

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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

COMMENTS OF AT&T WIRELESS SERVICES, INC.

Douglas I. Brandon
Vice President – External Affairs
David P. Wye
Director, Spectrum Policy
1150 Connecticut Avenue, N.W.
Fourth Floor
Washington, D.C. 20036
(202) 223-9222

July 21, 2003

Table Of Contents

INTRODUCTION AND SUMMARY	1
I. THE CMRS INDUSTRY HAS ENGAGED IN VOLUNTARY RECEIVER PERFORMANCE STANDARDS DEVELOPMENT FOR YEARS – ACHIEVING CONTINUOUS GAINS IN SPECTRUM EFFICIENCY WITHOUT ANY COMMISSION INVOLVEMENT.....	3
A. CMRS Providers Rely on Voluntary Receiver Performance Standards to Help Maximize the Efficient Use of Spectrum.....	3
B. Voluntary Receiver Performance Standards Foster Innovation and Allow CMRS Providers to Respond Rapidly to Market Demands.....	5
II. THE COMMISSION SHOULD SUPPORT VOLUNTARY RECEIVER PERFORMANCE STANDARDS AND MUST REFRAIN FROM SETTING ANY REQUIREMENTS.....	7
A. The Commission Should Embrace Market-Based Receiver Performance Standards to Promote More Efficient Use of Spectrum.....	7
B. Commission Involvement in Standards Development Would be a Regulatory Step Backwards, Would Slow the Pace of Technology Development, and Would Hamper Innovation.....	9
C. The Commission Lacks Statutory Authority to Impose Receiver Performance Standards on CMRS Providers.....	14
III. RECEIVER PERFORMANCE STANDARDS SHOULD NOT BE CONSIDERED A FIRST STEP TOWARDS ADOPTION OF THE “INTERFERENCE TEMPERATURE” CONCEPT.....	18
CONCLUSION.....	20

**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
)	

To: The Commission

COMMENTS OF AT&T WIRELESS SERVICES, INC.

AT&T Wireless Services, Inc. (“AT&T Wireless”) respectfully submits these comments in response to the *Notice of Inquiry* adopted in the above-captioned proceeding.¹

INTRODUCTION AND SUMMARY

AT&T Wireless shares the Commission’s view that receiver interference immunity performance is an important means to achieve “more efficient and predictable use of the spectrum resource.”² As a result, AT&T Wireless – and the commercial mobile radio service (“CMRS”) industry generally – have participated for years in industry-led standardization bodies to identify and adopt receiver performance standards that enhance interference immunity and maximize the efficient use of spectrum.

¹ *Interference Immunity Performance Specifications for Radio Receivers*, FCC 03-54, *Notice of Inquiry*, ET Docket No. 03-65 (rel. Mar. 24, 2003) (“*NOP*”).

² *Id.* at ¶ 1.

AT&T Wireless encourages the Commission to support these voluntary receiver performance standards-development initiatives, consistent with the Commission's commitment to a market-oriented spectrum management policy. Industry-led initiatives can act quickly as the market evolves, providing manufacturers and operators with a framework to innovate and deploy more spectrally efficient and interference-resistant offerings in a timely fashion. Conversely, Commission involvement in CMRS receiver standards would slow the pace of technological development and would hamper innovation. As a result, with respect to the CMRS industry (and any other communications sector that is committed to voluntary standards development), the Commission should refrain from mandating receiver performance requirements or setting standards. To the extent other industry sectors lack adequate standards-development initiatives, the Commission should encourage their establishment or enhancement.

Finally, the Commission should not consider receiver performance standards as the foundation for the interference temperature concept. AT&T Wireless would strongly oppose any effort to use receiver performance standards to create an "interference cap," allowing the introduction of underlay devices in licensed spectrum. Such action would eliminate licensees' incentives to maximize the efficient use of their spectrum, thereby undermining the Commission's policy of promoting innovation.

I. THE CMRS INDUSTRY HAS ENGAGED IN VOLUNTARY RECEIVER PERFORMANCE STANDARDS DEVELOPMENT FOR YEARS – ACHIEVING CONTINUOUS GAINS IN SPECTRUM EFFICIENCY WITHOUT ANY COMMISSION INVOLVEMENT.

