

independent test laboratory, must be accredited.<sup>241</sup> A copy of the DoC, listing the party responsible for compliance, must be included in the literature supplied with the product. *Verification* is a manufacturer's self-approval procedure where the manufacturer makes measurements or takes the necessary steps to ensure that the equipment complies with the appropriate technical standards.<sup>242</sup> However, unlike the DoC procedure, verification does not require that measurements be made by an accredited laboratory and does not require a DoC to be supplied with the equipment.

122. In the *Notice*, we recognized that administrative burdens and the need to ensure compliance with the rules must be balanced in order to ensure that regulatory requirements keep pace with Access BPL technology development.<sup>243</sup> We therefore proposed to keep the authorization procedure for Access BPL equipment the same as for all unintentional radiators, including traditional types of carrier current systems. We noted that low-speed carrier current systems, which for a number of years have been operating inside buildings, have rarely been a source of harmful interference to radio communications, and that the verification procedure has been adequate to ensure that such systems comply with the rules.<sup>244</sup>

123. BPL providers strongly support retaining verification as the equipment authorization procedure for Access BPL equipment.<sup>245</sup> On the other hand, amateurs and some other organizations recommend that we apply the certification procedure because they believe that the Commission should maintain close oversight of Access BPL technology.<sup>246</sup> The ARRL believes that use of the verification procedure for Access BPL devices is unreasonable, because of its concerns that Access BPL devices pose more substantial interference potential than other Part 15 unintentional radiators.<sup>247</sup> NTIA recommends certification by the operator, rather than by the manufacturer, because Access BPL is deployed by utilities operators who receive the BPL service revenue benefit and have strong incentives to ensure that interference risks are properly limited and that technical standards are not violated.<sup>248</sup> In its reply comments, Current states that a provider cannot rationally assume responsibility for products over whose manufacture it has no control, thus, a provider, purchasing equipment from a vendor cannot make compliance representations based on its own knowledge.<sup>249</sup>

124. Upon careful consideration of the record, we find that Access BPL systems are not typical unintentional radiators, and that emission measurements for such systems *in situ* are critical in determining their interference potential. We are persuaded by NTIA that the newness of the Access BPL

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<sup>241</sup> See 47 C.F.R. § 2.948(d). The laboratory must be accredited by the American Association for Laboratory Accreditation (A2LA), the National Voluntary Laboratory Accreditation Program (NVLAP) or a Designating Authority of a trading partner having a Mutual Recognition Agreement/Arrangement (MRA) with the United States

<sup>242</sup> See 47 C.F.R. § 2.902.

<sup>243</sup> See *Notice* at ¶44.

<sup>244</sup> *Id.*

<sup>245</sup> See comments of Ameren at 10; UPLC at 13; Main.Net at 8; Current Technologies at 24; PPL Telcom at 8; Duke Energy at 13-14; HECO at 5.

<sup>246</sup> See e.g., comments of AMA at 9; ARRL at 24; David Garnier; Gary C. Sutcliffe.

<sup>247</sup> See comments of ARRL at 23.

<sup>248</sup> See comments of NTIA at 14.

<sup>249</sup> See reply comments of Current Technologies at 37-38.

measurement procedures warrants review of measurement reports.<sup>250</sup> We therefore conclude that the Certification procedure is appropriate for this new technology to allow us to maintain oversight until additional operational experience is obtained from its wide deployment. While we appreciate NTIA's concerns for assigning responsibility with respect to Access BPL compliance, we do not find that the operator, rather than the Access BPL equipment manufacturer, should bear the burden of the certification requirement. Since a system operator does not control the manufacture of the equipment, it will not be in a position to control production to ensure that each unit marketed conforms to the unit tested for compliance.<sup>251</sup> We believe that the legal and business relationship between the system operator and the BPL manufacturer will be sufficient to ensure that Access BPL equipment installed on a power line be in compliance with our rules. We do, however, strongly recommend that operators perform initial installation and subsequent periodic testing on their systems in order to ensure that the systems maintain compliance with our emission limits.

125. Based on the foregoing, we are subjecting Access BPL to the certification procedure to be carried out by the equipment manufacturer. We are also clarifying that we are retaining the verification procedure for all carrier current systems other than Access BPL, because the verification procedure has been adequate to ensure that other types of carrier current systems comply with the Part 15 rules.

126. We also specify that Access BPL certification will be initially performed by the Commission. In General Docket 98-68, we established the requirements for Telecommunication Certification Bodies (TCBs) that are allowed to approve equipment in the same manner as the Commission.<sup>252</sup> In that proceeding, we stated that while we intended to use TCBs to certify a broad range of equipment, we found that certain functions should continue to be performed by the Commission.<sup>253</sup> The functions included certifying new or unique equipment for which the rules or requirements do not exist or for which the application of the rules is not clear.<sup>254</sup> Because Access BPL is a new technology and many questions about the application of the rules may arise, we believe that TCBs should not be permitted to certify Access BPL systems or approve permissive changes to Access BPL systems until the Chief of the Office of Engineering and Technology acting under the existing delegated authority announces that TCBs may certify Access BPL systems.<sup>255</sup>

#### G. Miscellaneous

127. *Transition Period and Grandfathering of Existing Access BPL Equipment.* In the Notice, we sought comment on the appropriate period of time that should be allowed for BPL systems to come into compliance with any new requirements that may be adopted pursuant to this rule making proceeding. We further requested comment on whether Access BPL systems currently deployed should be required to be

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<sup>250</sup> NTIA at ix.

<sup>251</sup> 47 C.F.R. §2.931.

<sup>252</sup> See *In the Matter of 1998 Biennial Regulatory Review – Amendment of Parts 2, 25 and 68 of the Commission's Rules to Further Streamline the Equipment Authorization Process for Radio Frequency Equipment, Modify the Equipment Authorization Process for Telephone Terminal Equipment, Implement Mutual Recognition Agreements and Begin Implementation of the Global Mobile Personal Communications by Satellite (GMPCS) Arrangements*, Report and Order, FCC 98-338, 13 FCC Rcd 24687 (1999).

<sup>253</sup> We currently do not allow TCBs to certify equipment requiring measurements of the specific absorption rate (SAR) of RF radiation by the body.

<sup>254</sup> *Id.* at ¶ 33.

<sup>255</sup> See 47 C.F.R. § 0.241(g).

brought into compliance with the new rules, and if so, what period of time should be afforded for them to come into compliance.<sup>256</sup>

128. Some parties recommend that existing Access BPL systems be grandfathered indefinitely, stating that early adopters of new technologies should not be required to bear the burden of after-the-fact revisions to the technical standards, as long as the installations cause no harmful interference.<sup>257</sup> Others believe that 18 to 36 months would be an appropriate period of time for existing systems to come into compliance with the new rules, citing the fact that technology is advancing so rapidly that early equipment is likely to be replaced on a rapid schedule. These parties contend that mandating premature replacement of Access BPL equipment would cause economic burden with little or no regulatory benefit.<sup>258</sup> The City of Manassas, a municipal BPL provider, states that a 30-day period for bringing equipment into compliance would be practical and appropriate, if the new requirements do not require the addition of new facilities or significant software modifications.<sup>259</sup> The CEA states that it is not necessary to require existing Access BPL systems to be brought into compliance with the adopted rules, however, it believes that all systems, even systems currently deployed, should be required to comply with the notification requirements of section 15.109(g).<sup>260</sup> Amateurs and other groups recommend retroactive application of the adopted rules.<sup>261</sup>

129. We note that the major differences between the existing Part 15 rules for carrier current systems and the newly adopted rules in subpart G for Access BPL are 1) the type of equipment authorization procedure, --Verification for existing carrier current systems, Certification for Access BPL systems; 2) the requirement for interference mitigation techniques and avoidance of excluded bands and exclusion zones for Access BPL systems; and 3) the requirement for an Access BPL database concurrent with consultation with licensed spectrum users. Insofar as existing deployed Access BPL systems can satisfy (2) and (3) above by working with licensed spectrum users to avoid co-channel operations, and by being listed in the Access BPL database, the requirements of (1) above can be satisfied by having compliance test data available for inspection during the transition period. We clarify that after the transition period, all Access BPL devices that are manufactured, imported, marketed or installed shall comply with the requirements specified in subpart G of Part 15, including certification of the equipment.

130. We believe that it would be an undue burden on those operators who have deployed Access BPL systems to require their systems to come into compliance with the rules adopted herein, as long as the deployed equipment does not cause harmful interference and the operator takes the necessary steps to eliminate occurrences of harmful interference. We agree with Progress Energy that once a system has been installed and is operating within the limits and requirements in place when it was installed, the system should be allowed to remain in operation.<sup>262</sup> We will, of course, require that all Access BPL systems and equipment comply with the non-interference rule of Part 15, that is, there is not transition

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<sup>256</sup> Notice at ¶42.

<sup>257</sup> See comments of Duke Energy at 11-12; Southern at 19-20; APPA at 6.

<sup>258</sup> See comments of Sprint at 4; Current Technologies at 20; UPLC at 9.

<sup>259</sup> See comments of City of Manassas at 4.

<sup>260</sup> See comments of the Consumer Electronics Association at 7.

<sup>261</sup> See e.g., comments of the Potomac Valley Radio Club at 10.

<sup>262</sup> See comments of Progress Energy at 7.

period for compliance with the emission limits, which we are not changing herein.<sup>263</sup> We find that Access BPL equipment should be allowed a transition period for compliance with new rules, in the manner that we typically provide for other Part 15 devices. This will minimize economic hardships on manufacturers by allowing them, during the transition period, to continue producing and selling existing equipment while modifying their products to meet the new requirements. If an Access BPL device does not cause harmful interference, it can continue to operate until its natural replacement, unless the equipment is subsequently modified, at which time it must be brought into compliance with the new rules. We believe that a transition time frame of 18 months is adequate as this represents the typical high tech equipment life cycle. Accordingly, we are adopting a cut-off date of 18 months from the date of publication of this Report and Order. All Access BPL devices that are manufactured, imported, marketed or installed 18 months after the publication of this Report and Order in the Federal Register shall comply with the requirements specified in subpart G of this part, including certification of the equipment. Access BPL equipment manufactured, imported, marketed and installed prior to this date shall comply with the requirements that were in effect immediately prior to the effective date of this Report and Order.

