

**BEFORE THE  
FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, D.C. 20554**

In the Matter of

Promoting Expanded Opportunities for Radio Experimentation and Market Trials under Part 5 of the Commission's Rules and Streamlining Other Related Rules

ET Docket No. 10-236

2006 Biennial Review of Telecommunications Regulations – Part 2 Administered by the Office Of Engineering and Technology (OET)

ET Docket No. 06-155

**REPLY COMMENTS OF LOCKHEED MARTIN CORPORATION**

**I. Introduction.**

Lockheed Martin Corporation hereby replies to comments submitted in response to the Federal Communication Commission's *Part 5 Notice of Proposed Rulemaking*.<sup>1</sup> Lockheed Martin applauds the Commission's efforts to promote wireless technology innovation through the Experimental Radio Service. As the record in this proceeding demonstrates, the Commission should take two important actions to realize this goal. First, although the *NPRM* principally focuses on new types of experimental authorizations, the Commission should also facilitate experimentation by streamlining approvals and eliminating unnecessary requirements related to existing types of authorizations. Second, the Commission's rules should continue to preserve the careful balance that exists today between protecting highly sensitive information about

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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 (OET)*, ET Docket Nos. 10-236, 06-105, Notice of Proposed Rulemaking (rel. Nov. 30, 2010) ("NPRM" or "Notice").

experiments related to the development of capabilities that serve the national security, public safety, and homeland security and making details about Part 5 authorizations publicly available. The need for confidentiality exists both for the Commission's existing types of authorizations as well as for new types of authorizations, such as the research license concept the FCC is considering in this proceeding.

## **II. The Commission Should Streamline Approvals for Research and Experimentation.**

As Lockheed Martin explained in its opening comments, the Commission should make several common-sense changes to its rules to facilitate research and experimentation while protecting incumbent licensees.<sup>2</sup> These changes include clarifying coordination obligations, removing experimental licensing requirements in areas where there is negligible risk of harmful interference, and omitting unnecessary restrictions on experimental license operations.<sup>3</sup> The record in this proceeding confirms that the Commission can accelerate innovation by taking these steps, along with the actions described below.

### **A. Coordination requirements should be narrowly tailored to address legitimate concerns about harmful interference.**

A standardized, efficient process by which entities conducting experiments coordinate with incumbent licensees is critical not only for the new program licenses envisioned by the FCC, but for all Part 5 authorizations where coordination is required.<sup>4</sup> Yet as Lockheed Martin explained in its opening comments, a gap in the existing Part 5 Rules permits incumbents to

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<sup>2</sup> See generally Comments of Lockheed Martin Corporation, ET Docket No. 10-236 (Mar. 10, 2011) ("Lockheed Martin Comments").

<sup>3</sup> See *id.*

<sup>4</sup> See, e.g., Comments of BAE Systems Information and Electronic Systems Integration Inc., ET Docket No. 10-236 at 18 (Mar. 10, 2011) ("BAE Comments"); Comments of the Boeing Company, ET Docket No. 10-236 at 12-13 (Mar. 10, 2011) ("Boeing Comments"). See also Lockheed Martin Comments at 3-4.

reject experimental coordination requests for any reason, even in cases where there is no concern about harmful interference.<sup>5</sup> The Commission should act now to provide guidance to streamline parties' coordination efforts and to make the coordination process more consistent.

Lockheed Martin shares Boeing's frustration that incumbents have, on occasion, been unwilling to coordinate with experimental licensees.<sup>6</sup> Moreover, as BAE Systems cautions, open-ended coordination obligations can result in significant delays even when consent is ultimately obtained.<sup>7</sup> Lockheed Martin urges the Commission to clarify that, in cases where coordination is required, incumbent licensees may not refuse or delay coordination absent legitimate concerns about harmful interference. The Commission could do so by adopting several of the proposals set forth by BAE and Boeing, including limiting coordination objections to those that involve a licensee's existing operations and frequencies, establishing standard processes and reasonable time limits for resolution of coordination disputes, and making use of "cease buzzer" requirements for experimental licensees to provide additional safeguards for incumbent operations.<sup>8</sup>

**B. Specific design and construction requirements for RF enclosures are unnecessary, and should not be imposed.**

The record in this proceeding reflects widespread support for the Commission's proposal to codify its longstanding practice of enabling experiments in RF enclosures, such as anechoic chambers and Faraday Cages, without requiring separate applications for authorization.<sup>9</sup> It

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<sup>5</sup> Lockheed Martin Comments at 3-4.

<sup>6</sup> Boeing Comments at 13.

<sup>7</sup> See BAE Comments at 16.

<sup>8</sup> See BAE Comments at 18-19; Boeing Comments at 13-14.

