

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

In the Matter of)	
)	
Interference Immunity Performance Specifications for Radio Receivers)	ET Docket No. 03-65
)	
Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television)	MM Docket No. 00-39
)	

**COMMENTS OF THE
CONSUMER ELECTRONICS ASSOCIATION**

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EXECUTIVE SUMMARY

The proposals being considered in this and associated proceedings are in large measure based on the FCC staff's recommendations in the Spectrum Policy Task Force Report. CEA believes that the Commission must develop flexible, market-driven spectrum management policies that will provide innovators with enough incentive to create new spectrum-efficient technologies, products and services while refraining from putting obstacles in the path of these technologies as they progress from innovative development to products for consumers in the marketplace.

Mandated receiver performance standards based on the rapidly-changing technology of today would lessen incentives to develop and deploy receiver improvements. Instead of fostering innovation, FCC-required receiver performance standards would serve instead to protect the last-to-market at the expense of the spectrum-efficient innovator.

CEA has supported the development of voluntary standards or guidelines where appropriate, and is actively participating in the Advanced Television Systems Committee (ATSC) Specialist Group that has started work on a Recommended Practice for DTV Receiver Performance. CEA itself also is convening a Discovery Group on immunity performance of home consumer electronic devices, including broadcast radio and television receivers, to assess whether there is a need and interest to develop new immunity standards or guidelines.

But for the purposes of the Commission's NOI in this proceeding, "performance" standards should not be confused with "operational" standards or "immunity" standards. CEA itself develops operational standards that are published by the American National Standards Institute ("ANSI") through its affiliation with the EIA and supports standards, such as the ATSC A/53B and related DTV standards A/65B (Program and System Information Protocol) and EIA/CEA-766-A and EIA-708B (digital V-Chip functionality). CEA also supports future consideration of an IBOC digital radio standard. And CEA recognizes that statutory authority exists for electronic immunity standards generally, although to date mandated standards have not been deemed necessary.

But CEA opposes mandating performance standards because the Commission lacks statutory authorization to adopt this type of standard generally, and mandating this type of standard in the future inevitably would result in the continued use of older technologies that impair spectrum efficiency. Such a result is the antithesis of what the Commission should be considering for receivers as a forward-looking spectrum policy.

With regard to DTV receivers in particular, evaluations performed two years ago by the FCC and ATSC, each independent of the other, found that reception of DTV signals by an earlier generation of DTV receivers out-performed reception of NTSC signals by analog receivers. However, today relatively few (estimated at just 25 percent) of commercial broadcasters are using the full power and antenna height that the FCC authorized for the purpose of allowing each station to replicate its analog service area coverage. No receiver can detect a signal that is absent because of low power, low antenna height, or a combination of both. The sooner the FCC requires full power digital broadcasting, the sooner that the public will receive improved signals.

No amount of tinkering with DTV receivers can make up for the lack of broadcasters transmitting with their full authorized signal strength.

The cornerstone of the new spectrum policies that the Commission is considering should be flexible, marketplace-driven standards with a minimum of government mandates. The current incentives should remain for manufacturers to develop and quickly implement innovative receiver technologies without regulatory delay.

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The Consumer Electronics Association (“CEA”) respectfully submits these comments to the Notice of Inquiry (“NOI”) in the above-captioned proceeding.¹

I. INTRODUCTION

In this and associated proceedings, the Commission is examining proposals to update and improve its policies governing spectrum management. The proposals being considered in large measure are based on its staff’s recommendations in the Spectrum Policy Task Force Report.² CEA recognizes the public’s need to accommodate increasing demands for access to the radio spectrum and applauds the Commission’s efforts to update its spectrum policies to take account of increasingly rapid technological innovation. CEA believes that flexible marketplace-driven incentives to quickly implement innovative technologies must be the cornerstone of new Commission spectrum policies.

¹ *Interference Immunity Performance Specifications for Radio Receivers; Review of the Commission’s Rules and Policies Affecting the Conversion to Digital Television*, Notice of Inquiry, 18 FCC Rcd 6039 (2003)(“NOI”).

² *Spectrum Policy Task Force Report*, ET Docket No. 02-135, November 15, 2002 (“*Task Force Report*”).

