

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

In the Matter of)	
)	
Promoting Efficient Use of Spectrum)	ET Docket No. 22-137
through Improved Receiver Interference)	
Immunity Performance)	

**COMMENTS OF
PUBLIC KNOWLEDGE
and
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SUMMARY

The first question of public policy is, of necessity, “why do we care?” Framing the question of what we want public policy to address – the problem we wish to solve or the benefit we hope to gain – shapes the answer. The Commission has been considering the question of receiver standards since the Spectrum Policy Task Force Report of 2002.¹ But the Commission has come no closer to arriving at an answer. It is therefore time to consider whether we keep asking the wrong question. Proponents of receiver standards frame the question as one of spectrum efficiency, and define “efficiency” as maximizing the rights of transmitters, particularly new entrants. Opponents frame the question as about the rights of incumbents to enjoy the benefit of cheaper receivers and maintenance of the status quo.

The result has been an endless repetition of what amounts to the same interference fight in every new proceeding. The Commission has shifted from proceeding to proceeding without any guiding principle as to how to characterize the vulnerability of existing equipment and to what extent protecting existing services from harmful interference involves anticipating increasingly unlikely scenarios. This results in a set of unwritten rules in which both proponents and opponents of any change to the status quo try to guess what evidence will persuade the Commission. To be clear, this is not the fault of the FCC’s engineers. They also must engage in the same guessing game, essentially recreating from scratch the process of approving a new wireless service (or expansion of an existing one)

The Communications Act poses the question differently. What policies will best serve “the public interest, convenience and necessity?” In particular, how does the general public benefit from proposed Commission policies? Of course, proponents and opponents of receiver

¹ See Spectrum Policy Task Force, Report of the Interference Protection Working Group, ET Docket No. 02-135 (2002).

standards pay lip service to the concept of the public interest and argue that their choice of policy best serves the public interest. Proponents maintain that receiver standards will increase the range of new and innovative wireless services born of better spectrum access or more efficient spectrum use. Opponents of receiver standards argue that the public is best served by the lower cost of receivers and protecting services that consumers or firms already receive with equipment they already own.

The reality is far more complicated. Certainly consumers benefit from the introduction of new spectrum access regimes that support new services or increase capacity for existing services. At the same time, consumers likewise benefit from lower cost equipment. But additionally, consumers benefit from an ability to make their own considered choices as to the tradeoffs between the level of reception. For example, consumers have long been accustomed to paying a higher price for the highest quality digital television versus a more affordable but lower quality receiver based on the number of pixels or the sophistication of the installed (or purchased) antenna. But when it comes to the quality of the receiver and its ability to protect from interference, the consumer is given no such freedom.

Of course, there are many situations where consumers – or other users of wireless services – cannot make such choices. No one expects EMTs or firefighters in the field to need to choose between premium and lower quality receiver equipment. Rather, this example is intended to demonstrate that neither side of this debate can fully claim the mantle of consumer champion. Furthermore, the difference in the economic incentives and risk aversion of users cannot be treated as one easily solved by economic models. Defining “rights” has long been championed by economists as the cure for resolving interference since Coase’s seminal paper, “The Federal Communications Commission.” While these models have certainly had their uses, even Coase

admitted their limitations.² Nor could Coase, living in the analog wireless world dominated by radio and television broadcasting, have anticipated the modern digital world with its complex constellation of stakeholders with wildly diverging technologies and incentives.

