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The Lobby that Cried Wolf

NAB CAMPAIGN AGAINST USING TV WHITE SPACE FOLLOWS A FAMILIAR SCRIPT

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In an October 2007 letter to the Federal Communications Commission (FCC), executives from the four largest TV networks told the Commission that proposals to allow low-power Wi-Fi type devices to operate on vacant TV channels, “could cause permanent damage to over-the-air digital television reception.”¹ Such a dire warning would ring alarm bells for policymakers, if not for the fact that similar nightmare scenarios have been predicted before. In numerous public relations and lobbying campaigns, broadcasters and their respective lobbies – particularly the National Association of Broadcasters (NAB) and its technical arm, the Association for Maximum Service Television (MSTV) – have relied upon similar doomsday pronouncements to inhibit competition and maintain their exclusive control over the valuable, but grossly under-utilized, broadcast spectrum.

Although the advancement of communication technology has created new and innovative uses for spectrum over the decades, the one constant has been the broadcast industry’s unyielding opposition to new uses of the broadcast spectrum, or to any new technology that poses even the slightest threat to their bottom line. Broadcasters have opposed some of the most important communications advances of the 20th and 21st centuries including cable television, cellular phones, FM radio, satellite television and radio, VCRs, DVRs, and – currently – mobile broadband devices that could operate on the unused TV channels in each local television market across the country.

Since 2004, the FCC has been considering opening unused television guard band channels, commonly referred to as the TV “white spaces,” for unlicensed wireless networks and devices. Throughout the FCC’s deliberation and testing process, broadcasters have followed a familiar script of scare tactics and half-truths, attempting to paint a picture of white space devices as detrimental to television reception and as a threat to everything from the DTV transition to heart monitors. The result has been to turn what should be an unbiased assessment of the feasibility of new technology into a bitter and distorted political fight. This was clearly the intention of a lobby that for the past 50 years has relied upon its political clout and financial resources to keep others out of *their* spectrum. As former *New York Times* media reporter and author Joel Brinkley observed: “Above all else, [broadcasters hold] sacred the eleventh commandment: Thou Shalt Not Give Up Spectrum.”²

From low-power FM radio to wireless microphones, to analog cell phones and public safety use of unused TV channels, broadcasters have fought any and all proposals to allow new uses of the underutilized broadcast spectrum, while lobbying continually to expand their own spectrum rights. The current campaign against white space devices (WSDs) is no different. The mere fact that white spaces even exist is a byproduct of the NAB and MSTV’s unwillingness to utilize the TV band more intensively. Even after the reallocation and auction of TV Channels 52 to 69,

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there are still 49 channels reserved exclusively for broadcasting – even though the average TV market has fewer than eight channels licensed to full-power stations. Broadcasters have instead, leveraged their existing licenses (which they received at no cost) to gain increasingly more benefits, even as the share of U.S. households relying primarily on over-the-air TV reception has fallen steadily to below 15 percent.³ The following paper provides a glimpse of broadcasters' lobbying path of deception, highlighting recent campaigns to keep others out of their spectrum and offering parallels with the current campaign against white space devices.

Be Afraid, Be Very Afraid

*"When a Dallas TV station started transmitting digital signals a decade ago, five dozen wireless heart monitors at Baylor University quit working. Baylor got different monitors, and no patients were harmed, but it's a story that Dennis Wharton, executive vice president of the National Association of Broadcasters, still tells to argue against allowing electronic devices to operate on vacant TV channels"*⁴

The National Alliance of State Broadcasters Association added:

*"[W]hy...would the FCC consider allowing millions and millions of these interference causing devices, like 'germs,' to spread throughout America with the ability to attack the TV receivers in people's homes...with no way for the owner of the TV set (the 'victim') to determine what was causing the 'illness' to his or her TV set?"*⁵

Such tales of gloom and doom have been a favored strategy of broadcasters in their lobbying efforts to prevent new uses in the broadcast spectrum. They have become a familiar sight in the white spaces debate, providing a reliable tool for broadcasters to diminish the feasibility of smart radio technology and predict nightmare scenarios if the FCC allows white space devices to operate in television band. The credibility of the above statements should be suspect not merely for their dramatics. Nonetheless, similar exaggerations and falsehoods have derailed even the most technically sound proposals. In many cases the FCC has withstood the PR onslaught from the NAB and others to approve new services, such as FM and satellite radio. But in others, broadcasters have often succeeded in severely limiting new services and perpetuating their primary status in the broadcast spectrum. The very recent story of low-power FM community radio provides a lucid example of the NAB's willingness to utilize underhanded and exaggerated claims of interference to prevent a new use of the broadcast spectrum.

