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. 06-105

COMMENTS OF BAE SYSTEMS INFORMATION AND ELECTRONIC SYSTEMS INTEGRATION INC.

Respectfully submitted,

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SUMMARY

The Commission's re-examination of the ERS rules must ensure that: (i) the time and process for obtaining experimental authorizations is not a roadblock to innovation; (ii) co-channel service licensees bear the burden of proof that a proposed experiment will cause harmful interference and should not be able to object to an experiment without fully articulated technical demonstrations as to why interference is predicted to occur, and dispute resolution procedures should be adopted to allow tests to be conducted in a timely manner; and (iii) research and innovation for experiments to support public safety, homeland security and defense priorities and the development of military communications systems are not unduly inhibited.

For the proposed Research License category, eligibility should be extended to include for-profit entities (i) whose primary RF transmission activities support public safety, homeland security and defense priorities, and (ii) who can demonstrate to the Commission that they are sophisticated in the design and operation of RF systems, and in the use of various forms of attenuation to minimize the possibility of harmful interference ("Qualified Homeland Security Applicants").

Regarding Research Licenses, BAE Systems supports the Commission's proposal for Research Licenses to allow experiments on all frequencies, except Section 15.205(a) "restricted bands" and those frequencies above 38.6 GHz that are specifically listed in footnote US246 of the Table of Frequency Allocations, and agrees that Research Licenses should be issued only in situations where the licensee intends to operate on its own campus. BAE Systems recommends that Research Licenses be granted on a statewide basis for all campuses operated by a licensee entity within each state. A single point of contact who is ultimately responsible for all experiments conducted under a Research License should be designated, on a per state basis. Licensees should be allowed to provide alternative contacts to the Commission in the event the primary POC is unexpectedly unavailable. BAE Systems requests that the Commission adopt rules to address how existing conventional experimental licenses authorizing operations on certain campuses would be impacted by newly granted Research Licenses authorizing operations on those same campuses. BAE Systems strongly disagrees with the Commission's proposal to prohibit the issuance of Research Licenses where submissions are required to request non-disclosure of proprietary information. The very nature of next-generation radio research involves the testing of new systems and techniques which are often proprietary and which meet FOIA standards for non-disclosure.

BAE Systems generally supports the Commission's proposal to not require a specific coordination requirement for Research Licenses, but rather to rely on a public web-based registration process. However, as long as the basic technical parameters of a Research License experiment (geographic location, frequencies, power levels, emissions, bandwidth, modulation) and stop buzzer details are made publicly available in a registration, detailed proprietary program information or other program information that may be classified or otherwise sensitive from a homeland security perspective should be allowed to be protected from disclosure as part of a Research License registration filing.

BAE Systems agrees that experimenters should not have to await specific approval or authorization to conduct the test once the seven day assessment period has elapsed. An experiment should be permitted to be postponed/delayed after the seven day assessment period by a service licensee objection **only if**: (i) the objection is based on interference concerns to the licensee's actual current operations (i.e., if the service licensee is not actually operating under its license or has not yet constructed, the objection is not valid); ***and*** (ii) the objection is made in good faith and is accompanied by a fully articulated technical demonstration as to why interference to the licensee's operations is predicted to occur (i.e., an unsupported and generalized allegation of interference is not a valid basis for an objection). BAE Systems generally supports the Commission's proposal to require a Research Licensee to develop and submit a written plan to the Commission in conjunction with its web-based registration. Regarding such "plan", if all of an experiment's operational parameters are listed in the registration, emergency stop buzzers are identified, and a plan is submitted for interference mitigation, situations should not arise requiring "alternative means" of communications on commercial mobile service, emergency notification, or public safety frequencies.

For Conventional Experimental Licenses, the Commission should not require applicants to obtain the consent of service licensees. Rather, as long as service licensees have the ability to object to applications based on actual predicted interference, there are sufficient safeguards to ensure that the operations of service licensees are protected, without the need for requiring the prior consent of such service licensees. Similarly, BAE Systems urges the Commission to impose coordination conditions only when absolutely necessary based on a prior substantive technical review of the proposed experiment. Where the technical parameters of a proposal demonstrate objectively that interference should not be a concern, coordination conditions should not be imposed even when the frequencies overlap with existing service licensee operations.

It is critical that every possible step be taken by the Commission to also streamline the coordination process for conventional experimental licenses, including (i) Service licensees should be permitted to object to proposed conventional experimental operations **only if**: the objection is based on interference concerns to the licensee's actual current operations; and the objection is made in good faith and is accompanied by a fully articulated technical demonstration as to why interference to the licensee's operations is predicted to occur; (ii) The Commission should adopt specific rules and procedures to allow for resolution of disputes between experimental applicants/licensees and service licensees on the issue of interference protection, where the issue cannot be resolved within a specified timeframe. In this regard, if an objection is not resolved between the parties within ten (10) working days, BAE Systems strongly believes that the Commission should allow either party to promptly schedule a Commission-monitored settlement conference.

In addition, the Commission's rules should be revised to expressly provide conventional experimental applicants (for both STAs and regular licenses) an opportunity for the resolution of agency concerns, objections or proposed frequency carve-outs prior to grant. The applicant should be allowed to address any such objections directly with a

technical representative from the objecting agency, for the sake of efficiency and to prevent inordinate delay. Such consultation should be made available promptly, and no later than seven calendar days after the concern or objection has been identified by the reviewing agency. The Commission's processes should be revised to allow for greater real-time monitoring of the status of STA and regular license applications. A conventional experimental application (STA or regular license application) should not be granted with a carve-out or denial of a requested parameter, until the applicant has been advised of the issue and is first allowed to resolve the issue. The above mechanisms should allow for the resolution of issues "on the fly", and should provide greater certainty as to the ultimate result of each filing – which will help ensure that experiments can be deployed in the most complete and efficient manner.

