

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

In the Matter of

Promoting Expanded Opportunities for)	
Radio Experimentation and Market Trials)	ET Docket No. 10-236
under Part 5 of the Commission's Rules and)	
Streamlining Other Related Rules)	
)	
2006 Biennial Review of)	
Telecommunications Regulations – Part 2)	ET Docket No. 06-105
Administered by the Office of Engineering)	
and Technology (OET))	

To: The Commission

COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION

SATELLITE INDUSTRY ASSOCIATION

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March 10, 2011

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SUMMARY

The Satellite Industry Association (“SIA”) strongly supports the Commission’s efforts to promote innovation through the modification and streamlining of the Part 5 experimental licensing rules, which in their current form can be confusing and inflexible. Any revisions to the experimental licensing rules, however, must fully protect existing users of the eligible frequency bands.

SIA agrees with the proposals to eliminate the developmental rules and to permit operations within anechoic chambers or Faraday cages without an experimental license. The former will remove a largely redundant set of rules, while the latter will codify current Commission policy. SIA also supports the proposal to allow the operation of uncertified RF devices at trade shows at or below the power levels for Part 15 devices.

The proposal to modify the Commission’s rules and procedures concerning market trials poses the risk of a flood of uncertified, and potentially interfering and irretrievable, equipment. Viable controls need to be put into place before equipment is either sold or leased in connection with a market trial in order to ensure their return. SIA also believes that the appropriate number of RF units that a trial company can import should be based on the company’s demonstrable ability to control the number of units in question up to a maximum of 1,200, and not on a straight numerical ceiling that may not be appropriate in all cases.

SIA generally endorses the proposed program experimental licenses, and believes that, with certain safeguards discussed below, the research program license should be open to qualified equipment manufacturers and developers, in addition to colleges, universities, and non-profit research organizations, and innovation zone experimental licenses open to private entities for use within the confines of exclusive-use facilities such as manufacturing plants. These

safeguards are necessary to protect the operations of existing licensees – particularly the more vulnerable operations of satellites – from harmful interference.

First, the program experimental licenses should require that an appropriately trained (and readily available) custodian be designated by the licensed institution as the person the Commission can hold responsible for operations conducted on behalf of the institution. In addition, experimental applicants should be required to affirmatively notify affected licensees of their intentions and to demonstrate, as necessary, that any proposed experiment will not cause harmful interference.

Next, the scope of the program licenses should be clarified, including by requiring that custodians have actual physical control of the experiment's surrounding area. The terms "real-property facilities" and "medical" should also be defined in a manner that forecloses experiments that are too far-flung or which serve inappropriate multiple purposes.

The range of frequencies available to program experimental licensees should exclude bands for designated safety-of-life related services (aviation, AMS(R)S, and radionavigation-satellite service) as well as other bands where interference can be expected to have an impact far beyond the locale of the experiment and may be difficult to identify and precisely locate (the FSS, MSS and BSS bands). In addition, any final rules adopted in this proceeding should clarify that no spectrum priority of any description will be granted to a program licensee by virtue of its program experimental license.

Finally, SIA proposes that experimental license applications be routinely granted within 14 calendar days of submission in the absence of an objection by NTIA.

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2006 Biennial Review of Telecommunications Regulations – Part 2 Administered by the Office of Engineering and Technology (OET)))))	ET Docket No. 06-105

To: The Commission

COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION

The Satellite Industry Association (“SIA”) hereby submits these comments in response to the Commission’s Notice of Proposed Rule Making in the above-captioned proceeding.¹ In the NPRM, the Commission proposes several measures intended to provide increased opportunities for experimentation and innovation in the Part 5 Experimental Radio Service (“ERS”). As explained below, SIA strongly supports the Commission’s proposals to streamline and consolidate the ERS rules. SIA also endorses the Commission’s efforts to infuse the experimental environment with a greater level of regulatory flexibility, but with some caveats to ensure that the newly flexible regime does not result in an unacceptable risk of harmful interference to existing service licensees. SIA believes that if certain safeguards it suggests are

¹ *Promoting Expanded Opportunities for Radio Experimentation and Market Trials under Part 5 of the Commission’s Rules and Streamlining Other Related Rules; 2006 Biennial Review of Telecommunications Regulations – Part 2 Administered by the Office of Engineering and Technology (OET)*, Notice of Proposed Rulemaking, ET Docket Nos. 10-236 and 06-105, FCC 10-197 (rel. Nov. 30, 2010) (“NPRM”).

adopted, program licenses can be made available as well to qualified equipment manufacturers and developers, in addition to colleges, universities, and non-profit research organizations, without compromising the ability of authorized spectrum users to operate free from harmful interference, and innovation zone experimental licenses can be granted to private entities for use within the confines of exclusive-use facilities such as manufacturing plants.