Low-power FM

In 1998, the FCC proposed the creation of a new class of low-power FM (LPFM) community radio stations. In predictable fashion, the NAB attacked the idea asserting that such stations would "create small islands of usable coverage in an ocean of interference."⁶ One broadcaster said the idea would "cause chaos beyond belief"⁷ and the New Jersey Broadcaster Association offered the new LPFM service "has the potential to destroy the very fabric of our broadcasting system."⁸ The reality was that similar low-power radio stations were hardly new. The FCC began issuing low-power "Class D" licenses in 1948, mostly to colleges and universities setting up radio stations for students. However, beginning with the Public Broadcasting Act of 1967, the stations became less favored and the FCC moved to phase the service out in 1978.⁹

When Chairman William Kennard proposed the new LPFM service in 1998, broadcasters clearly viewed these new stations as a competitive threat, not only potentially siphoning off listeners, but more importantly advertising dollars. Although, this was the clear cause of their staunch opposi-

tion, the industry early on recognized that would be a losing argument. A directive from the NAB advised broadcasters to avoid being honest about their financial motivations when lobbying members of Congress: "Please don't tell them that the reason your (sic) against microradio is because it will hurt you financially. This is not a strong argument. THEY DON'T CARE!!"¹⁰

Instead, the go-to argument was to predict the coming LPFM apocalypse. The NAB and other opponents of the service submitted numerous studies to the Commission supposedly demonstrating the degradation in service to listeners from low power stations. The NAB offered that it had "...provided what we believe is unassailable evidence that low-power stations will add to the interference on an already congested radio band."¹¹ The FCC, in its role as expert agency, ignored the exaggerations and moved forward with approving the service – even attempting to assuage broadcaster concerns by scaling back their original proposal that would have allowed LPFM stations to operate on the second adjacent channel from a full-power station.¹²

Unmoved by the Commission's olive branch, broadcasters turned to Congress to keep community LPFM stations off the air. "We think this is a prescription for chaos on the airwaves," the NAB testified at a congressional hearing.¹³ To back up their assertion, the NAB distributed an audio disc on Capitol Hill purportedly simulating the potential interference from low-power stations, including the sound of radio programs overlapping on one frequency. Government engineers characterized the simulation as "downright fraudulent."¹⁴ Theodore Rappaport, a nationally prominent engineer, testified before a Congressional committee that under at worst case scenario just 1.6 percent of listeners within the LPFM listening range would experience interference, but almost all of them could fix the problem by adjusting the antenna on their radio.¹⁵

But the damage was already done. The Radio Preservation Act of 2000 passed easily in the House. Earlier versions of the bill would have overturned the FCC decision and banned LPFM stations completely. The later version prevented LPFM station from operating on the third chan-

Broadcasters v. Innovation

In attempting to defend its campaign against white space devices, the NAB and broadcasters have objected to the charge that they are opposed to new technologies. However, downright hostility towards innovation seems to be a hallmark of the broadcast industry. Here are some additional examples.

FM Radio – FM radio, invented in 1933, offered fidelity far superior to AM broadcasting, and by 1941 American consumers had purchased over 500,000 FM receivers.¹ However, large incumbent broadcasters, which relied on AM technology, viewed FM as a competitive threat. It also worked best at the same frequencies where RCA Corp. was trying to establish television. In 1944, RCA Founder David Sarnoff joined AM broadcasters to successfully lobby the FCC to relocate FM to a different frequency band, rendering existing equipment obsolete.² As a result, FM radio listenership did not surpass AM listenership until 1979.³

Cellular Phones – In the 1940s broadcasters killed an AT&T plan for mobile telephone service, delaying the arrival of cellular phones for more than a generation.⁴ In 1974, broadcasters fought the FCC plan that reallocated 14 upper UHF TV channels (channels 69-82) to create cellular telephone and specialized mobile radio (SMR) services. The NAB even petitioned the FCC to prohibit cellular phone companies from offering pay-to-use radio services such as news, sports and weather – arguing that information services over cellular phones would duplicate the same news provided free to radio listeners by broadcasters.⁵

¹ See Thomas W. Hazlett, *The Wireless Craze, the Unlimited Bandwidth Myth, the Spectrum Auction Faux Pas, and the Punchline to Ronald Coase's "Big Joke": An Essay on Airwave Allocation Policy*, 14 HARV. J.L. & TECH. 335, 410 (2001).