131. *Separate Rule Part for Access BPL Systems.* NTIA and IEEE 802.18 advocate the creation of a new, dedicated rule part or a separate subpart of Part 15 for Access BPL systems, because many of the adopted rules will be unique to Access BPL.<sup>264</sup> We find that the complete separation of the rules for Access BPL equipment from Part 15 inadvisable due to possible confusion and repetition of requirements in two places, as Access BPL equipment must comply with the general requirements for unlicensed devices of Subparts A-C of the existing Part 15 rules. We do, however, find that requirements specific to Access BPL equipment warrant the creation of a separate subpart of Part 15. Accordingly, we are adding subpart G to Part 15 of our rules which will contain unique requirements for Access BPL equipment, with cross reference to other applicable subparts.

132. *Motions and Requests.* We have received several motions and requests for additional extensions of time and for reiteration of proposals to take into account information added to the record since the *Notice*. We are generally considering the substance of these motions and requests as filed comments, and denying the specific procedural remedies requested, as they offer no new information or arguments sufficient to justify procedural delays, nor do they raise issues beyond those already explicitly or implicitly included in the record and capable of full consideration in this Order.

133. On May 8, 2004, James E. Whedbee filed a Motion to Dismiss and to Dismiss Notice of Proposed Rulemaking for Want of Supplemental Jurisdiction, alleging lack of jurisdiction from the Commission over the transmission of energy by wire.<sup>265</sup> As Access BPL systems use radio frequencies for interstate communications purposes over wire, this Commission has full jurisdiction over such transmissions.<sup>266</sup> Accordingly, we deny Whedbee's motion.

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<sup>263</sup> See 47 C.F.R. § 15.5. Under these rules, operators of Access BPL systems are responsible for eliminating any harmful interference that may occur or must cease operation upon notification by a Commission representative, even if the equipment otherwise complies with the rules. We also point out to Access BPL system operators that ARRL's measurements appear to show that in some cases systems operating to date have exceeded the Part 15 emissions limits. We again urge that Access BPL operators undertake to verify that their systems are in compliance throughout their areas of operation and where necessary make changes to bring them into compliance.

<sup>264</sup> NTIA Comments at 24-25; reply comments of IEEE 802.18 at 3.

<sup>265</sup> James E. Whedbee, Motion to Dismiss and to Dismiss Notice of Proposed Rulemaking for Want of Supplemental Jurisdiction, filed May 8, 2004.

<sup>266</sup> See 47 U.S.C § 152.

134. On June 22, 2004, NAC/Amherst filed an Amended Motion for Re-issuance of Certain Proposed Rule Provisions, in which it requested a re-issuance of proposed interference provisions that feature “greater clarity and completeness” than the language in the current version of the proposed rule.<sup>267</sup> In its motion, NAC/Amherst submitted a request for re-issuance of the text of the proposed Part 15 rules to set forth more specific standards for adaptive interference techniques, special procedures and criteria for dealing with potential BPL interference that violates international treaties, requirements for public access to the database, and other specific explanations for the proposed rules, etc, in conjunction with new dates for comments and reply comments to the re-issued proposed rules. This motion follows other similar motions and requests from NAC/Amherst.<sup>268</sup> NAC/Amherst’s motions are denied. The Administrative Procedure Act (APA) requires that an agency publish general notice of proposed rules in the Federal Register, and that interested parties are sufficiently informed to reasonably divine the possible outcome of the proceeding.<sup>269</sup> An additional round of comments is not required where changes from the proposals represent a logical outgrowth of the proposals.<sup>270</sup> Our *Notice* clearly indicated that performance standards and interference resolution procedures would be determined in the proceeding, and indicated what parameters – *e.g.*, notification requirements, equipment capabilities, time frames, and appeals – would be included. While it did not propose specific quantification for several of those elements, parties were able to comment on those factors and to reply to the proposals of others. The Commission’s decision, as indicated in the substantive discussion above, is based on the information provided by and available to all parties in this proceeding. NAC/Amherst’s substantive points regarding the definition of Access BPL to clarify whether it encompasses other Access BPL technologies, such as the Corridor Access BPL system, are considered in our disposition of that issue.<sup>271</sup> NAC/Amherst’s substantive point regarding the details of adaptive interference mitigation techniques and performance standards for interference mitigation and shut down provisions, as well as notification requirements are considered in our disposition of those issues.<sup>272</sup> NAC/Amherst’s substantive points regarding eligibility/selection of an “industry-operated” entity are considered in our disposition of that issue.<sup>273</sup> NAC/Amherst’s substantive points regarding a requirement for Access BPL to transmit an identification code are considered in our disposition of that issue.<sup>274</sup> NAC/Amherst’s substantive point regarding BPL-free zones and mobile emergency communications are considered in our disposition of that issue.<sup>275</sup> Finally, we disagree with NAC/Amherst’s contention that there was insufficient time allotted for parties to respond to NTIA’s Phase 2 report, as evidenced by the ample comments received in the record, and as evidenced by NTIA comments that were submitted subsequent to the NTIA Phase 1 Study, in which, NTIA affirms that although its Phase 2 Study will be devoted to ionospheric propagation and aggregation of emissions from

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<sup>267</sup> See National Antenna Consortium and the Amherst Alliance (NAC/Amherst), Amended Motion for Re-issuance of Certain Proposed Rule Provisions, filed June 22, 2004.

<sup>268</sup> See also, Motion for Extension of the Reply Comments Deadline and for Re-Issuance of Certain Proposed Rule Provisions from NAC/Amherst, filed May 21, 2004; and Letter from NAC/Amherst, filed June 23, 2004.

<sup>269</sup> 5 U.S.C. § 553(b).

<sup>270</sup> See, *e.g.*, *Public Service Commission of the District of Columbia v. FCC*, 906 F.2d 713, 717 (D.C. Cir. 1990).

<sup>271</sup> See discussion in ¶¶32-33, *supra*.

<sup>272</sup> See discussion in ¶¶65-68, ¶¶49-53 and ¶¶72-73, *supra*.

<sup>273</sup> See discussion in ¶¶83-87, *supra*.

<sup>274</sup> See discussion in ¶68, *supra*.

<sup>275</sup> See discussion in ¶¶51-53, *supra*.

Access BPL systems, this is not a potential near-term issue that should delay adoption of Access BPL rules.<sup>276</sup> While we indicated, in establishing a new reply comment date, that the date was based in anticipation of the filing by NTIA, we also indicated that the reply comment date was not firmly tied to the NTIA filing. We retained the prerogative to further extend the reply comment date if necessary and, based on the date of filing and the substance of the Phase 2 Report, such a further extension was not warranted. Moreover, in its comments, NTIA urged the Commission to promptly adopt effective new technical rules that will enable BPL proponents to develop and implement the necessary new design features and operating practices for addressing interference concerns.<sup>277</sup> Accordingly, we deny the NAC/Amherst's motions.

135. On June 9, 2004, Steven E. Matda filed a Motion for Re-issuance of the *Notice*, if recommendations are added to the eventual rule based on the NTIA's findings, asserting that because NTIA suggested several additional rules to remedy BPL interference, it is impossible for parties to know how they will be affected by the final rule.<sup>278</sup> As discussed *supra*, the NTIA findings were appropriately placed in the record, and parties have had ample opportunity to consider and respond to them. Accordingly, we deny Matda's motion.

136. On July 8, 2004, W. Lee McVey submitted a Motion Requesting a Second Notice of Proposed Rulemaking in this proceeding, asserting that additional relevant data and findings have been entered into the record that offer compelling reasons for both modifications and additions to Part 15 that would be substantially different than those that formed the basis for the proposed codified language in the *Notice*.<sup>279</sup> This Motion follows a similar motion filed on June 3, 2004, requesting additional time for re-issuance of proposed rules.<sup>280</sup> McVey's motions are denied as there is ample information in the *Notice* and the subsequent record to have provided opportunity for informed and pertinent comment on the rules as ultimately adopted, as indicated in the analysis supporting our conclusions regarding adaptive control requirements.<sup>281</sup> The substance of McVey's remarks, which are similar to the NAC/Amherst substantive points in its motions, was taken into consideration as comments in reaching our decisions. Accordingly, we deny McVey's motions.

137. On October 12, 2004, the ARRL filed a Motion for Recusal of Chairman Michael K. Powell from this proceeding, alleging that the presence of the chairman at a BPL demonstration in the city of Manassas, Virginia, violates the Sunshine prohibition of Section 1.1203 of the Commission rules.<sup>282</sup> ARRL's motion was addressed in a response letter dated October 14, 2004, in which the FCC Office of

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<sup>276</sup> See NTIA Comments, filed June 8, 2004, at ix.

<sup>277</sup> NTIA Comments, at iv.

<sup>278</sup> See Steven E. Matda, Motion for Re-issuance of the *Notice*, filed June 9, 2004.

<sup>279</sup> W. Lee McVey, Motion Requesting a Second Notice of Proposed Rulemaking, filed July 8, 2004.

<sup>280</sup> W. Lee McVey, Motion Requesting an Extension of time for Re-issuance of Proposed Rules and Data Requests, filed June 3, 2004.

<sup>281</sup> See discussion in ¶¶65-68, *supra*.

<sup>282</sup> See ARRL, Motion for Recusal of Chairman Michael K. Powell from the BPL proceeding, filed October 12, 2004. See also, 47 C.F.R. § 1.1203.

General Counsel concluded that no violation occurred because the prohibition of Section 1.1203 does not apply to presentations deemed exempt.<sup>283</sup>

#### IV. PROCEDURAL MATTERS

138. *Final Regulatory Flexibility Analysis.* The Final Regulatory Flexibility Analysis for this Report and Order, pursuant to the Regulatory Flexibility Act, *see* 5 U.S.C. § 604, is contained in Appendix A.

139. *Paperwork Reduction Act.* This Report and Order contains new or modified information collections subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new or modified information collection(s) contained in this proceeding.

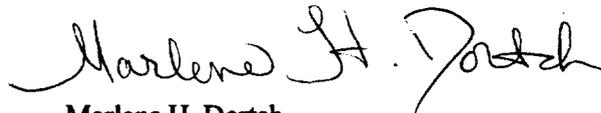
140. To make cited sources more easily available to the readers, we are testing the use of hyperlinks to some FCC documents that are cited in this document. The World Wide Web addresses/URLs that we give here were correct at the time this document was prepared but may change over time. We do not have staff dedicated to updating these URLs, however, so readers may find some URLs to be out of date as time progresses. We also advise that the only definitive text of FCC documents is the one that is published in the FCC Record. In case of discrepancy between the electronic documents cited here and the FCC Record, the version in the FCC Record is definitive.

