

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

In the Matter of )  
 )  
Commission Seeks ) ET Docket No. 02-135  
Public Comment on )  
Spectrum Policy Task Force )  
Report )  
 )

To: The Commission

**JOINT REPLY COMMENTS OF  
THE ASSOCIATION FOR MAXIMUM SERVICE TELEVISION, INC.  
AND THE NATIONAL ASSOCIATION OF BROADCASTERS**

February 28, 2003

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## SUMMARY

The Association for Maximum Service Television, Inc., and the National Association of Broadcasters support a prudent approach to spectrum policy – one that promotes gradual, positive steps that preserve the public interest benefits of existing services and that make possible future, solidly-based improvements in spectrum policy. Instead of seeking “quick fixes” for today’s spectrum policy challenges, the Commission should pursue sound long-term management strategies.

### **Preserve the benefits of the public’s existing, licensed services**

- Broadcasters support the continued application of a traditional managed spectrum model of broadcast regulation. This best suits our special role as the “first choice” means of communication with citizens in times of crisis, and as a provider of news and other vital services to viewers in all areas of the country, rural and urban.
- Broadcasters oppose sidetracking the allocation portion of the Commission’s spectrum management responsibility to a Base Realignment and Closure Commission-type process. This would be a one-shot exercise uninformed by past experience and without future responsibilities, leading to a process severely lacking in both expertise and accountability.
- The Commission should focus its efforts relating to broadcast spectrum on the completion of the digital transition, in which broadcasters have already invested at least \$2.5 billion and which entails many complicated and challenging engineering and spectrum tasks. By requiring cable carriage of digital broadcasts and taking other appropriate steps to facilitate and speed the transition, the FCC will ultimately free up substantial additional spectrum resources.

### **Permit no new sources of interference in the broadcast bands during the DTV transition**

- Many parties broadly oppose “underlay” operations in licensed spectrum bands. Broadcasters share their concern. The technology to ensure stable, non-interfering underlays is lacking, whereas the threat of cumulative interference is all too real.
- An underlay or overlay allocation in the broadcast bands would not satisfy the several unlicensed advocates (*e.g.*, Wi-Fi supporters) who filed comments stating that dedicated allocations are needed for their proposed uses. The Commission should instead focus on clearing additional bands to be allocated for unlicensed services on a dedicated basis.
- The issue of possible underlays or overlays in broadcast spectrum bands should be set aside until we reach the successful conclusion of the DTV transition, so as not to distract industry and the Commission from the transition, divert essential resources, or complicate existing interference issues.
- The Commission should give careful consideration to the impact of underlays and overlays on existing services. Broadcasters share the skepticism expressed by other commenters regarding whether and in which bands such operations might work.

### **Recognize the limitations of the interference temperature concept**

- Interference temperature remains at best a theoretical approach. MSTV and NAB support the many commenting parties who opposed premature adoption of spectrum management policies that depend upon actual implementation of a concept that is still at the theoretical stage.
- The interference temperature approach holds potential as a monitoring mechanism, but is far from providing a reliable operational mechanism for spectrum management policy. It should be tried out on a limited basis, and only in bands where the licensee controls both the transmitters and the receivers and can thus effectively monitor and control interference problems.
- Developing a reliable receiver performance model is critical to any practical implementation of the interference temperature concept. Lack of control over the design of either television receivers or the new unlicensed devices that some parties might envision operating in the broadcast bands renders broadcasting particularly vulnerable to interference problems and particularly unsuited for this untried spectrum-management technique.

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The comments filed in response to the Report of the Spectrum Policy Task Force (“Task Force”)<sup>1</sup> underline the need for a prudent approach to spectrum policy – one that promotes gradual, positive steps that preserve the public interest benefits of existing services.

The Association for Maximum Service Television, Inc. (“MSTV”), and the National Association of Broadcasters (“NAB”)<sup>2</sup> share this view. There can be no “quick fixes” for today’s spectrum policy challenges.

For example, the Task Force Report supports the idea of creating underlay or overlay allocations for Wi-Fi and similar devices in broadcast bands. The Commission has

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<sup>1</sup> *Report of the Spectrum Policy Task Force*, ET Docket No. 02-135 (Nov. 2002) (“Task Force Report”).