² Id. at 410. See also Mark Lewyn and Peter Coy, *Airwave Wars*, BUSINESS WEEK, 48, July 23, 1990.

³ See id. at 412.

⁴ See Drew Clark, *Spectrum Wars*, NATIONAL JOURNAL, vol. 37, no. 8, February 19, 2005.

⁵ See *NAB protests cellular operators offering information services*, MOBILE PHONE NEWS, Dec. 19, 1991.

nel, adjacent from a full-power station, while allowing a demonstration program in nine markets to test the FCC's relaxed interference proposal.¹⁶ A similar bill never cleared the Senate, but language from the act was added into an omnibus budget bill, passed by the full Congress and signed by the President. The legislation required very low-power LPFM stations to be separated from full-power stations by a buffer zone of three vacant channels, severely limiting the total number of LPFM stations and eliminating the prospect of LPFM stations in more crowded urban markets. As a consequence, of the 836 LPFMs on the air today only one is in a top-50 radio market.¹⁷

The legislation also directed the FCC to further study the signal interference issue. The FCC commissioned the MITRE Corp., an independent radio engineering firm that does extensive work for the military, to research LPFM signal interference. The independent study found no significant interference issues with the service, as proposed by the FCC, operating on a full-power station's third adjacent channel.¹⁸ In February 2005, Senator John McCain introduced the Local Community Radio Act to eliminate the three-channel separation requirements. As the text of bill pointed out, FM translators (used to repeat the broadcast signal of commercial full-power stations) were authorized to and currently operating on first, second, and third adjacent channels utilizing the same transmitters that LPFMs used.¹⁹ Undeterred, the NAB sent a letter to members of Congress, urging them to "resist" eliminating third-adjacent channel protections – along with a revamped audio sample of "the real world effects" of third-adjacent channel interference.²⁰ The McCain bill never made it out of committee and subsequent bills, although garnering increased support, have yet to pass.

Low-Power Television

The NAB and broadcasters employed similar interference arguments to limit and delay the establishment of low-power television (LPTV) stations. Although the NAB and MSTV have recently embraced low-power television stations, going so far as to form a "Low Power TV Issues Committee" to address issues related to the DTV transition and to defend them against potential interference from white space devices, they originally fought to keep them off the air.²¹ When the establishment of LPTV on vacant TV channels was proposed by the Commission, broadcasters immediately threatened to ask Congress to overturn the FCC actions.²² The FCC refused to back down, creating a new class of TV stations that would broadcast to localized areas of 10 to 20 miles and serve niche audiences.

But the stations carried a "secondary" status – meaning they could not cause any interference to existing full-power stations. Moreover, if a new full-power station was authorized to use its channel the low-power station would have to shut down.²³ In 1999, a bill was introduced to provide low-power broadcasters primary status. A year earlier the NAB had successfully lobbied against language in a budget bill that would have given LPTV stations equal status with their full-power counterparts.²⁴ The NAB opposed the bill arguing that a permanent status for LPTV stations would lead to "disruption and interference" in the digital transition.²⁵ Meanwhile, it was the government's decision to allot full-power stations a second channel during the transition that caused a channel shortage, increasing the risk of LPTV stations being kicked off the air.

Congress eventually passed protections for LPTV stations. However, the criteria for a low-power station to achieve permanent or Class A status was so restrictive that the vast majority of stations were ineligible.²⁶ Thus, according to NAB and MSTV, LPTV stations should be protected from the vagaries of white space devices, but not from the broadcast ambitions of their full-power brethren.

Wireless Microphones

Broadcasters seemed to have also pulled a similar about face regarding wireless microphones, first opposing their widespread use in the TV band, and now conveniently using wireless microphone users such as Broadway theaters and churches as shields against new white space devices. Current FCC rules limit the use of wireless microphones on vacant television channels *exclusively* for the production of broadcast programming and require microphone users to obtain a license.²⁷ Such limitations were a direct result of broadcasters lobbying the Commission to impose severe limits on eligible users, including opposing eligibility for cable operators, on the rather familiar rationale, that widespread use would cause interference with television viewing.²⁸ However NAB's victory proved to be pyrrhic; today there are fewer than 1000 *licensed* microphone operators on vacant TV channels, meanwhile wireless microphone manufacturers including Shure Inc.,

have flooded the market with 400,000 to 1,000,000 unlawful and unlicensed wireless microphone systems operating throughout the TV band.²⁹

