

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

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

**COMMENTS OF AT&T INC.**

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**I. INTRODUCTION AND SUMMARY**

AT&T Inc., on behalf of itself and its affiliates (“AT&T”), hereby submits comments in response to the Federal Communications Commission’s (“FCC” or “Commission”) Notice of Proposed Rulemaking (“*Notice*”) in the above-referenced proceeding.<sup>1</sup> The *Notice* seeks to promote robust radio experimentation in the Part 5 Experimental Radio Service (“ERS”) without creating new, harmful interference for existing services.<sup>2</sup> Most notably, the *Notice* proposes to

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<sup>1</sup> *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*, Notice of Proposed Rulemaking, ET Docket No. 10-236; ET Docket No. 06-105, FCC 10-197 (2011) (“*Notice*”).

<sup>2</sup> Specifically, the Commission proposes to: (1) grant “broad research licenses” that permit universities and researchers to use a wide variety of radio frequencies for experimentation without obtaining prior authorization before conducting individual experiments; (2) allow researchers to conduct tests in specified geographic locations with pre-authorized boundary conditions through the creation of new “innovation zones”; (3) create a medical experimental authorization for qualified medical institutions; and (4) revise and consolidate the FCC rules to broaden opportunities for market trials, promote greater overall experimentation, and open new opportunities for experimentation. *Id.* at ¶ 2.

create a new type of experimental license—a program experimental license—that would carry broad authority to conduct an ongoing program of research and experimentation under a single experimental authorization, and that would only be available to qualified institutions.

Specifically, the Commission proposes to offer a: (1) research program experimental radio license; (2) innovation zone program experimental radio license; and (3) medical program experimental radio license.<sup>3</sup> AT&T supports the creation of the three program licenses, which will promote research and foster development of new wireless technologies, devices, and applications. As a matter of course, AT&T currently approves and coordinates conventional experimental applications<sup>4</sup> to allow testing of systems and devices by third parties.<sup>5</sup> Going forward, AT&T intends to continue to cooperate with experimenting entities—both conventional licensees and program licensees—so long as the proposed experiments pose no risk of harmful interference.

Before adopting any proposals, however, the Commission should modify the proposed rules to better protect existing CMRS networks and subscribers. Specifically, before an experiment over CMRS spectrum commences, the Commission should require a program licensee to provide notice to potentially affected commercial licensees and obtain consent from

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<sup>3</sup> In addition to the three program license proposals, the Commission proposes to revise and consolidate the FCC rules to open new opportunities for experimentation, including market trials. AT&T does not comment on these specific rule changes at this time.

<sup>4</sup> The Commission uses the term “conventional experimental radio license” to refer to the “individual experimental radio licenses available under [the] current rules as opposed to the newly proposed program experimental license. Conventional experimental licenses are issued for the conduct of a specific or series of related research or experimentation projects related to the development and advancement of new radio technologies and techniques or a product development trial or a market trial.” *Id.* at n. 26.

<sup>5</sup> For example, AT&T has approved requests from commercial entities such as Lockheed Martin, Northrop Grumman, and Boeing, as well as for universities such as Georgia Tech.

each CMRS licensee. Failure to require notice and consent would expose CMRS networks and consumers to harmful interference, delay the detection of the source, and impede its rapid resolution. And this would undermine the ultimate goal of experimental licensing: creating innovative and interference-free services and devices that benefit everyday consumers. Additionally, the Commission should revise its proposed rules to allow commercial entities to obtain each type of program license. Experimentation by commercial entities is of equal importance to experimentation by educational and medical institutions in developing innovative, spectrally efficient technology and services. As the goal of experimental licensing is to stimulate wireless innovation and efficiency, the Commission should embrace participation from commercial entities.

**II. IMPROVING EXPERIMENTAL RADIO LICENSING IS IMPORTANT, BUT SHOULD NOT BE DONE AT THE EXPENSE OF EXISTING CMRS SERVICES.**

AT&T supports modifying the experimental licensing rules to accelerate advances in spectrum innovation and efficiency, but cautions the Commission from stripping CMRS licensees of the ability to protect their networks and their customers. As the Commission explains, the existing experimental rules are not always nimble enough to account for the rapid changes and modifications typical of today's technological research.<sup>6</sup> To address this, the *Notice* proposes to create three types of program licenses that would enable qualified institutions to conduct radiofrequency experiments in a more rapid fashion than current rules permit.<sup>7</sup> While easing certain experimental licensing rules may serve the public interest, the Commission emphasizes that any changes must be balanced with the "*fundamental principle* that experiments

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<sup>6</sup> *Notice* at ¶ 16.

