

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 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
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)	
2006 Biennial Review of Telecommunications Regulations – Part 2 Administered by the Office of Engineering and Technology (OET))	ET Docket No. 06-155
)	

To: The Commission

**COMMENTS OF
THE BOEING COMPANY**

The Boeing Company (“Boeing”) provides these comments in support of the Petition for Reconsideration (“Petition”) filed by Marcus Spectrum Solutions, LLC¹ regarding the Commission’s Report and Order (“Order”)² adopting revisions to the Experimental Radio Service (“ERS”) rules. Boeing applauds the Commission on the adoption of streamlined experimental rules and looks forward to the prompt implementation of the new ERS licenses and the flexibility they will bring to experimental operations. The Petition, however, raises an

¹ Petition for Reconsideration of Marcus Spectrum Solutions, LLC, *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 (filed May 22, 2013) (“Petition”).

² *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, Report and Order, FCC 13-15 (2013) (“Order”).

important matter for the Commission's reconsideration. Specifically the Commission appears to have adopted a major change to section 5.85(a) of the Commission's rules in a reversal of longstanding policy and without adequate notice or explanation.

This rule change prohibits holders of conventional experimental licenses from using any frequency that is exclusively allocated to passive services.³ In doing so, the Commission has, without explanation and perhaps inadvertently, departed from its longstanding policy of investing the Office of Engineering and Technology ("OET") with the discretion to review applications on a case-by-case basis and grant, condition, or dismiss them as appropriate based on the nature of the experimental program, the public interest considerations, and the potential for interference to co-channel users. Such a change could prevent or significantly increase the cost of important military, scientific, and commercial experimentation programs without a corresponding benefit to passive services. This abrupt departure is also procedurally deficient because the Notice of Proposed Rulemaking ("NPRM") did not provide adequate notice of the change and the Order failed to provide a reasoned explanation for its departure from longstanding policy.

Because the change reverses a successful policy, risks harm to important research, and is procedurally deficient, Boeing strongly urges the Commission to reconsider the adoption of the new language categorically prohibiting experimental operations in passive bands.

³ *Order*, Appendix A at 84.

I. THE RULE CHANGE COULD PREVENT IMPORTANT MILITARY, SCIENTIFIC, AND COMMERCIAL RESEARCH WITHOUT INCREASING INTERFERENCE PROTECTION TO PASSIVE SERVICES

Limited experimental operations in passive bands demonstrably serve the public interest, and a prohibition on such operations could prevent this important research without providing any significant additional interference protection to passive service users.

There are a variety of reasons why experimental operations may benefit from or require transmissions in passive bands. As the Petition notes, the expense and complication of exploratory research into new techniques and new bands can be greatly increased by the need to avoid specific frequencies, impeding innovation.⁴ Sometimes, the very purpose of the experimental operation involves passive frequencies, such as compliance testing, which the Commission acknowledges “often involves emission measurements in restricted bands [and therefore] will be exempt from the prohibition on operating in the restricted bands listed in 15.205(a) of the rules and from operating in the bands allocated exclusively to the passive services.”⁵

Many other important experimental operations may require access in some way to passive frequencies, including development and testing of new Unmanned Aircraft System (“UAS”) designs, Department of Defense-sponsored missile telecommand and telemetry systems, Federal Aviation Administration (“FAA”) mandated testing of new aircraft, and novel ultra-high-bandwidth communications technologies. Recent examples of such experimental uses in passive

⁴ *Petition* at 8-9.

⁵ *Order*, ¶ 101.

frequencies can be found in the records of the Commission's experimental license database.⁶ The rule change could disallow programs such as these, or significantly raise the costs and complications of running them.

Clearly, the majority of experimental programs do not require access to passive frequencies. Indeed, many applicants, including Boeing, routinely and proactively notch out restricted, passive, and other sensitive frequencies when feasible based on the experimental goals and available equipment.⁷ Because experimental applications in the passive bands are not processed as routine applications, they represent only a small subset of the total number of experimental applications. It is Boeing's experience that such applications are granted only when there is no appreciable risk of interference to passive spectrum users. Therefore, the new section 5.85(a) prohibition provides no real increase in protection for passive bands while raising an unnecessary barrier to the limited number of experimental programs that require such operations.

II. THE RULE CHANGE IS PROCEDURALLY DEFICIENT BECAUSE THE COMMISSION DID NOT PROVIDE ADEQUATE NOTICE AND A REASONED EXPLANATION FOR ITS ADOPTION

The Commission's unexplained, and possibly inadvertent departure, from its previous policy of considering experimental applications involving passive bands on a case-by-case basis violates the Administrative Procedure Act ("APA") both because the Order lacks a reasoned

⁶ See, e.g., *The Boeing Company*, File No. 0218-EX-ST-2013 (Call Sign WG9XJB) (granted March 29, 2013); *Raytheon Missile Systems Application for Experimental License*, File No. 0272-EX-PL-2012 (Call Sign WG2XKN) (granted Nov. 26, 2012); *Honda Aircraft Company, LLC Application for Experimental Special Temporary Authorization*, File No. 0535-EX-ST-2012 (Call Sign WF9XXX) (granted Aug. 30, 2012); *Application of Battelle for Special Temporary Authorization*, File No. 0096-EX-ST-2010 (Call Sign WE9XGU) (granted Mar. 18, 2010).