NAB and MSTV have expediently turned a blind-eye regarding this current widespread use of wireless microphones by in-eligible users, instead joining the chorus of wireless microphone manufacturers and in-eligible users to oppose white space devices. In joint-reply comments, the NAB and MSTV explicitly called for the FCC to protect wireless microphones currently operating in the band.³⁰ "MSTV and NAB agree with the Microphone Interests Coalition description that "wireless microphones are essential for numerous productions and events that define American culture," and thus interference from new devices would harm not only the entertainers but the public as a whole."³¹ In a letter to members of the Wireless Innovation Alliance (WIA), the coalition of high-tech companies and public interest groups supporting unlicensed use of the TV white spaces, NAB president David Rehr notes that WIA's efforts, "have been opposed by those utilizing wireless microphones, including... religious institutions... and those who produce live shows, both on and off Broadway."³²

In their enthusiastic defense of wireless microphones, NAB and MSTV conveniently fail to acknowledge that the vast majority of wireless microphones currently operating in the TV band are unauthorized by FCC rules.³³ Thus, it was somewhat

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Cable Television – Although cable television technology (originally deployed to allow outlying/rural areas to receive network television broadcasts) initially did not receive much attention from broadcasters, the NAB vigorously opposed cable TV after the nascent service began offering programming that competed with over-the-air broadcasts, characterizing it as a "malignant tumor" and launching an expensive campaign to "Save Free TV."¹

The VCR – In the landmark Supreme Court case *Sony v. Universal City Studios* (the "Betamax case"), CBS filed a brief opposing VCR manufacturer Sony, claiming that "[e]very broadcaster is directly threatened by [the] argument that the broadcasting of copyrighted materials makes them fair game for home copying" and maintaining that the "argument that the ability of [VCRs] to play prerecorded videocassettes makes them suitable for substantial noninfringing use is frivolous."²

"Short-Spaced" Radio Stations – Given the increasing popularity of FM radio, the FCC in the late 1980s authorized "short-spaced" station assignments that were nominally closer to existing stations, but that could avoid causing harmful interference using methods such as directional antennas.³ As with previous proposals to promote efficient use of the broadcast spectrum, the NAB opposed these efforts, claiming they would result in interference to existing broadcasters.⁴

¹ See *Pay Television in America: Feevee's Charge*, ECONOMIST, Sept. 27, 1975, at 76.

² See Brief Amicus Curiae of CBS Inc. in Support of Respondents, *Sony Corp. v. Universal City Studios, Inc.*, 1982 U.S. S. Ct. Briefs LEXIS 558 (1982) (No. 81-1687).

³ See generally *Amendment of Part 73 of the Commission's Rules to Permit Short-Spaced FM Station Assignments by Using Directional Antennas*, Report and Order, 4 FCC Rcd. 1681 (1989).

⁴ *Id.* at 1682.

contradictory that both the NAB and MSTV would readily agree with the Microphone Interests Coalition, given that many of its members engage in deliberate and aggressive marketing of wireless microphones to ineligible users, including religious organizations and Broadway groups.³⁴ Dennis Wharton of the NAB commented, "Once [white-space devices] are out there, how do you get the genie back in the bottle? If we are right, implications for devastating TV are very real."³⁵ Such a statement is even more hypocritical given that wireless microphones are dumb devices, wholly incapable of detecting occupied television channels. And yet, the broadcast lobby supports the continued operation of unlicensed wireless microphone systems on channels immediately adjacent to occupied DTV channels, at power levels up to five-times higher than the proposed 40 mW level for white space devices.

Broadcasters' willingness to embrace protection for all wireless microphone users, even those ineligible users is particularly duplicitous given their prior actions towards amnesty for illegal operators. Broadcasters were quick to frame the establishment of an LPFM service as legitimizing pirate radio. In a 1999 speech, NAB President Eddie Fritts provided that "We are fully aware that the low-power FM proposal by our FCC chairman is being looked upon by many around the world as an attempt to legitimize our own pirate radio operators. That is indeed what it appears to do."³⁶ Included in the restrictions placed on LPFM by Congress and pushed by the NAB, was an outright ban on anyone who had operated an illegal "pirate" radio station from receiving an LPFM license.³⁷

What is clear from the above examples is that, again and again, broadcasters' claims of interference have turned out to be exaggerated or false. The NAB has become as predictable as the proverbial groundhog that pops up at every sign of a new innovation or potential competition to see the shadow of interference. Today, there are more than 836 low-power FM stations, 2,900 low-power TV stations in operation³⁸ and upwards of 400,000 wireless microphones and despite the NAB's pronouncements, chaos did not ensue.