#### V. ORDERING CLAUSES

141. Accordingly, IT IS ORDERED that Part 15 of the Commission's Rules ARE AMENDED as specified in Appendix B, effective 30 days after publication in the Federal Register. This action is taken pursuant to the authority contained in Sections 4(i), 301, 302, 303(e), 303(f), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 301, 302, 303(e), 303(f), and 303(r).

142. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION



Marlene H. Dortch  
Secretary

<sup>283</sup> See Letter from the FCC to ARRL, dated October 14, 2004. See also, 47 C.F.R. § 1.1204(a).

## APPENDIX A

## FINAL REGULATORY FLEXIBILITY ANALYSIS

As required by the Regulatory Flexibility Act ("RFA"),<sup>284</sup> an Initial Regulatory Flexibility Analysis ("IRFA") was incorporated in the *Notice of Proposed Rule Making* ("Notice") in this proceeding, ET Docket Nos. 04-37 & 03-104. The Commission sought written public comment on the proposals in the *Notice*, including comment on the IRFA. This Final Regulatory Flexibility Analysis ("FRFA") conforms to the RFA.<sup>285</sup>

**A. Need for, and Objectives of, the Report and Order**

By this action, the Commission amends Part 15 of the rules for radio frequency (RF) devices regarding Access Broadband over Power Line (Access BPL), a new type of carrier current system that operates on an unlicensed basis under Part 15. Access BPL systems use existing electrical power lines as a transmission medium to provide high-speed communications capabilities by coupling RF energy onto the power line. Given that power lines reach virtually every residence and business in every community and geographic area in this country, Access BPL service could be made available nearly everywhere. This new broadband delivery medium could also serve to introduce additional competition to existing cable, DSL, and other broadband services. At the same time, we recognize the concerns of authorized radio services in both the private and government sectors for the need to ensure that RF energy from BPL signals on power lines does not cause harmful interference to licensed radio services. Our goals in developing the rules for Access BPL therefore are to provide a framework that will both facilitate the rapid introduction and development of BPL systems and protect licensed radio services from harmful interference. Specifically, we adopt in this Report and Order: 1) new operational requirements for Access BPL to promote avoidance and resolution of harmful interference; 2) new administrative requirements to aid in identifying Access BPL installations; and 3) specific measurement guidelines and certification requirements to allow accurate and repeatable evaluations of emissions from Access BPL and all other carrier current systems. These actions will further the development of BPL systems by removing regulatory uncertainties for BPL operators and equipment manufacturers and facilitate the continued deployment of these new broadband networks while ensuring that licensed radio services are protected from harmful interference. The record and our investigations indicate that BPL network systems can generally be configured and managed to minimize and/or eliminate this interference potential.

**B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA**

No comments were filed in response to the IRFA.

**C. Description and Estimate of the Number of Small Entities To Which the Rules Will Apply**

The RFA directs agencies to provide a description of, and, where feasible, an estimate of, the number of small entities that may be affected by the rules adopted herein.<sup>286</sup> The RFA generally defines the

<sup>284</sup> See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 - 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

<sup>285</sup> See 5 U.S.C. § 604.

<sup>286</sup> 5 U.S.C. § 604(a)(3).

term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>287</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>288</sup> A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).<sup>289</sup>

The rules adopted in this Report and Order pertain to manufacturers of unlicensed communications devices. The appropriate small business size standard is that which the SBA has established for radio and television broadcasting and wireless communications equipment manufacturing. This category encompasses entities that primarily manufacture radio, television, and wireless communications equipment.<sup>290</sup> Under this standard, firms are considered small if they have 750 or fewer employees.<sup>291</sup> Census Bureau data for 1997 indicate that, for that year, there were a total of 1,215 establishments<sup>292</sup> in this category.<sup>293</sup> Of those, there were 1,150 that had employment under 500, and an additional 37 that had employment of 500 to 999. The percentage of wireless equipment manufacturers in this category is approximately 61.35%,<sup>294</sup> so the Commission estimates that the number of wireless equipment manufacturers with employment under 500 was actually closer to 706, with an additional 23 establishments having employment of between 500 and 999. Given the above, the Commission estimates that the great majority of wireless communications equipment manufacturers are small businesses.

#### **D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements**

Although a large number of Part 15 radio frequency devices are already required to be authorized under the Commission's Certification, Declaration of Conformity, or Verification procedures as a prerequisite to marketing and importation, the adopted rules add a slight amount of new testing and reporting requirements, to ensure protection of licensed spectrum users from harmful interference. These requirements include the proposed technical requirement for adaptive interference mitigation capabilities

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<sup>287</sup> 5 U.S.C. § 601(6).

<sup>288</sup> 5 U.S.C. § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

<sup>289</sup> 15 U.S.C. § 632.

<sup>290</sup> NAICS code 334220.

<sup>291</sup> *Id.*

<sup>292</sup> The number of “establishments” is a less helpful indicator of small business prevalence in this context than would be the number of “firms” or “companies,” because the latter take into account the concept of common ownership or control. Any single physical location for an entity is an establishment, even though that location may be owned by a different establishment. Thus, the numbers given may reflect inflated numbers of businesses in this category, including the numbers of small businesses. In this category, the Census breaks-out data for firms or companies only to give the total number of such entities for 1997, which was 1,089.

<sup>293</sup> U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, “Industry Statistics by Employment Size,” Table 4, NAICS code 334220 (issued August 1999).

<sup>294</sup> *Id.* Table 5, “Industry Statistics by Industry and Primary Product Class Specialization: 1997.”

and the proposed notification of Access BPL systems in a database similar to the one required for existing Power Line Carrier systems. The major differences between the existing Part 15 rules for carrier current systems and the newly adopted rules in subpart G for Access BPL are (1) the type of equipment authorization procedure, –Verification for existing carrier current systems, Certification for Access BPL systems; (2) the requirement for interference mitigation techniques and avoidance of excluded bands and exclusion zones for Access BPL systems; and (3) the requirement for an Access BPL database concurrent with consultation with licensed spectrum users. Because Access BPL systems operate in the High Frequency (HF) and in the low Very High Frequency (VHF) of the spectrum, they must co-exist with numerous private and governmental authorized radio services. As such, they present concerns for these licensed users, given the propagation characteristics of radio frequency signals in these ranges of frequencies, the diversity of users of these frequencies, and the fact that Access BPL devices will be installed at many locations in an area, primarily over unshielded power lines. However, the record and our own investigations indicate that BPL network systems can generally be configured and managed to minimize and/or eliminate this interference potential, through the use of consultation with licensed services and identification of installed Access BPL equipment in a database, as well as the adoption of precise measurement procedures. The adopted certification procedure for Access BPL systems will therefore help provide a more detailed record of their characteristics toward this objective.

Although the adopted rules do somewhat increase the reporting and record keeping requirements for Access BPL systems, the benefit of ensuring protection to critical systems operated by law enforcement groups, government users and emergency operations outweighs this small cost that will permit the growth of Access BPL in the shared spectrum.

**E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.

In this Report & Order, we have maintained the existing Part 15 emission limits, which are applicable to all Part 15 devices, including BPL. We have adopted new measurement guidelines for BPL and existing carrier current systems, to assist manufacturers and testing entities to follow clearer and more precise measurement procedures in the testing of BPL and carrier current systems (CCS), which will help in eliminating confusion and repetitive and costly compliance testing. Although we changed the equipment authorization procedure from Verification to Certification for Access BPL systems, this is because Access BPL systems operate in a different environment than other unlicensed Part 15 devices and to avoid overburdening the information that would otherwise be required to be submitted into the Access BPL database. We have adopted a simple Access BPL database format for the notification of Access BPL systems, rather than a complex one with all-inclusive and more comprehensive information. We have narrowed down the list of absolutely necessary licensed entities that Access BPL providers must consult with prior to operating in their bands, as well as the list of exclusion zones and excluded frequency bands in which Access BPL are prohibited from operating. We have provided a generous time frame for a transition period, thus allowing existing systems to continue to operate, as long as they do not cause harmful interference to other authorized radio services. Finally, the rules will apply equally to large and small entities. Therefore, there is no inequitable impact on small entities.

We believe that the rules adopted herein are equitable, balancing the critical needs of licensed

radio users for protection against harmful interference, with facilitating the development of Access BPL by removing regulatory uncertainties. For the reasons stated above we find that the rule changes contained in this Report and Order will not present a significant economic burden to small entities.

**Report to Congress.** The Commission will send a copy of the Report and Order, including this FRFA, in a report to Congress pursuant to the Congressional Review Act.<sup>295</sup> In addition, the Commission will send a copy of the Report and Order, including the FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the Report and Order and FRFA (or summaries thereof) will also be published in the Federal Register.<sup>296</sup>

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<sup>295</sup> See 5 U.S.C. § 801(a)(1)(A).

<sup>296</sup> See 5 U.S.C. § 604(b).

## APPENDIX B

## FINAL RULE

Title 47 of the Code of Federal Regulations, Part 15, is amended as follows:

1. The authority citation for Part 15 continues to read as follows:

AUTHORITY: 47 U.S.C.154, 302, 303, 304, 307 and 544A.

2. Section 15.3 is amended by adding paragraphs (ff) and (gg) to read as follows:

Section 15.3 Definitions.

\* \* \* \* \*

(ff) Access Broadband over Power Line (Access BPL). A carrier current system installed and operated on an electric utility service as an unintentional radiator that sends radio frequency energy on frequencies between 1.705 MHz and 80 MHz over medium voltage lines or over low voltage lines to provide broadband communications and is located on the supply side of the utility service's points of interconnection with customer premises. Access BPL does not include power line carrier systems as defined in Section 15.3(t) of this part or In-House BPL as defined in Section 15.3(gg) of this part.

(gg) In-House Broadband over power line (In-House BPL). A carrier current system, operating as an unintentional radiator, that sends radio frequency energy by conduction over electric power lines that are not owned, operated or controlled by an electric service provider. The electric power lines may be aerial (overhead), underground, or inside the walls, floors or ceilings of user premises. In-House BPL devices may establish closed networks within a user's premises or provide connections to Access BPL networks, or both.

