



Federal Communications Commission
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Small Entity Compliance Guide

Experimental Radio Service

Report and Order

FCC 13-15

ET Docket No. 10-236; ET Docket No. 06-155

Released: January 31, 2013

This Guide is prepared in accordance with the requirements of Section 212 of the Small Business Regulatory Enforcement Fairness Act of 1996. It is intended to help small entities—small businesses, small organizations (non-profits), and small governmental jurisdictions—comply with the new rules adopted in the above-referenced FCC rulemaking docket(s). This Guide is not intended to replace the rules and, therefore, final authority rests solely with the rules. Although we have attempted to cover all parts of the rules that might be especially important to small entities, the coverage may not be exhaustive. This Guide may, perhaps, not apply in a particular situation based upon the circumstances, and the FCC retains the discretion to adopt approaches on a case-by-case basis that may differ from this Guide, where appropriate. Any decisions regarding a particular small entity will be based on the statute and regulations.

In any civil or administrative action against a small entity for a violation of rules, the content of the Small Entity Compliance Guide may be considered as evidence of the reasonableness or appropriateness of proposed fines, penalties or damages. Interested parties are free to file comments regarding this Guide and the appropriateness of its application to a particular situation; the FCC will consider whether the recommendations or interpretations in the Guide are appropriate in that situation. The FCC may decide to revise this Guide without public notice to reflect changes in the FCC's approach to implementing a rule, or to clarify or update the text of the Guide. Direct your comments and recommendations, or calls for further assistance, to the FCC's Consumer Center:

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Experimental Radio Service

1. Objectives of the Proceeding

In the *Report and Order (R&O)* adopted January 31, 2013 in ET Dockets 06-155 and 10-236, the Commission amended its Part 5 rules governing the Experimental Radio Service (ERS) to provide increased opportunities for experimentation and innovation. Under conventional experimental licenses issued pursuant to the previous rules, experimenters were limited to a single experiment or a series of closely related experiments. Licensees wishing to vary any of their authorized parameters were required to apply for new or modified licenses. The *R&O* authorized the issuance of three new kinds of experimental licenses – program, medical testing and compliance testing experimental licenses – which allow researchers and laboratories to conduct multiple non-related experiments under a single authorization over a longer period of time, thus eliminating regulatory delay and uncertainty.

The *R&O* also broadened opportunities for marketing by adopting a new subpart within the ERS rules that contains provisions for product development trials, as well as market trials. Additionally, the *R&O* revised and consolidated the Commission's existing rules for broadcasting experiments in Parts 73 and 74 into a new subpart within Part 5, and eliminated developmental licensing rules in several Commission rules parts so that all experimental authority will be under the Part 5 ERS rules, providing clear and consistent guidelines to applicants for all types of experimentation. The *R&O* also promoted greater overall experimentation by streamlining ERS rules and procedures, and opened new opportunities for experimentation by making targeted modifications to those rules and procedures. Finally, the Commission modified the rules in Part 2 to clarify when operation or marketing of radio frequency (RF) devices is permitted prior to equipment certification, including the number of devices that can be imported for such purposes.

A copy of the *R&O* is available at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-13-15A1.pdf (28 FCC Rcd 758 (2013))

2. General Information

The Commission's Part 5 ERS rules prescribe the manner in which the radio spectrum may be made available to a variety of entities to experiment with new radio technologies, equipment designs, characteristics of radio wave propagation, or service concepts related to the use of the radio spectrum. To encourage innovation, the Part 5 rules provide flexibility regarding allowable frequency range, power, and emissions. In exchange for this flexibility, experimental operations are not protected from harmful interference from allocated services, and ERS licensees must not cause harmful interference to stations of authorized services, including secondary services.

3. New ERS Licenses

The three new types of experimental licenses authorized by the *R&O* will provide innovators in diverse fields of research greater flexibility of spectrum use, resulting in a corresponding degree of increased flexibility in initiating and modifying their experiments before needing to expand the initial FCC spectrum authorization. In this way, the availability of these new types of licenses will promote creativity

and accelerate the introduction of new products to the marketplace. Specifically, these new license types are:

- **Program license:** This license will be available to experimenters that have demonstrated experience in RF technology and are associated with colleges, research laboratories, health care institutions, and manufacturers to conduct ongoing series of research experiments and tests.
- **Medical testing license:** This license will be available to health care facilities with RF expertise to assess newly developed RF based medical devices for patient compatibility, electromagnetic compatibility and to conduct clinical trials at patients' homes or in other geographic areas that are not within the health care licensee's control.
- **Compliance testing license:** This license will provide Commission-recognized laboratories the flexibility to undertake RF product compliance testing under the Commission's equipment authorization procedures.