<sup>7</sup> *Id.* at ¶ 14. Although the NPRM offers this justification in support of its proposed research program experimental radio license, it is the reason why the Commission proposes all three program licenses.

must be designed to avoid harmful interference to existing services.”<sup>8</sup> With this in mind, the Commission proposes critical safeguards to protect existing wireless services from any harmful interference caused by ERS licensees. As detailed in Section II.B, AT&T supports many of the proposed safeguards. But some protections proposed for wireless licensees—particularly for CMRS licensees—are inadequate and must be enhanced. Specifically, prior to experiments that could potentially affect CMRS licensees, the Commission should require notification, coordination, and CMRS licensee consent. Additionally, throughout the entire experimental licensing process, the burden should fall on the experimental licensee whenever questions of interference arise.

**A. CMRS Licensees Require Additional Safeguards to Protect Against Harmful Interference from ERS Program Licensees.**

Although the *Notice*'s proposed rules may adequately protect non-CMRS licensees, the protections afforded to CMRS licensees are severely deficient.<sup>9</sup> As the Commission highlights, CMRS spectrum is heavily-used nationwide, particularly on campuses. Specifically, the Commission concludes that “experiments on bands assigned to mobile service providers (*e.g.*, the Cellular Radiotelephone Service, broadband PCS, AWS, 700 MHz) could have the potential to disrupt mobile telephone use on campus—at a minimum inconveniencing one of the most

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<sup>8</sup> *Id.* at ¶ 19 (emphasis added).

<sup>9</sup> AT&T appreciates the Commission's acknowledgment that CMRS licensees may require additional protections. *Id.* at ¶ 31 (“Should we also require that a licensee be required to specifically notify the commercial carrier(s) or other entit(ies) listed as the licensee for the affected band(s) in all of these situations, or only in situations where specified conditions are met (such as when the experiment will be conducted outside of buildings or away from controlled venues where access can be restricted, such as laboratories)? If so, should we require the licensee's concurrence prior to the test?”). As detailed below, the Commission should require explicit notification in all situations, and should also require licensee consent. The Commission should not establish nuanced notification triggers because they would create uncertainty and make compliance more difficult.

active and engaged mobile device user communities, and at worst, impeding the ability to reach 911 or receive campus-wide emergency text alerts.”<sup>10</sup> The Commission further cautions that “just as there are now fewer pay landline telephones available to consumers, many college dormitories no longer have in-room landline phones”—making interference-free wireless use all the more important on campuses.<sup>11</sup> Given these facts, the public interest would not be served by extensive experimentation in CMRS spectrum. If the Commission nevertheless is intent on permitting ERS operations in CMRS spectrum, rigorous safeguards must be included in the ERS rules.

First, the Commission should require explicit notification to all potentially affected CMRS licensees about the details of a proposed experiment. The notification should be provided in a manner that allows the CMRS licensee to easily find out about the experiment, understand the parameters of the experiment, assess interference risk, and enable the licensee to have the ERS licensee cease operations if interference occurs.<sup>12</sup>

Second, the Commission should require coordination and CMRS licensee consent for each experiment. CMRS licensees, for their part, would have an obligation to negotiate in good faith.

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

<sup>11</sup> *Id.* at n. 58. With this in mind, the Commission asks if additional safeguards—including explicit notice to potentially affected licensees and consent—are needed to protect CMRS. As detailed below, the answer is yes.

<sup>12</sup> Notably, the FCC proposes “to require that, for tests that affect bands used for the provision of commercial mobile services . . . on the institution’s grounds, the licensee first develop a specific plan that avoids interference to these bands” by providing “notice to those who might be affected by the test” and allowing for the “quick identification and elimination of any harm the experiment is causing users.” *Id.* at ¶ 31. AT&T supports these proposals, but is concerned that the proposed “notice” could be through some form of general public notice and not directly to the potentially affected CMRS licensees. Direct notice to each licensee should be mandatory.

Third, ERS licensees should bear the burden of demonstrating that an experiment will not cause interference. AT&T strongly opposes the Commission’s proposal that this burden be borne by the service licensee.<sup>13</sup> CMRS licensees *provide service to existing customers*. ERS licensees are engaged in the *process of developing* services that *potentially* may be available to future consumers. Preferring undeveloped future services over existing CMRS services is nonsensical.<sup>14</sup> A party that proposes to experiment in licensed bands used by hundreds of millions of consumers and which support emergency services and first responders clearly should bear the burden to demonstrate that the experimental use they propose would not result in harmful interference.

