

North American Shortwave Association

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
Amendment of Part 15 regarding new requirements)
and measurement guidelines for Access Broadband) ET Docket No. 04-37
over Power Line Systems)

COMMENTS ON NOTICE OF PROPOSED RULE MAKING (NPRM)

May 3, 2004

The **North American Shortwave Association (NASWA)** represents the interests of people in the United States who rely on free access to international news and cultural programming via short-wave radio broadcasts.

NASWA UNDERSTANDS FCC OBJECTIVES

NASWA understands the FCC's desire to allow market forces to provide price competition to broadband services like BPL, DSL and broadband cable TV. NASWA also understands that the FCC recognizes its obligations under existing regulations to protect licensed services from harmful interference by Part 15 devices and systems such as BPL.

INTERNATIONAL REGULATIONS

The FCC is required to observe the rights of other nations to broadcast without interference to listeners in the United States on frequencies allocated by the International Telecommunications Union (ITU) exclusively for this purpose. The United States is a member of the ITU, an international organization within the United Nations system. The USA is a signatory to the most recent International Radio Regulations convention.

ITU Radio Regulation 4.11 reads: "Member States recognize that among frequencies which have long-distance propagation characteristics, those in the bands between 5 and 30 MHz are particularly useful for long-distance communications; they agree to make every possible effort to reserve these bands for such communications. Whenever frequencies in these bands are used for short-range or medium-distance communications, the minimum power necessary shall be employed."

ITU Radio Regulation 15.12 reads, "Administrations shall take all practicable and necessary steps to ensure that the operation of electrical apparatus or installations of any kind, including power and telecommunication distribution networks, but excluding equipment used for industrial, scientific and medical applications, does not cause harmful interference to a radiocommunication service and, in particular, to a radionavigation or any other safety service operating in accordance with the provisions of these Regulations."

ITU regulations allocate certain frequency bands between 5.9 and 26.1 megahertz for the exclusive use of international broadcasters. Early testing by the National Telecommunications and Information Administration (NTIA) and the American Radio Relay League (ARRL) has shown some BPL systems will interfere with international broadcast transmissions. The ITU regulations require the FCC to prevent harmful interference from Part 15 devices and systems, not just "mitigate" interference. (Mitigate: vt 1. to cause to become less harsh or hostile; 2. to make less severe or painful. -- Webster's New Collegiate Dictionary.)

NASWA supports the NTIA position that international broadcasting must be protected from harmful BPL interference. The USA expects other countries, targeted by Voice of America (VOA), Radio Marti, and other Radio Free (insert name of target) services, will protect such broadcasts from interference. The USA is obliged to provide reciprocal protection. NTIA recognizes this need as evidenced by this excerpt from their BPL Phase 1 study report, (Appendix C, Para. C.2.6):

"While the intended receivers of the VOA's transmissions generally are abroad, there are numerous broadcasting receivers owned and operated by foreign citizens and government personnel in the United States that could be susceptible to BPL interference because of proximity to power lines. Protecting other administrations' broadcasting is critical because of reciprocity. The current ITU-R B-03, Seasonal Broadcasting Schedule, shows multiple administrations broadcasting to the United States for every timeframe within a 24- hour period.¹⁰

"The 18 bands allocated to the Federal Government for broadcasting service in the HF portion of the spectrum are listed in Table C-11. Because of frequency reuse capabilities inherent in HF broadcasting, one should expect that broadcast receivers located in the United States are tuned within these bands."

¹⁰ Broadcasting Board of Governors Response to NTIA Memo, *Questionnaire Regarding Equipment and Operations in the 1.7-80 MHz Frequency Range*, November 7, 2003."

Table C-11: Frequency Bands Allocated to the Federal Government for Broadcasting Service in the 1.7-80 MHz Band

Frequency (kHz)	BW (kHz)	Frequency (kHz)	BW (kHz)	Frequency (kHz)	BW (kHz)
5900-5950	50	11650-12050	400	15600-15800	200
5950-6200	250	12050-12100	50	17480-17550	70
7300-7350	50	13570-13600	30	17550-17900	350
9400-9500	100	13600-13800	200	18900-19020	120
9500-9900	400	13800-13870	70	21450-21850	400
11600-11650	50	15100-15600	500	25670-26100	430
Total Bandwidth (BW) = 3,720 kHz					

THE FCC PROPOSAL IS IMPRACTICAL

In its NPRM the FCC acknowledges that the present Part 15 emission limits will often be inadequate to protect listeners to the International Broadcast Service from BPL interference. The FCC’s expectation of interference is supported by test evidence submitted by the NTIA and ARRL in filings in this and the NOI Docket 03-104 proceeding. Instead of addressing the interference issue directly by adopting either of NASWA’s previous recommendations in response to the NOI Docket 03-104, the FCC proposes a complex and, what NASWA considers to be, impractical procedure to hopefully minimize the impact of the interference. (NASWA previously recommended that Part 15 radiation limits be tightened to avoid interference to the International Broadcast Service or BPL transmissions be relocated to frequencies outside the HF range.) The FCC’s failure to address the root problem will eventually result in the failure of BPL as a viable competitor for DSL and cable TV broadband. That is not what NASWA, the BPL industry, nor the FCC desire.

