

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

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

**COMMENTS  
OF THE  
LAND MOBILE COMMUNICATIONS COUNCIL**

The Land Mobile Communications Council (LMCC), pursuant to Section 1.415 of the Commission's Rules, 47 C.F.R. § 1.1415, hereby respectfully submits its Comments in the above-captioned proceeding.<sup>1</sup>

**I. INTRODUCTION**

LMCC is a non-profit association of organizations representing virtually all users of land mobile radio systems, providers of land mobile services, and manufacturers of land mobile radio equipment. LMCC acts with the consensus, and on behalf, of the vast majority of public safety, business, industrial, transportation and private commercial radio users, as well as a diversity of land mobile service providers and equipment manufacturers. Membership includes the following organizations:

- American Association of State Highway and Transportation Officials (AASHTO)
- American Automobile Association (AAA)
- American Petroleum Institute (API)
- Association of American Railroads (AAR)
- Association of Fish and Wildlife Agencies (AFWA)

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<sup>1</sup> *First Report and Order and Further Notice of Proposed Rule Making*, ET Docket No. 04-186, FCC 06-156 (rel. Oct.18, 2006) (“*Order*”).

- Association of Public-Safety Communications Officials-International, Inc. (APCO)
- Aviation Spectrum Resources, Inc. (ASRI)
- Central Station Alarm Association (CSAA)
- Enterprise Wireless Alliance (EWA)
- Forest Industries Telecommunications (FIT)
- Forestry-Conservation Communications Association (FCCA)
- Intelligent Transportation Society of America, Inc. (ITSA)
- International Association of Fire Chiefs (IAFC)
- International Municipal Signal Association (IMSA)
- MRFAC, Inc. (MRFAC)
- National Association of State Foresters (NASF)
- PCIA – The Wireless Infrastructure Association (PCIA)
- Telecommunications Industry Association (TIA)
- United Telecom Council (UTC)

The Commission’s First Report and Order in this matter in which it declined to permit the deployment of unlicensed mobile/portable devices on TV Channels 14-20 was correct. For the reasons described herein, that finding should not be disturbed in this further stage of the proceeding and the Commission should determine that the interference potential of unlicensed fixed devices justifies disallowing their use on these channels as well. Excluding this relatively small amount of spectrum from the proposal at issue herein leaves more than ample “greenspace” for the development and deployment of a variety of low power, unlicensed devices, consistent with the Commission’s objectives in this proceeding.

A significant number of LMCC member’s constituents operate on frequencies within television channels 14-20 in the eleven markets in the nation where those channels were reallocated from television broadcast to land mobile use more than thirty years ago.<sup>2</sup> Moreover, spectrum from Channels 15, 16 and 17 may also be used for base, mobile and fixed use in the

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<sup>2</sup> See Amendment of Parts 2, 89, 91, and 93; Geographic Reallocation of UHF-TV Channels 14 through 20 to the Land Mobile Radio Services For Use Within the 25 Largest Urbanized Areas of the United States; Petition Filed by the Telecommunications Committee of the National Association of Manufacturers to Permit the Use of TV Channels 14 and 15 by Land Mobile Stations in the Los Angeles area, *First Report and Order*, Docket No. 18261, 19 RR 2d 1585 (rel. May 21, 1970). Although the spectrum was reallocated for land mobile use in thirteen markets, two have been precluded from using these channels because of treaty restrictions with Canada. Where available, from one to three TV channels in each market were reallocated for PLMRS use.