SIA is a U.S.-based trade association providing worldwide representation of the leading satellite operators, service providers, manufacturers, launch services providers, remote sensing operators, and ground equipment suppliers.² SIA is the unified voice of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business. As the primary spokesperson for the U.S.-based satellite industry, which collectively represents one of the most active users of the ERS, SIA has a direct interest in this proceeding.

I. INTRODUCTION

SIA strongly supports the Commission's efforts to promote innovation through the modification and streamlining of the experimental licensing rules under Part 5. The member companies comprising the SIA routinely rely on these rules for authority to conduct myriad experiments, which have proven to be an important means of advancing satellite-based communications. Examples of experiments conducted by SIA members under the ERS rules include programs to develop new applications of satellite services and equipment, proof of

² SIA Executive Members include: Artel, Inc.; The Boeing Company; CapRock Communications, Inc.; The DIRECTV Group; Hughes Network Systems, LLC; DBSD North America, Inc.; Echostar Satellite Services, LLC; Integral Systems, Inc.; Intelsat, Ltd.; Iridium Communications Inc.; LightSquared; Lockheed Martin Corporation; Loral Space & Communications, Inc.; Northrop Grumman Corporation; Rockwell Collins Government Systems; SES WORLD SKIES; and TerreStar Networks, Inc. SIA Associate Members include: Arqiva Satellite and Media; ATK Inc.; Cisco; Cobham SATCOM Land Systems; Comtech EF Data Corp.; DRS Technologies, Inc.; Eutelsat, Inc.; GE Satellite; Globecom Systems, Inc.; Glowlink Communications Technology, Inc.; iDirect Government Technologies; Inmarsat, Inc.; Marshall Communications Corporation.; Panasonic Avionics Corporation; Spacecom, Ltd.; Spacenet Inc.; Stratos Global Corporation; TeleCommunication Systems, Inc.; Telesat Canada; Trace Systems, Inc.; and ViaSat, Inc. Additional information about SIA can be found at <http://www.sia.org>.

concept for products and services that are used to meet requirements of members' government customers, and testing and development endeavors that are part of the spacecraft manufacturing and system validation processes.

While many entities, satellite-based and otherwise, have over the years benefited from the experimental licensing rules, these rules are not above improvement. In their current form, the rules comprise a somewhat confusing array of regulations strewn across several rule parts. The administrative burdens associated with complying with the experimental rules can discourage rather than promote innovation, and can impede rather than facilitate the process of bringing new concepts to the marketplace. The current rules also lack flexibility by, for example, limiting experimentation to discreet projects – a by-product of an earlier time when technological change moved at a slower rate than it does today. The proposals in the NPRM, in particular those involving the program experimental licenses, appear designed to accommodate the explosive growth in innovation in telecommunications services and products by addressing the need for new, less rigid means of conducting multifarious testing. Indeed, as discussed below, the expanded opportunities to conduct testing using program experimental licenses, if implemented responsibly, should be open to qualified commercial manufacturers and developers of radiofrequency (“RF”) devices, and not just to certain non-profit institutions. For all of these reasons, SIA believes that the time is ripe to update the experimental licensing rules.

SIA cautions, however, that any revisions to the experimental licensing rules, including especially the adoption of new program licenses, should not come at the expense of existing users of the eligible frequency bands. As the Commission rightly (and repeatedly) emphasizes in the NPRM, experimental operations are not protected from the harmful interference from authorized services, and must not cause harmful interference to the stations of authorized

services, including both primary and secondary services.³ Adherence to this immutable principle must guide the Commission's decision-making throughout this proceeding. It must be the counterweight on the scale as the Commission strives to achieve a balance with the goal of facilitating experimentation that advances the public and national interests.