<sup>9</sup> See, e.g., Boeing Comments at 16; Comments of Qualcomm Incorporated, ET Docket No. 10-236 at 10 (Mar. 10, 2011); BAE Systems Comments at 27; Comments of the Hewlett

should do so. In order for this rule to be effective, however, the Commission must ensure that its rules facilitate current approaches rather than create new burdensome requirements.<sup>10</sup> In particular, the Commission should reject calls to add specific shielding effectiveness or similar design and construction requirements for RF environments.<sup>11</sup>

As the Commission recognizes, the potential for interference to incumbent operations from experiments in RF enclosures is “practically non-existent.”<sup>12</sup> Indeed, experiments in these environments often take place near equipment that is highly susceptible to interference, with no adverse effects.<sup>13</sup> This is not surprising, because the purpose of an RF enclosure is to create a quiet radiofrequency environment for experimentation and research. The particular shielding specifications or other actions intended to address signal leakage, however, vary considerably based on the experiments taking place. As Boeing explains, a “certain type or amount of shielding may or may not be necessary for certain experiments depending on the output power or frequencies involved in the experiments.”<sup>14</sup> Lockheed Martin agrees. Companies that invest in RF enclosures have the best knowledge of their experiments’ environment and great incentive to operate them correctly and without signal leakage. On the other hand, any rigid specification imposed by Commission rule could never take into account the widely varying conditions and requirements of the experiments conducted by licensees. Mandating specific design and

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Packard Company, ET Docket No. 10-236 at 3 (Mar. 9, 2011) (“HP Comments”); Comments of Cisco Systems, Inc., ET Docket No. 10-236 at 5 (Mar. 10, 2011).

<sup>10</sup> *See, e.g.*, HP Comments at 4.

<sup>11</sup> *See, e.g.*, Comments of V-COMM, ET Docket No. 10-236 at 4 (Mar. 10, 2011) (arguing that “FCC rules should require sufficient shielding and isolation to prevent...harmful interference”).

<sup>12</sup> NPRM ¶ 82.

<sup>13</sup> *See, e.g.*, Boeing Comments at 17.

<sup>14</sup> *Id.* at 20.

construction requirements would therefore create extra expense and limit experimental design, but would not guarantee additional interference protection.

**C. The Commission should facilitate timely resolution of concerns raised by reviewing agencies.**

Finally, as BAE has explained, the Commission can encourage efficient experimentation by facilitating resolution of concerns raised by the FCC, FAA, NTIA, or other agencies in “real-time” during the application review process.<sup>15</sup> Like BAE, Lockheed Martin often finds that agency concerns can quickly be addressed with brief discussions and/or minor adjustments to experimental proposals.<sup>16</sup> Nevertheless, applicants often do not learn of these concerns until after the agency review and/or coordination process has concluded. This can result in significant delay, restrictive frequency carve-outs, or even outright denials of certain experimental operation requests.

Lockheed Martin agrees that the Commission’s rules and procedures should help enable timely resolution of concerns raised by agencies. This can be done by allowing applicants to promptly discuss potential issues with a technical representative from the agency, as well as by providing the ability to track approval processes more granularly, including identification of any concerns that have been raised by the reviewing agency.<sup>17</sup>

**III. The Commission’s Experimental Rules Should Safeguard Confidential Information.**

As the Commission has recognized, FCC and NTIA policies should “promote efficient use of the spectrum consistent with both the economic interests and national security of the

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<sup>15</sup> BAE Comments at 19-21.

<sup>16</sup> *See id.* at 19-20.

<sup>17</sup> *Id.* at 20-21.

nation.”<sup>18</sup> Providing adequate safeguards for sensitive information, including research related to military systems, public safety, and national security, is critical to achieving both of these goals.<sup>19</sup> Experiments in these areas support vital research into potential government solutions and can also often lead to important commercial applications as well.<sup>20</sup> The FCC should therefore make sure that existing protections for this sensitive information remain intact, and that any rule changes also reflect the importance of safeguarding this information.

First, the Commission should reject calls to *decrease* existing protections for experiments that support national security and public safety operations. For example, Engineers for the Integrity of Broadcast Auxiliary Services Spectrum (“EIBASS”) objects that classified operating parameters for one of Lockheed Martin’s experimental licenses are not publicly available.<sup>21</sup> In fact, EIBASS suggests that Lockheed Martin’s classified application somehow resulted in an “abuse” of the Experimental Radio Service.<sup>22</sup> This is not the case. The Administrative Procedure Act and the Commission’s rules properly exempt classified information, including the application filed in support of Lockheed Martin’s experimental license, from disclosure in order to protect national security.<sup>23</sup>

Similarly, Steven Crowley, P.E. maintains that the FCC should publish “base-level technical parameters” for confidential applications on the assumption that these parameters are

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<sup>18</sup> NPRM ¶10 n. 25.

<sup>19</sup> *See, e.g.*, BAE Comments at 3; *see also* Boeing Comments at 9-10.

<sup>20</sup> For example, government research and development has paved the way for numerous wireless technologies now widely used in the private sector, including spread spectrum systems, geolocation, and Ka-band satellite systems.

<sup>21</sup> Comments of EIBASS, ET Docket No. 10-236 at 9 (Mar. 8, 2011).