The Commission must develop flexible spectrum management policies that will provide innovators sufficient incentive to create new spectrum technologies, products and services. Such incentives would include policies that allow for new innovative technologies to quickly reach the consumer and not get unduly slowed down by regulatory hurdles. For these reasons, CEA opposes incorporating mandatory receiver performance standards in the Commission's rules. Performance standards are not the type of operational standards that are necessary to enable reception of public services, such as broadcasting. Requiring receiver standards based on today's technology would stifle the incentive to develop and deploy future receiver improvements. Such mandates also could increase the cost of receivers while specifying performance criteria possibly out of date before the ink is dry after a multi-year process. Commission adoption of mandatory receiver standards likely would result in the continued use of older, less-efficient technologies protected by the years and the cost it generally takes to amend regulations once they are in place. The result would be impaired spectrum efficiency. This is the antithesis of the Commission's articulated goals in the spectrum policy review and the opposite of what the Commission should be considering.

Instead, voluntary guidelines adopted by the affected industries can be beneficial, and at a minimum tend to be more flexible and more readily adapted to the changes occasioned by technology's advancement. CEA itself develops standards that are published by the American National Standards Institute ("ANSI") through its affiliation with the Electronics Industries Alliance ("EIA"). We are actively participating in the Advanced Television Systems Committee ("ATSC") Specialist Group on Receivers (T3/S10) to develop a Recommended Practice for DTV

Receiver Performance. We support this total industry effort to develop DTV receiver guidelines, as suggested by the Commission in its NOI in this proceeding.³

Furthermore, on July 29, 2003, CEA is convening a Discovery Group on receiver immunity performance. This meeting will provide technical experts a focused opportunity to examine the issues relating to interference immunity of home electronic equipment with an emphasis on broadcast receiver performance (TV, AM and FM). The group will assess whether there is a need and interest to develop new standards and/or guidelines.

II. BACKGROUND

The Consumer Electronics Association is the principal U.S. trade association of the consumer electronics and information technologies industries. Our members design, manufacture, distribute and sell a wide range of consumer products that use the radio spectrum, including digital and analog television receivers and monitors, video recorders, direct broadcast satellite radio (DARS) and television (DBS) equipment, broadcast AM and FM radios, and many similar devices. Our members also design and manufacture unlicensed devices such as Wi-Fi network devices that connect personal computers, personal digital assistants (PDAs) and laptops to peripheral devices and networks; cordless phones; baby monitors; and wireless headsets. CEA's more than 1,200 companies include all of this country's major consumer electronics manufacturers.

³ See ATSC Press Release: *ATSC to Develop Recommended Practice for DTV Receivers* (June 30, 2003). (ATSC is in the process of developing a Recommended Practice that will establish voluntary guidelines for broadcast digital television (DTV) receiver performance.)

III. VOLUNTARY RECEIVER PERFORMANCE STANDARDS FOSTER INCREASES IN PRODUCT INNOVATION THAT WOULD BE INHIBITED BY FCC-ADOPTED REQUIREMENTS

In the *NOI*, the Commission articulates three principal approaches for implementing measures to address receiver performance: voluntary industry standards; guidelines promulgated by the Commission either in technical publications or as advisories in the rules; or mandatory standards adopted into the rules.⁴ The Commission states that generally it would prefer to rely primarily on voluntary programs that are supported and managed by industry to establish and maintain guidelines and standards, rather than formally incorporating standards into its regulatory programs, because voluntary programs provide the greatest flexibility for developing and producing products in response to changes in technology, consumer desires and economic conditions.

The Commission also seeks information on specific factors related to “receiver interference immunity performance guidelines and standards” and the costs and benefits of such guidelines and standards. It states that such factors include selectivity, sensitivity, dynamic range, automatic RF gain control, shielding, modulation method and signal processing, and any additional relevant factors.⁵

Many of the ideas and recommendations in the Commission Staff’s Spectrum Report⁶ call for increased reliance on the marketplace and greater flexibility in allowable spectrum uses, and are worthy of detailed consideration. However, in this *NOI* the Commission deviates from its overall focus on marketplace incentives and appears willing at least to consider mandatory

⁴ *NOI* at ¶ 18.

⁵ *Id.* at ¶ 14.

⁶ *Task Force Report*.

receiver standards. FCC-adopted standards would weaken or remove marketplace incentives for technological innovation because of the delay that would be caused by requiring navigation of the regulatory hurdles of notice-and-comment rulemaking to implement changes. Instead of fostering innovation, FCC-adopted mandatory standards would serve to protect the last-to-market at the expense of the spectrum-efficient innovator.