A. CMRS Providers Rely on Voluntary Receiver Performance Standards to Help Maximize the Efficient Use of Spectrum.

AT&T Wireless shares the Commission’s view that “[i]n many cases, the effects of RF interference can be mitigated or eliminated through attention to receiver hardware design and signal processing software.”³ Increasingly, advancements in hardware design and signal processing technology together are making a significant and widespread contribution to mobile receivers’ ability to isolate a desired signal from other RF energy. The CMRS industry’s concerted efforts to maximize their use of spectrum ensure that receiver performance keeps pace with technological advancement.

AT&T Wireless and, more broadly, all CMRS providers have strong incentives to maximize the efficient use of their spectrum. Because the acquisition of spectrum and network build-out are so capital-intensive, for example, the CMRS industry continuously pursues initiatives to “squeeze” more use out of its assigned spectrum. Innovations that result in more efficient use of spectrum translate directly into greater system capabilities – extended network coverage, improved service quality (*e.g.*, fewer dropped calls, faster download times), and more opportunity for bandwidth-intensive services. The exclusive-use, flexible rights CMRS licensing regime, combined with the competitive nature of the CMRS market, strengthen the incentives to maximize spectrum usage and reduce the marginal cost of providing service.

³ *Id.* at ¶ 10. Of course, receiver performance is only one part of the interference equation. Normally, transmitter and receiver specifications are designed to be complementary to each other in order to optimize overall system performance and reduce user equipment cost. Tighter transmission specifications, for example, can improve spectrum efficiency and ease receiver requirements.

AT&T Wireless agrees with the Commission that “spectrum users have an incentive to reach voluntary agreements that provide for additional spectrum use.”⁴ Since the inception of the CMRS industry, manufacturers and operators have worked through voluntary standards-development organizations to adopt and update receiver performance standards that improve performance and enhance the interference immunity of CMRS networks. AT&T Wireless participates actively in several of these organizations, including the Telecommunications Industry Association’s (“TIA”) TR-45 Committee on Mobile and Personal Communications Systems Standards, the T1 Committee’s Wireless/Mobile Services and Systems Subcommittee T1P1, and the Third General Partnership Project (“3GPP”) (including the GSM EDGE Radio Access Network (“GERAN”) Technical Specification Group), as well as many others related to equipment standardization. Through these groups, manufacturers and operators establish a harmonized environment for the development of new technology and equipment, which encourages continuous improvements in spectrum use and reductions in costs – benefits that are passed on to consumers in the form of more robust services and lower-cost equipment.

Most importantly, voluntary standards have a proven record of success. The *NOI* finds that mobile services represent “one of the most demanding challenges in minimizing interference,”⁵ and observes that those services “that operate on relatively narrow channels with no guard bands or separation between communications channels need to use relatively high quality receivers that are sensitive to low level signals, provide good selectivity, and are resistant

⁴ *Id.* at ¶ 18.

⁵ *Id.* at ¶ 28.

to overloading.”⁶ For years, the CMRS industry’s voluntary receiver performance standards have met these and other technical challenges.⁷ AT&T Wireless expects that this process of continuous enhancement will continue as the move toward wider channel bandwidths – such as those employed by various IMT-2000 technologies – accelerates.

B. Voluntary Receiver Performance Standards Foster Innovation and Allow CMRS Providers to Respond Rapidly to Market Demands.

Technological innovation abounds in the CMRS marketplace, and the industry needs a standards-development framework that can act as quickly as the market evolves. The industry’s voluntary processes are specifically structured to allow for continuous improvement. For significant changes to receiver design or signal processing software, a well-defined standards process exists that allows industry members to work on specifications and prioritize their roll-out. Smaller changes can be added directly into planned updates for existing technologies. As the *NOI* acknowledges, voluntary programs “provide[] the greatest flexibility for those developing and producing products to modify and update technical guidelines and standards” as technology, consumer desires, and economic conditions dictate.⁸ Applying this framework, the marketplace enhances receiver performance as quickly as technology allows.