Southern Louisiana-Texas Offshore Zone (“Offshore Zone”) pursuant to Section 90.315 of the Rules and Regulations. These users have made productive use of these channels for decades without causing interference to television broadcast facilities. The arrangement is spectrum sharing at its best. It has promoted more intensive use of the limited amount of spectrum with propagation characteristics well-suited for the type of market-wide coverage typically required for both private and governmental PLMR entities. Because these channels have proven essential to a variety of LMCC member’s end users and because interference with these long-standing operations would be extraordinarily detrimental to their constituent’s business and public safety activities, LMCC has a significant interest in the outcome of this proceeding.<sup>3</sup>

## **II. BACKGROUND**

While LMCC’s primary interest in this proceeding relates to the potential impact on land mobile use of TV channels 14-20, as detailed below, the overall Commission proposal also warrants consideration. LMCC fully supports FCC efforts to promote intensive use of limited spectrum resources. To the extent prime television spectrum below 1 GHz can be made available for other publicly beneficial purposes without adversely impacting existing operations, it is appropriate for the FCC to consider such possibilities.

Nonetheless, and even if the Commission excludes fixed as well as mobile devices on channels 14-20, LMCC must question whether it is prudent spectrum policy to designate virtually all unused television broadcast spectrum for a purpose and a technology approach that is essentially untested. It may be the case that the operation of unlicensed low power devices will prove to be compatible with current spectrum uses, but that has not yet been demonstrated

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<sup>3</sup>LMCC has previously participated in this matter having filed Comments in response to ET Docket No. 02-380 on April 17, 2003, and Reply Comments in response to ET Docket No. 02-380 and ET Docket No. 04-186 on January 31, 2005. The positions set forth in the current comments are consistent with, and a reiteration of, LMCC’s prior comments in these proceedings.

on any significant scale. The interest in such personal devices has not yet been tested in the consumer marketplace. Yet the Commission is proposing to make available for this experiment an unprecedented swath of spectrum, at least 240 MHz minus whatever television broadcast facilities must be protected in a given market. Doing so likely will foreclose other uses of this spectrum even before sufficient information is available to determine whether it is the optimal, much less a workable, approach to spectrum utilization in these bands.

For this reason, LMCC recommends that the Commission implement its proposal on a phased basis, allocating only some of the vast storehouse of unused television broadcast channels for this purpose at the outset. Assuming that both the technology and the marketplace respond to this opportunity as the FCC expects, and further assuming that the Commission then determines that more capacity should be made available for this same purpose, it will have the opportunity to expand the available spectrum as warranted.

Moreover, LMCC urges the FCC to authorize the use of such devices on a secondary licensed rather than entirely unlicensed basis, even if the licensing follows the hybrid approach adopted by the Commission for the 3.65 GHz band.<sup>4</sup> The concerns about unlicensed usage detailed below with respect to operations on channels 14-20 apply equally to operations on other broadcast spectrum. When, as in this instance, the potential for interference is not yet fully tested, it would be prudent to require users to identify themselves by acquiring authorizations for the spectrum band, if not individual channels, and to require the registration of fixed facilities. If, over time, it is determined that these measures are not necessary to maintain compatible co-existence, the Commission may elect to eliminate the requirements. Conversely, however, if the

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<sup>4</sup> See Wireless Operations in the 3650-3700 MHz Band ET Docket No. 04-151; Rules for Wireless Broadband Services in the 3650-3700 MHz Band WT Docket No. 05-96; Additional Spectrum for Unlicensed Devices below 900 MHz and in the 3 GHz Band ET Docket No. 02-380; Amendment of the Commission's Rules with Regard to the 3650-3700 MHz Government Transfer Band Docket No. 98-237, *Report and Order and Memorandum Opinion and Order*, 20 FCC Rcd 6502 (rel. March 16, 2005).

FCC proceeds without them at the outset, from a practical perspective it will not be possible to return to the more regulated approach.

### **III. THE INTERFERENCE POTENTIAL OF FIXED LOW POWER DEVICES WARRANTS THEIR EXCLUSION FROM TV CHANNELS 14-20**

In the first stage of this proceeding, the Commission investigated the possibility of allowing unlicensed low power devices to operate on unused television broadcast channels. Its goal was to determine whether such devices could be deployed within the very substantial television broadcast allocation without causing interference to existing television operations or the operations of other authorized users such as PLMR licensees transmitting on frequencies in the Channel 14-20 allocation.