Frequency assignments on public safety frequencies and military frequencies are extremely critical to Qualified Homeland Security Applicants, whether for the purposes of implementing existing government contracts, or for the development of systems and techniques pursuant to IR&D. For Qualified Homeland Security Applicants who (i) file conventional experimental STA or regular license applications that request public safety/military frequencies, and who also (ii) demonstrate a nexus between the proposed use of such frequencies and public safety/military priorities, use of the frequencies should be deemed to be in the public interest even if the experimental authority is requested under IR&D rather than pursuant to a government contract. Similarly, where Qualified Homeland Security Applicants demonstrate a nexus between the proposed use of public safety/military frequencies and public safety/military priorities, use of the frequencies by such applicants should be authorized unless actual interference is expected based on a substantive technical analysis conducted by the Commission or NTIA.

BAE Systems supports the Commission's proposed revisions to Section 5.69 which clarifies that an applicant may reject a grant by filing objections within 30 days of the proposed grant, and that the Commission will coordinate with the applicant in an attempt to resolve the issues. The Commission should clarify that the procedures specified in Section 5.69 apply to STA grants as well as to regular experimental license grants (including initial grants, modifications and renewals), and that upon the timely submission of an objection under this section, the STA or regular license filing will be placed back on pending status without losing its place in the processing queue. In addition, the Commission should further specify a mechanism for timely resolving these post-grant issues. The applicant/licensee should be allowed to address any such issues directly with a technical representative from the objecting agency/bureau, and such consultation should be made available promptly, and no later than seven calendar days after a request by the licensee.

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COMMENTS OF BAE SYSTEMS INFORMATION AND ELECTRONIC SYSTEMS INTEGRATION INC.

BAE Systems Information and Electronic Systems Integration Inc. ("BAE Systems"), by undersigned counsel, hereby submits these comments to the Federal Communications Commission ("Commission) pursuant to a Notice of Proposed Rulemaking[1] which is intended to adopt and implement rules and policies to promote innovation and efficiency in spectrum use in the Commission's Part 5 Experimental Radio Service (ERS).

I. BAE Systems' Interest in this Proceeding

The BAE Systems is a U.S. subsidiary of BAE Systems plc. and a Commission licensee in the ERS. BAE Systems is a major producer of electronic warfare systems,

[1] 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. 10-326; 2006 Biennial Review of Telecommunications Regulations – Part 2 Administered by the Office Of Engineering and Technology (OET), ET Docket No. 06-105, FCC 10-197 (Rel. November 30, 2010) ("Notice").

protection systems, and tactical surveillance and intelligence systems for DOD, all military branches, as well as other governmental customers, in support of the protection of the United States. BAE Systems manufactures and tests RF systems and antennas which operate throughout the whole electromagnetic spectrum, and routinely files applications under the Commission's ERS rules, for ground-based and airborne experiments in support of government contracts and internal research and development (IR&D) activities. BAE Systems plc., the ultimate parent company, is a global defense and security company with approximately 100,000 employees worldwide. The company delivers a full range of products and services for air, land and naval forces, as well as advanced electronics, security, information technology solutions and customer support services. Based on published reports, the company is the second largest global defense company based on 2009 revenues.[2] In light of the foregoing, BAE Systems is well qualified to comment on the issues raised by the Commission in the Notice. In support of these Comments, the following is shown.

[2] Defense News Annual Ranking, Defense News, June 28, 2010, at 14.

II. The Important Public Policy Concerns That Must Apply to All ERS Rules

In the Notice, the Commission highlighted a number of important public policy reasons for re-examining the ERS rules. While several of these points were made in the context of the proposals for research program licenses, BAE Systems respectfully submits that all of the Commission's ERS rules must be designed to address these public policy concerns. The important public policy issues that must be addressed as part of the Commission's re-examination of all of the ERS rules include:

- The ERS rules must be improved so as to accelerate the rate for testing innovative ideas that lead to new services and new devices.[3] To ensure the achievement of these goals, the "time and process for obtaining experimental authorizations [must not be] a roadblock to innovation."[4]

- Key contributors to delay in the experimental licensing process are requirements to coordinate individual frequencies and obtain the consent of existing licensees, even when no interference potential exists vis-à-vis existing operations.[5] Where coordination/consent is required, co-channel service licensees should bear the burden of proof that a proposed experiment will cause harmful interference and should not be able to object to an experiment without fully articulated technical demonstrations as to why interference is predicted to occur, and dispute resolution procedures should be adopted to allow tests to be conducted in a timely manner.[6]

- The roadblocks to innovation that currently exist in the experimental licensing process are particularly harmful when research and experimentation is required to support public safety, homeland security and defense priorities and the development of military communications systems.[7] The ERS rules must not unduly inhibit research and innovation in these areas, and in fact the ERS rules must be designed to affirmatively encourage the timely research, development and deployment of technologies and systems in these areas.

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[3] See Notice at para. 1.
[4] See Notice at para. 16.
[5] See Notice at para. 9.
[6] See Notice at para. 27.
[7] See Notice at para. 9, discussing the Comments of The Boeing Company in GN Docket No. 09-157 at 10-12; and Comments of Lockheed Martin Comments, GN Docket Nos. 09-51 and 09-157, at 5.

III. Research Program Experimental Licenses

A. Eligibility for Research Licenses Should Be Extended to Qualified Homeland Security Applicants

While BAE Systems generally supports the adoption of a new research program experimental license category (referred to herein as "Research Licenses"), BAE Systems respectfully submits that limiting eligibility for Research Licenses to colleges, universities and non-profit labs fails to fully address the goals the Commission seeks to achieve in creating this license category. In this regard, BAE Systems recommends that eligibility for Research Licenses should be extended to also include for-profit entities (i) whose primary RF transmission activities support public safety, homeland security and defense priorities, and (ii) who can demonstrate to the Commission that they are sophisticated in the design and operation of RF systems, and in the use of various forms of attenuation to minimize the possibility of harmful interference.[8] These additional eligible entities will be referred to herein as "Qualified Homeland Security Applicants".