<sup>2</sup> MSTV is a non-profit trade association of local broadcast television stations committed to achieving and maintaining the highest technical quality for the local broadcast system. NAB is a non-profit, incorporated association of radio and television stations and networks that serves and represents the American broadcast industry.

issued a Notice of Inquiry to study this option.<sup>3</sup> In the meantime, however, the comments of the Wi-Fi community have revealed that mere underlays in broadcast or other bands will not be adequate – Wi-Fi supporters state that they need dedicated allocations.<sup>4</sup>

Similarly, the interference temperature metric – a key element of the Task Force proposals – remains far from offering a viable solution. Many commenters have raised potent concerns about the role that a new interference temperature metric will play in the process of interference control, and the extent to which technology exists to support such a role. (These concerns are described in greater detail in Part III below.)

The Commission should not be distracted by quick fixes such as interference temperature, which need to be investigated before they are tried out, preferably on a discrete and limited basis. Industry and consumers are heavily invested in and dependent on existing spectrum based services. Evolving these services toward a new spectrum policy environment requires a combination of sound management and sound engineering.

Broadcasters have a long history of support for forward-thinking approaches to spectrum policy. Indeed, the transition to digital television is itself a new and more efficient use of spectrum. Moreover, MSTV advocated the introduction of cellular wireless architecture for fifteen years prior to its adoption, and facilitated constructive spectrum policy reforms in land mobile communications through years of studies and support. NAB has been a leading supporter of In-Band On-Channel (IBOC) digital radio technology, which requires no new spectrum allocation and will use the existing spectrum far more efficiently to provide enhanced services to

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<sup>3</sup> *Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, Notice of Inquiry, FCC 02-380, ET Docket No. 02-380 (rel. Dec. 20, 2002).

<sup>4</sup> See *infra* n.23 and accompanying text.

consumers. MSTV and NAB stand ready to investigate and support future improvements in spectrum policy. Such innovation must not be undertaken without the necessary homework of sound engineering analysis or without adequate exploration of its real-world effects on existing services.<sup>5</sup>

**I. THE COMMISSION SHOULD PRESERVE THE PUBLIC INTEREST BENEFITS OF EXISTING, LICENSED SERVICES.**

**A. A “Managed Spectrum” Model Best Supports The Vital Role Of Broadcasting In American Life**

In recommending that a managed spectrum model be retained for broadcasting, the Task Force recognized the longstanding public interest benefits of broadcasting. Unfortunately, the Task Force called this approach “command-and-control” – a pejorative term that broadcasters firmly reject. The flexibility and utility of the managed spectrum regulatory model have been amply demonstrated over the history of American broadcasting. By promoting and enforcing interference and technical rules, the FCC has ensured the availability of free, high-quality television and radio services for all Americans and its continuing improvement over the course of time – color, UHF, stereo, second-language audio, translators and LPTVs, V-chip, closed captioning, and now digital.

Broadcasters play a crucial role in providing free news, weather and other important services to viewers in all areas of the country. Our strong presence in the rural areas so often underserved by other media is a particular benefit to the nation. And so is our role in disseminating vital information during local, regional and national crises. When Homeland Security Secretary Tom Ridge was asked how the ordinary American would find out about a

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<sup>5</sup> The history of the digital television transition is instructive – over fifteen years of exploration, including six of intensive testing, and a massive undertaking to sort through and manage allotment, coverage, and interference issues. And the transition is far from over.

terrorist attack, he said “obviously television and radio is our first choice.”<sup>6</sup> His Department advises every American to include a battery-operated radio among their emergency supplies.<sup>7</sup>

The special role that broadcast services play in the life of the nation provides a compelling case for the continued application of a managed spectrum model. The Task Force observed, and there is broad consensus among commenting parties, that a one-size-fits-all approach to spectrum management is unwise.<sup>8</sup> At the same time, however, the Congressional policy of granting additional flexibility to broadcasters for ancillary and supplementary uses promotes innovation. MSTV and NAB support flexibility measures that encourage innovative uses of spectrum by incumbent users.<sup>9</sup>

**B. Hard Decisions About Spectrum Management Must Be Made By The FCC, Not By An *Ad Hoc* Body.**

Broadcasters support the Commission’s role in improving spectrum efficiency and adapting to changing technology. These are core functions of the Commission, which as an expert agency can and must evaluate the affected services. Day in and day out, the FCC staff deals with spectrum-related proposals, complaints, applications, and disputes. That layer upon

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<sup>6</sup> PBS Online News Hour, *Newsmaker: Tom Ridge*, Feb. 19, 2003, available at <[http://www.pbs.org/newshour/bb/terrorism/jan-june03/ridge\\_2-19.html](http://www.pbs.org/newshour/bb/terrorism/jan-june03/ridge_2-19.html)> (“JIM LEHRER: [S]ome people have mentioned that how is the ordinary American to find out about a terrorist attack ...? Is there some kind of system being worked on for that? TOM RIDGE: Precisely. There are multiple ways that we can communicate the plan; but there are also multiple sets of circumstances under which some of them wouldn’t work. And so obviously television and radio is our first choice. ...[I]f the electricity is off, hopefully a battery-powered radio might help.”)