The DTV Transition: The Gift that Keeps on Giving

Broadcasters have frequently asserted that allowing white space devices would disrupt the digital television transition (DTV). Of course, the NAB and MSTV conveniently omit that the FCC rulemaking clearly provides that any certification of white space devices would not occur until after February 17, 2009, the deadline for the DTV transition.³⁹ Even so, broadcaster concern for the DTV transition is understandable, given that the transition has provided them with a multi-billion, government subsidized, bonanza of spectrum gifts, including:

- A free, far more valuable DTV license with six times the spectrum capacity needed to duplicate the standard analog signal, allowing stations to broadcast multiple channels of video content.⁴⁰
- Stations are required to broadcast only one channel of free programming, allowing them to also broadcast additional paid services within their DTV spectrum license, paying a 5 percent royalty on paid channel-revenue, but nothing for the spectrum license itself.
- Broadcasters were able to acquire an estimated \$6 billion worth of spectrum rights through increased rights to transmit programming across larger geographic areas.⁴¹
- UHF stations were able to increase their power levels from 50 kilowatts to 1,000 kilowatts in rural areas.⁴²

- Interference protection for all broadcasting incumbents was increased from 50 percent of the locations 50 percent of the time to 50 percent of locations 90 percent of the time.⁴³
- Stations were loaned a second channel with the option to retain the one they considered the most valuable to themselves, allowing a number of stations to migrate to more valuable placements in channels 2 – 51.⁴⁴ UHF broadcasters benefited the most from the new allotments, gaining parity with VHF channels by moving down the band to higher-frequency channels, where their television signal can travel farther at lower power.⁴⁵
- And last, but far from least, “must carry” requirements imposed by the government on cable and satellite operators, including a dual-carry requirement allowing cable subscribers to choose between analog and digital versions of their local station signals.

But the story of DTV gets even better for broadcasters. It also served as a fateful ploy to delay, almost indefinitely, the reallocation of a large swath of massively underutilized TV spectrum to public safety and wireless communications.

Land Mobile Radio and the HDTV Shuffle

During the 1980’s, a number of groups began clamoring for access to additional spectrum. The FCC both in 1983 and 1986 put forth proposals to open up unused television channels for then infant mobile telephone services.⁴⁶ In the autumn of 1986, it seemed all but certain that FCC was going to take away vacant UHF channels in ten big cities and reallocate them for two-way radio transmission, known as Land Mobile Radio Services (LMRS), utilized by fire and police departments and other users.⁴⁷ For example in Washington, DC, where the TV band was virtually empty above channel 30, the FCC proposed that either TV channels 30 and 36, or 35 and 39 be used for two-way radio transmission.⁴⁸ The Commission, 16 years earlier, had approved public safety land-mobile users to share one or two of channels between 14-20 in the top ten markets. In response to this new threat, the NAB employed its typical interference arguments, but they went nowhere. As Joel Brinkley notes:

“[the NAB] and other lobbyists tried logical arguments. What about the interference? Viewers didn’t want a flash of static on their TV sets every time a pizza delivery truck drove past. Land Mobile shot back that the discussion wasn’t about pizza trucks. It was about ambulances and police cars.”⁴⁹

Despite the weakness of its claims, the NAB was not about to let such prime television spectrum slip away. But they were desperate for a plan to show Congress and the FCC they needed those vacant channels. One of the NAB’s chief lobbyists, John Abel, stumbled upon the answer, “Let’s tell everyone we need those channels for high-definition television.”⁵⁰

In 1981, HDTV was demonstrated by the Japanese in the U.S. and in 1983 CBS and MSTV testified before the U.S. Senate that broadcasters would need additional spectrum for the service.⁵¹ But it was not much of a priority, until they needed it to fend off land mobile. In January 1987, the NAB invited NHK, Japan’s public television network, to demonstrate their HDTV system, called Muse at the FCC. The NAB filed an experimental broadcast application with the Commission to use two vacant UHF channels in the Washington area, 58 and 59.⁵² They needed two channels because the MUSE system required roughly 8 megahertz of band space for transmission, compared with 6 megahertz of space for a standard television signal.⁵³ Thus, broadcasters could easily argue they would need all of the available TV spectrum to bring HDTV to the American public.

