



Federal Communications Commission
Washington, D.C. 20554

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DA 12-588

Small Entity Compliance Guide

Broadband over Power Line Devices

Second Report and Order
FCC 11-160
ET Docket Nos. 04-37 and 03-104
Released: October 24, 2011

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:

1-888-CALL-FCC (1-888-225-5322)
TTY: 1-888-TELL-FCC (1-888-835-5322)
Fax: 1-866-418-0232
fccinfo@fcc.gov

Broadband over Power Line Devices **Compliance Requirements**

1. Objectives of the Proceeding

The Commission adopted rules in 2004 (affirmed in 2006) to permit Broadband over Power Line (BPL) devices to operate under Part 15 of the rules, adding specific technical and administrative rules to protect licensed users from any BPL radio frequency (RF) emissions that radiate from power lines. To provide this protection, the BPL rules include radiated emission limits, notching requirements for certain frequencies, avoidance of operation in certain geographic areas, and use of a database system in case of interference caused to licensed users.

In the *Second Report and Order (Second Order)* in this proceeding, the FCC made certain technical refinements to the Part 15 rules related to Access BPL devices. The BPL rules as amended in this *Second Order* will provide for Access BPL technology that has applications for broadband distribution and for Smart Grid, while protecting incumbent radio services against harmful interference.

The *Second Order* was issued in response to a remand by the DC Circuit Court of Appeals in 2008, following an appeal by the American Radio Relay League (ARRL). The court ordered the FCC to release to the public for comment complete versions of certain staff technical studies that it had released in redacted form during the proceeding. It also required that the Commission provide an explanation of its choice of the extrapolation factor, *i.e.*, a conversion factor adopted for use in converting radiated emissions measurements from BPL systems taken at a particular distance for comparison with the limits at the distance specified in the rules.

In 2009, the Commission released the subject studies *in toto* and invited comment on them and provided the reasoning for its previous choice of an extrapolation value, and in light of new information invited comment on that, as well other minor technical parameters.

In the *Second Order*, the Commission determined that information and comments submitted in response to the studies and the request for comment on other recent information did not warrant changes to the BPL emissions standards or extrapolation factor.

The Commission did make certain technical refinements to the rules to provide enhanced protection to licensed services and improve the accuracy of radiated emission measurements for Access BPL devices. These refinements include:

- 1) slightly increasing the required notching capability (*i.e.*, the ability to eliminate use of certain frequencies in the event harmful interference occurs) of BPL systems;
- 2) adopting a methodology for determining site-specific BPL extrapolation factors; and
- 3) adopting a definition for "slant-range distance" (*i.e.*, the diagonal distance measured from the center of the measurement antenna to the nearest point of the overhead power line carrying the Access BPL signal being measured). The BPL Measurement Guidelines require use of this slant-range distance.

A copy of the *Second Order* is available at
http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-160A1.doc (26 FCC Rcd 15712 (2011))

2. Background Information

Part 15 of the FCC rules contains the technical requirements for radio frequency (RF) devices that may be operated without an individual license. The requirements include radiated and power line conducted emission limits for intentional and unintentional radiators.

Intentional radiators are devices that intentionally generate and emit RF energy, *i.e.*, transmitters. Examples of Part 15 intentional radiators include cordless telephones, remote control transmitters, remote utility meter readers, and wireless local area networking equipment. Part 15 intentional radiators must be certified by the FCC or a designated Telecommunication Certification Body (TCB) before they can be imported into or marketed within the United States.

Unintentional radiators are devices that intentionally generate, but do not intentionally emit, RF energy. Examples of Part 15 unintentional radiators include radio receivers, computers and TV interface devices such as DVD players, cable and satellite boxes. Because BPL signals can “leak” (radiate RF energy) from unshielded power lines, BPL devices are considered to be unintentional radiators. Most unintentional radiators can be authorized through a self-approval process in which the manufacturer has the equipment tested to ensure it complies with the Part 15 rules, but does not have to obtain certification through the FCC or a TCB. However, certain devices, such as scanning receivers and radar detectors, as well as Access BPL devices, are required to be certified before they can be imported into or marketed within the United States.

3. What is an Access BPL device?

An Access BPL device is a Part 15 unintentional radiator that couples radio frequency (RF) onto the power lines that route commercial power to neighborhoods or residences to bring and distribute Internet and other broadband communication signals to these areas.