As currently proposed by the Commission, the flexibility and streamlined coordination benefits associated with Research Licenses would largely be unavailable to arguably the most important radio research being conducted today, namely radio research and development being conducted by DOD contractors and aerospace companies in support of public safety, homeland security and defense priorities. While the Commission supports the use of radio research for "life-critical first responder

[8] See Comments of The Boeing Company in GN Docket No. 09-157 at 10-12 (explaining that the flexibility to obtain experimental licenses without individual coordination of frequencies (conditioned on the requirement of not causing interference to authorized stations) should be extended to "any proven testing entity that can demonstrate to OET that it is sophisticated in the design and operation of wireless systems, and in the use of various forms of attenuation to minimize the possibility of harmful interference.")

communications",[9] and to "save the lives of many individuals and improve emergency response...."[10], Qualified Homeland Security Applicants - the most active and sophisticated researchers in these areas - would not be permitted to obtain Research Licenses under the proposed eligibility rules. In fact, in certain situations, Qualified Homeland Security Applicants are capable of conducting classified research and experiments that universities and other entities cannot conduct due to export and security clearance issues. Accordingly, in light of (i) the unique and substantial capabilities of Qualified Homeland Security Applicants, (ii) the Commission's desire to use Research Licenses to ensure that the United States remains a leader in radio technology research and development,[11] (iii) continued overseas hostilities and acts of domestic terrorism; (iv) and the Commission's emphasis on wireless public safety interoperability,[12] Qualified Homeland Security Applicants should be eligible to obtain Research Licenses.[13]

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[9] Notice at n. 27.
[10] Notice at para. 15.
[11] Notice at para. 15.
[12] See Establishment of an Emergency Response Interoperability Center, PS Docket. 06-229, *Order,* FCC 10-67 (rel. Apr. 23, 2010).
[13] The importance of radio research in the public safety, homeland security and defense context is underscored by the priority afforded such research in federal budget requests. For example, when the FY2010 DOD budget was proposed, the (DOD) proposed "spending $23.67 billion for procurement and research in military communications, electronics, telecommunications, and intelligence (CET&I) technologies....This amount in the 2010 DOD budget does not include military electronics-heavy activities such as aircraft avionics, vetronics, and missile guidance; when these are added, DOD spending levels for electronics and electro-optics could approach $99.57 billion....Experts estimate that total DOD electronics, electro optics, and information technology spending is roughly 15 percent of the total DOD budget. Most of the DOD's technology spending is in the procurement, research, and development accounts." See Military & Aerospace Electronics, May 20, 2009 John Keller, accessed at: http://www.militaryaerospace.com/index/display/article-display/362816/articles/military-aerospace-electronics/executive-watch/dod-budget-for-2010-proposes-2367-billion-for-military-communications-electronics-and-intelligence.html.

Extending eligibility for Research Licenses to Qualified Homeland Security Applicants is entirely consistent with the Commission's stated priorities and concerns. Specifically:

- It is consistent with Recommendation 7.7 of the National Broadband Plan to "establish more flexible experimental licensing rules for spectrum and facilitate the use of this spectrum by researchers."[14]

- It will foster innovation and new wireless services and applications.[15]

- It will allow Commission regulation to stay on pace with the rapid changes and modifications typical of today's technological research.[16]

- It will support the Commission's policies supporting wireless public safety interoperability.

- It will allow streamlined experimental licensing for Qualified Homeland Security Applicants, many of which are currently required to conduct "diverse research projects...simultaneously under different experimental authorizations across separate organizational units within an institution or under different research partnerships with corporate partners."[17]

- Because of the important issues addressed by their radio research activities, Qualified Homeland Security Applicants are "trusted stewards of the radio resource",[18] in much the same manner as universities and non-profit organizations.

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[14] *See National Broadband Plan* Recommendation 7.7, p. 125.
[15] *See* Fostering Innovation and Investment in the Wireless Communications Market, GN Docket No. 09-157; A National Broadband Plan For Our Future, GN Docket No. 09-51; *Notice of Inquiry*, 24 FCC Rcd 11322 (2009) (Wireless *Innovation NOI*).
Wireless Innovation NOI, para. 66.
[16] Notice at para 16.
[17] Notice at para 16.
[18] Notice at para 23.

B. Specific Proposals for Research Licenses

BAE Systems submits the following comments on the specific proposals set forth by the Commission for Research Licenses:

1. Authorized Frequencies

BAE Systems supports the Commission's proposal for Research Licenses to allow experiments on all frequencies, except Section 15.205(a) "restricted bands" and those frequencies above 38.6 GHz that are specifically listed in footnote US246 of the Table of Frequency Allocations.[19] In light of the streamlining goals sought to be achieved, BAE Systems does not support other frequencies being categorically excluded from Research License grants.

2. Campus Licensing Issues

a. Restricting Operations to the Licensee's Campus

BAE Systems agrees that Research Licenses should be issued only in situations where the licensee intends to operate on its own campus. Off-campus experiments, and experiments to be conducted on military bases or other customer locations should be pursued through conventional experimental licensing processes.

b. Experiments on Multiple Campus Locations

The Commission requests comment as to whether - when an institution has multiple campuses – only one Research License should be issued per institution to encompass all campuses, or whether the Commission should issue a separate license for each campus.[20] BAE Systems believes that requiring companies to obtain a separate Research License for each campus is contrary to the pro-innovation and streamlining

[19] Notice at para. 21.
[20] Notice at para. 35.

benefits sought to be achieved in this proceeding. Having said that, for administrative purposes, it makes sense to limit the scope of a Research License to a logical geographic boundary. Therefore, BAE Systems recommends that Research Licenses be granted on a statewide basis for all campuses operated by a licensee entity within each state.

c. Single Point of Contact and Single Institution Reporting

BAE Systems agrees with the concept of identifying a single point of contact who is ultimately responsible for all experiments conducted under a Research License – including reporting requirements and compliance with applicable rules. Similarly, BAE Systems agrees with the Commission's proposal to require only one institution to fulfill the reporting requirements associated with the research conducted across different campuses.[21] Consistent with its comments in the preceding subsection, BAE Systems recommends, however, that such points of contact and reporting institutions be designated on a per state basis.