The FCC was scheduled to vote on the Land Mobile reallocation in March, but when the agenda came out, it had been pulled from the schedule.⁵⁴ In April, the FCC announced that no UHF channels would be reallocated to Land Mobile until the commission could determine what should be done about HDTV. Then in August, the FCC opened a special three-month HDTV inquiry, only after that would the Commission decide.⁵⁵ Broadcasters also began lobbying Congress for additional spectrum for the new HDTV service. The NAB distributed a press release at a Congressional hearing on HDTV, providing that “HDTV may not be as bright as the picture it provides unless Washington policy makers allocated spectrum to make it a reality.”⁵⁶

By 1989, with the land mobile proposal appearing to be stalled for good, it became clear that broadcasters were not particularly interested in HDTV. John Abel, architect of the HDTV ruse, complained in a speech that HDTV “will mean huge expenses for broadcasters.”⁵⁷ In 1990, General Instruments developed a fully digitized HDTV signal that could fit on a standard 6 MHz channel.⁵⁸ One of the immediate advantages of a digital signal is that you could use the digital data stream for other things.⁵⁹ John Abel proclaimed, “DIGITAL does not mean higher quality. Digital means flexibility.”⁶⁰ Broadcasters were now opposed to any specific requirement to carry HDTV programming and were seeking to use the second channel for other non-broadcast services. They twice inserted provisions into Congressional bills that would have allowed broadcasters to offer “ancillary” data services on their second channel as long as they were offering some sort of “advanced television” programming.⁶¹ In 1997, the FCC officially abandoned an HDTV service requirement.⁶²

The Great DTV Giveaway

Considering this history, it seems rather laughable that the NAB, in 2005, characterized calls by tech companies for a hard deadline to complete the digital television transition as a “spectrum grab.”⁶³ In a 1995 letter to the House and Senate Commerce Committee, the NAB promised that after the DTV transition, 200 MHz of spectrum would be returned to the public (approximately half of the 406 MHz TV band). However, intense lobbying by broadcasters to secure a second 6

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Satellite Television – As with cable, broadcasters aggressively opposed satellite television, even challenging the FCC’s power to authorize the Direct Broadcast Satellite service. A federal appeals court ultimately rejected the NAB’s contention as a “luddite argument,” holding that “existing licensees have no entitlement that permits them to deflect competitive pressure from innovative and effective technology.”¹

Satellite Radio – The NAB has consistently opposed satellite radio operations since they were first proposed in 1990,² culminating in an aggressive effort to stop the pending merger of satellite radio providers XM and Sirius. In 2007, the NAB’s efforts prompted the Wall Street Journal to caution that the government should not “help the NAB smother a fledgling competitor in the crib.”³

Digital Video Recorders – When Digital Video Recorders such as TiVo and ReplayTV launched in 1999, the parent companies of CBS, ABC, and FOX announced that they were considering suing the manufacturers unless they negotiated licenses to use the programming.⁴ A number of broadcast networks ultimately joined a suit against the makers of the latter device,⁵ and broadcasters began advocating for “broadcast flag” regulations that would constrain the ability of DVRs to use digital TV signals.

¹ *Nat’l Ass’n. of Broadcasters v. FCC*, 740 F.2d 1190, 1197-98 (D.C. Cir. 1984).

² See Orbitcast, *The NAB: A History of Hypocrisy* (Apr. 17, 2007), <http://www.orbitcast.com/archives/the-nab-a-history-of-hypocrisy.html> (setting forth timeline of NAB efforts to oppose satellite radio).

³ Wall Street Journal Online, *What’s the Frequency, NAB?* (Apr. 21, 2007), http://online.wsj.com/article_email/SB117712130983777658-1MyQjAxMDE3NzI3MzEyMjMxWj.html.

⁴ Deborah Kong, *Media Giants Take on Digital Copyright: Group Wants TiVo and Replay to Obtain Licensing*, SAN JOSE MERCURY NEWS, Aug. 13, 1999, at 1C.

⁵ See *Paramount Pictures Corp. v. ReplayTV, Inc.*, Civ No. 01-09358-FMC (C.D. Cal.).

