

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

In the Matter of )  
)  
Facilitating the Provision of Spectrum-Based ) WT Docket No. 02-381  
Services to Rural Areas and Promoting )  
Opportunities for Rural Telephone Companies )  
To Provide Spectrum-Based Services )

**COMMENTS OF THE LICENSE-EXEMPT ALLIANCE**

The License-Exempt Alliance (“LEA”) hereby submits its comments in response to the Commission’s December 20, 2002 *Notice of Inquiry* in the above-captioned proceeding.

The LEA is a nationwide coalition of wireless Internet service providers (“WISPs”) and equipment vendors who provide or support the provision of broadband service via license-exempt spectrum in the 902-928 MHz, 2.4 GHz and 5 GHz bands. It has been and continues to be the primary advocate for license-exempt broadband providers in a variety of Commission proceedings that directly affect the allocation and use of license-exempt spectrum. Recently, for example, the LEA was an active participant in the proceedings leading up to the release of the Commission’s Spectrum Policy Task Force Report (the “SPTF Report”) – it filed comments both prior and in response to the SPTF Report,<sup>1</sup> and two members of the LEA’s Executive

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<sup>1</sup> See Comments of the License-Exempt Alliance, ET Docket No. 02-135 (filed Jan. 27, 2002); Comments of the License-Exempt Alliance, ET Docket No. 02-135 (filed July 8, 2002).

Committee, at the Commission's invitation, participated in the August, 2002 workshops held by the SPTF's Working Group on Unlicensed Devices and Experimental Licenses.<sup>2</sup>

The LEA applauds the Commission's inquiry into regulatory reform for rural wireless service, particularly that provided via license-exempt spectrum. Certainly, the growth of license-exempt broadband service warrants such an inquiry: according to a recent Cahners In-Stat report, approximately 1,500-1,800 WISPs already are providing license-exempt broadband service to approximately 591,000 subscribers in the U.S., with subscribership expected to double by the end of 2003.<sup>3</sup> Moreover, according to a recent LEA survey, investments in WISPs during 2002 exceeded \$445 million in the United States alone.<sup>4</sup> Equally important for purposes of the *NOI*, the Commission has already observed that "lowerband" wireless service (including that provided via license-exempt spectrum) is uniquely suited for rural areas:

Several smaller fixed wireless carriers, including hundreds of operators using unlicensed spectrum, continue to provide high-speed Internet access service, generally in less densely populated markets across the country . . . . Many fixed wireless operators use lowerband spectrum to offer high-speed Internet access in rural and underserved areas. . . . In fact, at least one industry analyst claims that, while fixed wireless has the potential to compete with DSL and cable modem service, the technology is best-suited for rural and underserved markets where these services may not be available.<sup>5</sup>

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<sup>2</sup> LEA's representatives at the workshop were Patrick Leary, Chief Evangelist, Alvarion, and Dudley Freeman, Chief Executive Officer, Uniigo Communications, Inc.

<sup>3</sup> See [http://www.wcai.com/pdf/2003/p\\_instatmdrJan22.pdf](http://www.wcai.com/pdf/2003/p_instatmdrJan22.pdf).

<sup>4</sup> See Goldman, "VCs Love WISPs," <http://www.thefeature.com> (Dec. 19, 2002).

<sup>5</sup> *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 – Annual report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services (Seventh Report)*, FCC 02-179, Appendix A at 6-7 (rel. July 3, 2002) (footnotes omitted).

The LEA's position on a number of the issues raised in the *NOI* (e.g., flexible use, elimination of obsolete technical rules, permitting higher power in rural areas) is already set forth in its January 27, 2002 comments on the SPTF report, which for ease of reference is attached hereto as Exhibit 1 – the LEA asks that those comments be incorporated into the record for this proceeding in their entirety. For purposes of these comments, the LEA will focus on the Commission's request for information as to "the extent to which unlicensed spectrum is being used to provide wireless services to rural communities."<sup>6</sup>

Recent trade press and other information confirm that license-exempt broadband service in all of the available frequency bands is taking hold in rural America. To cite just a few examples:

- ***AMA Online*** ([www.amaonline.com](http://www.amaonline.com)) provides a variety of license-exempt broadband services via a network covering approximately 15,000 contiguous square miles in and around Amarillo, Texas. Utilizing equipment supplied by *Atvarion*, the company reached 2,000 subscribers in just eighteen months and continues to grow at a rate of 30 to 40 customer installations per week. The company provides service to both residential and business customers, reaching speeds equivalent to T1 service (1.5 Mbps).
- ***Prairie iNet*** ([www.prairieinet.net](http://www.prairieinet.net)) currently provides license-exempt broadband service in the 2.4 GHz and 5.8 GHz bands to approximately 4,500 subscribers, encompassing a total of 127 communities in Iowa, Illinois and Montana. In addition to residential and business customers, the company provides service to schools, medical clinics and municipal governments. The company estimates that it is the sole provider of broadband service in approximately half of its markets.<sup>7</sup>
- ***Suburban Broadband LLC***, recently announced that it has entered into an agreement with ***Waverider Communications, Inc.*** ([www.waverider.com](http://www.waverider.com)) to bring broadband service to 14 counties along the Front Range of Colorado, representing more than 80% of the state's population. Suburban originally launched its wireless broadband service with Waverider equipment in Castle Pines, Colorado, and has quickly

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<sup>6</sup> *NOI* at ¶ 29 (footnote omitted).

<sup>7</sup> See <http://www.wcai.com/interview.htm>.

expanded its network to serve hundreds of subscribers. WaveRider's Last Mile Solution wireless systems have been deployed by service providers in a total of 43 states, making license-exempt broadband service available to potentially hundreds of thousands of subscribers across the country.<sup>8</sup>

- **Municipal Wireless** ([www.municipalwireless.com](http://www.municipalwireless.com)), in cooperation with the Kentucky League of Cities, has embarked on a program to deliver license-exempt broadband service in the 902-928 MHz band to rural communities throughout the State. The company was the first to launch broadband service in Campbellsville, KY, and more communities will have the service available to them in 2003.
- **Midwest Wireless**, a mobile wireless service provider with over 250,000 customers, has deployed Alvarion equipment to deliver license-exempt broadband service to communities encompassing 3,500 square miles in rural Minnesota. The company has already rolled out the service in 30 communities, many of which have little or no other broadband service.<sup>9</sup>
- **Northwest Communications**, a local exchange carrier serving in northwest Iowa, offers license-exempt broadband service in all of the license-exempt bands to residential and business subscribers in 22 rural communities from about 30 tower sites. In its original incarnation as a wired telephone company, the company's service area encompassed 23 square miles around Havelock, IA. By virtue of its wireless service, the company now operates across thousands of square miles in some 60 communities altogether.<sup>10</sup>
- **YourInter.Net**, a regional WISP in Indiana, is delivering license-exempt broadband service to its customers via non-line of sight technology supplied by **Navini Networks, Inc.** The company's current deployment covers the Indiana University of Pennsylvania (IUP) campus, all of Indiana Borough and parts of White Township, PA. Even in sub-optimal conditions, YourInter.Net is able to achieve broadband speeds at distances up to three miles.<sup>11</sup>

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<sup>8</sup> See also Barthold, "Wireless Internet Opens Communications in Small Iowa Communities," *TelephonyOnline.Com* (Sept. 4, 2002) (discussing Airolink's launch of license-exempt broadband service in rural Iowa communities); Lindstrom, "Driving Profits - Without a License," *Broadband Wireless Online* (October 2001) (quoting Charles Brown, WaveRider's Vice President of Sales and Marketing: "Our typical customers go after and serve second, third and fourth-tier markets with less than 100,000 people in them. These are the markets that the FLECs and cable companies overlook.").

<sup>9</sup> See press releases at [http://www.alvarion.com/RunTime/CorpInf\\_30130.asp?fuf=270&type=item](http://www.alvarion.com/RunTime/CorpInf_30130.asp?fuf=270&type=item) and [http://www.midwestwireless.com/mwc\\_about/mwc\\_about\\_press.asp?NewsDetailId=88](http://www.midwestwireless.com/mwc_about/mwc_about_press.asp?NewsDetailId=88).

<sup>10</sup> See Blackwell, "Northwest Communications, Growing Against the Grain," available at [http://isp-planet.com/fixcd\\_wireless/business/2002/northwest\\_comm.html](http://isp-planet.com/fixcd_wireless/business/2002/northwest_comm.html) (Aug. 27, 2002).

<sup>11</sup> See <http://www.navini.com/pages/pr12.13.02.htm>.