Fourth, each program licensee should be required to identify a single point of contact who is ultimately responsible for all experiments conducted under the research license.<sup>15</sup> This individual should serve as the initial point of contact for all matters involving interference resolution, and must have the ability and obligation to discontinue any and all experiments being conducted under the license in the event of harmful interference until the interference can be resolved. This individual—or whoever is temporarily assigned to respond to these matters in the event the assigned individual is unavailable—should be required to respond expeditiously and as close to real time as possible after initial contact from the licensee. A failure to respond to a legitimate carrier request expeditiously should result in license suspension or revocation.

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<sup>13</sup> *Id.* at ¶ 27.

<sup>14</sup> AT&T also supports the Commission’s proposal that the “experiment not be permitted to commence until the parties resolve” any interference issues. *Id.*

<sup>15</sup> Presumably, the Commission would want to apply this rule regardless of whether the affected wireless licensee is a CMRS provider or some other licensee.

Fifth, the Commission should consider adopting a pilot program, in which the Commission would grant program licenses to a limited number of institutions and then evaluate the program before expanding its scope.<sup>16</sup> This approach would allow the Commission to promote innovation and flexibility while studying the potential for harmful or unanticipated interference, particularly interference to CMRS licensees.<sup>17</sup>

Sixth, in areas where CMRS licensees operate, experiments should be confined to set locations and not made mobile. Permitting mobile experiments would raise the risk of interference substantially and is simply unacceptable on campuses, which, as the Commission recognizes, are densely populated with commercial wireless users.

Notably, all of AT&T's proposals are consistent with the National Broadband Plan's goal of promoting spectrum efficiency. In Recommendation 7.7—which was the impetus for this proceeding—the Commission recommended that it “start a rulemaking process to establish more flexible experimental licensing rules for spectrum and facilitate the use of this spectrum by researchers.”<sup>18</sup> Specifically, the Commission concluded that allowing research organizations “greater flexibility to temporarily use *fallow spectrum* can promote more efficient and innovative communications systems.”<sup>19</sup> AT&T wholeheartedly agrees. But AT&T also emphasizes—as does the Commission in the *Notice*—that CMRS spectrum is heavily-used nationwide and is

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<sup>16</sup> *Id.* at ¶ 36.

<sup>17</sup> Similarly, the Commission could issue “initial research licenses for a lesser period (*e.g.* two years) and subsequently, upon sufficient showing of compliance with the rules we adopt, issue renewals for five-year periods.” *Id.* at ¶ 35.

<sup>18</sup> *Connecting America: The National Broadband Plan*, Federal Communications Commission, at Recommendation 7.7, p. 125 (March 2010), *available at* <http://www.broadband.gov/download-plan/>.

<sup>19</sup> *Id.* (emphasis added).

certainly not fallow. The public interest would not be served by extensive experimentation in this spectrum—particularly without vital safeguards such as notice and consent. Accordingly, AT&T cannot support the rules as currently proposed. By carving out distinct protection for CMRS, however, the Commission could design an ERS regime that drives innovation while simultaneously providing the necessary protections for CMRS providers and their subscribers.

**B. The Proposed Rules Contain Critical Safeguards Against Interference.**

While additional safeguards are needed, the *Notice* does propose several important measures that AT&T fully supports.<sup>20</sup> The need for most of these safeguards is self-evident.

- First, all experiments must be “conducted on a non-interference basis.”<sup>21</sup>
- Second, before conducting tests, a licensee “must evaluate the propagation characteristics of the frequencies to be used in individual experiments, the operational nature of the services normally operating on those and nearby frequencies, and the specific operations listed within the Commission’s licensing databases.”<sup>22</sup>
- Third, experiments must be designed to “use the minimum power necessary and be restricted to the smallest practicable area ... e.g. an individual laboratory, specific campus building, or designated portion of the campus.”<sup>23</sup> And particular attention must be paid to “institutions located in dense urban areas or with compact campuses.”<sup>24</sup> As the Commission acknowledges, this interference protection restriction “may have the practical effect of limiting all research activity to a smaller subset of the campus, or even to an individual laboratory or other controlled environment.”<sup>25</sup>
- Fourth, all experiments must “either transmit station identification as part of the broadcast or provide detailed testing information (such as starting time and duration) via

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<sup>20</sup> The Commission proposes nearly identical requirements for experimental research licensees and medical research licensees. AT&T supports applying the same requirements to both types of experimental licensees.