⁶ *Id.* at ¶ 28.

⁷ The CMRS industry has developed voluntary performance standards on both the transmit- and the receive-side. On the transmit-side, for example, the industry adopted spurious emissions limits in 1998 which, the *NOI* acknowledged, are “more rigorous standards than the Commission has imposed.” *Id.* at ¶ 18. These industry-adopted limits significantly reduced the level of interference in the CMRS environment, impacting receiver performance requirements and providing for the operation of more channels. *See, e.g.*, TIA/EIA-136-270.

⁸ *NOI* at ¶ 18.

One example of this ongoing process has been the system upgrade from GSM/GPRS to EDGE.⁹ EDGE allows operators to offer subscribers 3G mobile data speeds up to 473.6 Kbit/s, supporting a wide array of new applications including video Multimedia Messaging Service (“MMS”) and video streaming. The European Telecommunications Standards Institute (“ETSI”), and later 3GPP GERAN, led the EDGE standardization process, which included hardware and software upgrades to the network and the addition of EDGE-specific receiver specifications. The receiver performance enhancements were a critical aspect of the EDGE upgrade. GERAN adopted EDGE-specific receiver sensitivity and reference interference ratios, introducing 8 PSK modulation and enhanced link adaptation schemes. Taken together, the EDGE receiver performance upgrades to GSM/GPRS result in significant voice and data capacity gains.

The process of improving receiver performance is ongoing. Single Antenna Interference Cancellation (“SAIC”), for example, is a GSM receiver improvement feature currently under standardization review that also holds the promise of increasing spectrum capacity. SAIC refers to a class of signal processing algorithms that cancel or suppress interference, producing significant spectral efficiency gains without having to resort to receive diversity in the handset. GERAN is conducting SAIC studies that will likely result in the “tightening” of the terminal’s minimum receiver demodulation performance specifications, such as the reference interference ratios. AT&T Wireless anticipates that GERAN will complete feasibility studies by the fourth

⁹ AT&T Wireless expects to have national deployment of EDGE completed by the second half of 2003. AT&T Wireless has already begun working with vendors to trial services and devices for its system upgrade to UMTS, also known as W-CDMA.

quarter of 2003 and then update the existing receiver performance tables to account for SAIC-capable terminals in 2004.

These are just two examples demonstrating how the voluntary industry standards process paves the way for more spectrum-efficient, innovative technologies and products in the marketplace. It is safe to say that the CMRS industry is constantly engaged in this ongoing process.

II. THE COMMISSION SHOULD SUPPORT VOLUNTARY RECEIVER PERFORMANCE STANDARDS AND MUST REFRAIN FROM SETTING ANY REQUIREMENTS.

A. The Commission Should Embrace Market-Based Receiver Performance Standards to Promote More Efficient Use of Spectrum.

The *NOI* seeks comment on “the manner in which receiver immunity performance capabilities should be incorporated into our spectrum policies and rules.”¹⁰ AT&T Wireless urges the Commission to support voluntary industry-led activities dedicated to identifying and adopting receiver interference immunity performance standards. To that end, AT&T Wireless strongly supports the Commission’s statement in the *NOI*:

We would prefer to rely primarily on voluntary programs that are supported and managed by industry, in conjunction with user groups as appropriate, to establish and maintain guidelines and standards for receiver immunity performance, rather than formally incorporate them into our regulatory programs.¹¹

¹⁰ *NOI* at ¶ 11.

¹¹ *Id.* at ¶ 18.

As Chairman Powell stated plainly, “I prefer to rely on market incentives and voluntary industry programs to establish receiver immunity guidelines in the first instance.”¹² The history of CMRS standards development shows the efficacy of this approach.

The *NOI* seeks broad comment on “the services and/or receiver types with which to begin” consideration of receiver performance specifications.¹³ The Commission should begin by recognizing the CMRS industry’s activities as a model of voluntary standards development that has been a tremendous success, making government involvement unnecessary.