The FCC’s proposed procedure is impractical for the following reasons:

- The FCC proposes to impose on the victim the burden of identifying, reporting, proving and following up on complaints of interference. In this case the victim is the largely non-technical international broadcast listener. In theory, once notified, the BPL service provider must quickly activate dynamic frequency agility in order to move the energy to a frequency

that does not cause interference to the entity that complained. Of course the energy may now be interfering with another user of the HF spectrum who will then complain. An endless feedback loop could thus be formed. Each complaint will result in a change to the energy-density spectrum and each change could result in a new complaint.

- As a class, international broadcast listeners are not technically astute. Most listeners know only how to pull up the whip antenna on their radio, activate the “on” switch, select the frequency they want to listen to, and adjust the volume. Unlike amateur radio or professional operators, who are required to demonstrate a certain level of technical competency in order to obtain an FCC license or employment, international broadcast listeners are not licensed (nor should they be) and cannot be expected to know the interference they are receiving has the identifying signature of a BPL signal. If such technically naïve persons are able to figure out to whom to complain, it is inevitable that their complaints will often be in error. The result will be skepticism, disbelief, and denial by the BPL industry. The cost to investigate erroneous interference reports will be borne by either the BPL industry or the FCC or both. The burden of proof will be on the unskilled listener to demonstrate to the BPL provider or the FCC enforcement function that the interference claim is valid. To expect unskilled listeners to prove that BPL is the cause of their interference problem is unreasonable and makes the FCC proposal impractical. A better solution must be found.

- International broadcasters change frequencies as a function of time of day, season of the year, and time within the eleven-year solar sunspot cycle. If the FCC insists on implementing its proposed approach, BPL providers will incur significant costs as they react to these changes in real time. If BPL is ever to become a viable alternative to cable and DSL broadband access, operating costs must be minimized. The FCC’s proposal has the opposite effect. To be effective, the FCC’s proposed rules must require BPL operators to incur increased costs by mandating near-real-time response to interference complaints and a staff standing by the telephone to receive and act upon such complaints.

- If the FCC insists on implementing its proposed approach, the FCC must mandate a specific response time for interference complaints to be resolved. In the NPRM the FCC proposes no particular response time for the BPL provider to react. Any interference to international broadcasting is illegal under both international radio regulations and the FCC's own Part 15 regulations. The BPL provider could delay its response indefinitely as they tell the victim that the problem is being investigated or that the interference is not coming from their BPL signals. The response time should be as fast as possible. Ten minutes is suggested as a reasonable time delay for correction of a problem. If the problem is not corrected within the specified time, the BPL service must cease operation, as required by the FCC Part 15 regulations, until the problem can be corrected or a third party arbitrator can make a responsibility determination.
- If the FCC insists on implementing its proposed approach, fines must be prescribed in the FCC Part 15 regulations to enforce timely response to interference complaints. NASWA suggests fines up to \$10,000 per day per complaint not resolved within the prescribed time limit would be sufficient incentive to the BPL industry to respond in a timely way. This suggested fine amount is consistent with fines levied upon licensed services that violate FCC regulations.
- If the FCC insists on implementing its proposed approach, the FCC must mandate that industry "customer service" representatives and technicians be on duty 24 hours per day and 7 days per week to take interference complaints and be able to quickly activate frequency agile technology to eliminate the interference.
- BPL industry "customer service" representatives must be fluent in major foreign languages as many who rely on international radio broadcasts in the USA are not fluent in English. The cost to the BPL providers of such overhead and the general lack of foreign language fluency in the USA labor pool makes the FCC's proposed procedure impractical.
- The FCC does not propose any third party entity to arbitrate disputes. If the FCC insists on implementing its proposed approach, it is likely that the enforcement function of the FCC

will become that *de facto* arbitrator. The FCC will become burdened with such complaints when BPL systems proliferate and BPL providers, themselves overloaded with complaints, fail to respond in a timely manner. The additional burden on the FCC enforcement function will raise the cost to the taxpayer and possibly raise FCC user fees to the BPL industry as the cost of enforcement is transferred to the industry that is causing the added expense. Such disputes will make implementation of the proposed procedure burdensome to all concerned, impractical and expensive.