BAE Systems does note, however, that despite a licensee's best efforts to ensure that the POC is available at all times for Commission inquiries, including interference issues, licensees should be allowed to provide alternative contacts to the Commission in the event the primary POC is unexpectedly unavailable.

d. Impact on Existing Conventional Campus Licenses

BAE Systems requests that the Commission adopt rules to address how existing conventional experimental licenses authorizing operations on certain campuses would be impacted by newly granted Research Licenses authorizing operations on those same campuses. For example, would a newly granted Research License for "Campus Location A" supersede all prior granted conventional experimental licenses for Campus Location

[21] Notice at para 33-35.

A to the extent there is overlap of frequencies, power levels and other technical parameters? Or, would newly granted Research Licenses apply only to those frequencies and operations not already covered by existing conventional licenses? One possible way to address this issue is - for a conventional experimental license that in part overlaps with a Research License – at the time of renewal the conventional experimental license would only be renewed to the extent that it does not overlap with the parameters in the Research License.

3. Terms, Scope and Duration of Research Licenses

BAE Systems supports applying the following rules apply to Research Licenses:

- Holders of a research license should not deploy permanent facilities or offer services for sale under these licenses. See Notice at para. 35.

- Research Licenses should be issued for five-year terms, for both initial licenses and renewals. Renewals should be permitted upon demonstration of continued need for testing. Id.

- Experiments must comply with existing rules involving matters such as protected areas and antenna structure placement, but these issues would not be routinely evaluated during the grant of the research license. See Notice at para. 25.

- Experiments must be conducted on a non-interference basis to primary and secondary licensees. Id.

- Licensee must take all necessary technical and operational steps to avoid harmful interference to authorized services. Id.

- Experiments must be designed to use the minimum power necessary and be restricted to the smallest practicable area needed to accomplish the experiment's goals. Id.

In addition to the above, in response to the Commission's queries on these issues, BAE Systems believes that:

- The operating area of transmitters operating under Research Licenses should be restricted to specific sites, either to fixed sites at specific geographic coordinates, or to temporary fixed locations within a specified radius of a centerpoint.

- As long as the operating parameters for Research Licenses are clearly specified, and the rules are implemented to minimize interference to other licensed services, there should be no need to impose special rules for indoor vs. outdoor operation.

4. Situations Where Research Licenses Should Not Be Permitted

While BAE Systems agrees that Research Licenses should not be permitted where an environmental assessment must be submitted[22] and where information regarding orbital debris mitigation plans are required to be submitted for applications involving a satellite system not already authorized by the FCC,[23] BAE Systems strongly disagrees with the Commission's proposal (See Notice at para. 24) to prohibit the issuance of Research Licenses where submissions are required to request non-disclosure of proprietary information.

The very nature of next-generation-radio research involves the testing of new systems and techniques which are often proprietary and which meet FOIA standards for non-disclosure. In addition, for radio research in the areas of public safety, homeland security and defense, non-disclosure of sensitive program information - whether related to government contracts or even under IR&D - may be in the public interest and/or otherwise required under DOD security policies. Accordingly, as long as the basic technical parameters of a Research License experiment (geographic location, frequencies, power levels, emissions, bandwidth, modulation) are made publicly available, detailed proprietary program information or other program information that may be classified or otherwise sensitive from a homeland security perspective should be allowed to be protected from disclosure as part of an application for a Research License.

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[22] Section 5.53(c) and Notice at para. 24.
[23] Section 5.63(e) and Notice at para. 24.

5. Registration/Coordination/Reporting Requirements

a. Registration

BAE Systems generally supports the Commission's proposal to not require a specific coordination requirement for Research Licenses, but rather to rely on a public web-based registration process.[24] Consistent with the comments above in Section III(B)(4), however, BAE Systems cautions that as long as the basic technical parameters of a Research License experiment (geographic location, frequencies, power levels, emissions, bandwidth, modulation) and stop buzzer details are made publicly available in a registration, detailed proprietary program information or other program information that may be classified or otherwise sensitive from a homeland security perspective should be allowed to be protected from disclosure as part of a Research License registration filing. Accordingly, the Commission's proposal (see Notice at para. 29) to require the information listed at Section 5.63(b) and (c) to be included in a Research License registration should not apply where such information is proprietary information, or classified or otherwise sensitive from a homeland security perspective. Filing such information under a request for confidentiality or through the Commission's Security Office under classified procedures should not adversely impact the ability of the Commission to process and grant a Research License in a streamlined manner as proposed in this proceeding.

Regarding the other details proposed for the registration process:

- BAE Systems agrees with the Commission's proposal that these registrations be completed at least seven calendar days prior to commencement of any test or experiment to ensure that interested parties have sufficient time to assess whether they believe harmful interference may occur to their systems.

[24] Notice at para. 27.

- BAE Systems agrees with the Commission's proposal that experimenters would not have to await specific approval or authorization to conduct the test once the seven day assessment period has elapsed.