The Commission should also encourage the development of industry-led standards-development organizations in those industry sectors or services that have not created them. The *NOI*, for example, commends the Public Safety National Coordination Committee for its work on technical standards for radio receivers operating on the interoperability channels in the 700 MHz public safety band and seeks comment on whether a similar approach, relying on a national committee process, would be useful to develop receiver immunity standards for other public safety bands.¹⁴ The *NOI* further observes that a voluntary, market-based approach could apply in the broadcast context as well, suggesting that “industry parties representing broadcasters, consumer electronics manufacturers, consumers, and others as appropriate, would identify the relevant DTV receiver performance parameters, develop appropriate minimum performance specifications for those parameters, and publish them.”¹⁵

¹² *NOI*, Separate Statement of Chairman Michael K. Powell.

¹³ *NOI* at ¶ 24.

¹⁴ *Id.* at ¶ 26.

¹⁵ *Id.* at ¶ 36.

The *NOI* notes, however, that there may be circumstances in which some level of Commission involvement in receiver performance matters “may be particularly relevant” – command and control spectrum, such as public safety, and situations in which it may not be possible for all parties to enter into voluntary agreement, such as broadcasting.¹⁶ In any such instance, the Commission must ensure that government involvement is targeted to address specific and documented needs of a particular class of licensees or devices, rather than the adoption of a far-reaching receiver performance policy.¹⁷

B. Commission Involvement in Standards Development Would be a Regulatory Step Backwards, Would Slow the Pace of Technology Development, and Would Hamper Innovation.

The mere fact that the Commission is contemplating imposing receiver performance standards is a step backwards from its commitment to transition to more market-oriented spectrum policies. The Commission long ago recognized that substituting its technical judgment for that of the market was an imprudent exercise. The Commission summarized the technological component of its market-oriented PCS spectrum policy as follows:

In developing the rules governing PCS and other similar services that are licensed by spectrum blocks, we determined that it is not necessary to select a particular technology to be used or to specify in our rules the technical details, such as modulation parameters, of any particular technology. Instead, we have allowed licensees considerable flexibility to choose any technology that enables them

¹⁶ *Id.* at ¶ 2.

¹⁷ *See id.* (“[I]t is not our intent at this time to implement a new regulatory regime that would generally subject all receivers to mandatory standards.”); *see also, infra*, n.38.

to operate efficiently, by adopting only minimal rules limiting out-of-band radio frequency emissions.¹⁸

The Commission should continue to exercise the courage of its market-oriented convictions and allow the industry to determine technical details. To impose receiver performance standards at this point would constitute a fundamental policy reversal that would hamper innovation and undermine manufacturers' and operators' ability to react to market demands.

Despite the implications of such an enormous shift in policy, the *NOI* nevertheless seeks broad comment on how the Commission can incorporate receiver performance into spectrum policy. With regard to CMRS, AT&T Wireless believes the answer is simple: the Commission should not involve itself in the receiver standards-development process in the CMRS bands. As demonstrated above, the industry views receiver performance specifications as an important element in maximizing its ability to make efficient use of CMRS spectrum and continues aggressively to develop them.

The *NOI* further suggests that the Commission “will need to maintain a cooperative relationship” with standards-setting entities “to ensure they provide the performance levels necessary to support more efficient use of the radio spectrum.”¹⁹ It is unclear how the Commission can, on the one hand, rely on market-based solutions while also injecting itself into the standards development process. As far as CMRS receivers are concerned, Commission involvement would raise numerous concerns, as set forth below.

¹⁸ *Year 2000 Biennial Regulatory Review – Amending Part 22 of the Commission’s Rules to Modify or Eliminate Outdated Rules Affecting the Cellular Radiotelephone Service and other Commercial Mobile Radio Services, Notice of Proposed Rulemaking*, 16 FCC Rcd. 11,169 at ¶ 40 (2001).

¹⁹ *NOI* at ¶ 19.