MHz channel for every licensed full-power station as part of the DTV transition, resulted in a loss of available spectrum to 138 MHz or 23 channels. That number was further revised in 1998, to 108 MHz, eliminating channels 2 to 13 from the plan and limiting the returned spectrum to just channels 18 channels (52-69).⁶⁴

During the 1990s as broadcasters continued to lobby for a second channel to transition to digital, numerous attempts were made to force them to pay something for the additional channel. The Clinton Administration was very interested in utilizing an auction of the television spectrum to balance the budget.⁶⁵ In September 1995, the Senate Commerce Committee approved a plan that directed the government to auction off a 125 MHz of the spectrum it controls as a way to reduce the deficit. The measure included a provision that would bar the FCC from giving broadcasters a second TV channel for free until the Commission studies, among other things, the feasibility of making broadcasters bid for those channels at a government auction.⁶⁶ A column from William Safire of the New York Times entitled “Stop the Giveaway” followed and in January 1996, then Senate Majority Leader, Bob Dole, threatened to hold up the telecommunications bill until the issue was resolved.⁶⁷ Within days of Bob Dole’s threat, the NAB launched a lobbying attack including a TV spot that provided:

“Air is a wonderful thing. Free air lets us send you all the shows you love and local news, sport, and weather. Now Congress has a new idea. They tax everything else. Why not tax the airwaves?”⁶⁸

With support from his Congressional colleagues evaporating, Dole eventually agreed to a compromise, allowing the passage of the bill in exchange for the FCC promising not to begin assigning second channel licenses to stations until the end of 1996 – after Congress had been given a chance to examine the second channel issue. By June 1996, Congress had changed its tune. In a letter to the FCC, newly elected senior leaders of the Senate and House asked the agency “to move forward as expeditiously as possible” to lend broadcasters a second channel to begin the transition to digital broadcasting.⁶⁹ Senator John McCain would call it “...one of the great rip-offs in American history. They used to rob trains in the Old West, now we rob spectrum.”⁷⁰

With the second channel firmly in their grasp, broadcasters set-out to retain control of the additional channel as long as possible. In March 1997, broadcasters pledged to transmit digital television to most American viewers in less than three years. It was part of a plan submitted to the FCC to deliver a digital TV signal to 43 percent of all U.S. viewers within 24 months and more than 50 percent within 30 months.⁷¹ Almost simultaneously they convinced Congress to roll back a fixed deadline for the return of the loaned channel, only requiring the channel be returned when some unlikely conditions were met, including until 85 percent of Americans had DTV television in their area.⁷²

After repeated Commission attempts to set a hard deadline, in 2004, FCC Media Bureau Chief, Ken Ferree, put forth a proposal to force broadcasters to switch to the digital by 2009. Broadcaster opposition to giving up their loaned second channel led him to observe that broadcasters would “rather eat their children than give up this spectrum.”⁷³ But pressure began to mount after the attacks of September 11th, 2001. The 9-11 commission in its final report recommended that the government allocate additional spectrum for public safety communications.⁷⁴ The Deficit Reduction Act of 2005 set aside 24 MHz of spectrum for public safety and finally set a hard deadline of February 17, 2009 for analog television broadcasting to switch to digital.⁷⁵

A Pass/Fail Proposition

The NAB and MSTV's lobbying and PR efforts have already succeeded in casting doubt about the feasibility of white space devices, at least among policymakers and reporters with little understanding of radio engineering or of the successful testing of similar technology by the U.S. Army and its NeXt Generation dynamic spectrum research effort at Darpa.⁷⁶ NAB and MSTV's familiar gloom and doom scare tactics have contributed to this in part, but more importantly they have effectively framed the testing of devices a pass/fail proposition, rather than a means to determine appropriate technical rules for devices. The FCC's testing this year was not a process for certifying products ready for sale to the public; that device certification process comes later, after device operating rules are finalized. The purpose of the feasibility testing over the past 18 months has been to determine the parameters with which devices will need to operate in the TV band in order to not cause interference to TV viewers or other approved operations in the band. Thus, if in the testing process a device does not sense an occupied TV channel or there are other interference issues, this is not a failure. Rather it simply provides the Commission with a real world example to inform the technical requirements of future, yet to be certified devices. Of course, such nuance is easily overrun by a relentless misinformation campaign. But the NAB and MSTV have also essentially set-up the devices to fail by requiring excessive interference protections broadcasters have consistently used to limit competition in the TV band.

