



Pirates, Pranksters, and Prophets: Understanding America's Unlicensed "Free" Radio Movement

Steven J. Dick & Walter McDowell

To cite this article: Steven J. Dick & Walter McDowell (2000) Pirates, Pranksters, and Prophets: Understanding America's Unlicensed "Free" Radio Movement, *Journal of Radio Studies*, 7:2, 329-341, DOI: [10.1207/s15506843jrs0702_7](https://doi.org/10.1207/s15506843jrs0702_7)

To link to this article: https://doi.org/10.1207/s15506843jrs0702_7



Published online: 16 Nov 2009.



Submit your article to this journal [↗](#)



Article views: 90



View related articles [↗](#)



Citing articles: 1 View citing articles [↗](#)

Pirates, Pranksters, and Prophets: Understanding America's Unlicensed "Free" Radio Movement

Steven J. Dick and Walter McDowell

This study takes a qualitative look at illegal radio operations as defined by the Federal Communication Commission (FCC). It offers a better understanding of the character and motivations of these broadcasters to operate outside the law. Additionally, the project examined reactions to recent FCC inquiries to create legitimate low power "micro radio" broadcasting for licensed small broadcasters. The study concludes that, depending on the specific broadcaster, there can be several motivating factors influencing the decision to bypass the FCC and start up a radio station. Many of these unlicensed operators do not see themselves as true criminals but rather counter-culture renegades of the air-waves. Researchers also found a strong interest in micro radio proposed by the FCC.

INTRODUCTION

Lunch at a pirate radio conference. . .

As she planned to celebrate Malcolm X's birthday, she weighed the choice of operating from her law library or sitting in a nearby tree. She spoke proudly of the media event that would launch her new operation.

In the background, a man with tricolored eyebrows and a distinctive pattern shaved into his head quietly looked on. He wanted to hear and exchange ideas but could not bring himself to sit at the same table.

Steven J. Dick (Ph.D., Michigan State University, 1993), is an Assistant Professor in the Department of Radio Television, Southern Illinois University Carbondale, Carbondale, Illinois. His research interests include the adoption of advanced communication systems, management, and policy. This work represents a side interest in nonadopters.

Walter McDowell, Ph.D., University of Florida, 1998), is an Associate Professor in the Department of Radio Television, Southern Illinois University Carbondale, Carbondale, Illinois. His research interests include media branding, audience research, and broadcast management.

A girl you would hire to baby-sit and her PTA father helped cleanup lunch while suggesting methods of confusing the FCC.

Also listening was the pretty woman with expensive clothing and close-cropped hair. She claimed to be from Austin but knew nothing of the station in the next town – or would not speak of it.

The unlicensed radio movement is alive and well in America despite burgeoning new communication technologies and increased government enforcement tactics. While boasting of their counter culture independence and desire to remain outside the mainstream of American broadcasting, these operators do talk amongst themselves. Although occasionally meeting in face-to-face conversations at "secret" conventions, the bulk of this interaction occurs on the Internet. In recent years, a loosely configured virtual community has matured where members feel comfortable exchanging information and opinions on myriad topics involving their unauthorized behavior. At times, it appears that they spend almost as much time communicating among themselves as they do communicating to a larger public audience. The purpose of this qualitative study was to better understand the essential character of this community and its motivations to operate outside the law. The researchers decided to *listen to the operators* or "radio pirates" as they are called. Unlike other studies that have attempted to survey the number, location, and type of illegal facility, this project—christened The Free Radio Assessment Project (FRAP)—takes a look at some of the underlying psychology of this movement. Because these broadcasters operate illegally, they are technically felons and therefore subject to some serious legal repercussions, including the possibility of jail time. It is no wonder that they are reluctant to talk with "outsiders." Fearing FCC spies infiltrating their ranks, these broadcasters remain highly suspicious of persons asking too many questions about their facilities and programming. However, they need some "technical support," desire news, and wish to share ideas. Although the researchers were able on a few occasions to have one-to-one conversations with some pirates, the bulk of the information came from simply eavesdropping on their on-line conversations and web pages. It would be naive to think that a statistically reliable, truly representative sample of these operators could be acquired for a quantitative survey. Because revealing their identity could mean *arrest* for these people, such precise data cannot be acquired. However, a systematic qualitative study of their comments and interactions can reveal useful information for communication scholars, industry practitioners, and government regulators. The primary research questions were:

- What are the characteristics of the community?