1. The Pace of Technological Development

The rate of technological advancement is too rapid and the extent of activity is too great for the Commission to play a meaningful role in CMRS receiver performance standards development. As noted above, the industry is constantly involved in the introduction of new systems and the evolution of existing networks. It would be impossible for the Commission – or any administrative body – to devote the time and resources necessary to ensure that regulatory policy keeps pace with technological advancements. AT&T Wireless engineers, for example, are scheduled to attend over 80 standards-development meetings across the globe in 2003, with each meeting lasting 3-5 days on average. The *NOI* acknowledges the practical difficulties with Commission-mandated standards, asserting that “[t]he time and expense associated with changing mandatory standards can also tend to stifle innovation.”²⁰

In the worst case, the inevitable delays associated with regulatory participation in the standards-development process could lock operators and consumers into yesterday’s technology as updates or new performance requirements are held up and new products (smaller, more robust, less expensive receivers) are not delivered to consumers. Conversely, a government-identified mandate could seek solutions far beyond the technical realities of the marketplace, resulting in regulatory frustration when specified standards and resulting technologies do not materialize as envisioned. As one commenter noted in the Spectrum Policy Task Force proceeding, “The definition of receiver performance standards would negate this natural progression of technology.”²¹

²⁰ *Id.* at ¶ 37.

²¹ Comments of Nortel Networks, ET Docket No. 02-135, at 7 (filed July 8, 2002).

2. Gauging the Interference Environment

The *NOI* also seeks information regarding the interference environment as an initial step towards identifying receiver performance standards. While the *NOI* notes that the interference environment “can be highly variable and its characteristics may often be strongly service related,”²² it nonetheless seeks to define a “generic” interference environment “in which all receivers would be expected to perform adequately.”²³ There is, however, no “generic” interference environment. Radio services all have unique characteristics and operational differences that do not lend themselves to generic interpretations.²⁴ Indeed, even within the mobile services category, the interference environment experienced by a CMRS handset in an urban corridor is far different from an SMR base station receiver located on a mountaintop.

At the same time, any attempt to understand interference issues must clearly recognize the interdependent nature of transmitter emissions and receiver design. Any discussion of receiver performance standards has to be considered in the context of specific transmitter emissions or standards. As a result, receiver standards development requires assumptions about relevant transmitter emissions that determine whether software or hardware capabilities can effectively mitigate the interference. Any effort to identify widely applicable receiver requirements in a diverse and ever-changing spectrum environment would result in standards that are either meaningless – or worse, constraining and counterproductive. The Commission, therefore, cannot identify a generic transmitter environment and mandate receiver performance

²² *NOI* at ¶ 15.

²³ *Id.* at ¶ 16.

²⁴ Comments of Motorola, ET Docket No. 02-135, at 14-15 (filed Jan. 27, 2003).

requirements accordingly. The mapping of interference environments must be done on a service-by-service, band-by-band basis.

3. International Consequences

As the Commission is well aware, the mobile wireless equipment market has become increasingly global in recent years, resulting in economies of scale that are driving down the cost of equipment. U.S.-imposed receiver performance standards, if adopted, would isolate U.S. industry into a one nation receiver market, leading to significant loss of economies of scale and scope in the handset marketplace. Commission involvement in handset specifications would not only increase costs but also would likely slow the delivery of new services and technologies to U.S. consumers. As AT&T Wireless noted in relation to 2G equipment, because manufacturers focused on the larger, harmonized-band market first, it is estimated that U.S. consumers gained access to advanced features two years after the rest of the world.²⁵

4. Legacy Devices

Finally, a Commission receiver standards policy could create a legacy receiver issue where none exists today. Today standards-development bodies and operators continuously manage the operations of existing handsets, ensuring that they continue to function properly in a constantly changing network, and providing incentives for customers to move to new technologies as they become available. This control over the legacy and transition process is critical in enabling carriers to use their spectrum most efficiently and to respond to market demands. Substituting Commission decisions for market drivers will distort this process. For example, a Commission decision adopting a new level of receiver performance could result in

²⁵ See Ex Parte Comments of AT&T Wireless Services, Inc., ET Docket No. 02-135, at 19-20 (filed July 12, 2002).

significant problems, forcing the early turnover of consumer equipment. Alternatively, keeping standards in place past their time is a disservice to carriers and customers alike. Commission involvement in issues related to legacy equipment has been counterproductive of late, as the sunset of the analog cellular rule makes clear.²⁶ In that instance, the Commission's decision to drag the transition period out over a number of years defeats cellular providers' ability to fully deploy modern digital technologies, resulting in inefficiency in the radio resource allocation and a diminished ability to respond to market forces.²⁷ Decisions that affect the performance of legacy equipment and the transition to new technologies are best left to the market.