Do As We Say, Not as We Do

White spaces exist for two reasons; either the channel is empty because no broadcaster is utilizing it (mostly the case in rural areas) or it has been set aside by the FCC to prevent stations in the same market or adjacent markets from interfering with each other. For example if channel 9 is licensed to a TV broadcaster in a neighboring market, channel 8 and 10 cannot be used in that market, and channel 9 cannot be used in neighboring markets. Thus, when NAB and MSTV refer to white spaces as interference zones they are being somewhat honest; in the analog era those vacant channels served as guard-bands to prevent TV stations from interfering with each other.⁷⁷ Those guard bands kept more than half the channels on the VHF and UHF dials empty, a rather advantageous arrangement for incumbent broadcasters to keep competition to a minimum.⁷⁸

A small improvement to TV receivers could have fixed the problem, but broadcasters continually opposed any FCC attempt to mandate more selective receivers.⁷⁹ Such lax receiver standards have remained in place for the DTV transition. In doing this, broadcasters can continue to argue adjacent and co-channel interference protection is necessary to protect viewers, and oppose efforts such as the inclusion of white space devices that seek to utilize the spectrum more intensively. In 2007, the FCC tested digital television receivers, in part to determine where white space devices could operate in the band. The results from the tests indicated that DTV receivers suffered from the same deficiencies as their analog predecessors, requiring the same channel separations to avoid interference between nearby television channels – conveniently reinforcing broadcasters' stranglehold on the spectrum. As Motorola noted:

"If the FCC sets sharing requirements based on these poorly designed receivers for the second and beyond channels it will result not only in significantly reducing the amount of spectrum available for TV white space operations but also brings into question whether the current DTV channel assignment is sufficient to ensure quality reception with interference among the various DTV broadcast stations."⁸⁰

Although NAB and MSTV were more than willing to support the FCC's call for industry groups to work together to develop voluntary DTV receiver performance specifications,⁸¹ they have of-

ferred no such flexibility to the spectrum sensing requirements of white space devices. Rather the opposite has occurred, with broadcasters arguing throughout the testing process for a constantly moving target of required performance to protect over-the-air television viewers.

An Automatic F

DTV receivers need a signal power level of roughly -85 dBm to actually display a picture. However, the NAB and MSTV have continually fought to require white space devices to sense signal levels at -116 dBm. The 32 dB difference between TV set and WSD reception sensitivity means that a TV set needs a signal that is over 1000 times stronger than a WSD can detect to show a picture (one order of magnitude for each 10 dB).⁸²

The implications of this overly conservative threshold are two-fold. First, by creating overly protective sensitivity standards, WSD cannot utilize frequencies where the TV signals are too weak for a television to display. Even a -114 dBm threshold would be overly sensitive, unnecessarily protecting distant TV signals from outside a viewer's local market, only receivable by a handful of viewers with roof-mounted directional antennas⁸³ and rendering large quantities of spectrum unusable.

Second, the ability of devices to accurately and consistently detect television signal at levels of -116 dBm and below greatly diminishes as the device begins to detect random noise in an unoccupied frequency. This creates an impetus for false positives, leading devices to detect all channels as occupied by television stations – which in turn has provided broadcasters with an expedient way to diminish the feasibility of white space devices. For example, after the FCC released test results last year, opponents of WSDs only reported the results at -116 dBm, choosing to ignore the perfect performance of a Philips device at -114 dBm.⁸⁴

Another Notch in the Belt for the NAB?

It is still unclear what will be the impact of broadcasters' lobbying efforts against white spaces devices. Even if the FCC approves their operation in the TV band the debate will continue. Broadcasters are then likely to turn to the Congress, where a defeat of the FCC's white spaces proposal would be just another notch in the belt for the NAB and a lobby that has perfected to an art keeping others of their spectrum. From predicting the destruction of the very "fabric" of the broadcasting system in the LPFM debate, to hatching an elaborate ruse to keep the FCC from re-allocating unused TV channels for public safety, broadcasters have defeated even the most technically sound and publicly beneficial proposal. As the FCC announced its intention to move forward with approving operational rules for white spaces devices to operate in the TV band without interfering with television signals, broadcasters have asked the FCC to slow down.⁸⁵ Apparently four years of deliberation and public comment and nearly 18 months of extensive field and laboratory testing is a rush to judgment. But rational arguments aside, such tactics have worked to derail proposals in the past. Just as broadcasters delayed cellular communications for a generation, they could yet delay for a generation another revolutionary leap in communications and wireless technology.

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