- What are the motivations and goals of its members?
- How does this community perceive the current policy efforts of the FCC?

DEFINITIONS

This article is not intended to be a legal analysis so it will not make legal judgements. However, the legal status of these operators is a continuing discussion. For various reasons, arguments range from completely legal to technically illegal but harmless. For want of a better term, *illegal* will be used to refer to stations that are operating either without a license or are dramatically exceeding license authority.

The community contains members who see themselves as *pirates*. Simply put, "pirate radio stations" are the true illegals of the airwaves. The pirate image is embraced by those who see themselves as flaunting the law and often getting away with it. Pirate emblems adorn their logos, web pages, and station literature. Other community members reject the connotations of the pirate label as being overly judgmental or normative. They believe that this ruthless portrayal can hurt their "just" cause. After all, they are not bandits seizing or destroying personal property.

An alternative title is *free radio*, which offers a more positive image and is the preferred definition for another segment of this broadcast community. Radio can be "free" in two ways. First, it can be free of the encumbrances of regulations and government control. Free radio activists claim the airwaves should be free for all citizens to use. Second, radio could be literally free—without charge to listeners. The notion of monetary freedom has been adopted by some legal noncommercial radio stations that boast that they are "free" of advertising. Therefore, "free radio" can be a confusing term because it includes stations operating both within and outside the law.

The FCC recently decided to create "Low power FM" (LPFM) or Microradio (discussed below). LPFM denotes government involvement through the FCC; something the community as a whole rejects. Operators who embrace the term tend to see themselves as eventually operating *legally*.

The term "Pirate Radio" is popular but normative and strongly rejected by some of the community. LPFM is certainly a more neutral term but created outside the community. Free Radio is somewhat normative but less so than pirate radio. There are failings in all three terms but the researchers chose the least normative term "free radio."

LITERATURE SURVEY

There have been only three recent academic studies of American pirate or free radio. Two were by Jones (1988, 1994). In both, Jones maintained that pirate radio in the United States echoed the music of commercial stations. The third, Phipps (1990) looked at American pirate radio policy that is updated below.

Most examinations of the topic have been expressed in media trade journals, organizational press releases, and FCC documents. But even these sources seldom focused on the motivations of the operators. Instead, these articles concentrated more on the enforcement aspects of the issue. Perhaps a primary reason for this lack of knowledge of the pirate community is that the members of this community are felons and are therefore reluctant to talk to anybody who might reveal their identities. In fact, one crucial challenge facing the researchers for this paper was overcoming the pervasive suspicion and paranoia exhibited by these radio pirates.

On January 20, 2000, after much public debate and deliberation, the FCC adopted rules creating a new, noncommercial low power FM radio service designated as LPFM. The new service consists of two classes of station transmission power; 10-watt stations, which should reach an area with the radius of between 1 and 2 miles, and 100-watt stations, which should radiate a signal from 3-4 miles. Beginning in April 2000, the Commission began to accept license applications for local communities on a state-by-state basis.

Recognizing the potential problem of signal interference with existing full-power FM stations, the Commission instituted a an elaborate channel "buffer zone" protocol whereby newly licensed LPFM stations would be allocated a channel (FM frequency) that in theory would still isolate them from other stations in the market. In reality, the FCC relaxed its channel spacing criteria to accommodate these new stations. Engineers working for the Commission insist that this more crowded spectrum is still viable. Not surprisingly, the National Association of Broadcasters (NAB) disagrees.

Having lost the first battle during Commission hearings, the NAB has stepped up its campaign by turning to Congress, which oversees the FCC. Proclaiming a potential "sea of interference" and inconvenience for radio listeners, the trade association is currently seeking bipartisan support in the House of Representatives and eventually the Senate for legislation that would overturn or severely curtail the FCC ruling on LPTV. One proposal would reduce the number of LPFM stations by 70%. Engineers from the NAB and the FCC have exchanged testimony and press releases as to the viability of the system. As an alternative means

of encouraging a diversity of voices in the marketplace, the NAB recommends Internet radio.

It is important to note that, although some pirate broadcasters may claim that the NAB is more worried about competition than interference, all public statements by the NAB since the ruling passed deal exclusively with technological problems.