3. Section 15.15 is amended by revising paragraph (b), to read as follows:

Section 15.15 General Technical Requirements

\* \* \* \* \*

(b) Except as specified in paragraph (c), an intentional or unintentional radiator must be constructed such that the adjustments of any control that is readily accessible by or intended to be accessible to the user will not cause operation of the device in violation of the regulations.

(c) Access BPL equipment shall comply with the applicable standards at the control adjustment that is employed. The measurement report used in support of an application for Certification and the user instructions for Access BPL equipment shall clearly specify the user- or installer-control settings that are required for conformance with these regulations.

4. Section 15.31 is amended by revising paragraph (f)(5), to read as follows:

Section 15.31 Measurement standards.

\* \* \* \* \*

(f) \* \* \*

\* \* \* \* \*

(5) Measurements shall be performed at a sufficient number of radials around the equipment under test to determine the radial at which the field strength values of the radiated emissions are maximized. The maximum field strength at the frequency being measured shall be reported in the report. This paragraph shall not apply to Access BPL equipment on overhead medium voltage lines. In lieu thereof, the measurement guidelines established by the Commission for Access BPL shall be followed.

\* \* \* \* \*

5. Section 15.37 is amended by adding paragraph (l) to read as follows:

Section 15.37 Transition provisions for compliance with the rules.

\* \* \* \* \*

(l) All Access BPL devices that are manufactured, imported, marketed or installed on or after *[insert date 18 months from date of publication in the Federal Register]* shall comply with the requirements specified in subpart G of this part, including certification of the equipment.

6. Section 15.101 is amended by revising paragraph (a) to read as follows:

(a) \* \* \* \* \*

Type of device	Equipment authorization required
TV broadcast receiver.....	Verification
FM broadcast receiver.....	Verification
CB receiver.....	Declaration of Conformity or Certification
Superregenerative receiver.....	Declaration of Conformity or Certification
Scanning receiver.....	Certification
Radar detector.....	Certification
All other receivers subject to Part 15.....	Declaration of Conformity or Certification
TV interface device.....	Declaration of Conformity or Certification
Cable system terminal device.....	Declaration of Conformity
Stand-alone cable input selector switch.....	Verification
Class B personal computers and peripherals.....	Declaration of Conformity or Certification**
CPU boards and internal power supplies used with Class B personal computers.....	Declaration of Conformity or Certification**
Class B personal computers assembled using authorized CPU boards or power supplies.....	Declaration of Conformity

Type of device	Equipment authorization required
Class B external switching power supplies.....	Verification
Other Class B digital devices & peripherals.....	Verification
Class A digital devices, peripherals & external switching power supplies.....	Verification
Access Broadband over Power Line (Access BPL)	Certification
All other devices.....	Verification

7. Part 15 is amended by adding a new Subpart G, to read as follows:

**SUBPART G – ACCESS BROADBAND OVER POWER LINE (Access BPL)**

Section 15.601 Scope.

This subpart sets out the regulations for Access Broadband over Power Line (Access BPL) devices operating in the 1.705-80 MHz band over medium or low voltage lines.

Section 15.603 Definitions.

(a) Excluded Band: A band of frequencies within which Access BPL operations are not permitted.

(b) Exclusion Zone: A geographical area within which Access BPS operations are not permitted in certain frequency bands.

(c) Consultation. The process of communication between an entity operating Access BPL and a licensed public safety or other designated point of contact for the purpose of avoiding potential harmful interference.

(d) Consultation area: A designated geographical area within which consultation with public safety users or other designated point of contact is required before an Access BPL may be operated at designated frequencies.

(e) Low Voltage power line. A power line carrying low voltage, e.g., 240/120 volts from a distribution transformer to a customer's premises.

(f) Medium Voltage power line. A power line carrying between 1,000 to 40,000 volts from a power substation to neighborhoods. Medium voltage lines may be overhead or underground, depending on the power grid network topology.

(g) Access BPL Database. A database operated by an industry-sponsored entity, recognized by the Federal Communications Commission and the National Telecommunications and Information Administration (NTIA), containing information regarding existing and planned Access BPL systems, as required in Section 15.615(a) of this subpart.

Section 15.605 Cross reference.

(a) The provisions of subparts A and B of this part apply to Access BPL devices, except where specifically noted. The provisions of subparts C-F of this part do not apply to Access BPL devices except where specifically noted.

(b) The requirements of this subpart apply only to the radio circuitry that is used to provide carrier current operation for the Access BPL device. Other aspects of the operation of an Access BPL device may be subject to requirements contained elsewhere in this chapter. In particular, an Access BPL device that includes digital circuitry that is not used solely to enable the operation of the radio frequency circuitry used to provide carrier current operation also is subject to the requirements for unintentional radiators in subpart B.

#### Section 15.607 Equipment Authorization of Access BPL equipment

Access BPL equipment shall be subject to Certification as specified in Section 15.101 of this part.

#### Section 15.609 Marketing of Access BPL equipment

The marketing of Access BPL equipment must be directed solely to parties eligible to operate the equipment. Eligible parties consist of AC power line public utilities, Access BPL service providers and associates of Access BPL service providers. The responsible party, as defined in Section 2.909 of this chapter, is responsible for ensuring that the equipment is marketed only to eligible parties. Marketing of the equipment in any other manner may be considered grounds for revocation of the grant of certification issued for the equipment.

#### Section 15.611 General technical requirements.

(a) Conducted emission limits. Access BPL is not subject to the conducted emission limits of Section 15.107.

(b) Radiated emission limits

(1) Medium voltage power lines

(i) Access BPL systems that operate in the frequency range of 1.705 kHz to 30 MHz over medium voltage power lines shall comply with the radiated emission limits for intentional radiators provided in Section 15.209 of this part.

(ii) Access BPL systems that operate in the frequency range above 30 MHz over medium voltage power lines shall comply with the radiated emission limits provided in Section 15.109(b) of this part.

(2) Low voltage power lines. Access BPL systems that operate over low-voltage power lines, including those that operate over low-voltage lines that are connected to the in-building wiring, shall comply with the radiated emission limits provided in Section 15.109(a) and (e) of this part.

(c) Interference Mitigation and Avoidance.

(1) Access BPL systems shall incorporate adaptive interference mitigation techniques to remotely reduce power and adjust operating frequencies, in order to avoid site-specific, local use of the

same spectrum by licensed services. These techniques may include adaptive or "notch" filtering, or complete avoidance of frequencies, or bands of frequencies, locally used by licensed radio operations.

(i) For frequencies below 30 MHz, when a notch filter is used to avoid interference to a specific frequency band, the Access BPL system shall be capable of attenuating emissions within that band to a level at least 20 dB below the applicable Part 15 limits.

(ii) For frequencies above 30 MHz, when a notch filter is used to avoid interference to a specific frequency band, the Access BPL system shall be capable of attenuating emissions within that band to a level at least 10 dB below the applicable Part 15 limits.

(2) Access BPL systems shall comply with applicable radiated emission limits upon power-up following a fault condition, or during a start-up operation after a shut-off procedure, by the use of a non-volatile memory, or some other method, to immediately restore previous settings with programmed notches and excluded bands, to avoid time delay caused by the need for manual re-programming during which protected services may be vulnerable.

(3) Access BPL systems shall incorporate a remote-controllable shut-down feature to deactivate, from a central location, any unit found to cause harmful interference, if other interference mitigation techniques do not resolve the interference problem.

#### Section 15.613 Measurement Procedures.

Compliance measurements for Access BPL shall be made in accordance with the Guidelines for Access BPL systems specified by the Commission.

#### Section 15.615 General administrative requirements.

(a) *Access BPL Database.* Entities operating Access BPL systems shall supply to an industry-recognized entity, information on all existing Access BPL systems and all proposed Access BPL systems for inclusion into a publicly available data base, within 30 days prior to initiation of service. Such information shall include the following:

- (1) The name of the Access BPL provider
- (2) The frequencies of the Access BPL operation
- (3) The postal zip codes served by the specific Access BPL operation
- (4) The manufacturer and type of Access BPL equipment and its associated FCC ID number, or, in the case of Access BPL equipment that has been subject to verification, the Trade Name and Model Number, as specified on the equipment label.
- (5) 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.
- (6) The proposed/or actual date of Access BPL operation.

(b) The Access BPL database manager shall enter this information into the publicly accessible database within three (3) business days of receipt.

(c) No notification to the Commission is required.

(d) A licensed spectrum user experiencing harmful interference that is suspected to be caused by an Access BPL system shall inform the local BPL operator's contact person designated in the Access BPL database. The investigation of the reported interference and the resolution of confirmed harmful interference from the Access BPL system shall be successfully completed by the BPL operator within a reasonable time period according to a mutually acceptable schedule, after the receipt of an interference complaint, in order to avoid protracted disruptions to licensed services. The Access BPL operator shall respond to complaints of harmful interference from public safety users within 24 hours. With regard to public safety complaints, the BPL provider shall be required to immediately cease the operations causing such complaint if it fails to respond within 24 hours.

(e) *Consultation with public safety users.* An entity operating an Access BPL system shall notify and consult with the public safety users in the area where it plans to deploy Access BPL, at least 30 days prior to initiation of any operation or service. This entity shall design or implement the Access BPL system such that it does not cause harmful interference in those frequencies or bands used by the public safety agencies in the area served by the Access BPL system. The notification shall include, at a minimum, the information in paragraph (a) of this section.

(f) *Federal government spectrum users and other radio service users.* An entity operating an Access BPL system shall ensure that, within its Access BPL deployment area, its system does not operate on any frequencies designated as excluded bands or on identified frequencies within any designated exclusion zones.

(1) *Excluded Bands.* To protect Aeronautical (land) stations and aircraft receivers, Access BPL operations using overhead medium voltage power lines are prohibited in the frequency bands listed in Table 1. Specifically, such BPL systems shall not place carrier frequencies in these bands.