- BAE Systems recommends that the Commission adopt procedures which would allow Research License operators to make changes to the information in the registration, where such changes do not result in operation inconsistent with the original submission or which do not result in emissions exceeding the maximum emissions envelope established in the original filing.

b. Coordination

While BAE Systems generally supports the streamlined coordination procedures proposed by the Commission for Research Licenses, BAE Systems submits that the procedures ultimately adopted by the Commission must ensure that these procedures do not allow service licensees to stifle innovation by objecting to experiments without just cause, and similarly that these rules require objections to be resolved within a reasonable timeframe. As to this issue, the Commission proposes that if any licensee of an authorized service raises interference concerns, it must contact the program-license-responsible party and it must post its complaint along with supporting documentation to the web page, and that the experiment shall not commence until the parties resolve the complaint."[25]

i. Clear Standard/Process for Objections and Resolution of Objections

To ensure that this complaint process is not abused and that the Commission's goals in this proceeding can be achieved, BAE Systems respectfully submits that the Commission should adopt Research License coordination rules which expressly state that an experiment can be postponed/delayed after the seven day assessment period by a service licensee objection **only if**:

[25] See Notice at para. 27 and proposed Section 5.309(b).

(i) the objection is based on interference concerns to the licensee's actual current operations (i.e., if the service licensee is not actually operating under its license or has not yet constructed, the objection is not valid); ***and***

(ii) the objection is made in good faith and is accompanied by a fully articulated technical demonstration as to why interference to the licensee's operations is predicted to occur (i.e., an unsupported and generalized allegation of interference is not a valid basis for an objection).

In short, requiring service licensees to bear the burden of providing a fully articulated demonstration of interference before making an objection will make the coordination fair and efficient.

If an objection to a Research License registration meets the above standard, it will still be absolutely necessary to ensure that that the issues raised in the objection are timely resolved. BAE Systems agrees that the parties must be obligated to work in good faith to resolve the concerns raised in the objection. Beyond that, however, if the objection is not resolved between the parties within ten (10) working days, BAE Systems strongly believes that the Commission should allow either party to promptly schedule a Commission-monitored settlement conference, similar to the procedure currently set forth in the Commission's rules at Section 1.956.

ii. Submission of Plan to Avoid Interference to Commercial Mobile Services, Emergency Notifications, or Public Safety

In addition, to help avoid interference to bands used for the provision of commercial mobile services, emergency notifications, or public safety purposes on a licensee's grounds, BAE Systems generally supports the Commission's proposal to require a Research Licensee to develop and submit a written plan to the Commission in conjunction with its web-based registration. Such plan should, as the Commission suggests, provide notice to those who might be affected by the test and allow for the

quick identification and elimination of any harm the experiment is causing users. See Notice at para. 31. Such procedure should allow existing licensees to substantively review the proposed operations and submit any objections within the seven day assessment period, and therefore a Research Licensee should not be required to obtain the concurrence of these existing licensees prior to tests on these bands.

With respect to the submission of these "plans", the Commission also proposes to require such plans – "in the case of vital public safety functions, [to] provide an alternate means for accomplishing such tasks during the duration of the experiment." Notice at para. 31. Before imposing such requirement, BAE Systems believes that this issue should be explored in further discussions, as it is not precisely clear what the Commission envisions with this point, and how it can be feasibly implemented. As a general point, BAE Systems notes that if all of an experiment's operational parameters are listed in the registration, emergency stop buzzers are identified, and a plan is submitted for interference mitigation, situations should not arise requiring "alternative means" of communications on these bands.

c. <u>Reporting</u>

BAE Systems understands the Commission's desire to maintain a record of licensee compliance with the rules governing Research Licenses, and therefore BAE Systems supports the Commission's proposal to impose a reporting requirement for that narrow purpose (i.e., to demonstrate compliance with the rules). However, BAE Systems does not support the Commission's proposal to require entities holding Research Licenses to comply with a reporting requirement which would require Research License holders to publicly file brief narrative statements describing the results of their tests (see

Notice at para. 34). As an initial matter, assuming an applicant is eligible for a Research License, is granted a license by the Commission, and operates in compliance with the rules, it is not entirely clear why the details of the experiment results need to be reported. In any event, if the Commission requires the submission of experiment results as a part of a Research License reporting requirement, BAE Systems believes that the proprietary and sensitive nature of such experiment results dictates that this information should not be subject to public disclosure in any situation.

IV. Streamlining Rules for Conventional Experimental Radio Licenses

A. Critical Issues Related to Coordination/Consent Requirements

As an active participant in the experimental licensing process, BAE Systems applauds the Commission's substantive and detailed review of the ERS rules and policies, and in the sections that follow BAE Systems submits its responses to the specific revisions proposed by the Commission. In this section, however, BAE Systems first addresses some critical issues in the experimental licensing process which inhibit "innovation and inspiration [from] flourish[ing]"[26] to the greatest possible extent.

These issues relate to the coordination/consent requirements routinely associated with experimental license and STA grants. As explained in Section II above, the important public policy issues that must apply to the Commission's re-examination of all of the ERS rules include (i) that the ERS rules must be improved so as to accelerate the rate for testing innovative ideas that lead to new services and new devices; (ii) key contributors to delay in the experimental licensing process are requirements to coordinate individual frequencies and obtain the consent of existing licensees, even when no interference potential exists vis-à-vis existing operations, and (iii) the roadblocks to

[26] Notice at para 74.

innovation that currently exist in the experimental licensing process are particularly harmful when research and experimentation is required to support public safety, homeland security and defense priorities and the development of military communications systems. With these public policy issues in mind, BAE Systems submits the following comments.

1. The Commission Should Not Impose Conditions on Experimental Licenses Which Require the Consent of Service Licensees

In the Notice, the Commission recognized the pervasive difficulty experienced by ERS licensees in obtaining the cooperation of service licensees when special conditions are imposed on an experimental license requiring coordination and/or consent.[27] With respect to the imposition consent requirements in particular, it is BAE Systems' experience that such consent requirements invariably result in significant delay in the deployment of experimental facilities, a result the Commission expressly seeks to eliminate in this proceeding.