Accordingly, an appropriate policy on radio receiver standards will provide parties with certainty as to the Commission's processes while simultaneously providing consumers maximum flexibility consistent with safety. Obviously, such a policy must also be consistent with the limitations of the Communications Act. While cognizant of the economic incentives of licensees and manufacturers of receivers and transmitters, the appropriate framework will center the public interest, maximizing for the general public the ability to access spectrum "so far as possible" for the widest variety of purposes, including national defense and public safety.³

A New, Uniform Framework for Determining Harmful Interference

Briefly, the Commission should clarify its understanding of the nature of receivers in bands under consideration, and in neighboring bands. The Commission should state in any NPRM proposing a new spectrum access regime that it assumes certain basic characteristics of any receiver potentially impacted by the Commission's decision. Licensees (or other relevant stakeholders) may then make the decision as to whether they wish to continue to offer "substandard" receivers or only receivers that meet or exceed the standards defined by the Commission. Additionally, the Commission should provide no protection for devices that listen out of band. Instead, the Commission – consistent with the interpretation of the statute that it regulates transmission rather than reception – will instead focus on the rules of transmission to

² R.H. Coase, "The Federal Communications Commission" 56 J. Law & Economics 879 at 893 (1959) (acknowledging that policy might require a limit on the number of broadcast licenses held by an individual).

³ 47 U.S.C. § 151.

ensure that the out of band emissions (OOBE) do not exceed the tolerance of the “standard” receiver.

The Commission should also, as part of the new framework, simplify its process so as to avoid unlikely scenarios such as “hidden node” problems. As the D.C. Circuit has recently clarified, protection from harmful interference does not mean that no interference will ever occur, or even that no harmful interference will ever occur.⁴ As long as the Commission explains why its determination is consistent with the statutory obligation to protect licensees operating within the parameters of their licenses from harmful interference, it has met its obligations under the statute.

To be clear, while our groups reject the cramped reading of the statute that the Commission has no authority to regulate receivers as well as transmitters, this proposed framework satisfies even this cramped reading of the statute. Nor does a change in *receiver* standards or spectrum environment constitute a license modification under Section 316. As Section 309(h) makes clear, a licensee is only entitled to the rights provided for in the license. These rights describe power levels and other information pertaining to transmission. Licenses say nothing with regard to spectrum environment or neighboring services. Likewise, the Commission should ignore economic arguments that licenses are “devalued” when the Commission authorizes new forms of access on either a co-channel or adjacent channel basis. There is no promise in the license to any economic value, only in the right of the licensee to operate the license under the rules established by the Commission.

In other words, the Commission’s definition of the spectrum environment is what it is, and licensees must simply accept it as they accept the impacts of geography or solar flares and design their systems accordingly.

⁴ AT&T Services v. FCC, 21 F.4th 831, 846 (D.C. Cir. 2021) (“AT&T Services”).

This approach will put the incentive to innovate where it can do the most good – with licensees and the manufacturers of equipment. The current lack of any rule rewards the worst behavior, encouraging licensees and equipment manufacturers alike to rely on a static spectrum environment. This stands in stark contrast with unlicensed equipment manufacturers, who have learned to design robust equipment for a constantly changing environment where they have no statutory right to protection. Indeed, when it comes to consumer devices operating on unlicensed bands, the evolution of unlicensed devices and services demonstrates that consumers benefit most from a wide variety of tradeoffs between QOS and price. Going forward, licensees and equipment manufacturers will understand that licenses protect only a “standard” receiver defined by the Commission. Licensees wishing to offer more sensitive services can adopt internal guard bands, or work with receiver manufacturers to enhance the robustness of their receivers, or simply allow consumers to purchase devices with greater sensitivity to interference if that suits their needs.

Federal users obviously occupy a different position than those of commercial users. Although Section 323⁵ is laughably out of date, it underscores the unique importance of federal users and their rights even against licensees acting within the scope of their licenses. But this unique status applies solely to federal users. It does not apply to regulatees of federal agencies. While the Commission should work closely with its sister agencies – particularly NTIA – to ensure the smooth operation of all federal regulatees, it must remain clear that Congress has charged the Commission, and no other agency, with the exclusive right to determine non-federal

⁵ 47 U.S.C. § 323 (requiring that in the event of interference between a federal “station” and a licensee, the federal user shall have the right to exclusive use for the first 15 minutes of the hour).

spectrum use⁶ and to implement international treaty obligations relevant to spectrum use and communications generally.⁷