<sup>21</sup> *Notice* at ¶ 25.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> *Id.* at ¶ 22.

<sup>25</sup> *Id.*

a web-based reporting portal.”<sup>26</sup> This information is critical to tracking and remediating interference.

- Fifth, the FCC must possess the ability to strictly enforce its rules in this area—including license revocation and denying permission to conduct specific tests.<sup>27</sup>

Taken together, these requirements will promote research and foster development of new wireless technologies, devices, and applications without increasing harmful interference to other wireless licensees.

### **III. COMMERCIAL ENTITIES SHOULD BE PERMITTED TO OBTAIN ALL THREE TYPES OF PROGRAM LICENSES.**

The Commission should permit commercial entities to obtain all three types of program licenses proposed in the *Notice*. As currently written, the proposed rules would exclude commercial entities from obtaining research program experimental radio licenses and medical program experimental radio licenses.<sup>28</sup> The Commission, however, asks if it “should incorporate a broader range of institutions” and how permitting additional institutions to participate in experimental licensing would “more effectively balance the interests at stake here?” From AT&T’s perspective, the Commission should focus more on establishing ERS rules that most effectively promote spectrum innovation and efficiency. With this in mind, commercial entities should be permitted to obtain program licenses. For-profit entities possess the financial

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<sup>26</sup> *Id.* at ¶ 25.

<sup>27</sup> *Id.* at ¶ 32 (“We seek comment on how we should address noncompliance with our rules and procedures, including the failure of a holder of a research program experimental radio license to address and resolve cases of harmful interference within a reasonable amount of time. We propose to modify the cancellation provisions of our rules to make it clear that we can both deny permission to conduct specific tests under a research program experimental radio license and that we can revoke the research program experimental radio license at any time.”).

<sup>28</sup> *Id.* at ¶ 20. The *Notice* implies that commercial entities could be licensed to operate in innovation zones. *Id.* at ¶ 41 (“emphasiz[ing] that applicants will not necessarily have to be associated with a college, university, or non-profit research organization to be eligible for an innovation zone program experimental radio license”).

resources and market incentives to most effectively leverage the power of experimental radio licensing to accelerate the rate at which ideas transform from prototypes to consumer devices and services.<sup>29</sup> Existing commercial manufacturers also possess unique institutional knowledge and testing facilities to rapidly translate advances in RF technology into consumer products. Historically, for-profit entities have led the way in wireless advances and innovation. Ultimately, precluding for-profit entities from receiving program licenses unnecessarily limits ERS's potential for increasing spectrum efficiency and the availability and functionality of wireless broadband.<sup>30</sup>

To protect against harmful interference or other misuses of ERS, the Commission should require commercial entities applying for program licenses to satisfy the same qualifications as the *Notice* proposes for non-profit entities. Specifically, the ERS applicant must demonstrate that it has a “defined campus setting” and “institutional processes to monitor and effectively manage a wide variety of research projects.”<sup>31</sup> No additional requirements specific to commercial entities are needed. Once a commercial entity is licensed, it should follow whatever rules the Commission adopts for non-profit entities that seek to experiment. As noted above, for experiments on CMRS spectrum, both commercial and non-profit entities should provide notice to potentially affected CMRS licensees and obtain consent prior to operations. In the event of harmful interference, the ERS licensee should immediately cease operations and not resume transmissions until the threat of interference is completely resolved.

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<sup>29</sup> Historically, commercial entities have partnered with universities and other non-profits in spectrum-related research. AT&T expects that such partnerships would continue after the ERS rules are modified.

<sup>30</sup> The *Notice* fails to explain why it excluded commercial entities from eligibility for ERS program licenses.

<sup>31</sup> *Notice* at ¶ 20.

#### **IV. CONCLUSION.**

AT&T supports the Commission's goal of increasing the flexibility of ERS and, specifically, the three types of program licenses. The Commission's proposal, however, would benefit from several changes. Most importantly, prior to experiments that could potentially affect CMRS licensees, the Commission should require notification, coordination, and CMRS licensee consent. The Commission also should place the burden of proving non-interference on the experimental radio licensee. Additionally, the Commission should not restrict eligibility for program licenses to educational, medical, and non-profit institutions. Private industry drives wireless innovation, and arbitrarily excluding commercial entities from eligibility for program licenses would not serve the public interest.

Respectfully submitted,

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