CEA has supported required standards, such as ATSC A/53B, related DTV standards and the in-progress IBOC digital radio standard, because they are technologically necessary for general public reception of broadcast signals and have been or are being developed and recommended by a broad array of stakeholders in private industry.⁷ However, CEA opposes mandating performance standards because such standards are not operational standards required for reception. Instead of helping consumers or increasing spectrum efficiency, they would distort the marketplace and result in the continued use of older, less-efficient technologies protected by the years it generally takes Commission rulemaking proceedings to conclude to amend regulations once they are in place. The result of a mandatory receiver performance regime would be the continued use of older technologies and impaired spectrum efficiency.

IV. DTV RECEIVER PERFORMANCE HAS BEEN DEMONSTRATED AND STANDARDS SHOULD BE VOLUNTARY INDUSTRY GUIDELINES

The Commission explicitly acknowledges that past policy of “allowing manufacturers to determine the performance capabilities of broadcast receivers...has yielded product models that

⁷ See, e.g., CEA Comments in the *Second Periodic Review of the Commission’s Rules and Policies Affecting the Conversion to Digital Television*, MM Docket No. 03-15 (April 21, 2003) at pp. 24-31 (supporting Commission adoption by reference of operation standards necessary for broadcast reception, including ATSC A/53B, A/65B (Program and System Information Protocol [PSIP]), and EIA/CEA-766-A and EIA-708-B (digital V-Chip)).

provide satisfactory service for consumers at attractive price levels.”⁸ Nevertheless, notwithstanding its acknowledged lack of any current problem, the Commission then asks whether it is desirable to develop “minimum interference immunity performance specifications” for broadcast receivers. The Commission indicates that it would prefer to get involved “only where obvious deficiencies appear that could disrupt the general reception of service;” however, it also indicates that voluntary guidelines “could perhaps lead to the marketing of product models with high interference immunity that consumers could purchase to meet their performance needs.”⁹

The Commission asks for comment “on an approach that would provide a fast-track for the development and implementation of voluntary receiver performance standards for broadcast DTV receivers”¹⁰ and states that it is important to “continue to encourage manufacturers to provide adequate tuning capability for broadcast DTV signals, to monitor the performance of DTV receivers as they are introduced to the market, and to intervene if performance is found lacking in specific areas.”¹¹ It proposes that the voluntary performance guidelines be developed jointly by the broadcasters, the CE industry and consumers, and then be published as industry accepted standards. The Commission would “reference to the minimum performance standards in its rules and provide that only models that comply with these voluntary standards could be marketed as complying with the industry standards for performance quality or other terminology as might be defined through our rule making process.”¹² The *NOI* asks for comment on this

⁸ *NOI* at ¶ 31.

⁹ *Id.* at ¶ 32.

¹⁰ *Id.* at ¶ 35.

¹¹ *Id.*

¹² *Id.* at ¶ 36.

proposal, alternative approaches that would be on a voluntary bases, and the following related questions: (1) the timeframes required for an industry group to develop recommendations for improved receiver performance, noting that digital broadcast tuners soon will become mandatory in many television receivers; and (2) whether an industry group tasked with developing receiver guidelines could be convened within a three month period, and whether recommendations could be developed six to nine months later.

The record of DTV receiver performance results by uninterested third parties makes clear that the DTV receivers perform well.¹³ Nevertheless, unlike mandatory receiver standards, voluntary standards adopted by the affected industries can be beneficial. At a minimum such standards tend to be more flexible and more readily adapt to the changes occasioned by technology's advancement. CEA itself is an ANSI-accredited standards-setting organization and works daily with affected entities in a broad array of consumer electronics industries to establish voluntary standards where doing so is beneficial to the industries and to the public.

CEA is working within the ATSC Specialist Group on Receivers (T3/S10) to develop a Recommended Practice for DTV Receiver Performance. This industry effort will develop DTV

¹³ Regrettably, today many broadcasters still are not transmitting a digital signal at all; and among those that do, most are doing so at low power and low antenna heights that result in a signal many dB's below the level authorized by the Commission to replicate each station's analog service area. *See CEA Reply Comments* in MM Docket No. 03-15 at p. 2 ("The Commission adopted requirements for construction of the digital stations in April 1997 – six full years ago. . . . Yet after these six years only 25 percent of commercial television broadcasters have on-air facilities capable of reaching their analog viewers.").

receiver guidelines as suggested by the Commission in this proceeding.¹⁴ The timeframes for completion of the project are consistent with those set forth by the Commission in the *NOI*.