**Table 1. Excluded Frequency Bands**

<b>FREQUENCY BAND</b>
2,850 – 3,025 kHz
3,400 – 3,500 kHz
4,650 – 4,700 kHz
5,450 – 5,680 kHz
6,525 – 6,685 kHz
8,815 – 8,965 kHz
10,005 – 10,100 kHz
11,275 – 11,400 kHz
13,260 – 13,360 kHz
17,900 – 17,970 kHz
21,924 – 22,000 kHz
74.8 – 75.2 MHz

(2) *Exclusion zones.* Exclusion zones encompass the operation of any Access BPL system within 1km of the boundary of coast station facilities at the coordinates listed in Tables 2 and 2.1. Exclusion zones also encompass the operation of Access BPL systems using overhead medium voltage power lines within 29 km of the coordinates for the ten Very Long Baseline Array facilities listed in

Allocation US311. Exclusion zones further encompass the operation of Access BPL systems using overhead low voltage power lines or underground power lines within 11 km of the coordinates for the ten Very Long Baseline Array facilities listed in Allocation US311. Within the exclusion zones for coast stations, Access BPL systems shall not use carrier frequencies within the band of 2173.5-2190.5 kHz. Within the exclusion zone for Very Long Baseline Array radio astronomy observatories, Access BPL systems shall not use carrier frequencies within the 73.0-74.6 MHz band.

(i) *Existing coast station facilities.* Access BPL systems shall not operate in the frequency band 2,173.5 – 2,190.5 kHz, within 1 kilometer (km) of the boundary of coast station facilities at the coordinates listed in Tables 2 and 2.1. BPL operators planning to deploy Access BPL devices at these frequencies in areas within these exclusion zones as defined above shall consult with the appropriate point of contact for these coast stations to ensure harmful interference is prevented at these facilities.

**Table 2. Exclusion zones for U.S. Coast Guard Coast Stations**

**Point of Contact**  
 Commandant (CG 622)  
 U.S. Coast Guard  
 2100 2<sup>nd</sup> Street, S.W.  
 Washington, DC 20593 – 0001  
 Telephone: (202) 267 – 2860  
 E-Mail: cgcomms@comdt.uscg.mil

<b>Locale</b>	<b>Latitude</b>	<b>Longitude</b>
Group Guam	13° 35' 23" N	144° 50' 24" E
GANTSEC	18° 18' 00" N	65° 46' 59" W
Puerto Rico	18° 28' 11" N	66° 07' 47" W
Honolulu	21° 18' 21" N	157° 53' 23" W
Group Key West	24° 33' 35" N	81° 47' 59" W
Trumbo Point CG Base	24° 33' 58" N	81° 47' 57" W
Miami	25° 37' 28" N	80° 23' 07" W
Everglades Park	25° 50' 10" N	81° 23' 13" W
Group Saint Petersburg (Everglades)	25° 51' 00" N	81° 23' 24" W
Station Ft. Lauderdale	26° 05' 21" N	80° 06' 40" W
Station Ft. Myers Beach	26° 27' 34" N	81° 57' 15" W
Group Miami (Ft. Pierce)	27° 27' 36" N	80° 18' 36" W
Station Ft. Pierce	27° 27' 50" N	80° 18' 27" W
Group Corpus Christi	27° 42' 01" N	97° 16' 11" W
Group Corpus Christi	27° 42' 06" N	97° 16' 45" W
ESD Saint Petersburg	27° 45' 21" N	82° 37' 32" W
Group Saint Petersburg	27° 46' 11" N	82° 37' 47" W
Station Port O'Connor	28° 26' 03" N	96° 25' 39" W
S. Padre Island	28° 26' 22" N	97° 09' 56" W
Freeport	28° 55' 59" N	95° 16' 59" W
Group Galveston (Freeport)	28° 56' 24" N	95° 17' 59" W
Station YANKEETOWN	29° 01' 51" N	82° 43' 39" W

Locale	Latitude	Longitude
Station Ponce De Leon Inlet	29° 03' 50" N	81° 55' 01" W
Group New Orleans (Grand Isle)	29° 15' 53" N	89° 57' 26" W
Galveston	29° 19' 59" N	94° 46' 18" W
Kapalan	29° 20' 04" N	94° 47' 17" W
Sabine	29° 43' 42" N	93° 52' 14" W
New Orleans	30° 01' 17" N	90° 07' 24" W
Panama City	30° 10' 01" N	85° 45' 04" W
Group Mobile (Panama City)	30° 10' 12" N	85° 45' 36" W
ANT Jacksonville Beach	30° 17' 16" N	81° 24' 10" W
Pensacola	30° 20' 24" N	87° 18' 17" W
Group Mayport	30° 23' 10" N	81° 26' 01" W
Group Mayport	30° 23' 24" N	81° 25' 48" W
Ft. Morgan	30° 39' 07" N	88° 03' 12" W
Tybee Lighthouse	32° 01' 15" N	80° 50' 39" W
Point Loma Lighthouse	32° 39' 56" N	117° 14' 34" W
Point Loma	32° 40' 07" N	117° 14' 14" W
Activities San Diego	32° 43' 59" N	117° 11' 13" W
Group Charleston (Sullivan's Island)	32° 45' 00" N	79° 49' 47" W
Sullivan's Island Lights	32° 45' 02" N	79° 50' 03" W
Group Charleston	32° 46' 25" N	79° 56' 37" W
Group San Diego	32° 52' 48" N	118° 26' 23" W
San Pedro	33° 45' 00" N	118° 15' 58" W
Group Fort Macon	33° 53' 24" N	78° 01' 48" W
Point Mugu	33° 59' 32" N	119° 07' 18" W
Group LA / Long Beach	34° 07' 11" N	119° 06' 35" W
Channel Island	34° 09' 17" N	119° 13' 11" W
Station Oxnard Channel Island	34° 09' 43" N	119° 13' 19" W
Group Ft. Macon	34° 41' 48" N	76° 40' 59" W
Group Cape Hatteras	35° 13' 59" N	75° 31' 59" W
Group Cape Hatteras	35° 15' 35" N	75° 31' 48" W
Morro Bay (Cambria)	35° 31' 21" N	121° 03' 21" W
San Clemente Island	32° 50' 24" N	118° 23' 15" W
Point Pinos	36° 38' 12" N	121° 56' 06" W
CAMSLANT	36° 43' 47" N	76° 01' 11" W
Group Hampton Roads	36° 53' 01" N	76° 21' 10" W
Point Montara	37° 31' 23" N	122° 30' 47" W
Point Montara Lighthouse	37° 32' 09" N	122° 31' 08" W
Group San Francisco	37° 32' 23" N	122° 31' 11" W
Group San Francisco	37° 48' 34" N	122° 21' 55" W
Point Bonita	37° 49' 00" N	122° 31' 41" W
Group Eastern Shores	37° 55' 47" N	75° 22' 47" W
Group Eastern Shore	37° 55' 50" N	75° 22' 58" W
CAMSPAC	38° 06' 00" N	122° 55' 48" W
Point Arena Lighthouse	38° 57' 18" N	124° 44' 28" W
Point Arena	38° 57' 36" N	123° 44' 23" W
Group Atlantic City	39° 20' 59" N	74° 27' 42" W
Activities New York	40° 36' 06" N	74° 03' 36" W
Activities New York	40° 37' 11" N	74° 04' 11" W

Locale	Latitude	Longitude
ESD Moriches Hut	40° 47' 19" N	72° 44' 53" W
Group Moriches	40° 47' 23" N	72° 45' 00" W
Group Humboldt Bay	40° 58' 41" N	124° 06' 31" W
Group Humboldt Bay	40° 58' 47" N	124° 06' 35" W
Trinidad Head	41° 03' 15" N	124° 09' 02" W
Group Long Island Sound	41° 16' 12" N	72° 54' 00" W
Station New Haven	41° 16' 12" N	72° 54' 06" W
Station Brant Point	41° 17' 21" N	70° 05' 31" W
Group Woods Hole	41° 17' 23" N	70° 04' 47" W
Station Castle Hill	41° 27' 46" N	71° 21' 42" W
Group Woods Hole	41° 17' 29" N	70° 40' 07" W
Boston Area	41° 40' 12" N	70° 31' 48" W
Station Provincetown	42° 01' 48" N	70° 12' 42" W
Eastern Point	42° 36' 24" N	70° 39' 26" W
Cape Blanco	42° 50' 16" N	124° 33' 52" W
Group North Bend	43° 24' 16" N	124° 13' 22" W
Group North Bend	43° 24' 35" N	124° 14' 23" W
Cape Elizabeth	43° 33' 28" N	70° 12' 00" W
Group South Portland	43° 38' 24" N	70° 15' 00" W
Group South Portland	43° 38' 45" N	70° 14' 51" W
Group SW Harbor	44° 16' 19" N	68° 18' 27" W
Group Southwest Harbor	44° 16' 48" N	68° 18' 36" W
Fort Stevens, Oregon	46° 09' 14" N	123° 53' 07" W
Group Astoria	46° 09' 29" N	123° 31' 48" W
Group Astoria	46° 09' 35" N	123° 53' 24" W
La Push	47° 49' 00" N	124° 37' 59" W
Station Quillayute River	47° 54' 49" N	124° 38' 01" W
Port Angeles	48° 07' 59" N	123° 25' 59" W
Group Port Angeles	48° 08' 24" N	123° 24' 35" W
Juneau (Sitka)	57° 05' 24" N	135° 15' 35" W
Kodiak	57° 40' 47" N	152° 28' 47" W
Valdez (Cape Hinchinbrook)	60° 26' 23" N	146° 25' 48" W

Note: Systems of coordinates conform to NAD 83

**Table 2.1 Exclusion zones for Maritime Public Coast Stations  
(Points of Contact are identified in the Commission's License Database)**

Licensee Name	Location	Latitude	Longitude
Shipcom LLC	Marina Del Ray, CA	33° 56' 21" N	118° 27' 14" W
Globe Wireless	Rio Vista, CA	38° 11' 55" N	121° 48' 34" W
Avalon Communications Corp	St. Thomas, VI	18° 21' 19" N	64° 56' 48" W
Globe Wireless	Bishopville, MD	38° 24' 10" N	75° 12' 59" W
Shipcom LLC	Mobile, AL	30° 40' 07" N	88° 10' 23" W
Shipcom, LLC	Coden, AL	30° 22' 35" N	88° 12' 20" W
Globe Wireless	Pearl River, LA	30° 22' 13" N	89° 47' 26" W
Globe Wireless	Kahalelani, HI	21° 10' 33" N	157° 10' 39" W

Licensee Name	Location	Latitude	Longitude
Globe Wireless	Palo Alto, CA	37° 26' 44" N	122° 06' 48" W
Globe Wireless	Agana, GU	13° 29' 22" N	144° 49' 39" E

Note: Systems of coordinates conform to NAD 83

(ii) *New or relocated Coast stations.* In the unlikely event that a new or relocated coast station is established for the 2.173.5 – 2.190.5 kHz band at a coordinate not specified in Table 2 or 2.1, Access BPL operations in that frequency band shall also be excluded within 1 km of the new coast station facility;

(iii) *Very Long Baseline Array (VLBA) radio astronomy observatories.* Access BPL systems using overhead medium voltage power lines shall not operate in the frequency band 73.0 – 74.6 MHz, within 29 km of the coordinates of the ten (10) Very Long Baseline Array facilities listed in 47 C.F.R § 2.106, Note US311. Access BPL systems using overhead low voltage power lines or underground power lines shall not operate in the 73.0 – 74.6 MHz band within 11 km of those coordinates.