For the past 2 years, the Commission's Compliance and Information Bureau has made a concerted effort to prosecute persons who "willfully and knowingly" operate unlicensed radio stations. In recent months, U.S. Marshals have raided pirate operations in large cities, such as Berkeley, Cleveland, Detroit, and Philadelphia and in small towns such as Howell Township, New Jersey, Tewksbury, Massachusetts, and Glendale Heights, Illinois. In most cases, the FCC attempts to have the station operator voluntarily discontinue transmissions. Disobeying these *cease and desist* orders result in more heavy-handed tactics, including confiscation of equipment and formal arrests by the U.S. Marshals Service. The Commission boasts that in a 2-year period (1997-1998) more than 200 pirate stations have been shut down. In almost all cases, the Commission has been satisfied with the technical shutdown of an operation and has not pursued more severe punishments (Albiniak, 1998, Bandits, 1998).

Although this type of illegal broadcast activity has existed for many years, it has recently become a major agenda item among government regulators and the private sector. One reason why many unlicensed stations have defied the law is that they believe that the commission's licensing authority is unconstitutional based on an unduly restrictive interpretation of the First Amendment. However, the Supreme Court has upheld the Communications Act provisions of licensure for broadcast stations as constitutional for more than 60 years (Middleton & Chamberlin, 1996). In 1998, in a well publicized pirate radio court case involving "Free Radio Berkeley," the U.S. District Court for Northern District of California upheld the constitutionality of the FCC's broadcast licensing procedures (McConnell, 1998a).

Beyond the constitutional challengers to FCC authority, many pirate operators bring up the issue of station ownership consolidation as another valid reason for staying on the air. Since the 1996 Telecommunications Act liberalized radio ownership rules, there has been an unprecedented movement toward the creation of giant media monoliths owning hundreds of stations nationwide. In addition, the new rules have condoned the increased group ownership of stations operating in the same market. As will be demonstrated later in this paper, many pirates claim that this law has fostered a profound loss of localism and economic independence among radio broadcasters (Albiniak, 1998).

METHODS

The Free Radio Assessment Project (FRAP) was presented with some unique methodological problems because the population under study is operating outside the law and embattled by an ongoing enforcement action. Surveying individual operators would be difficult and possibly dangerous (for both the researcher and the subject). Operators had to be found, contacted, and useful information extracted without revealing their identity. The community as a whole is understandably paranoid. The current FCC enforcement action has cost many operators equipment and money. A few have even been sent to jail. The National Association of Broadcasters (NAB) and several commercial broadcasters have encouraged enforcement and helped identify illegal operators.

The research found four means of data collection. First, discussion groups. Two groups effectively covered most of the on-line operators: Usenet group (alt.radio.pirate), and the Free Radio Network (www.FRN.net). Cross listed messages and low activity levels eliminated other groups.

Second, supporters of free radio share their stories, content, and opinions on web pages. Reading web page content was perhaps the safest method of data collection for all. Because the content had been published in an open forum, the secrecy of the information was not an issue. Researchers found 189 web sites with information about pirate radio. If printed, it would have produced an estimated 2000 pages of text. In addition, 17 on-line programs were recorded.

Third, the researchers attempted direct interviews of operators. Some were contacted by electronic mail; others were solicited through discussion lists and on-line chats. In some instances, operators who had heard about the project through "the grape vine" contacted the researchers on their own. In total, 43 people who claimed to be operators were contacted by e-mail (32), telephone (3), and live chat (8). Additionally, the researchers attended a regional pirate radio conference and talked to approximately 30 people.

Although on-line contacts were a clear limitation of the study, the free radio community was well represented on-line. In total, researchers gathered nearly 200 megabytes of data. The collected effect of the data set is not a static picture but rather a moving image of the community.

It is difficult to estimate the number of stations operating in this country. Operators are understandably reluctant to advertise schedules and frequencies. During the study period, there were three serious attempts to create a database of operators. However, for obvious reasons, operators were uncooperative. The FCC officially estimated 112 FM operators in the United States (McConnell, 1998a,b,c) during the study period. However, that figure was widely disbelieved in the pirate

radio community. As one operator put it, "It is like those casualty figures back in Vietnam." This study will not attempt to estimate the total number of stations operating in the United States. However, the researchers believe that information was collected from more than 250 operators (past, present, and near future) and directly interviewed 68.