- Many international broadcast listeners are tourists, foreign students or immigrants to this country with limited English language ability. These people use short-wave radios to keep in touch with events in their country of origin by listening to foreign broadcasts in their native language. These victims of BPL interference cannot be expected to arm themselves with knowledge about BPL interference signatures, industry data base(s), identities of local BPL providers, where to call to register a complaint, or to whom to appeal when no action results from their complaint. NASWA believes that is asking too much of people who are not proficient in BPL technology, the English language, or FCC procedures.

- The FCC has elected not to standardize the modulation format for BPL transmission. The spectral signature of BPL interference will be different for each type of modulation. There will likely be as many interference signatures as there are BPL equipment standards. Even if international broadcast listeners could be reached with instructive material to teach them what BPL interference sounds like, the many different BPL interference signatures will make it impossible to conduct such training on anything other than a local level. It is likely that power companies or third party BPL service providers will not be particularly interested in conducting such training for the general public in their service areas.

- Many international broadcast listeners use portable receivers when traveling around the USA. Such listeners cannot be expected to know the contact information for reporting BPL interference in each area they travel through. The proposed procedure is impractical.

CAN BPL BROADBAND ACCESS REPLACE INTERNATIONAL BROADCASTING?

Some may argue that the broadband access provided by wide deployment of BPL will allow listeners to access overseas media via the Internet so they will not need international broadcasting to provide a link. Today, access to foreign broadcasts is free for the price of a portable short-wave radio selling in the neighborhood of \$100 or less. The suggestion that students or immigrants, often living at or near the poverty level, should be forced to subscribe to an Internet service to receive programming they now get for free is unfair and discriminates against many of the poorest people in our society. The suggestion that tourists need to lug a computer with them to listen to the news in their native language is also unrealistic. Some listeners prefer to listen to international broadcasts while traveling in their cars. There is presently no way to access such broadcasts via broadband services including BPL from a moving automobile.

THE BEST SOLUTION

In view of the impracticality of the procedure proposed by the FCC in the NPRM, NASWA suggests that the FCC withdraw the subject NPRM, revisit the issue, and address the actual problem. The problem is that current Part 15 radiation limits are insufficient to prevent BPL interference to duly authorized international broadcasters operating on ITU-protected frequencies between 5.9 and 26.1 MHz on receivers of a type normally used and marketed in the USA for in-home or mobile reception.

There are two possible technical solutions. One possible solution is for the FCC to mandate that BPL systems permanently suppress the use of all frequencies that are allocated by the ITU for international broadcasting. Because every user of the HF spectrum will likely request similar protection, few frequencies would remain below 30 MHz for use by BPL services.

The second possible solution, and the one which NASWA prefers, would be to confine BPL emissions to frequencies above 30 MHz with appropriate notches in the spectrum to protect specific local public safety and broadcast allocations. Entire bands covering aeronautical, amateur radio, space research, marine, government, industrial, and radio astronomy allocations must also be protected with broadband notches. For example, in a given area only about half the

VHF television channels are occupied at most. In the 1940's when the current VHF allocation table was devised, TV sets had poor adjacent channel selectivity. Thus many VHF TV channels lie vacant, a waste of precious spectrum. Modern TVs must reject adjacent channel signals in order to be compatible with cable TV systems that use all VHF channels. Modern TVs are tolerant of BPL signals radiating on these vacant channels. Five vacant 6 MHz channels, out of the 12 VHF channels available, would allow a BPL provider a bandwidth of 30 MHz and largely obviate the need to use any HF frequencies. Even in the crowded Washington DC – Baltimore, Los Angeles, or New York City TV markets, channels 3, 6, 8, 10 and 12 are available for BPL. That is 30 MHz of wasted available bandwidth that could be used for interference-free BPL signals.

Unlike HF users, who change frequencies often, frequencies of VHF services are stable over time. Because VHF allocations do not shift with time of day, season of the year, or state of the eleven-year solar sunspot cycle, there would be no need for the BPL provider to establish a costly system of dealing with interference complaints in near-real time. Once notches are established for a specific local area, there should be little need to change them for years. BPL providers could then avoid most of the cost of dedicating personnel to operating dynamic, frequency-agile systems in real time in response to telephone complaints and international broadcaster frequency changes. By minimizing operating costs the BPL industry will be more likely to achieve the FCC's desired result by becoming economically viable competitors to broadband cable and DSL services.

Respectfully submitted,

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