Steps Going Forward

The Commission should move swiftly following this NOI to adopt a policy statement setting forth the new framework. The Commission should then conduct a survey of existing services to adopt, on a service by service basis, a standard receiver. In future proceedings, the Commission should use the announced standard for determining permissible OOB for new spectrum access uses. Alternatively, the Commission could invoke its authority to resolve relevant receiver standards by subjecting the new framework to notice and comment and issuing a declaratory ruling. A policy statement should be sufficient, however, given that an announced policy on determining harmful interference is not “legislative” and does not alter existing rights. To the contrary, a new policy statement clarifying how the Commission will determine harmful interference in the context of authorizing new spectrum services is the quintessential “advisory” action suited for a policy statement.

ARGUMENT

For more than 20 years, the Commission has struggled with the question of “receiver standard regulation.” This argument misframes the problem. Rather, as described below, the Commission should focus on its traditional function of regulating transmission, based on a clear expectation of how receivers in existing services perform. Nothing in the Communications Act requires the Commission to accept the “facts on the ground” created by manufacturers of receivers. To the contrary, as set forth in Section 301:

It is the purpose of this chapter, among other things, to maintain the control of the United States over all the channels of radio transmission; and to provide for the

⁶ 47 U.S.C. § 301.

⁷ 47 U.S.C. § 303(r).

use of such channels, but not the ownership thereof, by persons for limited periods of time, under licenses granted by Federal authority, and no such license shall be construed to create any right, beyond the terms, conditions, and periods of the license.⁸

In other words, it is the FCC, not manufacturers, that determine the rules for the use of “all the channels of radio transmission.” No licensee has a claim to “**any** right, beyond the terms, conditions and periods of the license.” The exclusion of “any right” obviously includes a right to use poorly designed or outdated equipment simply because such equipment is already deployed.

Of course, nothing prohibits the Commission from regulating receiver standards should it choose to do so. As noted above, Congress tasked the FCC “to maintain control over all channels of radio transmission, and *to provide for the use . . . thereof.*” (Emphasis added) “Use” surely includes reception as well as transmission. Likewise, the Commission has authority under Section 303(f) to make regulations “it may deem necessary to prevent interference between stations and to carry out the provisions of this chapter.”⁹ Given that Congress “gave the Commission ‘a comprehensive mandate,’ with ‘not niggardly but expansive powers,’” *United States v. Southwestern Cable*, 392 U.S. 157, 173 (1968) (internal citations omitted), such regulations surely include the power to regulate receivers as well as transmitters.

But the Commission need not engage in a litigious debate trying to determine how to maximize spectrum access by imposing obligations on receivers. Rather, the Commission should state clearly the characteristics that it expects to find in a receiver in potentially impacted services, and let the market respond accordingly.

⁸ 47 U.S.C. § 301.

⁹ 47 U.S.C. § 303(f).

I. THE COMMISSION SHOULD REGULATE TRANSMISSION BASED ON A “STANDARD RECEIVER” IN POTENTIALLY IMPACTED SERVICES.

The Commission’s current process for authoring new services spends an endless amount of time identifying potentially impacted services and attempting to ascertain the nature of available equipment deployed in the band. Incumbents argue that this is necessary to comply with the requirement that the Commission protect them from harmful interference. But nothing requires the Commission to allow incumbents to set the terms of the Commission’s rules, let alone receiver manufacturers. To the contrary, in addition to Section 301 quoted above, Section 304 requires that:

No station license shall be granted by the Commission until the applicant therefor shall have waived any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, *whether by license or otherwise*.
47 U.S.C. § 304 (emphasis added)

In other words, no licensee, let alone a manufacturer of equipment, can lay claim to a permanent, static and unchanging spectrum environment. To the contrary, and as Section 309(h) further emphasizes, only licensees are entitled to any rights – rights defined by the right to transmit under the conditions set forth in the license (including such service rules the Commission shall have adopted pursuant to Section 303(b) or other statutory authority). It then falls to the licensee, or other equipment manufacturers, to develop receiver devices that make use of these transmission rights. This is further supported by Section 303(n), which empowers the Commission “to ascertain whether in construction, installation, and operation they conform to the requirements of the rules and regulations of the Commission.” To “conform in . . . operation” logically includes reception by a suitable receiver.