BAE Systems submits as an initial matter that, under the ERS rules, requiring the consent of co-channel licensees is not expressly authorized. Rather, the Commission under Section 5.87(e) has the authority to require only that an experimental licensee "coordinate its proposed facility" with existing service licensees to ensure non-interference. Having said that, even if the Commission had the authority under the ERS rules to impose consent requirements, requiring consent is an unnecessary "roadblock to innovation". For example, every experimental authority (license or STA) is granted only after an applicant has shown that the requested frequencies are "fully justified"[28] and

[27] See Notice at paras 9 and 23 discussing the comments of Boeing and Lockheed Martin.
[28] 47 CFR 5.85(b).

every grant is always subject to the requirement "that harmful interference will not be caused to any station".[29] Given those prerequisites, and the ability of service licensees to object to applications based on actual predicted interference, there are sufficient safeguards to ensure that the operations of service licensees are protected, without the need for requiring the prior consent of such service licensees.

2. Coordination Conditions Should Be Imposed Only Where Necessary Based on a Prior Substantive Technical Review

In BAE Systems' experience, for the hundreds of situations where the company has been required to coordinate with service licensees in the past, in only a select few instances has a question even been raised by an existing service licensee. Yet, such coordination requirements have resulted in delay and repeated costs to BAE Systems. In this regard, BAE Systems urges the Commission to impose coordination conditions only when absolutely necessary based on a prior substantive technical review of the proposed experiment. Upon receipt of each application for experimental authority (license or STA), the Commission and the various impacted Bureaus have an opportunity to substantively review the proposed technical parameters for the experiment. In some cases, the technical parameters, along with the description of the experiment and other factors (such as topography and the nature and location of the testing) demonstrate objectively that interference should not be a concern. In those cases, coordination conditions should not be imposed even when the authorized frequencies overlap with existing service licensee operations. Of course, the Commission can always require additional information from applicants in order to make such determinations of non-interference.

[29] 47 CFR 5.85(c).

3. Coordination Procedures With Service Licensees Should Be Streamlined and Clarified to Prevent Undue Delay and Cost

As BAE Systems has demonstrated in these Comments, the public policy concerns that resulted in the Commission proposing streamlined coordination procedures for Research Licenses are just as important and present in the conventional experimental licensing context. Accordingly, it is critical that every possible step be taken by the Commission to also streamline the coordination process for conventional experimental licenses, including the following:

- Service licensees should be permitted to object to proposed conventional experimental operations **only if**: (i) the objection is based on interference concerns to the licensee's actual current operations (i.e., if the service licensee is not actually operating under its license or has not yet constructed, the objection is not valid); and (ii) the objection is made in good faith and is accompanied by a fully articulated technical demonstration as to why interference to the licensee's operations is predicted to occur (i.e., an unsupported and generalized allegation of interference is not a valid basis for an objection).

- The Commission should expressly clarify in its rules that that the only valid basis for a service licensee objection to a coordination request is a fully articulated technical demonstration that interference will occur, and the failure to provide such showing within the timeframe requested by the coordinator will be deemed to constitute the licensee's consent or a waiver of the coordination requirement.

- The Commission should expressly clarify in its rules that service licensees are not permitted to require payments (i.e., payoffs) from experimental applicants nor may service licensees require the execution of spectrum leases or other similar instruments in response to a request for coordination (which are scenarios that BAE Systems has faced in the past when requesting coordination from service licensees).

- For each coordination condition, the Commission should expressly specify - in the language of that condition - which particular frequencies must be coordinated pursuant to that condition. In BAE Systems' experience, sometimes coordination conditions are imposed with respect to licensed services but in fact there is no overlap between the experiment and the licensed service. Such situations merely create confusion and delay deployment of experiments. Requiring each coordination condition to specify which particular frequencies must be coordinated pursuant to that condition is a reasonable and helpful way to streamline the coordination process.

- To help ensure streamlining of processing and implementation of operations after grant, it is requested that the Commission impose coordination and other conditions with an eye towards greater consistency. In BAE System's experience, similar experiments with similar parameters may be authorized for experimental operations with differing conditions and frequency carve-outs and restrictions, with no obvious reason for such variance. This has also occurred in situations where a renewed license contains differing conditions and carve-outs from an initial granted license. While BAE Systems recognizes that each filing must be examined on its own merit, it would be helpful (and much more efficient for both industry and the Commission) if applicants could anticipate with increased accuracy whether a restriction or carve-out was likely to be granted for a given band, at a given set of technical parameters. Because government contracts often require that authorized frequencies be written into test procedures that must be approved by the government customer, receiving differing grants in a renewal compared to the initial grant presents logistical difficulties from a contract standpoint as well.

- The Commission should adopt specific rules and procedures to allow for resolution of disputes between experimental applicants/licensees and service licensees on the issue of interference protection, where the issue cannot be resolved within a specified timeframe. In this regard, BAE Systems agrees that the parties must be obligated to work in good faith to resolve concerns raised in a valid objection under the standard proposed in the first bullet point above. Beyond that, however, if the objection is not resolved between the parties within ten (10) working days, BAE Systems strongly believes that the Commission should allow either party to promptly schedule a Commission-monitored settlement conference, similar to the procedure currently set forth in the Commission's rules at Section 1.956.