(3) *Consultation areas.* Access BPL operators shall provide notification to the appropriate point of contact specified below regarding Access BPL operations at any frequencies of potential concern in the following consultation areas, at least 30 days prior to initiation of any operation or service. The notification shall include, at a minimum, the information in paragraph (a) of this section. We expect parties to consult in good faith to ensure that no harmful interference is caused to licensed operations and that any constraints on BPL deployments are minimized to those necessary to avoid harmful interference.

(i) For frequencies in the 1.7–30 MHz frequency range, the areas within 4 km of facilities located at the following coordinates:

- A. the Commission's protected field offices listed in 47 C.F.R. §0.121, the point-of-contact for which is specified in that section;
- B. (ii) the aeronautical stations listed in Tables 3a and 3b;
- C. (iii) the land stations listed in Tables 4 and 5;

(ii) For frequencies in the 1.7–38.25 MHz frequency range, the areas within 4 km of facilities located at the coordinates specified for radio astronomy facilities in 47 C.F.R. § 2.106, Note US 311.

(iii) For frequencies in the 1.7–80 MHz frequency range, the area within 1 km of the Table Mountain Radio Receiving Zone, the coordinates and point of contact for which are specified in 47 C.F.R. § 21.113(b).

(iv) For frequencies in the 1.7–30 MHz frequency range, the areas within 37 km of radar receiver facilities located at the coordinates specified in Table 6.

**Table 3a. Consultation Area Coordinates for Aeronautical (OR) Stations (1.7 – 30 MHz)**

Point of contact  
 US Coast Guard HQ  
 Division of Spectrum Management CG-622  
 2100 Second St., SW. Rm. 6611  
 Washington, DC 20593  
 Tel: 202-267-6036

Fax: 202-267-4106  
 Email: [jtaboada@comdt.uscg.mil](mailto:jtaboada@comdt.uscg.mil)

Command Name	Location	Latitude	Longitude
Washington	Arlington, VA	38° 51' 07" N	77° 02' 15" W
Cape Cod	Cape Cod, MA	41° 42' 00" N	70° 30' 00" W
Atlantic City	Atlantic City, NJ	39° 20' 59" N	74° 27' 42" W
Elizabeth City	Elizabeth City, NC	36° 15' 53" N	76° 10' 32" W
Savannah	Savannah, GA	32° 01' 30" N	81° 08' 30" W
Miami	Opa Locka, FL	25° 54' 22" N	80° 16' 01" W
Clearwater	Clearwater, FL	27° 54' 27" N	82° 41' 29" W
Borinquen	Aguadilla, PR	18° 18' 36" N	67° 04' 48" W
New Orleans	New Orleans, LA	29° 49' 31" N	90° 02' 06" W
Traverse City	Traverse City, MI	44° 44' 24" N	85° 34' 54" W
San Diego	San Diego, CA	32° 43' 33" N	117° 10' 15" W
Sacramento	McClellan AFB, CA	38° 40' 06" N	121° 24' 04" W
Astoria	Warrenton, OR	46° 25' 18" N	123° 47' 46" W
North Bend	North Bend, OR	43° 24' 39" N	124° 14' 35" W
Barbers Point	Kapolei, HI	21° 18' 01" N	158° 04' 15" W
Kodiak	Kodiak, AK	57° 44' 19" N	152° 30' 18" W
Houston	Houston, TX	29° 45' 00" N	95° 22' 00" W
Detroit	Mt. Clemens, MI	42° 36' 05" N	82° 50' 12" W
San Francisco	San Francisco, CA	37° 37' 58" N	122° 23' 20" W
Los Angeles	Los Angeles, CA	33° 56' 36" N	118° 23' 48" W
Humboldt Bay	McKinleyville, CA	40° 58' 39" N	124° 06' 45" W
Port Angeles	Port Angeles, WA	48° 08' 25" N	123° 24' 48" W
Sitka	Sitka, AK	57° 05' 50" N	135° 21' 58" W

Note: Systems of coordinates conform to NAD 83

**Table 3b. Consultation Area Coordinates for Aeronautical Receive Stations (1.7 – 30 MHz)**

Point of contact

ARINC

2551 Riva Road

Annapolis, MD 21401

Tel: 1-800-633-6882

Fax: 410-266-2329

Email: [arincmkt@arinc.com](mailto:arincmkt@arinc.com)

[www.arinc.com](http://www.arinc.com)

Locale	Latitude	Longitude
Southampton, NY	40° 55' 15" N	72° 23' 41" W
Molokai, HI	21° 12' 23" N	157° 12' 30" W
Oahu, HI	21° 22' 27" N	158° 05' 56" W

Half Moon Bay, CA	37° 39' 00" N	122° 41' 00" W
Pt. Reyes, CA	38° 06' 00" N	122° 56' 00" W
Barrow, AK	71° 17' 24" N	156° 48' 12" W
Guam	13° 25' 00" N	144° 44' 57" E (note: Eastern Hemisphere)
NY Comm Center, NY	40° 46' 48" N	73° 05' 46" W
Cedar Rapids, IA	42° 02' 05.0" N	91° 38' 37.6" W
Beaumont, CA	33° 54' 27.1" N	116° 59' 49.1" W
Fairfield, TX	31° 47' 02.6" N	96° 47' 03.0" W
Houston, TX	29° 36' 35.8" N	95° 16' 54.8" W
Miami, FL	25° 49' 05" N	80° 18' 28" W

Note: Systems of coordinates conform to NAD 83

**Table 4. Consultation Area Coordinates for Land Stations, Set 1 (1.7–30 MHz)**

Point Of Contact  
Us Coast Guard HQ  
Division of Spectrum Management CG-622  
2100 Second St., SW. Rm. 6611  
Washington, DC 20593  
Tel: 202-267-6036  
Fax: 202-267-4106  
Email: [jtaboada@comdt.uscg.mil](mailto:jtaboada@comdt.uscg.mil)

Command Name	Location	Latitude	Longitude
COMMSTA Boston	Maspee, MA	41° 24' 00" N	70° 18' 57" W
Camslant	Chesapeake, VA	36° 33' 59" N	76° 15' 23" W
COMMSTA Miami	Miami, FL	25° 36' 58" N	80° 23' 04" W
COMMSTA New Orleans	Belle Chasse, IA	29° 52' 40" N	89° 54' 46" W
Camspac	Pt. Reyes Sta, CA	38° 06' 00" N	122° 55' 48" W
COMMSTA Honolulu	Wahiawa, HI	21° 31' 08" N	157° 59' 28" W
COMMSTA Kodiak	Kodiak, AK	57° 04' 26" N	152° 28' 20" W
Guam	Finegayan, GU	13° 53' 08" N	144° 50' 20" E

Note: Systems of coordinates conform to NAD 83

**Table 5. Consultation Area Coordinates for Land Stations, Set 2 (1.7 – 30 MHz)**

Point of contact  
COTHEN Technical Support Center  
COTHEN Program Manager  
Tel: (800) 829-6336

Site Name	Latitude	Longitude
Albuquerque, NM	35° 05' 02" N	105° 34' 23" W
Arecibo, PR	18° 17' 26" N	66° 22' 33" W
Atlanta, GA	32° 33' 06" N	84° 23' 35" W
Beaufort, SC	34° 34' 22" N	76° 09' 48" W
Cape Charles, VA	37° 05' 37" N	75° 58' 06" W
Cedar Rapids, IA	42° 00' 09" N	91° 17' 39" W

Site Name	Latitude	Longitude
Denver, CO	39° 15' 45" N	103° 34' 23" W
Fort Myers, FL	81° 31' 20" N	26° 20' 01" W
Kansas City, MO	38° 22' 10" N	93° 21' 48" W
Las Vegas, NV	36° 21' 15" N	114° 17' 33" W
Lovelock, NV	40° 03' 07" N	118° 18' 56" W
Memphis, TN	34° 21' 57" N	90° 02' 43" W
Miami, FL	25° 46' 20" N	80° 28' 48" W
Morehead City, NC	34° 34' 50" N	78° 13' 59" W
Oklahoma City, OK	34° 30' 52" N	97° 30' 52" W
Orlando, FL	28° 31' 30" N	80° 48' 58" W
Reno, NV	38° 31' 12" N	119° 14' 37" W
Sarasota, FL	27° 12' 41" N	81° 31' 20" W
Wilmington, NC	34° 29' 24" N	78° 04' 31" W

Note: Systems of coordinates conform to NAD 83

**Table 6. Consultation Area Coordinates for Radar Receiver Stations (1.7 – 30 MHz)**

Point Of Contact  
 ROTHF Deputy Program Manager  
 (540) – 653 – 3624

LATITUDE / LONGITUDE
18° 01' N / 66° 30' W
28° 05' N / 98° 43' W
36° 34' N / 76° 18' W

Note: Systems of coordinates conform to NAD 83

**APPENDIX C****GUIDELINES****Measurement Guidelines for Broadband Over Power Line (BPL) Devices Or Carrier Current Systems (CCS) and Certification Requirements For Access BPL Devices**

This appendix is intended to provide general guidance for compliance measurements of Broadband over power line (BPL) devices and other carrier current systems (CCS). For BPL systems, the measurement principles are based on the Commission's current understanding of BPL technology. Modifications may be necessary as measurement experience is gained.