The *R&O* authorized the continuing issuance of conventional experimental licenses where appropriate, and mandated that some experiments – including those involving product development and market trials, those requiring non-disclosure of proprietary information, and those requiring environmental assessments or orbital debris mitigation plans – be conducted only under conventional licenses.

4. Requirements Applicable to Program and Medical Testing Licensees

All ERS licensees – whether holding the conventional or the new types of ERS licenses – are required to operate on a non-harmful interference basis to authorized services. For each program and medical testing ERS license, the *R&O* also requires the licensee to develop a specific plan to avoid harmful interference to critical services (*i.e.* commercial mobile radio services, emergency notifications, and public safety radio services). Moreover, the *R&O* prohibited program and medical testing licensees from operating in certain “restricted” and “passive service” bands where safety-of-life services or services particularly sensitive to interference (such as the Radio Astronomy Service) operate. Finally, the *R&O* created a new web-based registration system to track and manage experiments undertaken by program and medical testing licensees. Plans for, and results from, program and medical testing experiments will be required to be posted by each licensee to the Commission's program experimental registration website. Specifically, at least 10 days prior to commencement of any program or medical testing experiment, each licensee must provide in a website posting a narrative statement describing the experiment, including technical details of the experiment and a contact point for additional information about the experiment as well as a “stop buzzer” contact. Within 30 days of completion of the experiment, each licensee must file a narrative statement describing the results of the experiment. Additionally, each medical testing licensee must file a yearly report detailing the activity that has been performed under its license.

5. Requirements Applicable to Compliance Testing Licensees

The limitations and reporting obligations that the *R&O* adopted for compliance testing licenses are designed to accommodate the purpose of such licenses – to enable FCC-approved laboratories to test various communications products for compliance with the Commission's RF limits. Thus, the prohibition on operating in restricted and passive service bands, which applies to program and medical testing licenses, do not apply to compliance testing licenses because the Commission issues these licenses to test, *inter alia*, products designed to operate in these bands. Additionally, the *R&O* did not impose any

website notification and reporting requirements on compliance testing licensees, as there is no significant interference risk involved with testing laboratories certifying equipment for compliance with Commission rules, and test reporting is already required of them. However, the *R&O* limited compliance testing eligibility to Commission-recognized testing laboratories, in order to provide assurance to the public of the competency of the entities that have been given the broad authority to engage in compliance testing. In addition, the authority to operate under a compliance testing license extends only to those testing activities necessary for product certification. Compliance testing licensees are specifically not authorized to conduct product immunity testing, which often entails high-powered emissions over a very broad swath of spectrum, and so could pose a significant risk of interference to other systems, including Federal systems. Accordingly, the *R&O* requires a conventional experimental license for immunity testing, to ensure that all necessary coordination is conducted and that all reasonable precautions against harmful interference are taken.

6. Innovation Zones

The *R&O* adopted rules that allow the Commission – on its own motion or in response to a public request – to designate a defined geographic area and frequency range(s) as an innovation zone for specific types of program experiments to provide opportunities to test potentially innovative wireless devices in real world operating environments. Innovation zones will be announced via public notice and posted on the Commission’s program experimental registration website. A program experimental licensee may conduct experiments in an innovation zone consistent with the specified boundary conditions without specific authorization from the Commission. All licensees operating under this authority must comply with the requirements and limitations set forth for program licensees in this part, including providing notification of its intended operations on the program experimental registration website prior to operation.

7. Product Development Trials and Market Trials

The *R&O* adopted rules that differentiate between product development trials and market trials. A product development trial will permit parties to evaluate product performance in the conceptual, developmental, and design stages, whereas a market trial will permit parties to evaluate product performance and customer acceptability prior to the production stage. In a product development trial, licensees must own all of the equipment, must inform all participants of the nature of the trial, and must not market devices or offer services for hire. Market trials, coming later in the development process, require that the licensee retain ownership of all equipment, but allow limited marketing of equipment. To better ensure that an ERS licensee does not create a *de facto* service through the experimental licensing process, both product development and market trials will be authorized only under a conventional experimental license, wherein the scope of the experiment is limited. Product development trials include medical devices because such devices must not only be evaluated in the conceptual, developmental, and design stages, but also through extensive clinical trials. Thus, developers of medical devices may seek to conduct clinical trials of such devices either under a medical testing license or as part of a product development trial.