Opponents of any sort of receiver standards wish to have it both ways. On the one hand, they argue that none of the language allowing the Commission to set rules of operation include

regulating the receiver. On the other hand, any change in the spectrum environment that does not protect all existing equipment is a “license modification” under Section 316. But either the dimensions of the receiver are part and parcel of the conditions of operation over which the FCC has jurisdiction through its licensing regime, or changes to the spectrum environment that render existing receivers subject to harmful interference cannot be a change in a license. Happily, the Commission need not trouble itself over this inconsistent logic. However one reads the statute, the Commission is certainly permitted to adopt any rational set of assumptions in determining whether a change in rules creates harmful interference to previously authorized services.¹⁰

It would best “encourage the larger and more effective use of radio in the public interest”¹¹ for the Commission to adopt a straightforward framework for determining harmful interference. This framework would rely upon the Commission’s expert judgment to determine what level of robustness and protection from unwanted emissions from a new service is appropriate for receivers of existing services on a service-by-service basis. As discussed below, this framework would consider a wide range of factors such as cost to upgrade existing equipment, current use cases, and whether it would benefit consumers to have available “substandard” devices that have a greater likelihood of experiencing interference in exchange for lower cost equipment. This approach clearly aligns with the Communications Act’s intent that the FCC set the rules for radio communication, whatever the historic use by licensees and equipment manufacturers.

II. The Commission Should Adopt A “Standard Receiver” Framework That Maximizes Flexibility for all Stakeholders – Especially Consumers – Consistent With Public Safety.

¹⁰ See *AT&T Services*, *supra* n.4; *Mobile Relay Associates v. FCC*, 457 F.3d 1 (D.C. Cir. 2006); *AT&T Wireless Services v. FCC*, 365 F.3d 1095 (D.C. Cir. 2004).

¹¹ 47 U.S.C. § 303(g).

In concept, the proposed “standard receiver” framework is simple. The Commission should simply state when it authorizes new spectrum services what the general resistance of the “standard” receiver device for any possibly impacted band should be. Nothing in the statute – or the current Commission rules – requires the Commission to chase down every existing model receiver, or analyze every possible set of circumstances under which the most sensitive model of existing receiver might experience harmful interference. Certainly nothing requires the Commission to respect possible “future uses” or to respect devices that listen outside their authorized frequency bands. Again, Section 304 requires licensees to waive any claim against the regulatory power of the United States based on previous use. This certainly includes any right to a specific receiver sensitivity based on previous use. If the Commission can displace existing licensees from transmitting on their authorized frequencies of operation,¹² it can certainly inform receiver manufacturers – who have no explicit statutory right of protection – that they cannot expect interference protection based on their existing level of sensitivity to unwanted signal in or out of band.

In practice, implementation of the new framework should not entirely ignore existing equipment. Rather, in determining a suitable level of OOB E for new services, the Commission should consider the following for incumbent services: a) a census of the current level of sensitivity of incumbent receivers; b) the ease of upgrading, including the expected life cycle of the incumbent equipment; c) the potential public safety implications of creating “substandard” devices with greater likelihood of experiencing harmful interference; and (d) the capacity of the incumbent provider to modify its own sensitivity through use of internal guardbands or other technological mitigation measures.

¹² See *PSSI Global Services, LLC v. FCC*, 983 F.3d 1, 4-5 (D.C. Cir. 2020).

This combination of factors will maximize the public interest by providing suitable incentives for licensees and equipment manufacturers while maximizing choice to consumers. Where the Commission determines that the public's safety permits manufacturers to offer more interference resistant equipment at higher prices, the Commission should permit them to do so. Device certification by the Commission should require some level of basic functionality even for substandard devices, and the Commission should require providers of "substandard" receiver equipment to disclose this at the point of sale. For many devices such as cell phones, radios and television sets, consumers are already accustomed to balancing performance against price when buying equipment.