⁷ See, e.g., *Application of The Boeing Company for Modification of Experimental License*, File No. 0404-EX-PL-2010 (Call Sign WF2XNQ) (granted Mar. 10, 2011).

explanation for its apparent policy reversal and because the NPRM did not afford interested parties adequate notice of the change.

A. The Commission Has Historically Authorized Experimental Operations in Exclusive Passive Bands Based on a Case-by-Case Analysis and Appropriate Conditions

As the Commission acknowledges, the longstanding policy for conventional experimental licenses has been that “[t]he Commission may permit experiments to be conducted in certain restricted frequency bands on a case-by-case basis”⁸ and the Commission’s records show that OET regularly grants applications for licenses and STAs in restricted bands, including the exclusive allocation passive bands identified in footnote US246.⁹ Boeing itself has sought and received experimental authority in these bands as recently as July 2013.¹⁰ Numerous other applicants have also received experimental licenses or STAs in these bands, including Honda Aircraft Company, LLC, the Battelle Memorial Institute, and Raytheon Missile Systems.¹¹

⁸ *Order*, ¶ 32; *see also id.*, ¶ 50 (contrasting the new program experimental licenses, which would not be permitted to operate on restricted frequencies, with conventional experimental licenses that may).

⁹ 47 C.F.R. § 2.106 n. US246.

¹⁰ *See, e.g., The Boeing Company, Application for Experimental License*, File No. 0117-EX-ML-2013 (Call Sign WG2XCM) (granted Jul. 2, 2013) (authorizing operations that span frequencies in the passive ranges from 15.35-15.4 GHz and 31.3-31.8 GHz); *The Boeing Company, Application for Experimental License*, File No. 0144-EX-PL-2013 (Call Sign WG2XOH) (granted Jun. 25, 2013) (authorizing operations that span frequencies in the passive range from 73-74.6 MHz); *Application of The Boeing Company for Special Temporary Authorization*, File No. 0218-EX-ST-2013 (Call Sign WG9XJB) (granted Mar. 29, 2013) (requested center frequency of 4990 MHz overlaps with passive range of 4990-5000 MHz).

¹¹ *See, e.g., Raytheon*, Call Sign WG2XKN (requested frequency range of 2-40 GHz overlaps passive frequencies at 10.68-10.7, 15.35-15.4, 23.6-24, and 31.3-31.8 GHz); *Honda Aircraft Company*, Call Sign WF9XXX (requested frequency ranges include 25-130 MHz, 125-1200 MHz, and 1-18 GHz, which overlap passive frequency ranges at 73-74.6 MHz, 608-614 MHz, 10.68-10.7, and 15.35-15.4 GHz); *Battelle*, Call Sign WE9XGU (requested frequency range of 95-105 GHz overlaps passive frequency range of 100-102 GHz).

No evidence exists in the record of this proceeding or elsewhere that these or similar operations have caused interference to passive services. This is not surprising, given the sophistication of the parties undertaking these experiments and the extensive array of interference mitigation measures available to ensure that operations in passive spectrum do not result in interference to other users.

In some cases, however, OET has dismissed or applied frequency restriction conditions to applications that request to use passive frequencies.¹² Such conditions include requiring licensees to notch out certain frequencies, or imposing geographic exclusion zones around co-channel users that would be particularly susceptible to interference. In the NPRM, the Commission reaffirmed the utility of exclusion zones in maximizing spectrum use, noting that “in geographically remote areas it may not be necessary to impose limitations on the use of the restricted frequency bands.”¹³ This acknowledgement is a key premise for the Commission’s adoption of the new innovation zones, and is one more tool available to OET in assessing the potential for interference of experimental license applications where the research program requires access to passive frequencies.

Decades of experimental operations have demonstrated that OET is fully capable of evaluating the public interest benefits and interference potential of applications and striking an appropriate balance that maximizes the use of spectrum and the opportunity for innovation while protecting important co-channel users. The Commission should therefore maintain its policy of

¹² See, e.g., *Application of Battelle for Special Temporary Authorization*, File No. 0350-EX-ST-2013 (Call sign WG9XML) (filed April 12, 2013) (application dismissed “because the frequency bands 100-102 GHz and 109.5-111.8 GHz are reserved exclusively for passive services”); *Application of Battelle for Experimental License*, File No. 0502-EX-PL-2010 (filed Nov. 4, 2010) (application requesting frequency range of 95-105 GHz dismissed without prejudice due to “potential harmful interference to Federal Government operations”)

¹³ NPRM, ¶ 42.

permitting applicants to seek conventional experimental licenses in passive bands, and should continue to rely on OET's case-by-case review to ensure that such applications serve the public interest.