- The city of *Ellasville, Georgia* now offers license-exempt broadband service in the 902-928 MHz band via WaveRider equipment. Presently, the city's system uses three transmitting antennas mounted on the city's main water tank, and permits access at speeds exceeding 300 Kbps at a distance of over two miles.<sup>12</sup> Also, WaveRider equipment is being used to build a high-speed wireless network in Fort Valley, Georgia through a project called *GeorgiaSpeed.Net*. The project arose from a multi-year contract between the Fort Valley Utility Commission and Tri-State Broadband Inc. to install a hybrid fiber-wireless broadband network. The network will bring symmetrical Internet access speeds of up to 1.5 Mbps to Fort Valley and Peach County area businesses and residents.<sup>13</sup>
- *Office Equipment of Odessa, WA* has been providing license-exempt broadband service to rural communities in the Pacific Northwest since 1997. Its network presently covers 2,100 square miles in and around Odessa – nearly every community served by the company has a population of fewer than 1,000 people. Among other things, the company donates its service to local law enforcement in Odessa – as a result, police cars in the community have up to T1 speed VPN access directly into law enforcement computer networks. This is believed to be the first project of its type in the State of Washington.<sup>14</sup>
- *Joink* ([www.joink.com](http://www.joink.com)) provides broadband service in the 902-928 MHz band to rural communities in western Indiana and eastern Illinois. The company has already launched the service in eight communities, with plans to add 30 more throughout its region. Joink delivers its service through a network of Authorized Dealers, who provide customers with a local storefront through which they may obtain and pay for service. In addition, Joink has a Broadband Community Alliance program that permits a community leader to bring Joink's service to a small or underserved area.<sup>15</sup>
- *REA-ALP* is a utility cooperative in Alexandria, Minnesota serving approximately 7,000 customers. Using equipment supplied by Alvarion and WaveRider, it

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<sup>12</sup> See Mackie, "City in Southwestern Georgia Deploys WaveRider's System," *Broadband Wireless Online* (July 3, 2002); Blackwell, "Small Cities Serve Their Own," [www.isp-planet.com](http://www.isp-planet.com) (June 25, 2002).

<sup>13</sup> See [http://isp-planet.com/fixed\\_wireless/wi-fi\\_briefs/2002/021107.html](http://isp-planet.com/fixed_wireless/wi-fi_briefs/2002/021107.html).

<sup>14</sup> See <http://www.wcai.com/interview.htm>.

<sup>15</sup> See <http://www.waverider.com/en/news/releases/release.cfm?id=113>. In addition, Infobahn Outfitters has launched license-exempt broadband service in the 902-928 MHz band in and around Macomb, Illinois. It is the first company to bring broadband services to businesses and residents in Macomb. See <http://www.waverider.com/en/news/releases/release.cfm?id=199>.

currently provides license-exempt broadband service via the 2.4 GHz and 902-928 MHz bands, competing with eight ISPs plus local cable modem and DSL service. REA-ALP is able to provide reliable non-line of sight service at distances up to 1.5 miles, and reliable line of sight service at distances up to 4.7 miles.<sup>16</sup>

Although each of the WISPs discussed above differ in their particulars, their networks share a number of characteristics that make them ideal for rural area. First, and most obviously, license-exempt wireless service is far cheaper and faster to deploy in rural areas than wired technologies – indeed, many rural WISPs were created precisely because their communities have little or no wired broadband service whatsoever. Second, license-exempt wireless technology is readily scalable, and thus is capable of addressing changes in consumer demand very quickly. Also, many systems are deploying non-line of sight, “plug and play” CPE that eliminates “truck rolls” and thus substantially lowers installation costs. The net result is that license-exempt providers are capable of reaching profitability in a shorter period of time, which in turn will drive even more widespread deployment of license-exempt broadband service throughout the country.<sup>17</sup>

Accordingly, for these reasons and those discussed in the LEA’s attached comments on the SPTF Report, it is imperative that the Commission remain on its pro-consumer path and continue to amend its license-exempt rules as necessary to promote the ongoing deployment of license-exempt broadband service in rural areas. Those reforms should include (1) preservation of the 2.4 GHz, 5 GHz and 902-928 GHz bands for license-exempt services, and identification of additional spectrum for the same purpose; (2) permitting full flexible use of spectrum, subject to

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<sup>16</sup> See Sanders, “Hybridized 900 MHz NLOS Systems,” *Broadband Wireless Business*, at 20 (July/August 2002).

relevant interference protection requirements; (3) elimination of obsolete regulatory models, particularly with respect to equipment certification; (4) clarification of ambiguous terms or rules in Part 15; and (5) grouping of technically compatible users in the same spectrum.