A. Incumbents Should Be Solely Protected From OOBE Based on Commission Determination of Suitable Robustness of the Receiver.

Under the new standard receiver framework, the Commission would provide incumbents in adjacent bands interference protection solely from the OOBE transmitted by any new service. The Commission should determine the permissible OOBE for a new allocation or service based on a combination of the characteristics of already-operating "standard receivers" that could be impacted and reasonable expectations for service performance. After all, receivers must have some element of robustness to perform in the real world. Inherently fragile systems that cannot function in modern urban or rural environments should not be saved by preventing new services. Conversely, systems robust enough to survive in the real world have at least some capability to manage the potential increase in unwanted signal created by the new service. It is this expected balance where the standard receiver lies.

Potential changes in OOBE are the only change in the spectrum environment to which an incumbent licensee should be able to assert any entitlement to protection. Incumbents have no right to "listen" outside their assigned frequencies. Licensees have only the right to transmit on

frequencies and at power levels authorized by the Commission, and receivers therefore have no right to protection when they take fail to confine reception to the frequencies authorized by the license. Licensees that wish to offer services requiring quieter spectrum environments should be encouraged to innovate to maximize their spectrum use. Indeed, licensees boast that they are constantly innovating to make more efficient use of spectrum. Limiting their protection under the Commission's rules to in-band unwanted emissions from new services will both provide incumbents certainty and encourage innovation to maximize efficiency based on their authorized licensed frequency use, rather than encouraging incumbents to create negative externalities for future services.

Similarly, the Commission should state as a matter of policy that it does not distinguish between licenses distributed by auction or other licenses when determining the suitable receiver standard for permissible OOB by new services. As Congress made clear when it authorized distribution by auction, licensees do not "buy" spectrum. Auctions are solely a market mechanism for distributing licenses, based on Coase's theory that market mechanisms are no less inefficient for initial distribution of licenses (or other resources) than any other method, and that over time market mechanisms create greater efficiency by moving resources to those most capable of maximizing their potential to generate revenue.¹³ But the language of the statute remains, and licensees take their licenses pursuant to the conditions that limit their rights exclusively to those set forth in the license.¹⁴

As nearly every defender of market mechanisms argues, the key to extracting value from licenses is a clear definition of rights and certainty in enforcement of these rights. The proposed framework provides this certainty. It does so in a far more flexible and efficient fashion than

¹³ See R. H. Coase, "The Federal Communications Commission," *The J. of L. and Econ.* (Oct. 1959). See also *FCC v. Nextwave Personal Communications*, 200 F.3d 43 (2nd Cir. 1999).

¹⁴ See 47 U.S.C. § 309(j)(6)(B).

mandatory regulation of receivers because licensees know the precise nature of the protection provided. Indeed, as a practical matter, it is otherwise impossible to quantify the “rights” of licensees as some sort of absolute control over a set of frequencies that are “devalued” by creation of new services that change the spectrum environment.¹⁵ Even real property does not work this way. Any holder of real property must accept that the surrounding environment changes, including zoning laws, and that the holder of a fee simple absolute has no right to an unchanging surrounding environment. Indeed, real property must not only accept the changes in environment, but a host of other laws limiting the use of the real property.¹⁶ The Commission should therefore reject arguments that providing certainty requires providing an unchanging environment. Certainty will flow from the defined service rules, combined with a threshold protection from OOBE from other spectrum services.

That this framework maximizes innovation is demonstrated by the experience of unlicensed spectrum users. Because unlicensed access is limited, and because unlicensed users have no protection from other manmade sources of interference, including interference from other unlicensed users, equipment manufacturers have constantly innovated to make the most of the spectrum available. For example, at a basic level, Wi-Fi ‘receives’ before it transmits; that is, Wi-Fi’s listen-before-talk protocol (LBT) allows many Wi-Fi users to operate in close proximity, sharing the band in a manner that enables very efficient spectral re-use.