The Commission found that allowing such devices could have significant public benefits, in part based on its finding that “Because of the favorable propagation characteristics of the TV spectrum, these new devices could provide more effective service at greater ranges than unlicensed devices that operate at higher frequency bands”<sup>5</sup> However, the FCC also recognized that “we must ensure that new devices operating in the TV bands do not cause harmful interference to TV stations and other licensed services.”<sup>6</sup>

To that end, the Commission determined to exclude personal/portable low power devices from operating on channels 14-20 in all areas of the country, stating that this restriction was necessary “to prevent possible interference to public safety and other operations in the PLMRS....”<sup>7</sup> It rejected its initial proposal to impose geographic limitations on the use of the devices and thereby limit them to areas where channels 14-20 were not allocated for PLMRS operations, concluding that such an approach was not feasible given the nomadic nature of these

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<sup>5</sup> *Order* at ¶ 13.

<sup>6</sup> *Id.*

<sup>7</sup> *Id.* at ¶ 21.

devices and the impossibility of enforcing the restriction.<sup>8</sup> However, the FCC also announced that it would reserve its decision with respect to the operation of fixed devices on these channels and would address that issue in the Further Notice portion of the Order.

The instant proposal questions whether low power fixed devices should be permitted on channels 14-20 either in areas where these channels are used by PLMRS assuming cognitive capabilities within the devices will protect against interference or outside those markets based on geographic protection within an “exclusion zone.”<sup>9</sup> The Order questions whether either approach would provide adequate interference protection for PLMRS operations and, assuming an “exclusion zone” approach were adopted, what size it should be and how such a restriction could be enforced.<sup>10</sup> Further, the Order queries whether the original presumption that these devices would be unlicensed should be reconsidered.<sup>11</sup> It seeks comment on whether low power operations in the TV bands should be allowed on an unlicensed, licensed or hybrid basis.<sup>12</sup>

As noted above, LMCC appreciates the Commission’s efforts to promote intensive utilization of limited spectrum resources, particularly spectrum in the bands below 1 GHz that is preferable for wider-area coverage purposes. It was that type of Commission initiative that resulted in the reallocation of channels 14-20 from television broadcast to land mobile use in spectrum congested markets more than thirty years ago, a success story in the history of spectrum sharing.

However, the Commission must remain mindful of the technical and operating parameters imposed on land mobile usage that have permitted the compatible co-existence of television broadcast and land mobile operations for such an extended period. First, land mobile

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<sup>8</sup> *Id.*

<sup>9</sup> *Id.* at ¶ 56.

<sup>10</sup> *Id.*

<sup>11</sup> *Id.* at ¶¶ 26-32.

<sup>12</sup> *Id.*

base and mobile stations and facilities employed in the Offshore Zone are subject to strict limitations on operating areas, limitations designed to ensure that their facilities operate at antenna heights, power levels and distances designed to prevent interference to co-channel and adjacent channel broadcast stations.<sup>13</sup> Moreover, these facilities not only are licensed by the FCC, but their applications first must be reviewed and recommended by FCC-certified PLMRS frequency advisory committees (“FACs”) with expertise in the requirements applicable to such stations. In the event that a protected television station experienced land mobile interference, a situation that, to the best of LMCC’s knowledge, has **never** arisen in almost forty years of PLMRS usage, the TV station would be able to identify quickly all potential interference sources either by researching the Commission’s Universal Licensing System (“ULS”) or by contacting any of the certified FACs. This combination of technical restrictions and licensing protections clearly has been effective in permitting more intensive use of this important spectrum without compromising television broadcast operations.

LMCC does not believe that the approaches proposed in the Order provide comparable levels of interference protection. As an initial matter, there is no evidence in the record suggesting that devices have been developed that are capable of detecting and avoiding the also quite low power, intermittent, and transitory transmissions of the mobile and portable stations associated with PLMRS facilities. That capability is quite unlike the level of cognitive ability needed to work around a mega-watt broadcast transmitter that is always on and always operating at the same power levels. Even then, based on the data it has reviewed, LMCC must question whether the Commission’s proposal provides adequate interference protection even for full power television broadcast stations.