University Human Subjects Committee supervised the methodology and security of interviews. Researchers took extensive steps to protect the privacy of the operators. Due to the sensitive legal position of the subjects, contact information has been destroyed or withheld. FCC enforcement officers claim to be monitoring these sites and it is not the intention of this paper to supply enforcement information.

LIMITATIONS

The biggest limitation was the method of data collection. Clearly, it would not only be expensive but also awkward to talk in person to the current unlicensed operators. Although on-line collection eliminates operators who are not computer savvy, the researchers presumed that this deficiency would have minimal effect on the results of the total study.

No matter the methodology, operators were going to worry that the project was a trap set up by the FCC. Many still think the researchers are agents of the FCC or National Association of Broadcasters (NAB). Although much of the data were collected by simple observation, some information still required the deliberate cooperation of operators.

The community is populated by some very vocal people—even to the level of antagonism. It was necessary to carefully track sources so that a vocal few did not distort our findings. The researchers synthesized all information available to produce as balanced an assessment as possible.

The project was primarily interested in those operators who may adopt microradio licenses in the United States. Researchers concentrated on resources that would lead them to that group. Furthermore, the researchers avoided foreign broadcasters. Among domestic operators, the researchers encountered more FM than short-wave broadcasters. This may be a result of the study's collection and promotion procedures or the fact that the FM broadcasters are under siege by the FCC and therefore are more motivated to speak out.

RESEARCH QUESTIONS

The following deals with specific answers to research questions:

- *What are the characteristics of the community?*

The community was roughly divided by means of transmission. The discussion groups indicated two real transmission methods (a) short

wave and (b) FM broadcasts. Discussion groups and web pages indicated an equal level of activity between short wave and FM. However, short wave discussions were more likely to have international participants. Researchers encountered fewer than a dozen operators in the AM commercial radio bands (interviewing only one). Using AM was considered experimental and a possible way to get around enforcement actions in FM. Discussion had begun for pirate television but no American stations were confirmed.

Short Wave

Short-wave broadcasters operate within the amateur radio bands. Short wave offers greater geographical coverage than conventional FM, but the downside is that there are fewer receivers available. The larger coverage area makes it more difficult for regulators to pinpoint the exact location of a transmitter. Commercial broadcasters do not compete on the short-wave bands, and therefore they complain less about these operators. The FCC also appears less concerned. In fact, researchers talked to one short-wave operator who broadcast briefly outside an FCC listening post! Stations encourage listeners to send in reception reports by web, e-mail or postal mail. Listeners may be rewarded with a post card reply (QSL card) typical of the amateur radio tradition.

FM Operators

FM operators prefer to emulate their legal FM counterparts in that they are not interested in global or regional audiences but rather in their local communities. Nearly all of the operators questioned indicated that they were looking for a coverage radius of less than 10 miles. Nearly half of their on-line conversations involved such mundane issues as finding adequate office space, and troubleshooting equipment problems. Unlicensed FM operators differ radically from their legal broadcast colleagues in the area of commercial advertising. As the term *free broadcasting movement* denotes, these renegades, by and large, are not interested in making money through the airing of commercials. Direct interviews echoed this opinion.

The free radio FM stations work hard to act like the legal stations. DJs, community announcements, fixed schedules, and even rudimentary formats are all desired goals of the FM stations. Several on-line sites and long strings of discussions centered on possible content for automated programming to reach 24-hour-a-day/7-day-a-week operations.

Self Image

When looking at the images of the community, it is all too easy to point to the pirate logos. Pirate references litter their web pages and online

aliases. The pirate is of greater significance, however. Across the material, in words and pictures, the image of the independent rebel is common. For example, news groups have two titles. The second name for alt.radio.pirate is "Hide the gear boys here comes the magic station wagons"—a reference to the FCC's signal finding equipment. The name suggests that they are evading the power of legal authorities.

The deeper image is one of empowerment—power to fight, power to deliver a message, or power to do what is right. The images extend from the simple "Free Speech Radio" or "Black Liberation Radio" to the more ominous "Radio Doomsday."

An interesting change occurred during the survey period. Images started to develop toward a more professional look to the web page. The dark images on the Free radio network on several other leading sites were slowly replaced by nostalgic radio images—old microphones, sets, and the like. Next, corporate logos and advertising appeared in place of skulls. The major information center, Free Radio Network, is a great example. Early in the discussion period, images made it appear to be a cave. Later updates gave it a slick commercial appearance (complete with sales). Discussion issues developed on proper office space and studio furniture.