B. The Proposed Framework Will Simplify Authorization of New Services

Creating a new standard receiver framework that applies in all proceedings to authorize changes in spectrum access could dramatically simplify the process for authorizing new services,

¹⁵ See Harold Feld, “Spectrum ‘Property Rights’ and the Doctrine of Adverse Possession,” (in “The Unfinished Radio Revolution: 8 Perspectives on Wireless Interference,” (J. Pierre DeVries and Kaleb A. Sieh, ed.) 9 J. of Telecom. & High Tech. 523 (2011) (noting that not even real property provides the absolute control over use advocated by adherents of the “property school”).

¹⁶ *Id.*

encouraging the growth and evolution of new spectrum access regimes. As discussed in more detail below, the individual components of the proposed framework have been used consistently by the Commission in analyzing and authorizing new services. What has made the process so cumbersome is the need to establish for every proposed change in spectrum access regulation the sensitivity of a variety of receivers and the extent to which the Commission intends to protect edge cases.

As a consequence of this lack of clarity, each proposal for a new spectrum access regime begins with a hunt for potentially impacted incumbents operating an unknown set of devices with unknown capabilities. This time consuming first step is made more difficult by incumbents raising a stream of objections designed solely to undermine the evidence collected and submitted by new service proponents. Incumbents will often offer up as examples device models that are the most antiquated or vulnerable to interference. But opponents of changes to the spectrum regime have no obligation to provide any details as to the sensitivity of existing devices and whether that sensitivity is the result of listening out of band, the number of such fragile units actually in use, or whether users are used to routine interruptions from environmental RF emissions. This free-for-all invariably leads to strategic behavior by opponents, holding back critical information until late in the review process to create new and expensive delays.

Consider if instead the Commission simply announced at the start of every proceeding that it will examine and alter spectrum access rules based on the characteristics of a “standard” receiver in the service it intended to protect. Incumbents would not wait to strategically ambush the Commission and proponents with vital information. Instead, they would have every incentive to come forward as quickly as possible with relevant information as to the nature of their receivers and what characteristics they believe typify the “standard” receiver. The Commission

would create further incentive for incumbents and other stakeholders by rejecting outrageous claims unsupported by evidence. For example, any stakeholder claiming that an increase in the overall noise floor by a single db should be rejected out of hand as too fragile to survive operation outside an insulated laboratory.

To be clear, the Commission's engineers would not simply survey the field and allow existing equipment to dictate the result. As noted above, it is the Commission that must determine the appropriate and evolving capabilities of a "standard" receiver used in calculating harmful interference. As the demand for access to underutilized bands continues to grow more salient, under this framework the Commission should not hesitate to, for example, determine that a receiver that was most common a decade ago will be treated as "substandard" going forward. Based on the evidence presented and the relevant factors discussed above, the Commission would make its determination on the "standard receiver" (if it had not previously done so). This would allow parties in the proceeding to focus on the more definable question of what steps providers of the new spectrum access service must take to ensure that the new service does not interfere with the "standard receiver."

Manufacturers and licensees would have notice to the extent that their receivers are now "substandard." In some cases, such as where the use of substandard receivers has significant impact on public safety, manufacturers would need to inform their customers of the new standard and provide for necessary upgrade or replacement. Particular cases might also require an extended phase-in period depending on factors such as the equipment replacement cycle, cost of upgrading and replacement, or implications for public safety. But all of these factors would be possible because of the certainty provided by the new policy.

C. The Commission Should From Time to Time Revisit the Standard Incumbent Receiver to Require Upgrades.

Technology continually advances. This applies as much to the capacity of receivers to reject unwanted noise as to the capacity of transmitters to provide new services. There is a difference between reasonable regulatory certainty and incentivizing stasis. The Commission should make it clear that it will, from time to time, revisit the technical standards adopted for the standard receiver in each incumbent band and upgrade them to reflect improvements in receiver technology.