The challenge presented here thus becomes one of enhancing the experimental rules to provide qualified institutions with an increased measure of flexibility to test and market new products while simultaneously respecting in full the obligation to protect existing spectrum users. Satisfaction of these twin goals will help maintain the United States' position at the cutting edge of telecommunications- and spectrum-based research and innovation.

II. DISCUSSION

A. The Commission Should Adopt Its Proposals To Streamline The Experimental Rules.

One of the main objectives of the proposals advanced in the NPRM is to consolidate, streamline and modify the existing Part 5 ERS rules in order to promote a more robust experimental environment. SIA supports many of these proposals, and addresses the key proposals below in turn. Where appropriate, SIA also offers some refinements to these proposals with the intention of better balancing the goals of fostering an improved experimental environment and minimizing the risk of harmful interference to existing licensees.⁴

³ See, e.g., NPRM at ¶ 3.

⁴ Although the NPRM did not specifically address the timing of an experimental license renewal, the proposed Section 5.59(a)(2) retains the existing requirement that an application for renewal of an experimental license be filed at least 60 days prior to the expiration date of the license to be renewed. See 47 C.F.R. § 5.59(c) (2010). SIA believes this requirement should be relaxed. A less rigid filing window of between 30 and 90 days prior to expiration would be consistent with other Commission renewal provisions and further the NPRM's streamlining and flexibility objectives.

1. The Redundant Developmental Rules Should Be Eliminated.

As an initial matter, SIA agrees with the Commission that the developmental rules can be eliminated in their entirety without adversely affecting the NPRM's stated objective of promoting expanded experimentation. These largely redundant rules no longer fill a necessary need, as indicated by the very low number of developmental applications granted by the Commission over the past several years.⁵ Moreover, the Commission eliminated former developmental service rules under Part 25 several years ago in favor of reliance on the ERS rules, and there were no adverse or unintended consequences.⁶ The developmental rules should be subsumed by the experimental rules as proposed in the NPRM.⁷

2. The Commission Should Codify Its Policy Allowing Unlicensed Experiments In Anechoic Chambers and Faraday Cages.

The Commission's current policy to permit operations within anechoic chambers or Faraday cages without an experimental license should be codified, as proposed.⁸ Operations conducted within both types of facilities have significant experimental value and, when conducted properly, pose no threat of harmful interference to authorized services. SIA's support for this proposal is qualified by the proviso that any unlicensed RF testing conducted within an anechoic chamber or Faraday cage should be sufficiently shielded. SIA specifically recommends that, at its most restrictive, unlicensed operations be required to maintain RF levels outside anechoic chambers or Faraday cages equal to or lower than the emission and/or field strength

⁵ See NPRM at ¶ 76.

⁶ See *Streamlining the Commission's Rules and Regulations for Satellite Application and Licensing Procedures*, Report and Order, 11 FCC Rcd 21581, 21602 (1996).

⁷ See NPRM at ¶ 77. SIA also has no objection to the proposal to eliminate the experimental licensing rule targeted to high schools and their students. See *id.* at ¶ 37.

⁸ See *id.* at ¶ 82.

levels that unintentional radiators in the same frequency bands are allowed under Part 15 of the Commission's rules.⁹

3. Trade Show Demonstrations At Part 15 Power Levels Should Be Permitted.

SIA supports the Commission's proposal to allow the operation of uncertified RF devices, that would otherwise require an experimental license, without the need for that license, provided the devices are operated (i) as part of a trade show demonstration;¹⁰ and (ii) at or below the maximum power levels permitted for unlicensed devices under Part 15 of the Commission's rules.¹¹ SIA believes that as long as the Commission does not impose the additional conditions of required indoor use and preclusion of in-motion operations,¹² it will achieve the proper balance between the benefits of flexibility and minimizing risk of harmful interference to authorized spectrum users. Moreover, demonstrations of RF devices under these conditions will facilitate the market for, and thus the development of, new communications equipment. SIA bases its support on the assumption that instances of non-compliance with the Part 15 power levels will be immediately addressed and, where necessary, resolved through strict enforcement of the Commission's rules.

