRM, the Commission proposes desired-to-undesired protection ratios for broadcast television stations; and at paragraph 32, it proposes to forbid unlicensed devices to operate within the protected contour of a TV stations. In the case of Class A and LPTV stations, the protected service area is the Grade A contour predicted by the FCC method.<sup>5</sup> It is unrealistic, however, to assume that over-the-air viewing of these stations is

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(continued from previous page..) common in rural areas. The existence of these antennas is particularly important for Class A/LPTV stations and TV translators, many of which are viewed in households that receive less signal strength than full power TV stations are able to provide.

<sup>4</sup> There is no inherent reason not to have a regional or national database if that turns out to be the most practical approach. Individual beacon stations could choose to consult an outside database at regular time intervals in lieu of locally maintaining up to date spectrum usage information.

<sup>5</sup> See Section 74.707(a) of the Commission's Rules.  
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limited to the area from which they are protected by interference in processing applications for new stations or changes in existing stations. In practice, many of these stations are regularly viewed beyond their Grade A contour, evidenced by responses to advertising offers and requests for music videos, which can be tracked by ZIP Code or telephone number, and more general feedback, though more difficult to track with precision.<sup>6</sup> Keeping in mind how few Class A and LPTV stations enjoy cable distribution, it is critical to protect reception by viewers wherever they are, including forbidding the operation of unlicensed devices at least to a station's Grade B contour.

8. Longley-Rice analysis also demonstrates dramatically how Class A and LPTV stations reach viewers beyond their FCC-predicted Grade A contour. The FCC Grade A contour is a relatively crude statistical estimate compared to the newer Longley-Rice method. It is one thing to rely on the simple, relatively unsophisticated FCC method for authorizing new stations and changes, because the first-come, first-served principle requires the newcomer to resolve any interference problems that occur in practice, and the newcomer is a single emitter that is easy to identify. It is quite another thing to ignore more sophisticated and accurate prediction methods when authorizing a non-broadcast service to be mixed with broadcasting, involving multiple emitters and unfamiliar emissions whose source is enormously more difficult, if not impossible, to trace. CBA does not have the same engineering resources available to the National Translator Association ("NTA"),<sup>7</sup> but CBA is aware that NTA plans to present several examples of the

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<sup>6</sup> The analog mileage separation requirements in Section 73.610 protect full power TV stations to only their Grade A contour; but in practice, the Commission recognizes viewing to the Grade B, and interference often does not penetrate parts of the Grade B service area. Directional receiving antennas also help stations achieve reception beyond their Grade A contour.

<sup>7</sup> CBA has no staff engineer, while NTA's President is a highly qualified and respected technical expert.

difference between FCC-predicted and Longley-Rice contours in its comments. CBA fully endorses and supports NTA's showings in this regard.

9. Given the varying actual viewing areas of Class A and LPTV stations, along with use of TV spectrum for STLs and wireless microphones, CBA suggests that the Commission develop a way for broadcasters to register all of their actual spectrum usage with the entity maintaining a national, regional, or local database, as the case may be. That approach will ensure that existing services are adequately protected. To avoid abuses by stations attempting to register to protect their services beyond a reasonable range, the Commission can set up a dispute-resolution system. Registration of protection to a station's Grade B contour<sup>8</sup> and areas where there are records of actual viewers should be presumed valid, as well as the path of an STL and the reasonable area of actual use of a wireless microphone system.

#### Administration and Enforceability

10. There is a significant potential for abuse where spectrum is being shared between services that are very different in their nature, and where equipment is distributed in large quantities for use by unsophisticated private individuals. The Commission's enforcement resources are limited. The Commission should make every effort to keep wireless services in the TV spectrum under careful control in a way that does not ultimately escape policing by virtue of proliferation.

11. CBA suggests that one effective way to establish control is through the equipment authorization process, which has historically not been free from problems, but has on the whole

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<sup>8</sup> Broadcasters should be able to register based on their Grade B contour predicted by the FCC method and any additional Grade B service area predicted by the Longley-Rice method. If an area that a broadcaster attempts to register is obviously subjected to serious interference that precludes broadcast reception, that spectrum is not likely to be useful for wireless services in any event; so it is not likely that broadcasters will be able to abuse the system by trying to shut out spectrum that would be useful in practice for wireless services.

been effective in minimizing the sale of products that do not conform to minimum technical standards, other than by persons who intend to evade the law. The marketing of wireless transmitters in the TV band should be forbidden prior to a grant of an equipment authorization, which should be established as full certification with prior Commission review of an application, at least at the start.<sup>9</sup> Only units that are incapable of transmitting unless they receive an authorizing beacon signal should be certified, and the circuitry that controls the ability to transmit should be covered with epoxy or otherwise protected from alteration after the unit leaves the factory.<sup>10</sup>

12. It would also be unwise, if not reckless, for the Commission to initiate sharing of the TV band by wireless services, on anything other than a licensed basis. Individual computer users need not be required to obtain separate licenses, of course; mobile units can be licensed to service providers on a blanket basis just as done in the Commercial Mobile Radio Services.<sup>11</sup> There are enough potential interference issues that it is critical to know the identity and contact point for every service provider to avoid potential serious disruption of television broadcasting service to the public. For example, CBA is aware that Maximum Service Television, Inc.