<sup>22</sup> *Id.* at 1, 13.

<sup>23</sup> *See* 5 U.S.C. § 552(b)(c); *see also* 47 C.F.R. § 0.457 (providing that “[c]lassified materials and information will not be made available for public inspection”).

never “descriptive of the project.”<sup>24</sup> Yet the parameters Mr. Crowley seeks to publish include information that could be both extremely sensitive and quite descriptive, including the exact location of operations, antenna characteristics, operating frequencies, transmit power, emissions designator(s), and modulating signals.<sup>25</sup> The Commission’s current practice of maintaining confidentiality if the applicant provides sufficient justification for doing so strikes the appropriate balance between safeguarding information that could be extremely sensitive and allowing third parties to assess the probability of potential interference. This balance should not be disturbed.<sup>26</sup>

The new rules the Commission establishes to promote experimentation should similarly reflect the importance of protecting sensitive national security and public safety information. For example, the Commission is considering promoting wireless technology innovation through the Experimental Radio Service by establishing new categories of licenses that will provide increased opportunities for research and experimentation, including research licenses for colleges and non-profit institutions. This proposal has proved so popular that there is widespread agreement among commenters that the Commission should extend eligibility for these

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<sup>24</sup> Comments of Steven J. Crowley, P.E., ET Docket No. 10-236 at 7-8 (Mar. 9, 2011) (“Crowley Comments”).

<sup>25</sup> *See id.* at 7 (suggesting that the parameters on the current FCC Form 442 “Station Location” block be disclosed).

<sup>26</sup> Mr. Crowley also suggests that information obtained through mandated disclosure of operating parameters would assist in efforts to conduct a spectrum inventory and could help enable dynamic spectrum access through databases by providing additional information about incumbents. Crowley Comments at 8. But experimental systems are not entitled to protection from licensees, and must not cause interference to licensed services, including new licensees that may begin operating on spectrum after new services are authorized. *See* 47 C.F.R. § 5.85(c).

authorizations beyond colleges and non-profit institutions to a wide range of commercial entities.<sup>27</sup>

Lockheed Martin agrees. The Commission can encourage additional wireless technology advances by making these licenses available to entities with substantial experience and resources to devote to experimentation. But Lockheed Martin disagrees that the Commission should issue new research licenses only to those entities that do not need to make “additional, specialized filings beyond the standard application requirements for an experimental radio license,” including requests for confidential treatment of sensitive information.<sup>28</sup> As BAE points out, this limitation necessarily will deny the benefits of this new type of license to researchers working on important projects that can contribute, for example, to national defense and public safety.<sup>29</sup> Confidential treatment of sensitive information related to these experiments is frequently in the public interest and/or required by government policies.<sup>30</sup> Accordingly, the Commission should accept research applications even when those applications request protection for certain sensitive information.<sup>31</sup>

Moreover, as Boeing observes, the proposed reporting requirement for program experimental and innovation zone licenses could also inhibit important experiments.<sup>32</sup> Because the Commission already has the ability to impose reporting obligations under the existing rules,

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<sup>27</sup> See, e.g., Boeing Comments at 4-6; BAE Comments at 4-6; Comments of Motorola Solutions, Inc., ET Docket No. 10-236 at 2-3 (Mar. 10, 2011); Comments of the Telecommunications Industry Association, ET Docket No. 10-236 at 3-5 (Mar. 10, 2011); Comments of CTIA – The Wireless Association®, ET Docket No. 10-236 at 7-8 (Mar. 10, 2011); Comments of AT&T Inc., ET Docket No. 10-236 at 9-10 (Mar. 10, 2011).

<sup>28</sup> See NPRM ¶ 24.

<sup>29</sup> See BAE Comments at 10.

<sup>30</sup> See *id.*

<sup>31</sup> See *id.*

<sup>32</sup> Boeing Comments at 14-15.

Lockheed Martin agrees with Boeing that additional reporting requirements for new classes of Part 5 authorizations are unnecessary.<sup>33</sup> If the Commission establishes new reporting requirements, however, it is vital that these requirements also afford applicants the opportunity to protect highly sensitive information from disclosure.

#### **IV. Conclusion.**

The Experimental Radio Service has been an invaluable resource to Lockheed Martin and other entities that work to advance the state of the art for wireless technology. By taking the actions described above, the Commission can build on this success, thereby promoting breakthroughs in spectrum efficiency and bringing advanced devices and services to the American public in the near future.

Respectfully submitted,

*/s/ Jennifer A. Warren*

Paul Margie  
S. Roberts Carter  
**WILTSHIRE & GRANNIS LLP**  
1200 Eighteenth Street NW  
Suite 1200  
Washington DC 20036  
(202) 730-1300

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Jennifer A. Warren  
Giselle Creeser  
**LOCKHEED MARTIN CORPORATION**  
2121 Crystal Drive  
Suite 100  
Arlington, Virginia 22202  
(703) 413-5970

*Counsel for Lockheed Martin Corp.*

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<sup>33</sup> *Id.*