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<sup>13</sup> See FCC Rule Sections 90.307 and 90.315.

Moreover, if these devices are permitted to proliferate on an unlicensed basis, and if the expected interference problems arise, it will be extraordinarily difficult to resolve them as there will be no way to identify and contact the offender. The Commission has seriously understated the problem with co-mingling such uses:

Because unlicensed operations are not allowed to cause harmful interference, if we proceed on an unlicensed basis, the interference protection status of existing services operating in this spectrum would not be affected.<sup>14</sup>

But operators of wireless systems are less concerned about their interference protection “status” than they are about the probability of experiencing interference and the likelihood of being able to resolve it when and if they do. It is virtually impossible to correct an interference situation when the interfering device cannot be identified through the ULS or some other database, but instead must be tracked down by the party receiving interference through location-finding devices or some other self-help mechanism. It is likely to be absolutely impossible when the interference arises in a densely populated market with numerous buildings and other locations where the device might be located, markets such as New York, Los Angeles, Boston, Philadelphia, Washington D.C., Pittsburgh, Chicago, San Francisco, Dallas, Houston, and Miami, the very markets where channels 14-20 have been allocated for PLMRS use.

An economist with substantial expertise in wireless communications noted recently:

Allocations of unlicensed bands are largely irreversible. Once unlicensed devices populate a band it becomes very difficult to clear them to make the band available for a licensed use.<sup>15</sup>

That analysis is correct. Once these devices are released into the general consumer marketplace, it is not realistic to assume that painting imaginary zones of exclusion around the markets where

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<sup>14</sup> *Order* at ¶ 29.

<sup>15</sup> Licensed or Unlicensed: The Economics of Incremental Spectrum Allocations, Coleman Bazelon Analysis Group, October 13, 2006 at p. 1.

PLMRS users operate will prevent interference problems. Some device users may adhere to those restrictions; others undoubtedly will not – more likely out of ignorance or inattentiveness than malice, but the result will be the same. Interference problems will arise and PLMRS users will be unable to locate and thereby correct their source. A band that has provided valuable, effective communications for many thousands of business and governmental PLMRS licensees for decades will be compromised and, in the end, may be irreversibly polluted.

For these reasons, LMCC urges the Commission not to permit the unlicensed use of low power devices on TV channels 14-20 anywhere in the country. Excluding this portion of the television broadcast band from the FCC's proposal still would provide a pool of approximately 40 television channels, or 240 MHz of spectrum, on which these devices could be deployed. This is an extraordinary amount of spectrum to be made available for this purpose and certainly enough to satisfy even the most ambitious of plans for unlicensed, or even licensed, low power devices.

LMCC does not believe there is any reasonable way to permit unlicensed low power devices to operate on channels 14-20 and maintain adequate protection to long-standing public safety and business systems. Further reallocation of those channels to support additional communications requirements of public safety, business, industrial, transportation users, as well as Part 90 two-way communications service providers in markets where the channels are not used for broadcast purposes would be consistent with the FCC's effort to promote more efficient spectrum utilization, in accordance with the current rules governing protection to broadcast stations. The original reallocation was completed almost forty years ago. Since then, spectrum congestion for PLMRS users has increased significantly throughout the country, including in markets that had ample capacity at that time. LMCC agrees with the Commission that these

channels could support additional utilization by all Part 90 eligibles for a variety of emerging technologies, and urges the FCC to initiate a rule making proceeding consistent with that objective.

#### **IV. CONCLUSION**

For all the reasons addressed herein, LMCC encourages the Commission to determine that the interference potential of unlicensed fixed devices justifies disallowing their use on TV channels 14-20.

Respectfully submitted,

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By: /s/ Ralph A. Haller

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President

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