With regard specifically to the performance of DTV receivers, an earlier generation of receivers was tested by the Commission's own impartial staff and shown to provide reception better than that provided by analog NTSC receivers and predicted for digital receivers.¹⁵ Testing of DTV receivers conducted by the ATSC, also during 2001, reached a similar conclusion with regard to DTV over-the-air reception: "...the performance of current 8-VSB receivers largely fulfills the original goals envisioned for the DTV transmission standard and encompassed by the FCC Table of Allotments."¹⁶

V. RECEIVER PERFORMANCE LONG HAS BEEN INCLUDED IN PLANNING FOR BROADCAST SERVICES

In the *NOI*, the Commission generally seeks comment on current immunity performance and interference tolerance in receivers, on possible methods for improving receiver immunity in different radio services, and on the impact that FCC-imposed receiver standards would have on the marketplace. As noted above, many of the proposals in the Commission's *NOI* derive from the FCC Spectrum Policy Task Force Report, which recommended that the Commission "consider making receiver performance a larger component of its spectrum policy."¹⁷ Therefore,

¹⁴ See ATSC Press Release: *ATSC to Develop Recommended Practice for DTV Receivers* (June 30, 2003) (ATSC is in the process of developing a Recommended Practice that will establish voluntary guidelines for broadcast digital television (DTV) receiver performance).

¹⁵ See OET Report, FCC/OET TRB-00-2, *A Study of ATSC (8-VSB) DTV Coverage in Washington, DC, and Generational Changes in DTV Receiver Performance*, Interim Report (April 9, 2001).

¹⁶ ATSC, *Performance Assessment of the ATSC Transmission System, Equipment and Future Directions, Report of the ATSC Task Force on RF System Performance* at p. 31 (April 12, 2001).

¹⁷ *Task Force Report*.

the *NOI* asks for comment on what type of considerations it should take into account when it addresses receiver performance.¹⁸

With regard to AM and FM receivers, the Commission, in the *NOI*, states that it expects that hybrid analog and in-band on-channel (or IBOC) digital audio terrestrial broadcasting will continue for at least a decade and asks commenters to address: (1) minimum interference immunity parameters for analog and analog/digital (hybrid) AM and FM receivers; (2) the additional costs to consumers of radio receivers that provide interference immunity based on established guidelines; (3) the protection, if any, that should be afforded the millions of existing radio receivers; and (4) whether consumers should be informed of differences in radio receiver performance, i.e., whether a recognizable label or symbol on a receiver would assist consumers in identifying equipment with improved performance.

It appears that the Commission may base its misguided suggestions for mandatory receiver “performance” standards on a mistaken belief that in the past spectrum has been used and transmission standards adopted with no consideration of receiver performance. The Commission asserts that spectrum efficiency may be impaired by the lack of attention to receiver regulation, and therefore that it might now adopt receiver standards for a wide variety of receivers, including for television and radio.

The Commission’s supposition in this regard lacks validity. In the case of DTV receivers, for example, the FCC’s Advisory Committee established specific receiver performance planning factors that were predicted to enable successful reception throughout a DTV broadcast

¹⁸ *NOI* at ¶ 3.

station's service area.¹⁹ Similarly, testing of reception for the broadcast FM service for both Low Power FM implementation²⁰ and for digital in-band on-channel (IBOC) implementation included extensive testing of broadcast receiver characteristics.²¹

Consequently, the notion that receiver technical characteristics have not been factored into broadcast spectrum decisions is demonstrably false. Indeed, in each instance the process resulted in increased scrutiny and, with specific regard to broadcast DTV and IBOC, the new digital receivers employ leading-edge technologies to improve their performance in order to accommodate the increased spectrum usage occasioned by the introduction of additional digital signals into the TV and FM /AM bands without impairing analog reception by existing receivers.

Established transmission requirements indirectly influence receiver designs through market forces, and the benefit of regulating transmission parameters, but not receiver specifications, is to make available to consumers a variety of receivers suitable for different environments and purposes at costs related to their quality and the RF environment in which they must work.