Respectfully submitted,

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<sup>17</sup> See, e.g., Lindstrom, n. 8 *supra* (quoting representative of license-exempt vendor Navini: "We offer 50% lower cost of ownership than DSL and cable modems and we are 70% cheaper than other fixed wireless solutions.")

# **EXHIBIT 1**



the SPTF's Working Group on Unlicensed Devices and Experimental Licenses (the "UEWG").<sup>3</sup> The LEA is highly appreciative of the opportunity to make its views known in this proceeding, and looks forward to participating in the ongoing dialogue regarding the SPTF's findings and any future proceedings related to it.

By and large, the LEA enthusiastically endorses the SPTF's findings with respect to license-exempt spectrum. Indeed, the SPTF Report embraces a number of key principles (*e.g.*, flexible use, elimination of obsolete regulatory models, regulatory certainty, grouping of technically compatible users in the same spectrum) that will be critical to the success of license-exempt broadband service.<sup>4</sup> The LEA is submitting these comments to identify those aspects of the SPTF Report that are of higher priority to license-exempt broadband providers at this time, and to recommend that the Commission take action on these items in the near term.

**Flexible Use.** The LEA fully agrees that "[t]he Commission should seek to avoid rules that restrict spectrum use to particular services or applications, so long as the user operates within the technical parameters applicable to the particular band in question."<sup>5</sup> The benefits of the flexible use paradigm are manifest in the license-exempt broadband industry – not long ago, in fact, Commissioner Martin observed that users of license-exempt spectrum "illustrate how

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<sup>3</sup> LEA's representatives at the workshop were Patrick Leary, Chief Evangelist, Alvarion, and Dudley Freeman, Chief Executive Officer, Uniigo Communications, Inc.

<sup>4</sup> Similarly, the LEA applauds the SPTF's commitment to identifying additional spectrum for license-exempt use. *See, e.g.*, SPTF Report at 54. The Commission has already taken decisive action in its *Notice of Inquiry* in ET Docket No. 02-328, where it requests further comment on the possibility of permitting more license-exempt use of spectrum below 900 MHz and in the 3650-3700 MHz bands. *Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, ET Docket No. 02-328 (rel. Dec. 20, 2003).

<sup>5</sup> SPTF Report at 16-17.

industry is adapting to make more and better use of the spectrum currently available, and harness spectrum once considered unusable.”<sup>6</sup> To that end, the Commission must ensure that its flexible use model is applied equally to *all* frequency bands, licensed or unlicensed. This is because both licensed and license-exempt broadband providers are already delivering or planning to deliver service via any combination of licensed spectrum (e.g., 700 MHz, cellular, broadband PCS, MDS/ITFS, Part 101 millimeter wave) and license-exempt spectrum (e.g., 902-928 MHz, 2.4 GHz, 5 GHz). Rapid deployment of wireless broadband service will therefore require consistent application of “flexible use” to all spectrum, and on adoption of rules that give wireless broadband providers sufficient time and opportunity to transition from the Commission’s traditional “command and control” style of regulation to the flexible use paradigm the SPTF prefers.

**Elimination of Outdated Regulatory Models.** Clearly, Part 15 services have expanded and proliferated at an unprecedented pace.<sup>7</sup> This is due in no small part to the Commission’s willingness to consider and implement rule changes that promote technological innovation and thus deployment of area-wide license-exempt systems capable of delivering a variety of services to consumers.<sup>8</sup>

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<sup>6</sup> Ross, “Wireless LANs Look to Supplant Wireline Phones and 3G,” *Wireless Week* (May 9, 2002), at [http://www.wirelessweek.com/index.asp?layout=story&doc\\_id=85722&vertical](http://www.wirelessweek.com/index.asp?layout=story&doc_id=85722&vertical).

<sup>7</sup> See, e.g., Federal Communications Commission Spectrum Policy Task Force, Report of the Unlicensed Devices and Experimental Licenses Working Group, at 12 (“Based on the record, it is generally perceived that the creation of unlicensed bands has been very successful in allowing the rapid introduction of new technology . . .”) (Nov. 15, 2002) (“UEWG Report”).