C. The Commission Lacks Statutory Authority to Impose Receiver Performance Standards on CMRS Providers.

The *NOI* asserts that the Commission “has the necessary statutory authority to promulgate receiver immunity guidelines and standards,” pursuant to Sections 4(i), 301, 302(a), 303(e), 303(f), and 303(r) of the Communications Act.²⁸ It provides no rationale in support of its view, however, and the express statutory provisions it cites confer no such broad authority. The Act authorizes regulation of receiver performance standards only for specifically enumerated classes of licensees and devices, which do not include CMRS providers or equipment. As a result, the Commission has limited authority to set receiver performance standards, and in any case does not have a legal basis to impose receiver performance requirements on CMRS

²⁶ *In the Matter of Year 2000 Biennial Regulatory Review – Amendment of Part 22 of the Commission's Rules to Modify or Eliminate Outdated Rules Affecting the Cellular Radiotelephone Service and other Commercial Mobile Radio Services, Report and Order*, 17 FCC Rcd. 18401 (2002), *recon. pending*.

²⁷ See *AT&T Wireless Services, Inc. Petition for Reconsideration*, WT Docket No. 01-108 (filed Jan. 16, 2003).

²⁸ *NOI* at ¶ 22.

equipment specifically. Moreover, there is no justification for exercising ancillary authority in the CMRS receiver performance context. As demonstrated above, the CMRS industry's voluntary receiver performance standards-development process makes any Commission involvement unnecessary.

None of the provisions cited in the *NOI* expressly authorizes the Commission to regulate receivers; instead the provisions focus on the regulation of transmission or emission of radiofrequency energy.²⁹ This is not a mere oversight, as the Act's legislative history confirms Congress' intent, dating back to the Radio Act of 1927 and carried forward into the Communications Act, that such authority is not implicit in the statute.³⁰ Congress has granted

²⁹ Section 301 applies to the “use or operate any apparatus for the *transmission* of energy or communications or signals by radio” 47 U.S.C. § 301 (emphasis added). Section 302(a)(1) applies to devices “capable of *emitting* radio frequency energy” *Id.* § 302(a)(1) (emphasis added). Section 303(e) authorizes the Commission to “[r]egulate the kind of apparatus to be used with respect to its external effects and the purity and sharpness of the *emissions from* each station and from the apparatus therein.” *Id.* § 303(e) (emphasis added). Section 303(f) authorizes the Commission to “[m]ake such regulations not inconsistent with law as it may deem necessary to prevent interference between stations and to carry out the provisions of this Act.” *Id.* § 303(f).

³⁰ Congress was aware of problems associated with “nonselective receivers” and the fact that, at the time, “highly selective, modern receivers” were not widely used. *See* Hearings before the House of Representatives Committee on the Merchant Marine and Fisheries, 69th Cong. 1st Sess., on H.R. 5589, at 149 (1926) (Statement of Dr. Alfred N. Goldsmith, Chief Broadcast Engineer, Radio Corporation of America). Nevertheless, Senator Dill, the primary Senate sponsor of the legislation, emphasized that the legislation authorized the new Federal Radio Commission “authority to regulate the type of *transmitting apparatus as to its external effect*, so that the [agency] would have the power to permit or prohibit the use of such apparatus if it so desired” and that it was not Congress' intent to “prevent a broadcasting station from so equipping itself that people could not listen to its programs unless they had a certain kind of receiving set.” 68 Cong. Rec. at 2880-81 (Feb. 3, 1927) (emphasis added); *see also* H.R. Conf. Rep. No. 93-1918, at 44-47 (1934) and S. Rep. No. 73-781, at 3, 6-7 (1934) (explaining that the substantive provisions of the 1927 Act remained unchanged in Title III).