<sup>7</sup> See *Make a Kit*, at [http://www.ready.gov/supply\\_checklists.html](http://www.ready.gov/supply_checklists.html) (last visited Feb. 28, 2003).

<sup>8</sup> Motorola Comments at 16, CTIA Comments at 13, IEEE 802.18 Comments at 2, Boeing Comments at 3, Lockheed Martin Comments at 5, Total RF/Broad Comm Comments at 1.

<sup>9</sup> We oppose the Comments of AT&T Wireless, which flatly reject additional flexibility for incumbents. AT&T Wireless Comments at 7. Indeed, we find this position difficult to understand, since wireless service providers have themselves been beneficiaries of past rule changes designed to afford them greater flexibility to introduce new services.

layer of practical experience makes the FCC into the agency that has the expertise and background to most effectively manage the spectrum and to continue to adjust spectrum management techniques in light of changing conditions. Regrettably and without heed to history, however, the General Accounting Office (GAO),<sup>10</sup> supported by the Cellular Telecommunication and Industry Association (CTIA),<sup>11</sup> contends that the FCC is somehow incapable of making the allocation decisions that provide the framework for spectrum management. Instead they propose sidetracking these functions to a Base Realignment and Closure Commission-type process – a one-shot exercise uninformed by past experience and without future responsibilities. Doing so would create a process lacking in both expertise and accountability. This result is exactly the opposite of what Congress envisioned when it entrusted commercial spectrum management to an expert agency bound by a mandate to serve the public interest. Spectrum allocation functions lie at the heart of the Commission’s statutory mandate and continue to belong in its hands.

**C. The Commission Should Focus On The Successful Completion Of The Digital Transition.**

Broadcasters are doing their part to successfully achieve the transition to DTV.

According to the FCC, there were 807 commercial and noncommercial DTV stations on the air

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<sup>10</sup> In a January 2003 report, GAO recommended that the FCC and NTIA hand off spectrum management duties to an independent commission. United States General Accounting Office, *Comprehensive Review of U.S. Spectrum Management with Broad Stakeholder Involvement Is Needed*, GAO-03-277 at 2 (Jan. 2003). Among other things, GAO’s report speculated, without any apparent factual basis, that a system built around “allocative efficiency” might reallocate spectrum from broadcast television to mobile telephone service. *Id.* at 17-18. Nowhere in its lengthy report did GAO note that under the Communications Act, the watchword for U.S. spectrum management is “public interest,” not “allocative efficiency.” Applying this standard, the Commission has wisely recognized the enormous, enduring, and unique value to the American people of our system of free, over-the-air broadcasting.

<sup>11</sup> CTIA Comments at 24.

as of January 7, 2003.<sup>12</sup> According to the GAO, the average cost of converting to digital television was approximately 3.1 million per station.<sup>13</sup> Assuming this basic conversion cost across 807 stations, current broadcast investment in the digital transition stands in the range of \$2.5 billion. This amount will increase as the remaining stations commence digital operations and as the digital conversion proceeds further into stations' plant and equipment beyond the first steps of putting digital facilities on the air to pass through digital programming.<sup>14</sup> At the end of the day, broadcasters' total expenditures to achieve a full-fledged digital conversion, including HDTV cameras, production equipment, studio links, etc., could range from \$10 billion to \$16 billion.<sup>15</sup> With more than 200 million analog receivers in circulation, and thousands more being sold every day, the industry's investment in digital technology represents a major leap of faith. The most urgent need in the field of broadcast spectrum policy is not reform but leadership. The Congressional Budget Office Report three years ago on the digital transition concluded that "cable carriage of [digital] broadcasts is perhaps the most important factor affecting how quickly digital TV reaches the largest number of households."<sup>16</sup> Yet for six years since the DTV

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<sup>12</sup> *Second Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television*, MB Docket No. 03-15, FCC 03-8, at 5 (rel. Jan. 27, 2003).