● *What are the goals of the operators?*

Based on the majority of comments, the predominate answer was "Fun." The technical challenge combined with the opportunity to program a station creates a compelling hobby. As two operators put it:

Running a station is fun. People listen and enjoy what you do. Then you'll run and they will immediately like you. . . . The electronics involved are pretty fun to play with too. (interview)

I like the creative part in making programs. I don't really have any message. It's just fun to do and demonstrate my technical ability. (interview)

Close behind the fun, operators are motivated by the desire to program. They see their programming as a community service. Whether it is music, news, or information, free radio operators see themselves able to do something that commercial radio cannot or will not do. Typical comments included:

. . . to free the airwaves corporate control. (interview)

For six years, ----- Radio, a small unlicensed pirate radio station in -----, ----, has courageously exposed police brutality, official misconduct, and government attacks on the black community. (web page)

Programming social/political issues are important; serving a perceived market niche was mentioned more often. Comments reflect a sincere desire to serve a public interest—either music, information, or race. Others simply want to play music using the city's largest stereo. The goal across the dial is to provide radio programming that is missing. Advertising support, they argue, causes a station to water down its content to the lowest common market. A noncommercial free radio station plays a style of music or provides information free of corporate control. Comments included:

The major news media reports very little news of substance. It must limit itself to 'feel good' programming or it will not sell air time to major advertisers. (interview)

One operator interviewed talked about how he served his city-block-size apartment complex with news, music, and information. His landlord would even pass community announcements to him to put on the air. Another operator took his station off the air so that he could save it to broadcast information in the next election.

● ***How does the community react to the current efforts of the FCC?***

Short wave operators have quietly ignored the current FCC enforcement action. Because these stations operate on a more sporadic schedule, they are harder to track. Researchers talked to one broadcaster who transmitted to pass the time while he traveled across the country. These operators are quiet but feel insulated from the current activity. Short-wave operators point to a few major stations that would be the first to be shut down by the FCC. Until these stations are contacted, other operators feel safe.

The FCC enforcement action has been somewhat effective on the FM operators. Although there is some evidence of increased broadcast activities, more have become careful or have reduced activity. During the study period, operators discussed increasingly elaborate methods for hiding or protecting their transmitters. Techniques such as antennas on balloons, transmitters buried under ground, and multiple transmitters were discussed. Less drastic measures such as unattended operations and means to detect oncoming FCC agents were also discussed.

Interest in the FCC LPFM proposals has been very high. More than half of the FM operators contacted were planning to apply for licenses if

they became available. Others may apply if the terms are right. There is, however, great doubt (even yet) that an acceptable LPFM system will be approved by the FCC.

From on-line discussion groups and direct interviews, the main fear of the proposal is that the FCC will impose unreasonable costs on fledgling stations. Many respondents worried that power restrictions will be too high for what they want to do. Others realize there could be additional costs in approved technology, licensing costs, and copyright fees. The cost may keep many broadcasters out of the legal market. Content restrictions are also a concern to a few operators.

● **Those not interested in LPFM licenses distrust government**

Some feel that the FCC has no right to license in the first place and refuses to participate in the process. Others fear licensing is simply a government trick to track operators and suppress their speech.

One important note needs to be added here. There is great disparity on-line concerning the FCC's action on seizing stations. Much of the discussion, web pages, and programs referred to FCC enforcement actions as appearing similar to a SWAT raid. However, the FCC's own documents and comments from at least a dozen former operators indicate that the enforcement actions are very different. Rarely do the enforcement officers arrive at the station with a warrant and actually arrest operators. First contact is usually a letter. A typical anti-FCC comment was published in *The Nation* (Cockburn, 1997).

The intrepid force confronting Brewer, his wife, and their cat was composed of FCC agents, federal marshals, a SWAT team, customs agents, local police, and a man who, perhaps frivolously, described himself as a member of the CIA. The local police, friendly with Brewer who uses the station to help in local crime watches, were apparently embarrassed by the raid. After crashing through the door, the goon squad menaced the Brewers with weapons, screamed at them to lie down, and handcuffed them face down on the floor with gun muzzles to their ears. For the next 12-hours, the task force cordoned off the Brewers' home, ransacked the place, and stripped it of anything even vaguely related to broadcasting.