B. Conventional Experimental Applicants Should be Afforded the Opportunity to Timely Address and Resolve Agency (FCC, FAA, NTIA, etc.) Concerns, Objections and Proposed Frequency Carve-Outs Before the Commission Denies All or a Portion of an Application

In BAE Systems' experience, a reviewing agency (FCC, FAA, NTIA, etc.) concern, objection or frequency carve-out is rarely addressed with the applicant prior to the Commission taking action on the experimental filing. At the same time, however, in BAE Systems' experience most agency concerns, objections or proposed frequency carve-outs can be resolved with limited discussion and reasonable adjustments to the

proposal in a very brief timeframe. Therefore, BAE Systems requests that the Commission's rules should be revised to expressly provide conventional experimental applicants (for both STAs and regular licenses) an opportunity for the resolution of agency concerns, objections or proposed frequency carve-outs prior to grant. The applicant should be allowed to address any such objections directly with a technical representative from the objecting agency, for the sake of efficiency and to prevent inordinate delay. For example, if the Wireless Bureau identifies a concern, objection or proposes a frequency carve-out, then the applicant should be permitted to address such issue(s) with a technical representative from the Wireless Bureau. Such consultation should be made available promptly, and no later than seven calendar days after the concern or objection has been identified by the reviewing agency.

In that same vein, the Commission's processes should be revised to allow for greater transparency and real-time monitoring of the status of STA and regular license applications during processing. Often, it is difficult to determine where an application is in the review process, and whether any agency objections or concerns have been identified to that point.[30] Accordingly, BAE Systems requests that the Commission make available to conventional experimental license applicants greater access to application status details, which would ideally include descriptions of what processing steps have been concluded, where processing is occurring at the present time, and what concerns or objections have been raised to that point and by whom.[31] A conventional experimental application (STA or regular license application) should not be granted with a carve-out or

[30] BAE Systems recognizes that some access to regular application status is made available by NTIA at http://ntiacsd.ntia.doc.gov/webcoord/status.cfm, but the utility of that site is limited, and does not apply to STA Requests. Nor are there similar publicly available tracking mechanisms available within the Commission or other reviewing agencies.

[31] Similar real-time tracking mechanisms are used, for example, in the Universal Licensing System (ULS).

denial of a requested parameter until the applicant has been advised of the issue and is allowed to first resolve the issue as described above. The above mechanisms should allow for the resolution of issues "on the fly", and should provide greater certainty as to the ultimate result of each filing – which will help ensure that experiments can be deployed in the most complete and efficient manner.

1. Issues Related to Processing and Consideration of Military/Public Safety Frequency Assignments for Qualified Homeland Security Applicants

Qualified Homeland Security Applicants,[32] by their very nature, require frequency assignments on public safety frequencies and military frequencies more than other conventional experimental license applicants, and have less flexibility to choose alternate assignments. Such frequency assignments are extremely critical, whether for the purposes of implementing existing government contracts, or for the development of systems and techniques pursuant to IR&D. Despite these truths, it is BAE Systems' experience that public safety and military frequencies are sometimes affirmatively carved out of experimental grants based on generalized concerns over interference or based on the lack of a government contract, without affording the applicant an opportunity to "engineer" solutions, to modify power or other parameters, or to confirm how the experiment supports public safety or military priorities even in the absence of a government contract. These types of summary frequency denials are extremely problematic for Qualified Homeland Security Applicants, who must have access to these frequencies to complete their experiments. Thus, while BAE Systems understands the importance of ensuring

[32] As explained above, the term "Qualified Homeland Security Applicants" is used in these Comments to refer to for-profit entities (i) whose primary RF transmission activities support public safety, homeland security and defense priorities, and (ii) who can demonstrate to the Commission that they are sophisticated in the design and operation of RF systems, and in the use of various forms of attenuation to minimize the possibility of harmful interference. See p. 4, supra.

non-interference to public safety frequencies and military frequencies in every instance, BAE Systems respectfully requests that the Commission concretely evaluate how to make the licensing process for such frequencies more flexible for Qualified Homeland Security Applicants.

For example, for Qualified Homeland Security Applicants who (i) file conventional experimental STA or regular license applications that request public safety/military frequencies, and who also (ii) demonstrate a nexus between the proposed use of such frequencies and public safety/military priorities, use of the frequencies should be deemed to be in the public interest even if the experimental authority is requested under IR&D rather than pursuant to a government contract.

Similarly, where Qualified Homeland Security Applicants demonstrate a nexus between the proposed use of public safety/military frequencies and public safety/military priorities, use of the frequencies by such applicants should be authorized unless actual interference is expected based on a substantive technical analysis conducted by the Commission or NTIA. In the event that the Commission or NTIA identifies a concern or proposes a carve-out or condition related to the use of such public safety/military frequencies, then a Qualified Homeland Security Applicant should be permitted to address any such articulated concerns by either rebutting the findings or modifying the proposal to mitigate the concerns.

C. Proposed Revisions to Section 5.69 Regarding Grants Differing from Proposed Parameters

Just as BAE Systems has experienced difficulties with respect to the resolution of objections, concerns and carve-outs prior to grant, the company has had experienced similar difficulties in a post-grant context. As such, BAE Systems supports the

Commission's proposed revisions to Section 5.69 which clarifies that an applicant may reject a grant by filing objections within 30 days of the proposed grant, and that the Commission will coordinate with the applicant in an attempt to resolve the issues. See Appendix A. Having expressed its support for these revisions, BAE Systems submits that the following additional points should be clarified to ensure that these procedures have the intended impact:

- The Commission should clarify that the procedures specified in Section 5.69 apply to STA grants as well as to regular experimental license grants (including initial grants, modifications and renewals), and that upon the timely submission of an objection under this section, the STA or regular license filing will be placed back on pending status without losing its place in the processing queue.

- The Commission should further specify a mechanism for timely resolving these post-grant issues. In BAE Systems' experience, such post-grant attempts to resolve objections or carve-outs are very difficult to address in a timely manner, despite the company's best and repeated efforts.[33] In this regard, the applicant/licensee should be allowed to address any such issues directly with a technical representative from the objecting agency/bureau. For example, if the Wireless Bureau was the source of an objection or frequency carve-out, then the applicant/licensee should be permitted to address such issue(s) with a technical representative from the Wireless Bureau. Such consultation should be made available promptly, and no later than seven calendar days after a request by the licensee.