<sup>13</sup> United States General Accounting Office, *Many Broadcasters Will Not Meet May 2002 Digital Television Deadline*, GAO-02-466 at 16 (Apr. 2002).

<sup>14</sup> Recent Wall Street estimates place broadcast investment in digital television as high as \$4.6 billion. Statement of Victor Miller, Senior Managing Director, Bear Stearns & Co., before the Federal Communications Commission Hearing on Media Ownership, Richmond VA, February 27, 2003.

<sup>15</sup> These figures assume eventual full conversion of facilities at a substantial percentage of the nation's approximately 1600 television stations. A 1999 Congressional Budget Office report states that "full-fledged conversion to digital facilities including production capability is estimated to cost as much as \$20 million" per station. Congressional Budget Office, *Completing the Transition to Digital Television*, Sep. 1999, at 23.

<sup>16</sup> Congressional Budget Office, *Completing the Transition to Digital Television*, Sep. 1999, at x.

standard was adopted and Congress directed the FCC to tackle this issue, the FCC has failed to deal with this “most important factor.”

More than anything else, successful completion of the transition will free up substantial additional spectrum resources and make possible new spectrum management techniques. Broadcasters’ conversion to more efficient digital technology will free up spectrum for other potential uses. This will address the concerns of commenters such as CTIA and Motorola, who respectively accuse broadcasters of inefficiency and seek to have broadcast spectrum reallocated to mobile services.<sup>17</sup> Unlike wireless providers, who converted to digital without surrendering any spectrum, broadcasters will undergo an unprecedented spectrum consolidation and giveback after their own conversion to more efficient digital technology.

Any spectrum policy initiatives involving broadcast spectrum should have as their foremost goal the successful completion of the digital transition. MSTV and NAB reiterate that the task of transitioning to DTV is daunting enough without the introduction of new spectrum-based services or approaches to spectrum management. Similarly, any discussion of introducing new uses of the broadcast spectrum should be deferred to the post-transition stage when part of the broadcast spectrum is reclaimed. Discussions prior to that time are premature and damaging.

## **II. THE COMMISSION SHOULD NOT PERMIT NEW SOURCES OF INTERFERENCE TO OPERATE IN BROADCAST BANDS DURING THE DTV TRANSITION.**

MSTV and NAB share the concerns expressed by the many parties that broadly oppose “underlay” operations in licensed spectrum bands.<sup>18</sup> Several parties point out that the

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<sup>17</sup> CTIA Comments at 9, 12, 23; Motorola Comments at 24.

<sup>18</sup> *See, e.g.*, CTIA Comments at 15; Cingular Wireless Comments at 14-17; Satellite Industry Association Comments at 16-17; Sprint Comments at 13-14; Motorola Comments at 26-27; QUALCOMM Comments at 5.

technology needed to ensure that underlay operations do not interfere with licensed services is not widely available and is by and large untested.<sup>19</sup> Others note the problems posed by the proliferation of unlicensed devices and the resulting cumulative interference,<sup>20</sup> echoing the concerns about “AM-ization” of broadcast spectrum raised by MSTV and NAB.<sup>21</sup> Moreover, unlicensed underlay operations are particularly problematic because, like all unlicensed operations, there is no way to “undo” them once unlicensed devices are in the hands of consumers.<sup>22</sup>

There is little evidence that the harm threatened by unlicensed underlay operations in licensed bands would be balanced by significant advantages to unlicensed operations. Even parties that support unlicensed spectrum use vastly prefer spectrum that is dedicated for unlicensed operations<sup>23</sup> — an underlay allocation in broadcast spectrum would not satisfy these commenters. Instead of introducing underlays in the broadcast bands, the Commission should focus on clearing additional bands to be allocated for unlicensed services on a dedicated basis. Such dedicated unlicensed allocations will allow manufacturers to build

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<sup>19</sup> Motorola Comments at 26-27; AT&T Wireless Comments at 11; CTIA Comments at 12.

<sup>20</sup> Satellite Industry Association Comments at 16-17 (noting interference caused to satellite operations in Ku-band by the proliferation of interfering radar detectors); AT&T Wireless Comments at 12.

<sup>21</sup> MSTV/NAB Comments at 8.

<sup>22</sup> Spectrum Policy Task Force Report at 58 (“[O]nce unlicensed devices begin to operate . . . , it may be difficult legally or politically to shut down their operations even if they begin to cause interference or otherwise limit the licensed user’s flexibility.”); AT&T Wireless Comments at 12; Cingular Comments at 25; Satellite Industry Association Comments at 14.