<sup>8</sup> See, e.g., *Amendment of Part 15 of the Commission’s Rules Regarding Spread Spectrum Devices*, 17 FCC Rcd 10755 (2002) (the “*Spread Spectrum Second Report and Order*”); *Amendment of Part 15 of the Commission’s Rules Regarding Spread Spectrum Devices (First Report and Order)*, 15 FCC Rcd 16224 (2000); *Amendment of Parts 2,15,18 and Other Parts of the Commission’s Rules to Simplify and* (continued on next page)

At this time, however, the LEA believes that the Commission should focus its regulatory reform efforts on the equipment certification process. As noted by the UWG:

Under Part 15, equipment and devices are approved as a "complete system," *i.e.*, a transmitter and associated antenna. . . This approach makes sense for most Part 15 consumer devices. However, in providing service to an area, WISPs often want to select an antenna that is optimized for local circumstances. Under present Commission rules, they are limited to antennas sold with the system. This may limit the available technical choices and result in higher costs due to lack of effective competition for antennas.<sup>9</sup>

Certainly, at least as to cost factors, the UWG has summarized the problem accurately. WISPs currently do not have sufficient latitude to "mix and match" equipment as necessary to deliver broadband service more efficiently, even where new combinations of equipment would not result in any violation of the Commission's EIRP limits. The result is higher costs for WISPs on multiple fronts and, consequently, unnecessary impediments to timely deployment of license-exempt broadband service.<sup>10</sup> While the LEA agrees with the overriding objectives of the equipment certification rules (and the potential for marketplace abuses if those rules are abandoned entirely), the time has come for the Commission to explore whether there is an acceptable middle ground between the existing process and a model that is more appropriate for

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*Streamline the Equipment Authorization Process for Radio Frequency Equipment*, 13 FCC Rcd 11415 (1998); *In the Matter of Amendment of Parts 2 and 15 of the Commission's Rules Regarding Spread Spectrum Transmitters*, 12 FCC Rcd 7488 (1997).

<sup>9</sup> UWG Report at 15 (footnotes omitted).

<sup>10</sup> In particular, WISPs have advised the LEA that (1) where individual components need to be replaced, they often have no option but to change out and seek recertification of an entire system; (2) there are instances where strict compliance with the system certification requirements actually precludes deployment of cheaper and more effective equipment; and (3) the time and paperwork costs of the Commission's existing certification process imposes substantial burdens both on WISPs and the Commission's staff. As to the latter, it is worth noting that the Commission's current Speed of Service ("SOS") for equipment certification is roughly six weeks, and that the Commission's equipment certification form (FCC Form 731) requires applicants to submit and the Commission to process a voluminous amount of information before a certification may be granted. *See, e.g.*, 47 C.F.R. § 2.1033.

license-exempt broadband service and, ultimately, consumers. The LEA therefore endorses the UWG's call for a reexamination of the equipment certification process and, more specifically, of whether the public interest would be served by giving WISPs more freedom to select and deploy individual components, contingent on compliance with the Commission's EIRP limits.<sup>11</sup>

More generally, a review of the Commission's approach to equipment issues is necessary to ensure that the existing rules are consistent with the current state of technology and industry practices. To cite one example, Cisco Systems, Inc. recently questioned whether the Commission should continue to enforce Section 15.203's "unique coupling" requirement, which generally mandates that license-exempt users deploy either a permanently attached antenna or a unique antenna connector with a transmitter authorized under Part 15, unless the equipment must be professionally installed.<sup>12</sup> Ultimately, of course, the debate over "unique coupling" is about out-of-band emissions and how to regulate them, and the LEA would not support any Commission action on this issue that would expose licensed users to an unreasonable risk of harmful interference.<sup>13</sup> By the same token, the unique coupling rule was adopted over a decade ago,<sup>14</sup> and as recently as last year the Commission's staff recommended that the agency review

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<sup>11</sup> See UEWG Report at 18.

<sup>12</sup> See Comments of Cisco Systems, Inc., ET Docket No. 02-312 (filed Oct. 20, 2002).

<sup>13</sup> *Amendment of Parts 2 and 15 of the Commission's Rules Regarding Spread Spectrum Transmitters*, 12 FCC Red 7488, 7516 (1997) ("With regard to the antenna employed with the system, changes to the antenna certified with the system often will change the amplitude levels of both the fundamental and the unwanted emissions. The Commission is particularly concerned about possible increases to emissions appearing in frequency bands allocated to sensitive radio services or services used for safety-of-life applications.").