⁹ SIA recognizes, however, that Part 15 unintentional radiators include portable devices that can be used anywhere without qualified supervision, while anechoic chambers and Faraday cages, by contrast, are usually stationary facilities that are generally operated by qualified professionals. For this reason, it may be appropriate for shielding of anechoic chambers and Faraday cages to permit emission levels outside these facilities that exceed the restrictions for Part 15 unintentional radiators.

¹⁰ See 47 C.F.R. § 2.803(e)(3)(i) and (g) (2010).

¹¹ See NPRM at ¶ 84. SIA encourages the Commission to clarify what is meant by "trade show." SIA also calls upon the Commission to clarify proposed Section 2.805(b)(3)(iii) to limit use of devices to manufacturers and laboratory settings where the devices are developed.

¹² See *id.*

4. Expanded Market Trials Should Guard Against Proliferation Of Uncertified Equipment.

The NPRM proposes to modify the Commission's rules and procedures concerning market trials with the goal of bringing clarity to the market trial process and encouraging more robust market trial activity by a greater number of entities.¹³ Market trials are a critical step in the delivery of consumer products to the marketplace, and the Commission's objective to simplify the trial process is laudable. Although well-intentioned, the proposals nevertheless pose the risk of a proliferation of market trials with pseudo-commercial appearances that could lead to a flood of uncertified, and potentially interfering, equipment that is difficult to retrieve if the equipment proves to be interfering.

The Commission recognizes the need to prevent uncertified devices from entering the market, and specifically proposes to prohibit the sale of such equipment to trial participants for that reason.¹⁴ The Commission nevertheless proposes to allow the lease of uncertified devices to third parties – including consumer end users.¹⁵ In SIA's view, the actual ownership of a piece of equipment has no bearing on its potential to cause interference. Whether sold or leased, operational equipment needs to be retrieved from an end user and rendered inoperable at the close of a market trial. For this reason, SIA believes that viable controls need to be put into place before equipment is *either* sold or leased in connection with a market trial to ensure retrieval of all devices.¹⁶ In addition, the Commission should impose penalties with meaningful

¹³ See NPRM at ¶ 57.

¹⁴ See *id.* at ¶ 66. The Commission, however, proposes to allow Part 5 licensees to sell equipment to each other. SIA does not object to that proposal.

¹⁵ See *id.*

¹⁶ Notices on equipment alone are not likely to be effective once such equipment is placed into the hands of consumers or other non-professional third party users.

consequences against parties that fail to retrieve equipment, sold or leased, at the end of a market trial.

The goal of limiting the influx of uncertified equipment also guides SIA's objection to the NPRM's proposal to increase the importation limit on devices from 200 units to 1,200 units.¹⁷ In lieu of a straight numerical ceiling that may not be appropriate in all cases, the Commission should consider retaining the discretion to determine the appropriate number of imported units based on the trial company's demonstrable ability to control the number of units in question, but up to a maximum of 1,200.

B. The Commission Must Carefully Weigh Flexibility Made Possible By The Program Experimental Licenses Against The Cost Of Increasing The Risk Of Harmful Interference.

A key aspect of the Commission's approach to promote increased opportunities for experimentation is its proposal to create three new program experimental licenses: for university and research programs; for innovation zone programs; and for medical experimental programs. Each is intended to provide broad authority for qualified institutions to conduct ongoing experimentation using a wide range of frequencies under a single authorization.¹⁸ Recognizing the "tension" between such broad authority and the obligation that experiments avoid harmful interference to existing services, the Commission in its program license proposals seeks to strike a balance between the need for experimental flexibility and interference avoidance.¹⁹

SIA understands and generally endorses the need for greater experimental flexibility. Experimental licensees, including many satellite companies, familiar with the current rigid ERS

¹⁷ See NPRM at ¶ 71.

¹⁸ See *id.* at ¶ 12.