**1. General Measurement Principles for Access BPL, In-House BPL and CCS**

- 1) Testing shall be performed with the power settings of the Equipment Under Test (EUT) set at the maximum level.
- 2) Testing shall be performed using the maximum RF injection duty factor (burst rate). Test modes or test software may be used for uplink and downlink transmissions.
- 3) Measurements should be made at a test site where the ambient signal level is 6 dB below the applicable limit. (See ANSI C63.4-2003, section 5.1.2 for alternatives, if this test condition cannot be achieved.)
- 4) If the data communications burst rate is at least 20 burst per second, quasi-peak measurements shall be employed, as specified in Section 15.35(a). If the data communications burst rate is 20 bursts per second or less, measurements shall be made using a peak detector.
- 5) For frequencies above 30 MHz, an electric field sensing antenna, such as a biconical antenna is used. The signal shall be maximized for antenna heights from 1 to 4 meters, for both horizontal and vertical polarizations, in accordance to ANSI C63.4-2003 procedures. For Access BPL measurements only, as an alternative to varying antenna height from 1 to 4 meters, these measurements may be made at a height of 1 meter provided that the measured field strength values are increased by a factor of 5 dB to account for height effects.
- 6) For frequencies below 30 MHz, an active or passive magnetic loop is used. The magnetic loop antenna should be at 1 meter height with its plane oriented vertically and the emission maximized by rotating the antenna 180 degrees about its vertical axis. When using active magnetic loops, care should be taken to prevent ambient signals from overloading the spectrum analyzer or antenna pre-amplifier.
- 7) The six highest radiated emissions relative to the limit and independent of antenna polarization shall be reported as stated in ANSI C63.4-2003, section 10.1.8.2.
- 8) All operational modes should be tested including all frequency bands of operation, as required by 47 C.F.R. § 15.31(i).

**2. Access BPL Measurement Principles****a. Test Environment**

- 1) The Equipment Under Test (EUT) includes all BPL electronic devices *e.g.*, couplers, injectors, extractors, repeaters, boosters, concentrators, and electric utility overhead or underground medium voltage lines.
- 2) *In-situ* testing shall be performed on three typical installations for overhead line(s) and three typical installations for underground line(s).

**b. Radiated Emissions Measurement Principles for Overhead Line Installations**

- 1) Measurements should normally be performed at a horizontal separation distance of 10 meters from the overhead line. If necessary, due to ambient emissions, measurements may be performed a distance of 3 meters. Distance corrections are to be made in accordance with Section 15.31(f) of the Rules.
- 2) Testing shall be performed at distances of 0,  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and 1 wavelength down the line from the BPL injection point on the power line. Wavelength spacing is based on the mid-band frequency used by the EUT. In addition, if the mid-band frequency exceeds the lowest frequency injected onto the power line by more than a factor of two, testing shall be extended in steps of  $\frac{1}{2}$  wavelength of the mid-band frequency until the distance equals or exceeds  $\frac{1}{2}$  wavelength of the lowest frequency injected. (For example, if the device injects frequencies from 3 to 27 MHz, the wavelength corresponding to the mid-band frequency of 15 MHz is 20 meters, and wavelength corresponding to the lowest injected frequency is 100 meters. Measurements are to be performed at 0, 5, 10, 15, and 20 meters down line—corresponding to zero to one wavelength at the mid-band frequency. Because the mid-band frequency exceeds the minimum frequency by more than a factor of two, additional measurements are required at 10-meter intervals until the distance down-line from the injection point equals or exceeds  $\frac{1}{2}$  of 100 meters. Thus, additional measurement points are required at 30, 40, and 50 meters down line from the injection point.)
- 3) Testing shall be repeated for each Access BPL component (injector, extractor, repeater, booster, concentrator, etc.)
- 4) The distance correction for the overhead-line measurements shall be based on the slant range distance, which is the line-of-sight distance from the measurement antenna to the overhead line. Slant range distance corrections are to be made in accordance with Section 15.31(f) of the Rules. (For example, if the measurement is made at a horizontal distance of 10 meters with an antenna height of 1 meter and the height of the BPL-driven power line is 11 meters, the slant range distance is 14.1 meters [10 meters vertical distance and 10 meters horizontal distance]. At frequencies below 30 MHz, the measurements are extrapolated to the required 30-meter reference distance by subtracting  $40 \log(30/14.1)$ , or 13.1 dB from the measured values. For frequencies above 30 MHz, the correction uses a  $20 \log$  factor and the reference distance is as specified in section 15.109 of the rules.)

**Note:** In cases where Access BPL devices are coupled to low-voltage power lines (*i.e.*, Home-Plug or modem boosters), apply the overhead-line procedures as stated above along the low-voltage lines.

**c. Radiated Emissions Measurement Principles for Underground Line Installations**

- 1) Underground line installations are those in which the BPL device is mounted in, or attached to, a pad-mounted transformer housing or a ground-mounted junction box and couples directly only to underground cables.

- 2) Measurements should normally be performed at a separation distance of 10 meters from the in-ground power transformer that contains the BPL device(s). If necessary, due to ambient emissions, measurements may be performed a distance of 3 meters. Distance corrections are to be made in accordance with Section 15.31(f) of the Rules.
- 3) Measurements shall be made at positions around the perimeter of the in-ground power transformer where the maximum emissions occur. ANSI C63.4-2003, section 8.1, specifies a minimum of 16 radial angles surrounding the EUT (In-ground transformer that contains the BPL device(s)). If directional radiation patterns are suspected, additional azimuth angles shall be examined.

**d. Conducted Emissions Measurement Principles**

- 1) Conducted emissions testing is not required for Access BPL.

**3. In-House BPL and Carrier Current Systems Measurement Principles**

- 1) In-House BPL devices are typically composite devices consisting of two equipment classes (Carrier current system and personal computer peripheral (Class B)). While carrier current systems require Verification, personal computer peripherals require Declaration of Conformity (DoC) or Certification, as specified in Section 15.101 of the Rules. Appropriate tests to determine compliance with these requirements shall be performed.
- 2) *In-situ* testing is required for testing of the carrier current system functions of the In-House BPL device.
- 3) If applicable, the device shall also be tested in a laboratory environment, as a computer peripheral, for both radiated and conducted emissions tests per the measurement procedures in C63.4-2003.

**a. Test Environment and Radiated Emissions Measurement Principles for *In-Situ* Testing**

- 1) The Equipment under Test (EUT) includes In-House BPL modems used to transmit and receive carrier BPL signals on low-voltage lines, associated computer interface devices, building wiring, and overhead or underground lines that connect to the electric utilities.
- 2) *In-situ* testing shall be performed with the EUT installed in a building on an outside wall on the ground floor or first floor. Testing shall be performed on three typical installations. The three installations shall include a combination of buildings with overhead-line(s) and underground line(s). The buildings shall not have aluminum or other metal siding, or shielded wiring (e.g.: wiring installed through conduit, or BX electric cable).
- 3) Measurements shall be made at positions around the building perimeter where the maximum emissions occur. ANSI C63.4-2003, section 8.1, specifies a minimum of 16 radial angles surrounding the EUT (building perimeter). If directional radiation patterns are suspected, additional azimuth angles shall be examined.
- 4) Measurements should normally be performed at a separation distance of 10 meters from the building perimeter. If necessary, due to ambient emissions, measurements may be performed a distance of 3 meters. Distance corrections are to be made in accordance with Section 15.31(f) of the Rules.

**b. Additional Measurement Principles for *In-Situ* Testing With Overhead Lines**

- 1) In addition to testing radials around the building, testing shall be performed at three positions along the overhead line connecting to the building (*i.e.* the service wire). It is recommended that these measurements be performed starting at a distance 10 meters down the line from the connection to the building. If this test cannot be performed due to insufficient length of the service wire, a statement explaining the situation and test configuration shall be included in the technical report.
- 2) Measurements should normally be performed at a horizontal separation distance of 10 meters from the overhead line connecting to the building. If necessary, due to ambient emissions, measurements may be performed a distance of 3 meters. Distance corrections are to be made in accordance with Section 15.31(f) of the Rules using the slant range distance (see paragraph 2.b.4, above).
- 3) The distance correction for the overhead-line measurements shall be based on the slant range distance, which is the line-of-sight distance from the measurement antenna to the overhead line. Slant range distance corrections are to be made in accordance with Section 15.31(f) of the Rules.

**c. Measurement Principles for Testing as a Computer Peripheral**

- 1) The data rate shall be set at the maximum rate used by the EUT. Test modes or test software may be used to simulate data traffic.
- 2) For In-House BPL devices operating as unintentional radiators below 30 MHz, the conducted emissions shall be measured in the 535 – 1705 kHz band as specified in Section 15.107(c). For In-House BPL devices operating as unintentional radiators above 30 MHz, the conducted emissions shall be measured as specified in Section 15.107(a). Conducted emissions measurements shall be performed in accordance with ANSI C63.4-2003 (Section 7 and Annex E).
- 3) For In-House BPL devices operating as unintentional radiators either below 30 MHz or above 30 MHz, the radiated emissions limits of Section 15.109(a) apply. The radiated emissions from the computer peripheral shall be measured at an Open Area Test Site (OATS) in accordance with the measurement procedures in C63.4-2003 (Section 8 and Annex D)

**4. Certification Technical Report Requirements for Access BPL Devices**

- 1) Certification applications shall be accompanied by a technical report in accordance with Section 2.1033 of the Rules. Each device used in an Access BPL system requires its own Certification.
- 2) For Access BPL devices, the statement describing how each device operates shall include 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.
- 3) For Access BPL devices, the measurement report shall include representative emissions spectrum plot(s) of the reported data.

**5. Responsibility of BPL operator**

It is recommended that a BPL operator perform initial installation and periodic testing of Access BPL systems on his power lines. These tests shall be performed to ensure that the system in conjunction with the installation site complies with the appropriate emission limits using the measurement procedures outlined in Section 3 of this document. The BPL operator should use typical installation sites within his

service area as outlined in section 2(a) of this document. Selection of typical sites shall be made according to the characteristics of the installation as a whole. The BPL operator is not required to submit the test results. In the instance that the Access BPL system was tested on the operator's network for certification purposes, the initial installation tests do not need to be repeated. However, periodic testing of installed Access BPL systems is recommended to ensure that the system maintains compliance with Part 15 emission limits.

**JOINT STATEMENT OF  
CHAIRMAN MICHAEL K. POWELL  
AND  
COMMISSIONER KATHLEEN Q. ABERNATHY**

*Re: Amendment of Part 15 Regarding New Requirements and Measurement Guidelines for Access over Power Line Systems, ET Docket No. 04-37 & In the Matter Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, Report and Order*

A strategic goal of this Commission is to promote the availability of broadband to all Americans irrespective of platform. Today, the Commission takes another important step towards achieving this goal through adoption of this Report and Order adopting final rules on broadband over power line (BPL) communications technologies.