B. The Order Does Not Explain the Commission's Rationale for Reversing its Policy

All agencies, including the Commission, must engage in reasoned decisionmaking, and must, in particular, provide explanations for changes in policy.¹⁴ The Commission's discussion of passive band operations in the Order appears to imply a continuation of the Commission's longstanding policy of reviewing experimental applications on a case-by-case basis and does not acknowledge, explain, or justify the rule revision contained in Attachment A of the NPRM that would prohibit conventional experimental operations in the passive bands.

As the Petition notes, the Order contains some limited discussion of operations in the restricted bands, but this discussion seems to contradict the revision to section 5.85(a) that was adopted.¹⁵ For example, the Order's discussion of the new program experimental licenses explains that, due to concerns about the risk of interference with safety-of-life applications and research services, the new program experimental licenses "will not provide authority...to operate on specific public safety and passive frequency bands."¹⁶ Instead, "experimenters who desire to

¹⁴ See, e.g., *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009) (agency changing stance must "provide reasoned explanation of its action" and "show that there are good reasons for the new policy"). In particular, "change that does not take account of legitimate reliance on prior interpretation may be 'arbitrary, capricious [or] an abuse of discretion.'" *Smiley v. Citibank* (S.D.), N.A., 517 U.S. 735, 742 (1996) (citations omitted).

¹⁵ *Petition*, at 3-4.

¹⁶ *Order*, ¶ 56.

use these bands may still do so, but they must apply for a conventional experimental license and be subject to the case-by-case review inherent in that process.”¹⁷

Further, on several occasions, the Order juxtaposes the categorical prohibitions of the new program experimental licenses with the more flexible case-by-case approach of the conventional experimental licenses. For example, the Order characterizes the NPRM as proposing that “program experimental licensees be permitted to operate in any frequency band, except in bands exclusively allocated to passive services (as are conventional experimental licensees) or in certain restricted bands.”¹⁸ The Order further specifies that “program licensees – unlike conventional experimental licensees – would not be permitted to operate on the restricted band frequencies.”¹⁹ The Commission and its Order therefore explicitly conclude that conventional experimental licenses, through adequate process, may provide authorization for operations in restricted and passive bands.

Despite these acknowledgements in the body of the Order, the rules adopted in Attachment A of the Order contain a modified version of section 5.85(a) which appears to contradict not only longstanding Commission policy but also the Commission’s discussion at multiple points throughout the Order. By not providing a reasoned explanation of this decision, the change is procedurally deficient and Boeing urges the Commission to reconsider its adoption.

¹⁷ *Id.*

¹⁸ *Id.*, ¶ 50.

¹⁹ *Id.*

C. The NPRM Did Not Provide Adequate Notice of the Change to Conventional Experimental Licenses

The APA requires agencies to provide notice of its proposed rulemakings that contains either the terms or substance of the proposed rule or a description of the subjects and issues involved.²⁰ Courts review the adequacy of the Commission’s notice “by determining whether it would fairly apprise interested persons of the ‘subjects and issues before the agency.’”²¹

The NPRM contained no discussion of the proposed change to section 5.85(a) of its rules. As a result, interested parties had no reason to examine closely the text of section 5.85(a) that was included in Appendix A of the NPRM in an effort to discover any undisclosed modifications. Indeed, the primary focus of the NPRM was the creation of new classes of experimental licenses and the adoption of rules for those new classes of licenses. The NPRM’s focus on creating additional “flexibility” for experimental services cannot be construed as providing adequate notice of new restrictions imposing less flexibility on the conventional experimental licenses that have long been issued. The conspicuous omission of any discussion of this significant change in policy creates the potential for misdirection which is contrary to the intent of the notice requirement. As the Supreme Court has characterized it, “the object [of the notice requirement] in short, is one of fair notice.”²²

Importantly, despite receiving nearly one hundred comments, replies, and ex parte notices referencing the proceeding, the Commission did not receive a single comment that so much as mentioned this important but subtle revision to the Commission’s rules, either in support or

²⁰ 5 U.S.C. § 553(b).

²¹ *Prometheus Radio Project v. FCC*, 373 F.3d 372, 411 (3d Cir. 2004) (citing *Am. Iron & Steel Inst. v. EPA*, 568 F.2d 284, 293 (3d Cir. 1977)).

²² *Long Island Care at Home Ltd. v. Coke*, 551 U.S. 158, 174 (2007).

opposition. Such a result casts significant doubt on the sufficiency of the notice, and does not lay the procedural groundwork required for reasoned decisionmaking. The Commission should therefore reconsider its decision and withdraw its unexplained prohibition on the issuance of conventional experimental licenses in the passive spectrum bands.

III. CONCLUSION

The Commission's longstanding case-by-case review process for conventional experimental licenses has provided flexibility and spectrum access to experimental programs while ensuring that the needs of co-channel users, including those in the passive bands, are adequately protected. The rule change adopted in the instant Order reverses this successful policy, putting at risk important experimental programs with little corresponding increase in interference protection for passive operations. The rule change is also procedurally deficient because it fails to provide adequate notice or a reasoned explanation to support the Commission's reversal of policy. For these reasons, Boeing strongly urges the Commission to reconsider this change.

Respectfully submitted,
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