¹⁹ See *id.* at ¶ 19.

rules will undoubtedly welcome, and benefit from, a regulatory approach that speeds the process of turning concepts into commercial products with minimal administrative burdens. To take full advantage of this new flexibility, SIA believes that (with certain safeguards discussed below) the program license option should also be open to qualified equipment manufacturers and developers, in addition to colleges, universities, and non-profit research organizations. Further, and again following adoption of the safeguards discussed below, there would be no reason to deny an innovation zone program experimental licenses to a company for use within the confines of its exclusive-use facilities such as manufacturing plants. Expanding eligibility in these ways will enhance flexibility by giving for-profit enterprises a valuable alternative to existing experimental licenses, but will not have a negative interference impact on authorized spectrum users.

However, mindful of the “tension” cited by the Commission, SIA firmly believes that any enhanced flexibility must be tempered by the need to protect authorized users of the spectrum. Satellite companies (as well as numerous terrestrial companies) are heavy users of the frequency bands proposed to be open to the new program experimental licenses, and reasonably remain apprehensive that their operations will continue free of harmful interference – especially in light of the greatly expanded, blanket license-like privileges proposed to be made available to experimenters.

SIA’s concerns are heightened by the fact that satellite operators and their end users are particularly vulnerable to harmful interference, given the technical and operational characteristics of satellites. Satellite beams cover relatively wide service areas, with some beam footprints covering the contiguous United States, and operate at relatively low power levels. Such large coverage areas can make identifying the source of interference from any one

experimental operation particularly challenging.²⁰ The low power levels on the downlinks make earth station receivers vulnerable to terrestrial interference, while the high visibility of satellite receivers makes them vulnerable to interference on the uplink side. In addition, earth stations in many satellite operations are licensed on a blanket basis and have users that are or will be ubiquitously deployed in urban and rural areas (*e.g.*, Direct Broadcast Satellite, Mobile-Satellite Service, Fixed-Satellite Service VSATs, and 17/24 GHz Broadcasting-Satellite Service). An increase in the number of new experimental operations, particularly those conducted in densely populated areas, will present a distinct threat to ubiquitous satellite operations.

Accordingly, SIA urges the Commission to account for the particularized characteristics of satellite systems and networks as it considers adopting any new program experimental licenses. Toward that end, SIA addresses below a few areas of concern regarding the program license proposals, and suggests alternative means of achieving the desired balance between flexibility and interference protection.

1. Program Licensees Should Designate A Custodian To Be Responsible For Technical Compliance.

In the NPRM, the Commission recognizes the need for eligible institutions contemplating experimental licensing to possess the technical expertise to comply with the FCC's interference-avoidance requirements. With the innovation zone program license, for example, the Commission proposes that a licensee hold "appropriate technical credentials demonstrating technical competence in radio engineering."²¹ SIA believes that the requirement for a

²⁰ Identifying the interfering source will be further complicated if the Commission adopts its proposal to provide program licensees with the option to provide detailed testing information via a web-based reporting portal in lieu of the transmission of station identification. *See* NPRM at ¶ 25.

²¹ *Id.* at ¶ 41. The Commission also proposes that medical research program licensees demonstrate that they possess "basic expertise in radio management," citing in particular the need to have the ability to identify and correct RF related problems. *See id.* at ¶ 50.

technically-competent program officer should be merely the starting point for all three of the proposed program licenses (and not just the innovation zone license).²²

To provide for full technical accountability, SIA proposes that the three program experimental licenses require that an appropriately trained custodian be designated by the licensed institution as the person the Commission can rely upon to ensure the regulatory compliance of operations conducted on behalf of the institution. For example, the Commission should consider requiring that the custodian be a designated frequency manager (either on staff or a direct contractor for the licensee) who can demonstrate knowledge of the Commission's rules concerning experimentation and public safety, such as by holding a General Radiotelephone Operators License. In any event, the custodian should be appropriately qualified and fully capable of ensuring that any experiment conducted under the license conforms to all rules related to radiated emissions limits. The custodian (or someone equally qualified in his or her stead) should also be available at all times during experimentation, and his or her contact information should be published online and promptly updated as necessary by the licensed institution. In addition, the custodian should have the ability, unilaterally and immediately, to shut down experimental tests in a particular band upon notice from an authorized service of harmful interference.

2. Program Licensees Should Bear The Burden Of Notifying Service Licensees And Demonstrating As Necessary That Their Experiments Will Not Cause Harmful Interference.