<sup>23</sup> *See, e.g.*, Microsoft Comments at 7-9 (“[T]he full potential of unlicensed wireless networks will not be realized through opportunistic use and underlay alone.”); Consumer Electronics Association Comments at 3-6 (“[A]dditional spectrum is needed beyond [underlays].”); Wi-Fi Alliance Comments at 2-3 (calling on Commission to designate additional bands for unlicensed spectrum).

inexpensive equipment that is designed for a particular frequency band,<sup>24</sup> and would help continue the recent success of unlicensed technologies such as Wi-Fi and Bluetooth. In short, it appears that permitting unlicensed underlay operations would satisfy neither proponents of unlicensed operations, who need assurances that spectrum will be available on more than an opportunistic basis, nor incumbent primary licensees in those bands, who will face potential interference, greater uncertainty, and diminished spectrum use rights.<sup>25</sup>

With respect to possible underlays or overlays in broadcast spectrum bands, the issue should be set aside until we reach the successful conclusion of the DTV transition. Premature consideration of underlays and overlays will complicate, burden, handicap and delay the transition. It will also distract industry and the Commission from the transition, diverting resources that ought to be focused on its successful completion. For the next several years at least, any exploratory work on overlays or underlays must focus on non-broadcast bands. As the Commission is aware, DTV is an all-or-nothing technology, meaning that interference may result in not just a poor picture, but no picture at all. As the Commission looks for ways to encourage faster consumer acceptance of DTV to speed along the digital transition, introducing new potential interference sources that may result in loss of service would be counterproductive.

The Commission should give careful consideration to the impact of underlays and overlays on existing services. We remain very skeptical about whether and in which bands such operations might work. To the extent that the Commission wishes to test underlays and overlays

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<sup>24</sup> Manufacturers will be able to take further advantage of economies of scale if globally harmonized spectrum is identified for unlicensed operations.

<sup>25</sup> In addition, several parties argue that unlicensed operations, such as the underlay and overlay operations contemplated by the Task Force, violate Section 301 of the Communications Act. *See* Cingular Comments at 18-20; Satellite Industry Association Comments at 14-15; National Association of Amateur Radio Comments at 13-14.

and build an experience-based assessment of its interference potential to primary services, such efforts should focus on other bands, so that broadcasters and the Commission can continue to focus on meeting the challenges of the digital transition. MSTV and NAB will comment in greater detail on these issues in the context of future, more specific proceedings.<sup>26</sup>

### **III. THE INTERFERENCE TEMPERATURE APPROACH RECOMMENDED BY THE TASK FORCE DOES NOT YET PROVIDE A REAL-WORLD ANSWER TO INTERFERENCE CHALLENGES.**

While the interference temperature approach to spectrum management may be a step toward effectively monitoring the interference environment by quantifying noise levels, it remains at best a theoretical approach at this stage — particularly with respect to devices being able effectively to adapt to highly localized and time-sensitive propagation and interference conditions.<sup>27</sup> MSTV and NAB support the many commenting parties who noted that the interference temperature concept is a long way from effectively being implemented, and therefore opposed premature adoption of spectrum management policies that depend upon its actual implementation.

The interference temperature approach holds significant potential as a monitoring mechanism for quantifying and better understanding the interference environment. But it is far from providing a sufficiently reliable foundation for allocation decisions and spectrum management policy.<sup>28</sup> As an operational mechanism by which devices would actually alter their operation in response to complex dynamic measurements of the interference temperature across

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<sup>26</sup> See, e.g., *Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, Notice of Inquiry, FCC 02-380, ET Docket No. 02-380 (rel. Dec. 20, 2002).

<sup>27</sup> MSTV/NAB Comments at 10-14.

<sup>28</sup> Sprint Comments at 13-16 (opposing interference temperature proposal, but supporting better understanding of noise floor); AT&T Wireless Comments at 8-13 (same).

an area of potential interference, it remains untested. Several commenters echo the concerns raised by MSTV and NAB regarding the implementation of the interference temperature metric.<sup>29</sup> For example, several commenters pointed out that because interference environments are extremely localized and dynamic, it is extremely difficult, if not impossible, for a device to accurately measure the interference temperature at the locations of receivers that might be interfered with if the device were to begin transmitting.<sup>30</sup> Such measurements are made hindered by, for example, the “hidden transmitter” problem.<sup>31</sup> Moreover, several commenters noted that the interference temperature approach to spectrum management depends on the existence of smart radios which are not yet widely available.<sup>32</sup>

Until the relevant technology is developed and shown to be robust,<sup>33</sup> the Commission should confine use of the interference temperature metric to its monitoring function. As an operational tool for spectrum management, it should be tried out in non-broadcast bands, on a limited basis, particularly in bands where the licensee controls both the transmitters and the receivers and can, therefore, efficiently monitor and control interference problems.