the Commission such authority only as to particular classes of licensees and receivers, and CMRS licensees, such as AT&T Wireless, are not subject to such requirements.³¹

Congress' later actions, moreover, confirm that the Commission's authority is so limited.³² For example, in authorizing the Commission to adopt rules governing UHF receiver performance standards, Congress assured that the legislation was a grant of only limited authority:

It has been argued that [the legislation] would be a dangerous precedent which might lead to congressional control of all types of manufactured products. It must be remembered that this involves a unique situation which would not in any way constitute a general precedent for such congressional regulation of manufactured products.³³

The D.C. Circuit described the legislation as a *grant*, not a clarification of the Commission's existing authority, and found that "Congress specifically rejected a broad grant of power."³⁴ In

³¹ Section 302(a) authorizes "minimum performance standards for *home electronic equipment and systems* to reduce their susceptibility to interference from radio frequency energy." 47 U.S.C. § 302(a) (emphasis added). Sections 303(s) and (u) authorize the FCC to regulate "apparatus designed to receive *television pictures* broadcast simultaneously with sound." 47 U.S.C. §§ 303(s) & (u) (emphasis added). Section 302(d)(1) applies to "scanning receivers." 47 U.S.C. § 302(d)(1). Section 303(x) applies to certain television receivers. 47 U.S.C. § 303(x).

³² See *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 143 (2000) ("At the time a statute is enacted, it may have a range of plausible meanings. Over time, however, subsequent acts can shape or focus those meanings" and "'the implications of a statute may be altered by the implications of a later statute.' This is particularly so where the scope of the earlier statute is broad but the subsequent statutes more specifically address the topic at hand." (citation omitted)).

³³ S. Rep. No. 87-1526 (1962) *reprinted in* 1962 U.S.C.C.A.N. 1873, 1876. This also recognizes the inherent individuality of different radio services and why a "one-size fits all" regulatory policy on receiver performance standards would be unworkable.

³⁴ *Electronic Industries Ass'n v. FCC*, 636 F.2d 689, 696 (D.C. Cir. 1980). Similarly, amendments to Section 302 of the Act further underscore Congress's ongoing view of the Commission's limited authority. The legislative history of Section 302(a)(2) explains that the legislation at issue "*g[a]ve the FCC the authority*" to impose receiver standards on home electronic equipment. H. Conf. Rep. No. 97-765 *reprinted in* 1982 U.S.C.C.A.N. 2261, at 2266 (emphasis added); *see also* S. Rep. No. 97-191 at 2244.

view of the plain text of the Act, as well as the Act’s legislative history over time, the Commission’s assessment of broad authority over receiver performance is erroneous.

The *NOI* also references the Commission’s ancillary jurisdiction provisions, Sections 4(i) and 303(r). Under limited circumstances, the Commission may exercise its ancillary authority if it is “necessary to ensure the achievement of the Commission’s statutory responsibilities.”³⁵ In the ancillary authority context, courts have upheld Commission action in cases where there was a demonstrated need to imply authority to discharge the will of Congress.³⁶ As the Commission has previously stated, in order to justify the exercise of ancillary authority “it is necessary to invoke more than a relevant statutory purpose. It is necessary to demonstrate a real factual nexus between the proposed regulation and that relevant statutory purpose.”³⁷ As demonstrated above, the CMRS industry is committed to meaningful receiver performance standardization, making government involvement unnecessary – and quite possibly detrimental. Indeed, with respect to

³⁵ *FCC v. Midwest Video Corp.*, 440 U.S. 689, 706 (1979); *see also United States v. Southwestern Cable Co.*, 392 U.S. 157 (1968).

³⁶ *See, e.g., Southwestern Cable*, 392 U.S. at 164-178 (upholding Commission authority to regulate cable where there were no preexisting provisions regarding Commission oversight of the cable industry and the Commission demonstrated a need to regulate flowing from its broadcast responsibilities). Such reasoning, moreover, is consistent with general administrative law precedent: “The agency must examine the relevant data and articulate a satisfactory explanation for its action including a ‘rational connection between the facts found and the choice made.’” *Motor Vehicles Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) quoting *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962).