A conflicting depiction comes from the dozens of reports of letters and polite visits posted by the discussion groups on their web sites. An attorney representing free radio operators (at the Memphis conference) agreed the process is normally very civil and equipment is often seized only well into the legal proceedings.

The disparity between the reality and the folklore of FCC enforcement have caused some operators to refuse to "buy" the FCC's overtures of a legal *but licensed* LPFM system. Unlike many of the

less strident free broadcasters, these people vow to continue their clandestine broadcasts, regardless of a change in FCC policy.

DISCUSSION

Free radio is not a simple homogeneous community. It comprises people with different interests and agendas. No simple description will be adequate, but this project is an attempt to characterize the community.

Free radio is a reaction to the conventional broadcast community as it is today. Operators understand the law even if they disagree with it. They also understand the risks. They view their broadcasts as harmless fun or civil disobedience. They argue that the legal broadcast community fails to serve the interest of the entire community. Further, they argue that the large, commercial-reliant stations cannot serve the minority interests.

The licensed broadcast community is equally antagonistic. In a breakout meeting of the NAB conference (Las Vegas, 1998), most attendees viewed free radio as "pirates" — amateurs who refuse to take the trouble to enter broadcasting correctly. They warn that illegal operations cause interference with legal broadcasters and air traffic control—a technically correct statement.

The FCC is taking an equally hard line. Their enforcement activities leave very little room for doubt. Even while considering LPFM, the FCC maintains that the agency is not legalizing pirates (FCC, 1999). The commission clearly does not accept any of the free radio community's legal arguments and easily wins victories in court.

Future research will depend greatly on how this issue develops in Congress and the industry. If the FCC decides not to license LPFM radio, the covert community will continue to exist despite periodic FCC enforcement actions. Legal researchers may investigate free radio claims of a right to broadcast. Sociologists may continue to look at the covert community.

CONCLUSION

This study took a qualitative look at illegal radio. It offers a better understanding of the character and motivations of these broadcasters who operate outside the law. Illegal radio is not a single homogeneous category. Some operators are motivated by service, others by politics. Others just like the thrill.

This study concludes that, depending on the specific broadcaster, there can be several motivating factors influencing the decision to

bypass the FCC and start up a radio station. Many of these unlicensed operators do not see themselves as true criminals but rather as counter-culture renegades of the airwaves. Researchers also found a strong interest in LPFM radio as proposed by the FCC.

References

- Albiniak, P. (1997, September 8). Low power to the people. *Broadcasting and Cable*, p. 20.
- Albiniak, P. (1998, February 2). Another pirate station Scuttled. *Broadcasting and Cable*, p.16.
- Bandits on the run. (1998, June 26). *Broadcasting and Cable*, p. 10.
- Cockburn, A. (1997, December 15). Free radio, crazy cops, and broken windows. *The Nation*, 265(20), 9.
- FCC Audio Services. (1996). Mass Media Bureau: Low power broadcast radio stations
- FCC. (1999). Mass media bureau, online www.fcc.gov/mmb/asd/decdoc/engrser.html#LOW
- Higgins, J. (January 16, 1998). Taking aim at pirates. *Broadcasting and Cable*, p. 41.
- Jones, S. (1988, August). Making waves: Pirate radio and popular music. Presented at the annual meeting of the Association for Education in Journalism and Mass Communication. Portland, Oregon.
- Jones, S. (1994, Summ.). Unlicensed broadcasting: Content and conformity. *Journalism Quarterly*, pp. 395–402.
- McConnell, C. (1998a, June 19). Radio pirate walks the plank. *Broadcasting and Cable*, p. 30.
- McConnell, C. (1998b, October 9). Pirates storm Washington. *Broadcasting and Cable*, p. 26.
- McConnell, C. (1998c, March 6). FCC considers low-power radio. *Broadcasting and Cable*, p. 54
- Middleton, K.R & Chamberlin, B.F. (1996). *The law of public communication* (pp. 359–602) New York: Longman.
- NAB to FCC: Microradio is a bad idea. (1998, April 27). Press Release from NAB, National Association of Broadcasters.
- NAB Tough on Pirates. (1998, February 2). *Broadcasting and Cable*, p. 34.
- Phipps, S.P. (1990). Unlicensed broadcasting in the US: The official policy of the FCC. *Journal of Broadcasting and Electronic Media*, 34, 137–152.