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<sup>29</sup> MSTV/NAB Comments at 11-14.

<sup>30</sup> Cingular Comments at 29-30; Wireless Communications Association Comments at 11; Motorola Comments at 14, App. A; AT&T Wireless Comments at 10-11 (noting, for example, that AM radio reception can turn from clear to unintelligible in a few feet, which makes it difficult for a potentially interfering device to predict whether it will cause interference to an AM radio receiver). Other critics of the interference temperature included CTIA and the Wi-Fi Alliance. CTIA Comments at 10-13; Wi-Fi Alliance Comments at 6-7.

<sup>31</sup> AT&T Wireless Comments at 11; Motorola Comments at 27.

<sup>32</sup> AT&T Wireless Comments at 11; CTIA Comments at 12; Wi-Fi Alliance Comments at 6.

<sup>33</sup> If and when the Commission decides to adopt spectrum management techniques that rely on the interference temperature approach, the Commission must ensure that existing equipment actually meets the standards necessary to prevent interference (*e.g.*, the interference temperature is accurately measured at all receiver locations where interference might result, and the transmitter automatically shuts off if the interference temperature limit is exceeded). *See* Cingular Comments at 36-38.

In the meantime, the Commission must focus on the real-world interference characteristics of existing receivers,<sup>34</sup> rather than on idealized models of smart receivers and transmitters that do not exist in today's marketplace. The Commission must be deliberate in ensuring that any new approach to interference control works with a very high degree of reliability in the real world. For example, the Commission must conduct experimental field tests, in real-world operating conditions, of equipment that incorporates "interference thermometers" and automatic transmitter power control ("ATPC") technology.<sup>35</sup>

Developing a reliable receiver performance model is critical to any practical implementation of the interference temperature concept. The Task Force recognized that interference is as much a question of receiver design as it is of the characteristics of the transmitted signals.<sup>36</sup> In the context of a closed system, in which a single operator controls both the transmitters and the receivers that operate in a particular frequency band, the operator can make design choices that trade off the characteristics of transmitted signals and the performance of receivers. Broadcasters, on the other hand, have no control over the receivers used to receive broadcast services.<sup>37</sup> The lack of any ability to control the design of either television receivers or the new unlicensed devices that may inhabit broadcast spectrum renders broadcasting particularly vulnerable to interference problems.

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<sup>34</sup> According to recent estimates, there are over 200 million television sets in homes today and over 1 billion radios that may be affected adversely by interference from unlicensed devices.

<sup>35</sup> CTIA Comments at 11; Cingular Comments at 31-34 (stressing the need for real-world test beds to understand the effects of cumulative interference from sources such as ultra-wideband and other unlicensed devices).

<sup>36</sup> Spectrum Policy Task Force Report at 31; *see also* Comments of National Public Radio at 9-11 (offering support for receiver performance standards).

<sup>37</sup> Even new DTV sets, manufactured in accordance with the Commission's rules, do not have standards for receiver performance.

Our concerns are heightened given the very nature of free, over-the-air broadcasting and viewers' response to interference problems. Our experience with interference from land mobile operations demonstrates that such interference is impossible to police. More importantly, viewers have a low tolerance for interference, and tend simply to switch channels when confronted with interference on their television receivers. This problem is exacerbated in the digital world by the fact that receiver-based interference will result in "channel freeze" or complete loss of picture.

The economic consequences can be devastating. Revenues for free over the air television are based exclusively on advertising, which in turn is derived from viewers. Currently, there are no second revenue streams. Loss of audience due to interference problems will have a far more significant impact on free over-the-air television than any other spectrum-based service. This problem will only increase with the proliferation of unlicensed devices and the corresponding increase in the "noise floor" in the broadcast bands.

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MSTV and NAB reaffirm broadcasters' commitment to completing the digital transition and their willingness to work with the Commission to help facilitate the most efficient use of spectrum in all bands. The Commission should consider the issues and concerns reflected in these comments.

Respectfully submitted,

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