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<sup>9</sup> Telecommunications Certification Bodies (“TCBs”) should not be authorized to grant certifications until the Commission has gained experience with the design of new wireless products and found ways to resolve problems that may arise in their operation. When enough experience has been gained, TCBs may be permitted to participate. It may also be possible to downgrade the required authorization from full certification, but not until more experience has been gained. A similar initial procedure -- certification by the Commission itself -- was adopted in the initial authorization of Access Broadband Over Power Line Systems. *See Amendment of Part 15 Regarding New Requirements and Measurement Guidelines for Access Broadband over Power Line Systems*, FCC 04-245, released October 28, 2004.

<sup>10</sup> Any software controls should be permanently burned into integrated circuits and not alterable or replaceable.

<sup>11</sup> Cellular telephones are an example. The service provider holds a blanket license covering the handsets of all its customers.

("MSTV") will present information showing that an individual wireless unit in a home would be capable of causing blanketing interference that could destroy all over-the-air television reception within 24 meters. That is much too long a distance for multiple dwelling units, like apartments, town houses and other closely-spaced urban dwellings, as well as in office buildings and other commercial environments. In the context of unlicensed operation under Part 15 of the Rules, the Commission has traditionally had only limited concern about interference between devices within the confines of a single household, because the person receiving the interference can turn off the device that is causing it; but the Commission has been much more cautious about interference that may affect a neighbor. Here, it appears that interference to neighbors is at stake, especially in the case of Class A and LPTV stations whose viewers may rely on high-gain receiving antennas to receive low-level signals. Thus, basic prudence requires that the Commission start with a licensed approach, notwithstanding the fact that it may take a little longer to implement.<sup>12</sup>

13. CBA is skeptical about the value of requiring installation by only authorized installers, as it would be difficult enforce such a requirement if the transmitters are not licensed. The Commission also does not have an established program for establishing the qualifications of installers. The Commission has moved away from licensed operator requirements over the past several years; indeed, no operator license is required any longer to operate most licensed services (including broadcast transmitters and private domestic fixed and land mobile services)<sup>13</sup> and

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<sup>12</sup> Licensing does not necessarily necessitate auctions, petitions to deny, and other procedures that can delay the initiation of service to the public. It is possible to license multiple parties to use the same spectrum on a shared basis, thereby avoiding the mutual exclusivity that invokes statutory auction requirements.

<sup>13</sup> Under Part 17 of the Rules, the remaining operator licensing requirements are focused on certain aviation, marine, and international services.

unlicensed devices (such as GMRS, FRS, and CB radios). To reverse this trend in the context of a service that is anticipated to proliferate quickly would be a strain on the Commission's resources and would likely be ignored too often or else would slow down the distribution of the new technology. Enforcement at the manufacturing and marketing stage, through the equipment authorization process, appears to be more practical.

#### Interest in Participating

14. If new wireless services are properly designed and adequately controlled, many Class A and LPTV operators are interested in participating in the new industry. This participation could start with providing control beacon services, but the interest goes further and includes the actual provision of wireless services. As Class A/LPTV stations convert to digital operation, some are interested in devoting part of their digital capacity to both outbound and two-way wireless services. Class A and LPTV services throughout their history have had to be innovative to survive in a competitive marketplace without cable and satellite carriage. They are ready to continue that tradition if the proposals in this proceeding are adopted.<sup>14</sup> Their coverage areas are smaller than those of full power TV stations and will often be very well suited to the provision of wireless services in a municipality or other local community area.<sup>15</sup>

#### Conclusion

15. The proposals in this proceeding offer a great deal of potential for increased service to the public and improvements in efficiency in use of the television spectrum. However, the Commission must remain alert and responsive to the fact that 60% of the nation's TV stations

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<sup>14</sup> Some Class A/LPTV operators have expressed an interest in experimenting with single-frequency distributed transmission systems for their broadcast operations -- a technology that appears to be well-suited to piggybacking wireless services.

<sup>15</sup> CBA has also been in contact with IEEE and major manufacturers to discuss participation in the establishment of technical standards.

operate in a service where over-the-air reception is the rule rather than the exception, and critical broadcast auxiliary services also rely on TV spectrum. These stations specialize in local and niche services that are of great importance to viewers who prefer not to watch the "lowest common denominator" programming that is the bread-and-butter of most full power stations with large operating costs. Over-the-air viewing must be recognized, taken seriously, and protected. Once that principle is established, the Class A/LPTV industry is interested and eager to become a provider of new wireless services.<sup>16</sup>

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<sup>16</sup> The interest of Class A and LPTV licensees in participating in wireless services will erode quickly and likely disappear altogether, if inadequate consideration is given to protection of the actual viewing area of their broadcast stations.

<sup>17</sup> Admitted in Maryland; not admitted in D.C.