- In situations where (i) an application for a regular license application has been timely filed under existing Section 5.61(b), thereby allowing continued operation under STA for the same facilities during the pendency of the regular license application, and (ii) the applicant submits an objection to the grant of the regular license application resulting in such application being returned to pending status, the Commission should clarify that the applicant may continue to operate pursuant to Section 5.61(b) under the terms of the prior granted STA.

[33] As just one example, over nine months ago undersigned counsel initiated an attempt on behalf of BAE Systems to coordinate a post-grant resolution of certain frequency-related issues in a 2 year experimental license grant. Only last month did BAE Systems even receive a first response regarding the issues initially raised, despite repeated efforts to engage in discussion with staff on the issues. The response generally referenced objections by NTIA, without providing any information regarding the reasons for the objections, or providing an opportunity to resolve any issues of concern to the agency.

- The objecting applicant should still be able to, at its option, accept a grant of the application in part, while working to resolve the problem areas with the Commission with those unresolved parameters still remaining in pending status.

D. Experimental STA Issues – §5.61

BAE Systems submits the following brief comments concerning the Commission's proposed revisions applicable to experimental STA requests.

As an initial matter, BAE Systems supports the Commission's proposed revisions to Section 5.61(a).

Next, the Commission appears to propose eliminating the requirement that STA requests be filed electronically. See Appendix A (proposed Section 5.61(b)). BAE Systems strongly encourages the electronic filing of all experimental applications, which not only supports paperwork reduction principals, but also allows for greater real-time monitoring of application status and more efficient processing. Accordingly, BAE Systems requests that the Commission clarify the rule to allow for electronic filing of STA requests at the applicant's discretion.

Finally, regarding the proposed revisions applicable to "extensions" of experimental STAs (proposed Section 5.61(c)), BAE Systems notes that the Commission proposes to supplement the existing language of this rule by requiring that the application for a regular license be "consistent with the terms and conditions" of the prior granted STA. BAE Systems requests that the rule be further supplemented by language that clarifies what is meant be the phrase "consistent with the terms and conditions" in order to ensure that applicants can be certain of complying with this procedure. For example, does the phrase "consistent with the terms and conditions" mean that the application for regular license must mirror precisely each and every technical parameter of the prior

granted STA without any change whatsoever, or can this extension process still apply even though some parameters or equipment have been changed or some new parameters or equipment have been added? Similarly, would a regular license application be "consistent with the terms and conditions" of an STA if the regular license is needed to support a different contract than that associated with the STA, or if the regular license application is associated with IR&D while the STA supported a contract?

E. Changes in Equipment and Emission Characteristics - §5.77

The Commission proposes to modify Section 5.77(a) so as to permit any changes in equipment without prior Commission consent as long as four conditions are met, namely:

(1) That the operating frequency is not permitted to deviate more than the allowed tolerance;

(2) That the emissions are not permitted outside the authorized band;

(3) That the power output complies with the license and the regulations governing the same; and

(4) That the transmitter as a whole or output power rating of the transmitter is not changed.[34]

BAE Systems supports Items (1) and (2) as proposed. Regarding Item (3), BAE Systems recommends that the condition be revised so as to read "(3) That the ***ERP and directivity*** complies with the license and the regulations governing the same;" Assuming that Items (1) and (2) remain as drafted, and Item (3) is revised as suggested, then BAE Systems submits that Item (4) should be deleted from the rule as unnecessary.

With respect to Section 5.77(b), the Commission proposes to modify the existing rule to now require licensees to file a license modification application if the licensee

[34] See proposed Section 5.77(a), Appendix A.

wishes to have an emission change become a permanent part of the license, rather than allowing the licensee to address the change in the next renewal application.[35] BAE Systems recommends that the existing practice be retained, namely to allow Section 5.77 changes to be addressed in the next renewal application, rather than requiring licensees to make a formal modification filing. The existing practice works, and is a much more streamlined process than the proposed procedure involving the filing of a formal modification application.

F. Recognition of IR&D Activities Under Experimental Authorities

As discussed above, Qualified Homeland Security Applicants such as BAE Systems often require experimental licenses to support public safety, homeland security and defense priorities and the development and deployment of military communications systems under contract as well as pursuant to IR&D. However, very rarely do granted experimental STAs or regular licenses expressly specify that the authority is issued to support IR&D activities. This is particularly true when the license is issued to support both contractual requirements as well as IR&D activities. Accordingly, BAE Systems requests that in situations where an experimental license applicant requests authority to support IR&D activities (whether alone or together with authority to support a contract), the Commission specify on the grant that IR&D activities are being supported by the grant.

[35] See proposed Section 5.77(b), Appendix A.

G. Other Issues

Finally, BAE Systems submits the following brief comments on certain remaining proposals relevant to the experimental licensing process:

- BAE Systems supports the Commission's proposal to add the following clarifying statement to new Section 2.805: "Operation prior to equipment authorization is permitted under the authority of an experimental radio service authorization issued under Part 5 of this chapter."[36] This is a key clarification that eliminates any possible confusion as to this long-standing Commission policy.

- Regarding the Commission's proposal to codify existing policy to confirm that RF tests and experiments that are fully contained within an anechoic chamber or a Faraday cage may be conducted without the need for obtaining an experimental license,[37] BAE Systems supports this clarification.

V. Conclusion

For the foregoing reasons, BAE Systems respectfully requests that the Commission revise its experimental licensing rules and policies consistent with these Comments.

Respectfully submitted,

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[36] See proposed Section 5.77(b), Appendix A.
[37] See Notice at para. 82.