¹⁹ See *Fifth Interim Report of the Planning Subcommittee of the FCC Advisory Committee on Advanced Television Service* (March, 1992); see also, *Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service*, MM Docket No. 87-268, *Sixth Further Notice of Proposed Rulemaking*, 11 FCC Rcd 10968 at 11014, App. A (1996).

²⁰ See *Creation of a Low Power Radio Service*, MM Docket No. 99-25.

²¹ CEA and the National Association of Broadcasters are the co-sponsors of the National Radio Systems Committee ("NRSC"). The NRSC serves as an industry-wide standards-setting body for the technical aspects of radio broadcasting. It conducted extensive laboratory and field testing of receivers related to consideration of IBOC digital technology. See, *Digital Audio Broadcasting Systems and Their Impact on the Terrestrial Broadcast Service*, MM Docket No. 99-325.

With regard specifically to receiver immunity, on July 29, CEA will convene a Discovery Group of technical experts to examine receiver immunity issues. This is a rigorous, focused opportunity to investigate the technical issues relating to interference immunity of home electronic equipment with an emphasis on broadcast receiver performance and an opportunity to determine whether there is a need and interest to develop new standards and/or guidelines.

The intent of this Discovery Group is to investigate the related issues in a concise yet comprehensive fashion, examine past voluntary initiatives, assess current immunity specifications and measurement methods, and to determine how best to develop needed guidelines and/or specifications. More information about this Discovery Group can be found on the CEA web site at www.ce.org.

VI. STATUTORY AUTHORITY TO PROMULGATE RECEIVER IMMUNITY STANDARDS DOES NOT AUTHORIZE RECEIVER PERFORMANCE STANDARDS

The *NOI* asks for comment on the Commission's assessment of its statutory authority to promulgate receiver immunity guidelines and standards, which it asserts it has under Sections 4(i), 301, 302(a), 303(e), (f), and (r) of the Communications Act of 1934, as amended.²² However, the Commission's reliance on these provisions for broad authority to mandate receiver performance standards is misplaced. The Commission lacks general statutory authority to adopt mandatory receiver performance standards, and it is notable that heretofore during its 70-plus years the Commission has not asserted that it has such jurisdiction.

In considering the rightful bounds of the Commission's authority it is essential to distinguish immunity standards from performance standards. The "immunity" to radio

²² *NOI* at ¶ 22.

frequency (“RF”) interference of a device, whether a receiver or other home electronic device, defines the ability of the device to reject signals outside of its intended frequency range. In the case of non-receivers, such as computers, recorded audio systems and telephones, the susceptibility to malfunction when in the field of RF energy defines the system’s immunity. For receivers, immunity commonly is described in terms of objectionable interference caused by signals not related to the intended band, specific frequency, or signal intended to be received. By contrast, receiver performance relates to a receiver’s operation when performing its intended functions, and includes considerations of signal-to-noise levels and sensitivity; spurious emission management; modulation type(s); and similar technical requirements.

The distinction between receiver performance and receiver immunity is unclear in the Commission’s *NOI* but is essential to delineating the FCC’s statutory authority over receiver standards. The Communications Act authorizes the Commission to adopt immunity standards for home electronic devices, whether or not the device is a “receiver”.²³ By contrast, the Commission lacks plenary authority over receivers, including the ability to adopt performance requirements.

The Communications Act explicitly authorizes the Commission plenary authority over transmitters of energy over the airwaves, but withholds authority over receivers generally. Ambiguously combining “immunity” and “performance” standards does not increase the Commission’s statutory authority. For example, with regard to broadcast radio receivers, the Commission has no authority to regulate reception performance characteristics. For television receivers, the Commission has been granted limited authority to regulate receivers to ensure that

²³ See 47 U.S.C. § 302(a).

they receive all television channels; decode closed captioning information; and respond to transmitted content ratings information (V-Chip). Beyond these limited categories of authorization, the Commission would require a grant of Congressional authority to further regulate receiver performance.

VII. CONCLUSION

The cornerstone of the new spectrum policies that the Commission is considering should be flexible, marketplace-driven standards with minimal government requirements and preservation of user opportunities to quickly implement innovative technologies. Receiver performance standards derive from transmission technical rules, and should be left to industry so that new innovative technologies can be implemented quickly.

Respectfully Submitted,



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