<sup>14</sup> *Revision of Part 15 of the Rules Regarding The Operation of Radio Frequency Devices Without an Individual License*, 4 FCC Red 3492 (1989).

whether its emission limits were impeding innovation and development of wireless services.<sup>15</sup> Accordingly, the LEA would fully support a further Commission inquiry on this matter, so that the agency may develop a more complete record in support of eliminating the rule.<sup>16</sup>

**Regulatory Certainty.** The LEA fully endorses the SPTF's conclusion that "a level of certainty regarding one's ability to continue to use spectrum, at least for some foreseeable period, is an essential prerequisite to investment and lead time."<sup>17</sup> This principle applies equally to license-exempt broadband services. Recent data compiled by the LEA and industry analysts indicate that both investment in and subscribership to license-exempt broadband services are accelerating at a rapid clip.<sup>18</sup> Plainly, any doubts as to the ability of license-exempt providers to use their existing spectrum could reverse that trend. The LEA thus applauds the Commission's recent rejection of the satellite radio industry's blunderbuss attempt to slash the out-of-band

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<sup>15</sup> See *Federal Communications Commission Biennial Regulatory Review 2000 Updated Staff Report*, FCC 00-456, at 61 (rel. Jan. 17, 2001) ("Emission limits affect the design and performance of devices, and prevent interference among devices. However, unnecessarily restrictive limits can impede innovation and development of new markets. Accordingly, the staff recommended reviewing Commission rules on intentional and unintentional emission limits above 2 GHz to determine whether the limits are appropriate.").

<sup>16</sup> The LEA is confident that the record ultimately will confirm the following: (1) the way equipment is made, bought and sold in this country and internationally has rendered the unique coupling requirement largely useless; (2) the rule is undermining the efforts of license-exempt broadband operators to measure EIRP on a system-wide basis and construct their systems to operate with the maximum EIRP permitted under Part 15; and (3) there are regulatory alternatives to the unique coupling rule that will minimize out-of-band emissions just as effectively, if not more so. Reply Comments of the License-Exempt Alliance, ET Docket No. 02-312, at 4 (filed Nov. 4, 2002).

<sup>17</sup> SPTF Report at 23.

<sup>18</sup> According to a recent LEA survey, investments in WISPs during 2002 exceeded \$445 million in the United States alone. Goldman, "VCs Love WISPs," <http://www.thefeature.com> (Dec. 19, 2002). Also, according to a recent Cahners In-Stat report, approximately 1,500-1,800 WISPs are providing license-exempt broadband service to approximately 591,000 subscribers in the U.S. (generating more than \$250 million in annual revenue), with subscribership expected to double by the end of 2003.

emissions limits for license-exempt services in the 2.4 GHz band.<sup>19</sup> For reasons already discussed in other proceedings, the LEA urges that the Commission maintain a similar posture with respect to the ongoing attempt by Location and Monitoring Service (“LMS”) licenses to limit or, in the alternative, completely eliminate any operation of license-exempt devices in the 902-928 MHz band, which is becoming an increasingly critical vehicle for delivery of wireless broadband service in rural areas.<sup>20</sup>

In a similar vein, the LEA urges the Commission to eliminate lingering uncertainties regarding the terminology in Part 15 and the Commission’s interpretations thereof. To cite one prominent example, Part 15 provides little clarity as to who qualifies as a “professional installer,” and is equally unclear as to the circumstances under which equipment “requires” professional installation.<sup>21</sup> At a minimum, the Commission should issue some general guidance on the minimum qualifications for a professional installer under Part 15.<sup>22</sup> Equally important, the

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<sup>19</sup> See *Spread Spectrum Second Report and Order*, 17 FCC Red at 10767.

<sup>20</sup> See Comments of the License Exempt Alliance, RM-10403 (filed May 15, 2002); License-Exempt Alliance Opposition to Petition for Reconsideration, ET Docket No. 99-231 (Sept. 5, 2002). For examples of recent deployments of license-exempt broadband service in the 902-928 MHz band, see <http://www.waverider.com/en/news/index.html>.

<sup>21</sup> Presently, Part 15 does not include a definition of “professional installer.” Likewise, Section 15.203 does not define the term, nor does it explain the Commission’s criteria for determining when a piece of equipment must be professionally installed.