D. This Approach Is Consistent With Commission Practice.

No piece of this proposal is radical. The Commission has used this approach, in varying degrees, repeatedly. For example, in the 5.9 GHz proceeding, the Commission rejected claims by licensees that their potential future use of the upper part of the band was entitled to greater protection from potential interference by adjacent-band Wi-Fi operations than the current OOBE limits.¹⁷ In the C-Band proceeding, the Commission found that “well designed” altimeters should not experience interference from signals operating in C-Band under a defined emission mask, and created a working group to identify any issues relating to substandard receivers listening out of band.¹⁸ In the 6 GHz proceeding, the Commission determined that the interference protections imposed were sufficient to protect incumbent operations generally, without assuring incumbents of complete protection from harmful interference for all receivers no matter their capability or location.¹⁹

Courts have stressed that the Commission must be accorded “considerable deference” and the flexibility to balance the multiple statutory directives involved in determining the

¹⁷ First Report and Order, *Use of the 5.850-5.925 MHz Band*, ET Docket No. 19-138 (rel. Nov. 20, 2020), at ¶¶ 81, 83.

¹⁸ Report and Order and Order of Proposed Modification, GN Docket No. 18-122 (rel. March 3, 2020), at ¶¶ 394-395.

¹⁹ Report and Order and Further Notice of Proposed Rulemaking, *Unlicensed Access to the 6 GHz Band*, ET Docket No. 18-295 (rel. April 24, 2020), at ¶¶ 110, 149-150.

question of “harmful” interference.²⁰ As long as the Commission explains its reasoning, and applies this reasoning consistently, the statute grants the Commission, as the expert agency, the authority to choose the appropriate methodology for determining how to protect incumbent services.²¹ At the same time, nothing prevents the Commission from allowing manufacturers to offer equipment that may be more vulnerable to harmful interference. Section 303(e) gives the Commission authority to “Regulate 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.” Again, it is for the Commission to determine the acceptable “purity” of the signal, including where that “purity” is impacted by “external effects.” The Commission may authorize licensees to rely on receivers of varying degrees of susceptibility to harmful interference, provided it provides for some basic functionality to protect consumers.²²

II. APPLYING THE FRAMEWORK TO FEDERAL USERS.

Federal agencies occupy a unique position as spectrum users. Federal users receive their allocations from the President, through the process set forth in Chapter 8 of the Act.²³ The FCC must coordinate with NTIA to ascertain the degree of protection needed for federal spectrum, since federal spectrum allocations often involve questions of national security and public safety. Additionally, federal agencies, including the Department of Commerce’s Institute for

²⁰ *See, e.g.*, *Mobile Relay Associates v. FCC*, 457 F.3d 1, 8 (D.C. Cir. 2006); *American Radio Relay League Inc.*, 524 F.3d 227, 233 (D.C. Cir. 2008).

²¹ *See, e.g.*, *Mobile Relay Associates v. FCC*, 457 F.3d at 1, 8; *Teledesic LLC v FCC*, 275 F.3d 75, 84 (D.C. Cir. 2001); *AT&T Wireless Services v. FCC*, 270 F.3d 959, 965 (D.C. Cir. 2001) (Commission discretion to determine nature of protection for terrestrial mobile services from new in-flight system).

²² Again, it is important to emphasize that the Commission would establish a baseline “standard receiver” that the Commission would protect from harmful interference. Section 303(e) is relevant to the Commission’s authority to allow manufacture of “substandard” receivers.

²³ 47 U.S.C. §§ 901, et seq.

Telecommunication Sciences (ITS), have their own engineers and resources available to help the Commission determine what would constitute a “standard receiver” for a particular service.

At the same time, the Commission (and federal agencies) must distinguish between federal users and the regulatees of other agencies. Regulatees are not federal users. They acquire their spectrum access rights pursuant to authorizations granted by the Commission.