The Commission declined to propose imposing specific coordination obligations on program experimental licensees and, in lieu of coordination, proposed that a web-based

²² The Commission apparently concludes that, as "trusted stewards of the radio resources," universities and research institutions possess the necessary technical expertise. *See id.* at ¶ 23. Regardless, SIA believes that all program experimental licensees, including universities and research institutions, should be subject to the requirements that SIA proposes in these comments.

registration be completed at least seven calendar days prior to commencement of any experiment.²³ Under the proposal, service licensees would be responsible for monitoring the registration and raising interference concerns with the program licensee applicant within the seven-day period. The service licensee would also bear the burden of proving that a proposed experiment would cause harmful interference.²⁴

SIA opposes the Commission's approach because it turns the notion of spectrum priority on its head. By requiring service licensees to monitor databases continually for potentially-interfering experiments and then prove the existence of such interference, the web-based registration proposal inappropriately shifts the burden of policing compliance with the Commission's interference-avoidance requirements to parties with superior spectrum rights. This is a major defect in the NPRM, and must be corrected. In place of a passive web-based registration scheme, experimental applicants should be required to affirmatively notify affected licensees of their intentions and, if interference concerns are raised by a service licensee, demonstrate that any proposed experiment will not cause harmful interference.

One possible means of achieving the necessary affirmative notice would be to implement a system that allows service licensees to register bands of interest and their geographic locations on a common FCC website with respect to particular program licenses. Any proposed experiment under that license in the registered band and applicable geographic area would then trigger a seven-day advance notice requirement. This approach has the advantage of imposing only minimal administrative burdens on program license applicants. Regardless of the method of notification chosen, however, in the event that an interference concern is raised, a program

²³ See NPRM at ¶¶ 26-27.

²⁴ See *id.* at ¶ 27.

license applicant should bear the burden of proof that its proposed experiment will not cause harmful interference, and no experiment for which the notice triggers a response from an authorized user would be allowed to begin until the ERS licensee fully accounts for the interference concerns raised. To ensure that such a notification process is completed expeditiously, SIA concurs with the Commission's view that all parties involved must conduct themselves in good faith.²⁵

As to the technical details to be disclosed to existing licensees, SIA agrees with the Commission's proposal that the frequencies or frequency bands under test, the maximum equivalent isotropically radiated power ("EIRP") or effective radiated power under consideration, a description of the geographic area in which the test will be conducted, and any other relevant technical characteristics pertaining to test equipment or antenna should be included, reasonably recognizing the need to protect the confidentiality of proprietary technology.²⁶ Any change in a licensed experiment's geographic area of operation, frequencies or maximum power limits should be handled under the existing ERS procedures, or by the Commission on a case-by-case basis.

3. The Program Licenses Require Greater Clarity As To Their Scope.

As discussed above, the program experimental license proposals are intended to grant qualified institutions broad authority to conduct their testing. The Commission, however, recognizes that some restrictions on the scope of a program license are necessary to control the potential for interference.²⁷ SIA specifically supports one Commission proposal in this regard –

²⁵ See NPRM at ¶ 27.

²⁶ See *id.* at ¶¶ 27, 44.

²⁷ See *id.* at ¶ 25

that the Office of Engineering and Technology establish, maintain and update the list of available innovation zones.²⁸ Other proposals, however, would benefit from clearer limits than those proposed in the NPRM regarding the conditions under which a program experiment can be conducted.

First and foremost, SIA proposes that the program license custodian should strictly limit EIRP to levels identified in the program license for permitted frequency ranges, and also maintain physical control of space surrounding the proposed experimental site to a degree commensurate with those power levels. This approach will ensure that any danger of device burnout or frontend overload is confined to the area that the licensee physically controls.²⁹

Some individual program license concepts need further clarification. For example, to provide geographic limits on experiments conducted by universities and researchers, the Commission proposes that an institution's "campus" or "real-property facilities" delineate the testing boundaries.³⁰ Unfortunately, these terms lack clarity and open the door to potentially far-flung experimentation. University systems are typically scattered across multiple sites – each one a potential "campus." The University of California system, for example, consists of ten campuses and five medical centers, and also manages three U.S. Department of Energy national laboratories and numerous other sites such as observatories and marine laboratories.³¹ While it

²⁸ See *id.* at ¶ 43.

