

FCC Proposes Rules for BPL Systems



NEWINGTON, CT, Feb 25, 2004--The FCC this week released its *Notice of Proposed Rule Making (NPRM)* on Broadband over Power Line (BPL) systems. The 38-page *NPRM*--in ET Dockets 03-104 and 04-37--proposes amendments to FCC Part 15 rules to define so-called "access BPL," make rules specific to BPL systems and provide measurement guidelines for BPL devices and systems. It would make no changes to Part 15 emission limits for unintentional radiators, however. ARRL CEO David Sumner, K1ZZ, says that while Part 15's current limits on unintentional radiators on HF may be appropriate for short-duration, narrowband emissions,

they are inappropriate for the sort of long-duration, broadband emissions BPL would employ. He compared short-duration, narrowband emissions at the Part 15 radiated emission limit to a helicopter flying overhead.

"The noise is deafening, but is tolerable because it doesn't happen very often nor last very long," he observed. "To a radio user, having BPL in the neighborhood would be like having the helicopter hovering constantly overhead."

ARRL Lab Manager Ed Hare, W1RFI, offered an example that most hams can relate to. "The limit for an unintentional emitter on HF is 30 uV/m at 30 meters from the source," he said. "If you take a dipole cut for 3.5 MHz and put it in a 30 uV/m field, you'll have a noise reading of S9 plus 16 dB at your transceiver."

Access BPL, a form of carrier current or power line carrier (PLC) communication, would apply RF in the HF to low-VHF range to existing low and medium-voltage exterior power lines to distribute Internet and broadband services. It was the aspect of feeding RF signals into outdoor power lines that initially raised Amateur Radio concerns regarding potential interference. Such carrier current or PLC systems are subject to the FCC's Part 15 rules governing unlicensed devices.

In its proposal, the FCC took a broader view of interference issues. "There is significant disagreement among the commenting parties regarding the interference potential of Access BPL," the *NPRM* declares. "Amateur operators and amateur organizations in general are opposed to Access BPL and advocate emission limits that are lower than the existing Part 15 limits."

In a statement attached to the *NPRM*, however, FCC Chairman Michael Powell expressed confidence that the new requirements it spells out balance BPL's potential benefits with concerns of potential interference "by establishing new requirements that will help minimize harmful interference that may occur and guidelines for measurement of radio frequency emissions from carrier current systems."

Still, the *NPRM* concedes, Amateur Radio operations "are likely to present a difficult challenge in the deployment of Access BPL in cases where amateurs use high-gain outdoor antennas that are located near power lines." Noting that power line noise already presents a significant problem for hams, the FCC said, "we therefore would expect that, in practice, many amateurs already orient their antennas to minimize the reception of emissions from nearby electric power lines."

The *NPRM* goes on to point out that because BPL has the capability to stay clear of specific frequencies, BPL providers can simply "avoid the use of amateur frequencies when in close proximity to amateur outdoor antennas." The *NPRM* also briefly mentions the possibility of interference to BPL systems from Amateur Radio, an issue ARRL and others raised in their comments on last April's *Notice of Inquiry* on BPL.

The *NPRM* emphasizes that under the proposed rules, operators of Access BPL systems would be responsible for eliminating any harmful interference that may occur. "Furthermore, we believe that the current Part 15 emission limits for carrier current systems in conjunction with certain additional requirements specific to Access BPL operations will be adequate to ensure that existing radio operations are protected against harmful interference from such operations," the FCC said.

The *NPRM* proposes changes to Part 15 that would "facilitate the deployment of Access BPL technology while protecting licensed users of the spectrum." If ultimately adopted as proposed, the *NPRM* would:

- ? define Access BPL for the purposes of its rules
- ? maintain the existing Part 15 emission limits for BPL
- ? require that Access BPL devices employ "adaptive interference-mitigation techniques"
- ? require that Access BPL providers maintain a database of installation locations and technical information
- ? adopt specific measurement guidelines for both Access BPL and other carrier current systems to ensure that measurements are made in a consistent manner and provide for repeatable results in determining compliance with its rules.

Sumner suggested that, with licensed services and government users taking up large portions of the HF spectrum, protecting all licensed HF users could prove to be a nightmare for BPL providers. He noted, too, that while the FCC maintains that licensed services must be protected, the proposed rules place the burden of initiating corrective action on the shoulders of the licensed services. "And as a practical matter, the FCC's proposed rules offer no protection at all to mobile and portable stations," he added.

Sumner further stated that ARRL would continue to combat the "misconception" that BPL systems are viable as a "last mile" broadband technology for rural dwellers. "In low-density areas, the economics just don't work," he said. "A potential investor who understands the constraints under which BPL must operate won't touch such an investment."

While conceding "significant concerns" from HF users--including the National Telecommunications and Information Administration, which regulates federal government radio

use--and the Federal Emergency Management Administration, the Commission said it believes the *NPRM* adequately addresses interference concerns.

The FCC was unanimous in its approval of the BPL proposal. Commissioner Michael Copps offered a partial dissent that had more to do with competition protections and the potential for cross-subsidization between regulated power companies and unregulated communications businesses, not with interference issues.

The *NPRM* can be viewed on the [FCC](#) Web site and is available in [Microsoft Word format](#), or as an [Adobe PDF](#) file.

More than 5000 comments were filed in the wake of the FCC's *Notice of Inquiry* on BPL. Interested parties may file detailed comments on the *NPRM* via the main FCC's Electronic Comment Filing System ([ECFS](#)). The comment deadline is 45 days after the *NPRM* has been published in *The Federal Register*, and that is not expected to happen for another week or two. The FCC also is accepting brief comments on the *NPRM* via its [ECFS Express](#) page.

Additional information about [BPL and Amateur Radio](#) is on the ARRL Web site. To support the League's efforts in this area, visit the [ARRL's secure BPL Web site](#).