³⁷ *Cable Television Syndicated Program Exclusivity Rules and Inquiry into the Economic Relationship Between Television Broadcasting and Cable Television, Report and Order*, 79 FCC 2d 663, 795 (1980), *aff’d sub nom. Maltrite TV v. FCC*, 652 F.2d 1140 (2d Cir. 1981), *cert. denied* 454 U.S. 1143 (1982).

the CMRS industry, the *NOI* is a solution in search of a problem, in contravention to ancillary authority precedent.³⁸

III. RECEIVER PERFORMANCE STANDARDS SHOULD NOT BE CONSIDERED A FIRST STEP TOWARDS ADOPTION OF THE “INTERFERENCE TEMPERATURE” CONCEPT.

The *NOI* asserts that better performing receivers would allow for “the introduction of newer services on *the same* or proximate frequencies.”³⁹ Others previously surmised that the Spectrum Policy Task Force recommendation in support of receiver standards was intended “to ensure that receivers work with the amount of interference deemed acceptable under a proposed new ‘interference temperature’ metric.”⁴⁰ The Commission should not use receiver performance standards as a basis for the interference temperature concept and additional underlay operations in licensed spectrum. Any such effort would undermine the exclusive use licensing regime and the incentive for licensees to maximize spectrum efficiency.

Interference immunity standards can be designed to reject three distinct types of interference: (i) out-of-band interference, *i.e.*, interference resulting from out-of-band emissions from adjacent operators; (ii) in-band, out-of-territory interference, *i.e.*, interference resulting

³⁸ The *NOI* notes, and AT&T Wireless agrees, that there may be specific instances in which interference issues warrant Commission involvement. *See NOI* at ¶ 3. The Commission may wish to explore whether to adopt receiver performance requirements for other radio services that have not engaged in meaningful receiver performance management. The exercise of ancillary jurisdiction in the public safety sector, for example, may be more appropriate given the need for more interference-resistant equipment and Congress’ keen interest in public safety communications. *See* Wireless Communications and Public Safety Act of 1999, Pub. L. No. 106-81, § 2(a)(4) (1999) (Congressional finding that “improved public safety remains an important public health objective of Federal, State, and local governments and substantially facilitates interstate and foreign commerce”); 47 U.S.C. § 151 (purposes of the Act include “promoting safety of life and property through the use of wire and radio communication”).

³⁹ *NOI* at ¶ 2 (emphasis added).

⁴⁰ Comments of the Consumer Electronics Association, ET Docket No. 02-135. at 6 (filed Jan. 27, 2003).

from co-channel emissions from outside the affected licensee's service area; and (iii) in-band interference, *i.e.*, interference resulting from co-channel emissions from within a licensee's service area. The source of in-band interference can be intra-system or an independent RF emitter. Clearly, the Commission's interest in the first two categories of interference can aid new and existing providers by "allow[ing] increased operation of radio services on adjacent channels and frequency bands" and "facilitate[ing] more flexible use of spectrum."⁴¹ With regard to the third category, however, the Commission should support licensees' efforts to limit the effects of interference within their licensed band and encourage them to innovate so as to maximize the use of their licensed spectrum.

The CMRS industry continues to identify technologies that drive the threshold sensitivity level lower and lower – closer and closer to the thermal noise level for TDMA and GSM systems and even below the thermal noise floor for some IMT-2000 systems. These innovations effectively reduce the number of potential interferors, which boosts capacity, and can lower battery consumption. SAIC, mentioned above, is one such example. Although still in testing, SAIC holds the promise of increasing GSM providers' "information space" within their licensed spectrum.

The *NOI* asserts, "we need to address how the benefits of upgraded receiver performance would be distributed among users."⁴² A receiver performance policy that lays the groundwork for underlay operations would undermine exclusive use licensees' ability to maximize the use of their licensed spectrum. Licensees must be able to develop technologies to maximize their

⁴¹ *NOI* at ¶ 10.

⁴² *Id.*