²⁹ Tests in excess of the EIRP limits included with the program experimental license should be subject to conventional experimental licensing under the current Part 5 rules.

³⁰ See NPRM at ¶ 22.

³¹ See <http://www.universityofcalifornia.edu/> (last visited March 2, 2011). Even comparatively small states can have multi-sited university systems. The University System of Maryland, for example, consists of 12 institutions of higher education and two regional learning centers. See <http://www.usmd.edu/institutions/> (last visited March 2, 2011).

may not be the Commission's intent to include each of these sites within the University of California's "campus,"³² the flexible, open-ended nature of a program licensee means that such a possibility exists, and that potential interferers could abound. In order to allow for the effective monitoring and management of a licensee's range of experiments, SIA believes that the Commission should define "campus" or "real-property facility" to mean a single geographic area, the entirety of which is both clearly described in the program license and completely under the licensee's control.

The proposed medical experimentation program license also lacks clarity. While SIA supports the proposal in the NPRM to grant such licenses only to institutions that create and manage a test bed environment and not to manufacturers,³³ it remains concerned that the proposal arguably permits the testing of equipment that has multiple potential uses, only one of which is nominally "medical." That loophole should be closed in the final rules to make clear that only equipment uniquely "medical" should be included. SIA also believes that medical experimentation under a program license should be limited to a single facility clearly described and under the control of the licensee institution in order to minimize the burdens associated with identifying a source of interference.

4. The Frequency Range Open To Program Licenses Is Over-Inclusive And Does Not Account For All Safety-Of-Life Services.

SIA generally supports the Commission's proposals to provide each of the three types of program experimental licensees with the ability to conduct experiments in a frequency range

³² See NPRM at ¶ 55 (seeking comment on whether an institution with multiple campuses should be issued one research program license per institution that encompasses all campuses or separate licenses for each campus).

³³ See *id.* at ¶ 51.

that, with some exclusions, extends up to 300 GHz.³⁴ The proposed range is over-inclusive, however, in that it overlooks certain bands, in addition to the public safety bands, that require protection at all times. These bands include designated safety-of-life related services (*e.g.*, aviation, AMS(R)S, and radionavigation-satellite service). Exceptions to the prohibition of experimentation within these bands should be handled, even within the proposed innovation zones, on a case-by-case basis taking into account the circumstances of the applicable service. In addition, there are other bands where interference can be expected to have an impact far beyond the locale of the experiment and may be difficult to identify and precisely locate (*e.g.*, the Fixed-Satellite Service, Mobile-Satellite Service, Broadcasting-Satellite Service, and the meteorological satellite bands). Experimentation within these bands should likewise be handled on a case-by-case basis, including within the innovation zones.³⁵

5. The Expanded Privileges Of Program Licenses Risk Establishing Quasi-Permanent Stations.

SIA is concerned that the program experimental licenses raise the possibility that the expanded privileges proposed in the NPRM may, over time, prompt some program licensees, while nominally non-interfering/non-protected, to seek or claim some kind of permanent status that entitles them to at least be taken into account by new deployments in allocated services. This cannot be allowed to happen – ERS program licensees are still ERS licensees, and thus are

³⁴ *See id.* at ¶¶ 21, 42 and 52. SIA, however emphatically disagrees with the Commission’s claim that frequencies above 20 GHz “may be modestly used in urban areas and may be nonexistent in most other areas.” *Id.* at ¶ 21. In fact, the Fixed-Satellite Service spectrum at 20/30 GHz is used today by nearly one million households for satellite broadband, and use of that spectrum continues to grow. Moreover, millions of additional homes get some of their satellite television service in these bands, and the first satellites in the new 17/24 GHz Broadcasting-Satellite Service will soon be in operation.

³⁵ SIA supports the proposal in the NPRM to require specific interference avoidance plans to be submitted for experiments that would affect bands assigned to mobile service providers. *See* NPRM at ¶ 31 (identifying mobile service providers to be the Cellular Radiotelephone Service, broadband PCS, AWS, and services provided in the 700 MHz bands). SIA requests that Mobile-Satellite Service/Ancillary Terrestrial Service bands also be included expressly in the mobile service provider category for the same public safety reasons.

authorized on strictly non-harmful interference/non-protected basis against all current *and future* authorized spectrum users. This admonition must be clearly included in all program licenses. Any final rules adopted in this proceeding should clarify that no spectrum priority of any description will be granted to a program licensee by virtue of its program experimental license.