The recent events surrounding the C-Band rules and altimeters demonstrates that incumbent users can adjust to Commission rule changes when required. The FAA has recently announced that it anticipates that by July 1, 2023, most users of flight altimeters will have upgraded their devices to avoid the possibility of harmful interference.²⁴ Of course, early notice and engagement by stakeholders leads to better results. Had the FAA and aviation stakeholders begun their census of altimeters and determined which models required upgrades before or soon after the Commission issued its Report & Order in March 2020, the industry could have completed the necessary upgrades by the end of 2021. Indeed, had aviation stakeholders focused on upgrading receivers to adjust to the new spectrum environment rather than insisting on resisting the FCC’s rules changes, the FCC could have set aside auction revenue to help defer the cost to stakeholders, just as it set aside revenue to reimburse C-Band licensees for migration. Instead, the FAA’s insistence that the FCC could not issue licenses without FAA concurrence not only delayed 5G deployment and embarrassed the United States through the needless grounding of international flights, it forced aviation stakeholders to bear the full cost of upgrades to their altimeters.

²⁴ See Jon Brodtkin, “FAA: Airlines Must Retrofit Faulty Altimeters ‘As Soon As Possible’,” *Ars Technica* (June 21, 2022), available at <https://arstechnica.com/tech-policy/2022/06/faa-details-plan-to-fix-airplane-altimeters-that-cant-filter-out-5g-signals/>.

Adopting a global policy applicable to all non-federal services will help persuade stakeholders that the FCC will not change course simply because a sister agency demands that they do. By contrast, the ongoing practice of setting the level of interference protection for existing devices on a proceeding by proceeding basis affirmatively encourages equipment manufacturers to believe that everything is negotiable – especially when the agency charged with regulating the service for which the device is to be used is willing to advocate on their behalf. While the Commission cannot control the actions of a sister agency, the Commission can show consistency with a policy designed to provide certainty and resolve disputes. Adopting a generally applicable policy should assist in persuading not only stakeholders, but the press and members of Congress that the FCC has acted responsibly.

III. STEPS TO IMPLEMENT THE FRAMEWORK.

The first step for the Commission should be to issue a policy statement adopting the new framework, setting forth how the Commission will determine “harmful interference” going forward, and describing how it will determine the robustness of the “standard receiver” for each service. A policy statement is appropriate here because the Commission would not actually alter any existing rights and because, as noted above, the Commission already follows the basic approach outlined here. The chief change would be to standardize the approach for spectrum access proceedings to provide certainty for all concerned. As the D.C. Circuit has explained:

A general statement of policy is the outcome of neither a rulemaking nor an adjudication; it is neither a rule nor a precedent but is merely an announcement to the public of the policy which the agency hopes to implement in future rulemakings or adjudications. A general statement of policy, like a press release, presages an upcoming rulemaking or announces the course which the agency intends to follow in future adjudications²⁵

²⁵ Telecommunications Research & Action Center v. FCC, 800 F.2d 1181, 1186 (D.C. Cir. 1986) (citations omitted).

The policy statement would explain the new framework for determining permissible levels of OOBE within incumbent user bands based on the characteristics of the “standard receiver” as determined by the Commission. Ideally, the Commission would then commence a series of proceedings to review existing allocations to determine the characteristics of the “standard receiver” for various services so that it can improve efficiency in spectrum proceedings overall. Given the lack of resources available to the Commission, it is more likely that the Commission will ascertain the suitable receiver standard for incumbent bands in the context of specific proceedings to expand spectrum access. In either case, any statement of policy based on this NOI is simply a general statement of intent on how the Commission will formalize and standardize its analysis going forward.

CONCLUSION

For 20 years, the Commission has pursued complex economic and technical theories of when and how to impose technical obligations on receivers. As a result, the Commission has tied itself in knots while failing to address the fundamental problem of spectrum allocation – the need for certainty in the *process* of spectrum allocation. The simplest solution is for the Commission to solve the systemic problem rather than treat each proceeding as a one-time event requiring special rules and complex economic theories. By adopting the proposed “standard receiver” framework, the Commission can simplify and standardize the spectrum allocation process – to the enormous benefit of all involved. More importantly, the standard receiver framework would put users at the center of the public interest analysis where they belong.

Respectfully submitted,

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