8. Evaluation Kits

Evaluation kits typically consist of a component that a manufacturer intends to offer for sale, mounted on a board, with or without an enclosure, in configurations that provide connections to a power supply, easy access to terminals, and sometimes supporting devices or other hardware. In many instances, developers and system integrators seek to obtain evaluation kits from manufacturers to test and evaluate a component

that the manufacturer intends to offer for sale to facilitate the purchaser's development of hardware and software for use with that component. However, prior to the *R&O*, sales of these kits were not permitted before equipment authorization was granted for the component, and this restriction delayed the ability of manufacturers and system integrators to develop hardware and software for use with the component. The *R&O* eliminated this restriction by permitting the sale of evaluation kits, provided that the buyer is notified of the authorization status of the component. Additionally, the *R&O* set forth a definition of evaluation kits recommended by industry, except that the *R&O* modified the recommended definition to include software and reference system integrators and product developers, as well as component makers.

9. Importation Limits

Prior to adoption of the *R&O*, Commission rules limited the number of RF devices that could be imported prior to their importation: 2000 devices for services in which a license is needed and 200 devices for all other services. The *R&O* increased the importation limit for all devices – those that require a license and those that do not – to 4000 units.

10. Anechoic Chambers and Faraday Cages

An anechoic chamber is a room, insulated from exterior sources of noise, and designed to stop reflections of electromagnetic waves. It is used to test and measure RF equipment, such as antennas or radars, or to conduct electromagnetic interference studies in isolation of external noise. An anechoic chamber is also used to measure emissions from unintentional radiators, such as a radio receiver or laptop computer. A Faraday cage is an enclosure usually formed by a mesh of conducting material designed to block out external static and to keep RF fields generated within the cage from escaping. The *R&O* codified the Commission's existing policy of allowing RF tests and experiments that are fully contained within an anechoic chamber or a Faraday cage without the need for obtaining an experimental license. In doing so, the Commission observed in the *R&O* that all experimenters, even those operating in RF enclosed facilities, are required to comply with the general prohibition against causing harmful interference to other spectrum users.

11. Special Temporary Authorization

The *R&O* clarified in Section 5.61(c) of the Commission's rules that an extension of an STA may be granted, provided that an application for a conventional experimental license that is "consistent with the terms and conditions" of the prior-granted STA has been filed at least 15 days prior to expiration of that STA. The *R&O* also clarified that the parameters of the conventional license application do not need to mirror exactly the parameters of the STA. They may differ so long as any changes do not increase the interference potential of the equipment under test.

12. Changes in Equipment and Emission Characteristics

The *R&O* modified Section 5.77(a) of the Commission's rules to provide additional flexibility for licensees to make changes to equipment without prior Commission consent under certain conditions. Specifically, changes can be made to equipment provided that the ERP and directivity comply with the license and the regulations governing the license. Pursuant to 5.77(b), the licensee is still required to supplement its application file with a description of any such changes and must file an application for modification if the changes are to become a permanent part of the license.

13. Commercial Off-The-Shelf Equipment

The Commission in the past has allowed ERS licensees to substitute one piece of commercial off-the-shelf (COTS) equipment for another, provided the equipment change does not increase the risk of harmful interference to authorized spectrum users. The *R&O* clarified this policy by revising instructions to the ERS application form (Commission Form 442) to state that substituting one piece of COTS equipment for another without notifying the Commission is permitted, provided that such equipment substitution will not result in operations inconsistent with the terms of the authorization. However, if ERS licensees make any modifications to COTS equipment that would invalidate the equipment's certification, they must first secure a modification to their experimental license to cover the change.

14. Permanent Discontinuance of License

Section 5.81 of the Commission's rules requires licensees to notify the Commission if they permanently discontinue their experimental operations. However, some licensees simply allow their licenses to expire once they conclude their experiments. To ensure that licensees are fully aware of their obligation to notify the Commission if they cease experimental operations prior to their license expiration date, the R&O added clarifying language to explicitly state this obligation in Section 5.81 of the rules. Additionally, the R&O added language to Section 5.81 stating that licensees who fail to meet this obligation may be subject to disciplinary action, including monetary fines.

15. Links to Notice of Proposed Rulemaking in this Proceeding and to Part 5 Rules

The *Notice of Proposed Rulemaking* that preceded the *R&O* was released on November 30, 2010, and is available at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-197A1.pdf (25 FCC Rcd 16544 (2010))

Part 5 Rules are available at: <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=d0682d11054f4998735216abb90d1d67&rgn=div5&view=text&node=47:1.0.1.1.6&idn=47>