

the SPTF's Working Group on Unlicensed Devices and Experimental Licenses (the "UEWG").³ 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.⁴ 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."⁵ 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

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

⁴ 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).

⁵ 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.”⁶ 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.⁷ 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.⁸

⁶ 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.

⁷ 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”).

⁸ 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.⁹

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.¹⁰ 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

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).

⁹ UEWG Report at 15 (footnotes omitted).

¹⁰ 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.¹¹

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.¹² 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.¹³ By the same token, the unique coupling rule was adopted over a decade ago,¹⁴ and as recently as last year the Commission's staff recommended that the agency review

¹¹ See UEWG Report at 18.

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

¹³ *Amendment of Parts 2 and 15 of the Commission's Rules Regarding Spread Spectrum Transmitters*, 12 FCC Rcd 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.").

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

whether its emission limits were impeding innovation and development of wireless services.¹⁵ 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.¹⁶

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."¹⁷ 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.¹⁸ 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

¹⁵ 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.").

¹⁶ 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).

¹⁷ SPTF Report at 23.

¹⁸ 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.¹⁹ 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”) licensees 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.²⁰

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.²¹ At a minimum, the Commission should issue some general guidance on the minimum qualifications for a professional installer under Part 15.²² Equally important, the

¹⁹ See *Spread Spectrum Second Report and Order*, 17 FCC Rcd at 10767.

²⁰ 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>.

²¹ 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.

²² 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), 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.²³

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.

²³ 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.”²⁴ 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.²⁵ 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.²⁶ 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.²⁷

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

²⁵ See 47 C.F.R. § 15.247(b)(1)-(3).

²⁶ 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.”).