The technology behind BPL is both fascinating and revolutionary. Just a few short years ago, critics argued that competition for the "last mile" would never become a reality because no one could duplicate or bypass the telephone line that ran from the curb into the home. With the advent of the 1996 Act, the Commission's focus on fostering facilities-based competition, and the development of new technologies, the market for last-mile connectivity for broadband services in the United States has become increasingly competitive. Today we see viable competition from multiple platforms including cable modem services, satellite, Wi-Fi, Wi-Max, and DSL. BPL provides us with a new potential competitor in the broadband market. BPL technology also holds promise in improving the provision and management of electric power systems, homeland security, and protecting vital elements of the Nation's critical infrastructure. This is one of the reasons our colleagues at the Federal Energy Regulatory Commission (FERC) have joined us in supporting this new technology.

By crafting a minimal regulatory framework for BPL we are advancing Congress's goal of creating a pro-competitive, deregulatory framework, and the Commission's goal of deploying broadband to every American. Because BPL is a nascent technology and the broadband market has no dominant incumbent service provider, only minimal regulations are appropriate. However, this does not mean that we have not been cognizant of the need to protect existing licensed services from interference. To address this issue, the Office of Engineering and Technology (OET) has done thorough testing of BPL systems to ensure the rules we are adopting protect existing governmental uses, amateur radio operators, and other licensees from interference. We have also closely coordinated with the National Telecommunications and Information Administration (NTIA) to make sure that their concerns have been addressed. We believe the new requirements we are imposing will help minimize harmful interference that may occur and, to the extent any harmful interference does occur, to quickly resolve any issues.

We have both had the opportunity to witness BPL services first hand and we believe that this new technology holds great promise as a low cost broadband competitor. The pervasiveness of the utility grid means that almost every home in America can be accessed by this type of service. Moreover, the presence of a third universal broadband connection will mean a robust choice for consumers and strong, healthy competition. Additionally, unlike some other technologies, there is no need for consumers to purchase supplemental broadband connectors in order to receive a broadband connection. The consumer simply plugs a device of choice into an electrical outlet to receive a broadband connection from the BPL service provider.

The benefits and advantages of BPL are just beginning to be recognized. That is why it is important for regulators to exercise restraint and avoid heavy-handed regulations. We must allow the marketplace to develop the full potential of this technology. In the long run, this approach should result in Americans receiving the full benefits of this new technology and the applications it supports.

**STATEMENT OF  
COMMISSIONER MICHAEL J. COPPS  
APPROVING IN PART, DISSENTING IN PART**

*RE: Amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line Systems, ET Docket No. 04-37; Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, Report and Order*

I want to welcome our colleagues from FERC to the FCC as we work to move forward on BPL. I think we all agree that a wide deployment of BPL would benefit broadband consumers. This is a market desperate for more competition. We all know by now that our country is now Number 11 in broadband penetration. That's pretty hard to take. Some argue that all we should worry about is broadband availability, and not bother ourselves worrying about whether the price is too high or the data rates too low for people to actually buy it. But when we consider that consumers in other countries are getting magnitudes more of capacity at prices far lower than we are getting, it's time to get concerned. I'm not arguing that every country has the same broadband market, but consider that in countries like Japan, Korea and Canada, consumers get much more bang for their buck—like 8,000-10,000 kilobits for \$10-\$15 a month. Should we be surprised that consumers in those countries are signing up in droves?

I'm not alone in my concern. *Business Week* recently called our country a "broadband backwater." Its article concluded: "If the U.S. is not to lose out in the global race of the next-generation Internet and the new businesses it can spawn, change is needed." I agree. We simply don't have a game plan. Nearly all of the industrialized nations, except the U.S., have national broadband plans. Where is our comprehensive strategy? We're late to the game, other countries are far ahead, and we just have to get down on the field with a game plan of our own.

I hope that someday BPL will help us improve the situation for U.S. consumers. This is a powerful and exciting new technology that is at its inception and just beginning to be deployed. In the future I hope that it will substantially increase broadband competition, force prices lower, and force investments in innovation. Also, while today BPL deployments are occurring in urban and suburban communities, I hope that in the future BPL will serve rural America as well. So we can certainly use the innovation and new competition BPL may bring, and I am happy to support the vast majority of this item. But I do have some worries that I want to note.

I remain concerned with the question of interference to amateur radio users. I take the concerns of this community very seriously, and believe that the FCC has an obligation to work hard to monitor, investigate, and take quick action where appropriate to resolve harmful interference. If interference occurs, we must have a system in place to resolve it immediately. If an amateur radio user makes a complaint and an agreement between the BPL provider and the amateur radio user cannot be reached, the FCC should step in and resolve the matter. These cases must not take years to resolve.

I'm also disappointed that today's item dodges some of the hardest BPL questions. If we want investment in BPL, we need certainty and predictability. But issues such as universal service, disabilities access, E911, pole attachments, competition protections, and, critically, how to handle the potential for cross-subsidization between regulated power businesses and unregulated communications businesses remain up in the air. Is it right to allow electricity rate payers to pay higher bills every month to subsidize an electric company's foray into broadband? I'm glad our FERC colleagues are here today, because this last part needs to be a fully collaborative effort.

Some will argue that we don't know enough about what this technology will look like yet, so we shouldn't impose any obligations lest we regulate an infant technology out of existence. Or that we shouldn't saddle a new technology with long-standing policy objectives. I disagree. Just because these policy goals are long standing doesn't mean that they are out of date. Public safety, rural service, competition and disabilities access never go out of date. I don't yet know how these issues will play out for powerline broadband or what rules the Commission should adopt. But we should have used this proceeding to start giving investors and consumers some certainty on the matter. Having understandable rules of the road is what investors, as well as consumers, are looking for.

So we have a promising technology, maybe even a significant new broadband pipe if everything goes really well. We've got some good technical rules in this item. They can work or be adjusted if we have good monitoring and enforcement. But we just have to get to the big picture and confront the challenges I have mentioned if BPL is going to have a shot at realizing its full potential. Putting it all together, I will vote to approve in part and to dissent in part. And I thank the Bureau, my colleagues, and the many parties who shared their ideas with us, for working so hard and constructively on this promising technology.

**STATEMENT OF  
COMMISSIONER KEVIN J. MARTIN**

*Re: Amendment of Part 15 Regarding New Requirements and Measurement Guidelines for Access Broadband Over Power Line Systems, ET Docket No. 04-37; Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104; Report and Order*

I am pleased to support this item, which adopts new rules for Broadband over Power Line (BPL) systems. BPL systems use existing electric power lines to provide high-speed communications. Because power lines are ubiquitous – reaching virtually every community and every home – BPL systems have the potential to become a last-mile solution throughout the United States. As such, they would not only provide competition to cable broadband and DSL, they could bring Internet access and high-speed broadband to rural and isolated areas. BPL systems also serve an important homeland security function, providing a redundant data network. For these reasons, the President has explicitly encouraged the introduction of BPL technology.<sup>297</sup>

I have seen a BPL system first hand, and I came away very impressed. Using BPL, I was able to watch a DVD-quality movie, play a video game on the Internet, and print pages from a news web site – all simultaneously. I was impressed not only with the fast transmission speed, but also with the ease with which the home could be networked. Simply plugging a device into an electrical outlet enabled it to communicate with devices plugged into outlets in other rooms, as well as connect to the Internet. There is no question that this technology has terrific potential.

In this Order, we have attempted to facilitate deployment of BPL while ensuring that existing users are protected from harmful interference. Working closely with NTIA, we have taken strides to address interference concerns of both Government and private users. Nevertheless, I recognize that Amateur radio operators still have concerns that they will experience interference from BPL systems. In addition, broadcasters are concerned that BPL systems will cause interference in the low VHF band. I take these concerns – as well as the other concerns expressed about BPL systems causing interference – very seriously. I am confident that the Commission will continue to monitor these concerns and will take steps, where needed, to address interference problems going forward.

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<sup>297</sup> See President George W. Bush, *Remarks on Innovation at the U.S. Department of Commerce*, Washington, D.C. (June 24, 2004); *Remarks at the American Association of Community Colleges Annual Convention*, Minneapolis Convention Center, Minneapolis, Minnesota (April 26, 2004).

**STATEMENT OF  
COMMISSIONER JONATHAN S. ADELSTEIN**

*Re: Amendment of Part 15 Regarding New Requirements and Measurement Guidelines for Access Broadband over Power Line Systems; ET Docket No. 04-37 Carrier Current Systems, including Broadband over Power Line Systems; ET Docket No. 03-104, Report and Order*

This has been a challenging proceeding. We have before us an exciting new technology in Access Broadband over Power Line (Access BPL) that has the potential to be a new broadband pipe into the home, which is so critical to pushing the deployment of broadband services across the country. It could provide badly needed competition in the provision of broadband services, which will spur all providers to improve their offerings. But we also have an existing user base that includes public safety licensees, federal Government users, and amateur radio operators – important services that we need to protect from harmful interference.

I take seriously our obligation under Section 157 of the Communications Act that “[i]t shall be the policy of the United States to encourage the provision of new technologies and services to the public.” I am fully committed to that mission to promote new technologies, and to provide a framework for innovation so they can succeed. In order to do so in this case, though, we must ensure that sufficient protections are in place to limit interference concerns.

Recent Access BPL test deployments have been very useful in developing techniques to address interference issues. It is clear that some Access BPL systems can co-exist very well with existing licensees in the HF and VHF bands. In the limited cases of increased interference, the Access BPL operators were able to quickly resolve and address the interference problem. Other Access BPL systems, though, have not fared so well, and these systems should not be deployed on a commercial basis if they will continue to result in harmful interference.

We have put in place on Access BPL some special rules that are not normally required of Part 15 operators. However, I believe that these restrictions and requirements, such as adaptive frequency selection, remote shut down control, and a publicly available Access BPL database, are critical to providing an operational environment that safeguards existing licensees from harmful interference. I am also pleased to support our specific requirement for Access BPL providers to promptly respond to complaints of harmful interference from public safety licensees.

Access BPL can work side by side with existing licensees provided that Access BPL operators respond appropriately to harmful interference concerns. I encourage all affected parties to work together in a cooperative manner to address legitimate complaints of harmful interference in a timely manner.