<sup>22</sup> On this point, the LEA agrees with Cisco that the certification program established by The National Association of Radio Telecommunications Engineers would be an appropriate reference point for defining who qualifies as a professional installer under Part 15. Also, the LEA recommends that the Commission consult the web site of The Part-15 Organization ([www.part-15.org](http://www.part-15.org)), a worldwide coalition of wireless Internet service providers and vendors who provide technical support and training for the provision of broadband service via license-exempt spectrum. Part-15.ORG voices its regulatory concerns through the LEA – however, it has also developed a Professional Installer Certification program that is specifically designed to ensure that license-exempt deployments minimize the possibility of harmful interference to other spectrum users.

Commission should incorporate the substance of its informal rulings on professional installation into Section 15.203 of its Rules so as to eliminate marketplace confusion as to when equipment must be professionally installed.<sup>23</sup>

Finally, the Commission should utilize additional, less formal tools for issuing rule clarifications and generally improving communications between the license-exempt industry and the Commission's staff. For instance, the LEA would be willing to work directly with the staff to complete a comprehensive update of the Frequency Asked Questions on the Office of Engineering and Technology's web page (many of which do not deal with the issues discussed herein) and OET Bulletin No. 63 (which was last edited in 1996, well before widespread deployment of Part 15 spectrum for broadband service). Also, the LEA suggests that OET explore revisions to its web page that would make its rule interpretations database more user friendly – currently, a direct link to the database is not available on the web page, and instructions as to how to use the database are not readily accessible.

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<sup>23</sup> According to informal rulings available on the Office of Engineering and Technology's web page, those criteria include the following: (1) the device cannot be sold at retail, to the general public or by mail order – it must be sold to dealers who professionally install it; (2) the device must *require* professional installation – it cannot be optional (in other words, the equipment must be installed by licensed professionals, and the installation process must require special training, *i.e.*, special programming, access to keypad, field strength measurements); and (3) the equipment generally must not be intended for use by the general public.

Furthermore, the LEA believes that changes in technology and market conditions warrant a broader reexamination of the Part 15 concept of professional installation, including the extent to which it could moot the need for system certification. This is because a genuinely qualified professional installer has many tools at his or her disposal to ensure compliance with the Commission's EIRP limits, including but not limited to length and type of cable used (certain cables have different power losses than others), specific antenna selection (for example, a higher powered antenna may have a tighter beamwidth and thus may cause less interference to surrounding users) and the use of directional in lieu of omnidirectional antennas. In other words, the Commission should explore the possibility of using a less equipment-specific concept of professional installation, and thereby give service providers greater flexibility to develop creative solutions for eliminating the possibility of harmful interference.

**Grouping of Technically Compatible Users in the Same Spectrum.** The LEA concurs that the Commission can alleviate any concerns about “frequency congestion” by “[allocating spectrum to radiocommunication services within the same frequency band or to services in adjacent frequency bands in a way that places the fewest technical and regulatory constraints on all of the services in that spectrum.”<sup>24</sup> The license-exempt industry is an excellent “test bed” for concept. Largely because the bulk of Part 15 was adopted prior to use of license-exempt spectrum for outdoor broadband service, Part 15’s technical rules draw no meaningful distinction between indoor and outdoor service -- both are subject to the same 1 watt power limitation.<sup>25</sup> This produces bizarre, anti-consumer results: indoor providers are permitted to operate at power levels well in excess of what they actually need, and thus interfere with outdoor license-exempt providers who, ironically, are often unduly constrained by the 1 watt power limitation, particularly in rural areas.<sup>26</sup> As already suggested by the LEA, Alvarion and Part-15.ORG, the Commission can and should address this problem by adopting separate technical rules for indoor and outdoor license-exempt services, and incorporating the SPTF’s recommendations vis-à-vis higher power limits, adaptive power control and “smart antennas” for the latter.<sup>27</sup>

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<sup>24</sup> Federal Communications Commission Spectrum Policy Task Force, Report of the Interference Protection Working Group, at 20 (Nov. 15, 2002).

<sup>25</sup> See 47 C.F.R. § 15.247(b)(1)-(3).

<sup>26</sup> See UEWG Report at 15 (“[T]he UEWG believes that promoting broadband to rural America is an important Commission objective and that this objective may be furthered through permitting the use of higher-powered unlicensed operations in rural areas. Allowing higher power limits in rural areas for WISPs may be a promising approach to speeding the rural growth of broadband.”).