6. The University And Research Program Experimental License Should Be Opened To Commercial Entities, and Innovation Zone Program Licenses Should Be Permitted in Exclusive-Use Facilities.

The various refinements offered above are intended to safeguard service licensees from the increased risk of harmful interference from experiments conducted by program licensees. To the extent the Commission revises the proposed university and research program license consistent with these refinements, SIA would support opening that license to commercial manufacturers and developers of RF devices. Further, and again to the extent the Commission revises the innovation zone program license consistent with these refinements, SIA would support permitting innovation zone licenses in exclusive-use facilities.

With respect to expanding eligibility for the university and research program license, SIA emphasizes that commercial entities can be leading sources of technological research and development. Allowing them to conduct controlled experiments within their defined “real-property facilities” will help produce innovations at a rate faster than would be possible under a more limited research program license. Furthermore, by requiring that all research program licensees, commercial and non-commercial, conduct their experiments consistent with the safeguards discussed in these comments, the Commission will strike the necessary balance between the flexibility to experiment on the one hand and protection from harmful interference on the other.

Eligibility for an innovation zone program license can also be expanded to include licensees with exclusive-use facilities, such as manufacturing plants. The NPRM states that

applicants for innovation zone experimental licenses should not be limited to educational or research institutions, making them also available to private commercial entities.³⁶ While SIA supports this proposal, the NPRM unfortunately goes on to state, without explanation, that innovation zones “would not be appropriate for use by a single entity at its exclusive-use facility (such as within a large manufacturer’s plant grounds).”³⁷

The Commission acknowledges that innovation zones have the potential to result in numerous new and forward-looking services and products. During the development stage of a new product or technology, however, most, if not all, private entities seek to design and test new wireless products and services on a proprietary basis. Not only is this entirely appropriate, a failure to maintain the confidentiality of a new product or technology could forfeit a company’s ability to secure a patent for that technology once it is developed.

Further, many manufacturers regularly require secure facilities to conduct confidential testing of certain defense-related services and products in accordance with International Traffic in Arms Regulations (“ITAR”).³⁸ The ITAR is designed to safeguard U.S. national security and to further foreign policy goals. The regulations impose strict confidentiality requirements on entities testing defense and military related technologies. Thus, not only would permitting entities to secure innovation zone licenses covering exclusive-use facilities foster experimentation, it would also help further U.S. policy objectives more efficiently without jeopardizing national security.

³⁶ See NPRM at ¶ 41.

³⁷ See *id.*

³⁸ See 22 C.F.R. pts. 120-30 (2010).

In short, if the Commission can correct the shortcomings of its program license proposals, SIA supports extension of eligibility for university/research licenses to commercial entities, and permission for innovation zone licensees to establish zones at exclusive-use facilities.

C. The Commission Should Consider Expediting The FCC/NTIA Coordination Process In The Interest Of Streamlining The Experimental Rules.

Lastly, SIA notes that the NPRM evinces no apparent need to maintain the existing interagency coordination process for experimental licenses using the shared federal and non-federal spectrum. Any user of a program license can specify operations in a band that is either shared with or exclusive to federal use without apparently triggering the formalized coordination process between the Commission and National Telecommunications and Information Administration (“NTIA”). Whether or not the Commission took the NTIA coordination process into account, SIA respectfully submits that experimental licenses using shared frequencies would benefit greatly from an expedited FCC/NTIA review procedure. SIA thus proposes that experimental license applications be routinely granted within 14 calendar days of submission in the absence of an objection by NTIA. Adoption of this request will serve to promote the Commission’s overarching goal of enhancing the flexibility of the experimental rules.

III. CONCLUSION

For the foregoing reasons, SIA strongly supports the Commission's efforts to modify the Experimental Radio Service rules to promote innovation and increase experimental opportunities. Any enhancement of experimentation, however, should at all times be respectful of the fundamental principle of protecting the operations of existing licensees with superior spectrum status.

Respectfully submitted,

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March 10, 2011