4. What are the compliance requirements that apply to Access BPL devices?

- An Access BPL device must comply with the general technical requirements in Section 15.611 of the rules, including radiated emission limits, and interference mitigation and avoidance requirements such as frequency notching and remote shut-down.
- An Access BPL device must comply with the general administrative requirements in Section 15.615 of the rules, such as consulting with public safety users and avoiding operation in certain frequencies and in certain geographic areas (“exclusion zones”) as defined in the rules.
- An Access BPL device must be labeled with an FCC identification number as required by Section 2.925 and provide the statement required by Section 15.19(a)(3) indicating that the device complies with Part 15 of the rules may not cause harmful interference and must accept any interference received.
- An Access BPL device must be tested for compliance with the BPL technical requirements found in Section 15.601, *et seq.* The Commission has issued a Measurement Guideline that provides guidance on how to set up BPL equipment and perform compliance measurements. This document may be found in Appendix D of the *Second Order* at the links provided below in Section 9 of this guide.

5. What are the certification approval requirements for Access BPL devices?

- All Access BPL devices must be certified by the FCC or a TCB before they can be imported into or marketed within the United States. Certification applications shall be accompanied by a measurement report in accordance with Section 2.1033 of the rules.
- Each device used in an Access BPL system requires its own certification.
- Applications for certification of an Access BPL device must include a statement describing how the device operates with the following information: modulation type, number of carriers, carrier spacing, channel bandwidth, notch capability/control, power settings/control, and range of signal injection duty factors.
- The measurement report shall also include representative emissions spectrum plot(s) of the reported data.
- For Access BPL devices operating below 30 MHz, if the site-specific method for determining the extrapolation factor was used, the measurement report shall also include detailed information on the calculations and the data points taken.
- Please refer to 47 C.F.R. § 15.607, *et seq.* for information on the Access BPL approval requirements and 47 C.F.R. § 2.901, *et seq.* for information on the equipment certification procedures. See also the Measurement Guidelines for Access BPL devices in Exhibit D of the *Second Order* at the links provided below in Section 9 of this Guide.

6. What is the BPL database?

The BPL database is a privately owned and operated service that Access BPL devices must contact to register their operations at the chosen geographic locations. The FCC has designated the Utilities Telecom Council (UTC) as the database administrator from the private sector to create and operate the BPL database. The BPL database is required to contain information including:

- The name of the Access BPL provider.
- The frequencies of the Access BPL operation.
- The postal zip codes served by the specific Access BPL operation.
- The manufacturer and type of Access BPL equipment and its associated FCC ID number, or, in certain cases, the Trade Name and Model Number, as specified on the equipment label.
- The contact information, including both phone number and email address of a person at, or associated with, the BPL operator's company, to facilitate the resolution of any interference complaint.
- The proposed/or actual date of Access BPL operation.

Please refer to 47 C.F.R. § 15.615 for information on the BPL database requirements. The BPL database may be accessed at <http://www.bpldatabase.org>.

7. What are the penalties for non-compliance with the rules?

Willful or repeated violations of the equipment authorization, importation and marketing rules can result in forfeitures of up to \$16,000 for each violation or each day of continuing violation, up to a maximum of \$112,500. See Section 1.80 of the FCC rules in 47 C.F.R. § 1.80. Individuals or organizations may also be subject to criminal penalties under Title 18 of the U.S. Code. FCC field personnel, working in conjunction with the Attorney General of the United States, may seize illegal equipment.

8. What if I have questions on the BPL rules?

The FCC maintains a web-based system that is used to submit inquiries to its Laboratory, as well as to search for previous rule interpretations and frequently asked questions. This system, called the OET Knowledge Data Base (KDB), can be accessed at www.fcc.gov/labhelp.

9. Where can I find the BPL rules and information on the certification procedure?

FCC Order adopting the BPL rules: *Report and Order* in ET Docket Nos. 04-37 and 03-104, FCC 04-245, released October 28, 2004, 19 FCC Rcd 21265 (2004)

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-245A1.doc (Word)

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-245A1.pdf (Acrobat)

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-245A1.txt (Text)

FCC Order modifying the BPL rules: *Second Order* in ET Docket Nos. 04-37 and 03-104, FCC 11-160, released October 24, 2011

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-160A1.doc (Word)

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-160A1.pdf (Acrobat)

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-160A1.txt (Text)

Equipment authorization information:

<http://www.fcc.gov/oet/ea/>