



March 28, 2023

Ex Parte

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission

Via ECFS filing

Re: *In Re Promoting Efficient Use of Spectrum through Improved Receiver Interference Immunity Performance*, ET Docket No. 22-137

Dear Ms. Dortch:

5G Americas¹ submits this *ex parte* communication as a follow-up to its initial comments filed June 27, 2022 in the above-captioned *Notice of Inquiry* on receiver performance.² 5G Americas recently published a white paper on receiver performance, titled *Radio Frequency Receiver Performance*.³ In this paper, appended for your convenience as Attachment 2, 5G Americas provides a number of recommendations on general receiver policy, the execution of such policy, and how to incent incumbents to upgrade their receivers. We reiterate these recommendations in Attachment 1 to this letter.

The Commission should not impose receiver performance mandates, which would increase costs and inhibit innovation. Such mandates would be especially counterproductive in mobile broadband bands, given that the mobile industry operates in an intensive-use spectrum environment, using receivers consistent with 3GPP standards. Rather, the Commission should provide notice to incumbents through a policy statement that there is now an expectation that over time receivers must be upgraded with more selective filters, or else replaced. A long-range spectrum plan would help to provide such notice to incumbents and their receiver manufacturers, as well as a predictable timeline for receiver upgrades. A clear understanding of the future spectrum environment is crucial for improving receiver performance.⁴ Relatedly, 5G Americas is pleased that the National Telecommunications and Information Administration (“NTIA”) has released and asked for comment on a proposed National Spectrum Strategy and Implementation

¹ 5G Americas is an industry trade organization composed of leading telecommunications service providers and manufacturers. The organization’s mission is to facilitate and advocate for the advancement of 5G and beyond throughout the Americas. 5G Americas is invested in developing a connected wireless community while leading 5G development for all the Americas. Currently chaired by T-Mobile US, 5G Americas’ Board of Governors includes Airspan Networks, Antel, AT&T, Ciena, Cisco, Crown Castle, Ericsson, Liberty Latin America, Mavenir, Nokia, Qualcomm, Samsung, Shaw, Telefónica, VMware, and WOM.

² Comments of 5G Americas, ET Docket No. 22-137 (filed June 27, 2022).

³ 5G Americas, *Radio Frequency Receiver Performance* (2023), <https://www.5gamericas.org/wp-content/uploads/2023/02/Receiver-Performance-Id.pdf> (“Receiver Performance”).

⁴ See *Receiver Performance* § 1.1.1.

Plan. 5G Americas looks forward to the product of Commission collaboration with NTIA on developing this long-term roadmap, which can facilitate improved receiver performance, as well as the economic development that efficient spectrum allocations deliver.

The Commission has traditionally relied on a number of mitigation techniques to reduce interference to adjacent or near-adjacent incumbents, such as requiring new entrants to install antennas with a certain degree of downtilt; reduce transmission signal power; or comply with separation distances, including through exclusion zones. But new generations of mobile broadband applications will be more bandwidth intensive⁵ and such traditional, less spectrally efficient mitigation may not be consistent with the Commission's broader policy goals.

As the title of the Commission's *Inquiry* reflects, the Commission is aware of its obligation to regulate spectrum use so as to make available *efficient* radio communications services.⁶ In an environment with increasing demand for high-speed throughput and capacity, mitigation techniques that reduce utilization of spectrum allocated to the transmitter are inconsistent with the mandate to ensure *efficient* use of spectrum. Going forward, adjacent services will need to operate in closer proximity to each other to increase efficient use of spectrum and meet various service demands.⁷ Such proximity requires improved receiver selectivity and resilience. If the Commission makes clear that both transmitters and receivers must evolve to enable coexistence, and works with NTIA to provide a long-term spectrum plan, then the market will ensure receivers are developed with sufficient immunity for bands adjacent to the planned bands.

Respectfully Submitted,



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⁵ *Receiver Performance* § 1.

⁶ Communications Act of 1934, 47 U.S.C. §151 (emphasis added).

⁷ *Id.*

Attachment 1

5G Americas Recommendations on Receiver Performance

The following recommendations represent guidance to the Commission and other administrations' spectrum and equipment regulators to aid in formulating policy:

I. General policy

- A. The regulator should consider both transmitter and receiver performance as part of its spectrum management policy.
- B. When allocating spectrum for new services, the regulator should closely examine potential bands by including consideration for receiver performance in the band and adjacent bands.
- C. Any band-specific consideration for new services should include all stakeholders representing all interests, including the regulator (s) and both in-band operators and users or prospective users in neighboring bands whose transmitters will be affected.
- D. The regulator should consider different approaches to improving receiver performance based on the particular circumstance of a given band or service. No "one-size-fits-all" solution is possible as each approach must consider aspects like propagation characteristics and services and devices requirements. 5G Americas encourages the regulator to refrain from imposing heavyhanded, inflexible receiver performance mandates that would increase costs and inhibit innovation.
- E. The regulator should refrain from mandating receiver performance standards in bands where competitive market forces (for example, bands where 3GPP technologies are deployed) are continually motivating equipment makers to support more uses and services.

II. Execution

- A. The regulator should rely upon established industry voluntary standards, particularly where market forces already incentivize the efficient use of spectrum.
- B. The regulator should use standardized coexistence models used by 3GPP, ITU, etc. whenever possible. Modeling should use realistic system specifications and equipment operation whenever possible. It is recognized that transparency of all the key elements of an analysis, including assumptions, model structure (e.g. formulas), data sets, is necessary to avoid conflicting interference results.

III. Upgrade path

- A. As demands for spectrum increase, the regulator should develop policies to address a path for legacy receivers to be upgraded so that they can promote coexistence and are not susceptible to transmitters operating in their prescribed manner.
- B. The regulator should issue a policy statement (or similar) on receiver performance to establish clear and transparent expectations for stakeholders and lay the foundation for future actions to promote sound spectrum management.
- C. The regulator should develop a long-range spectrum plan, which would benefit the industry greatly from both a clarity and design needs perspective. It would enable a predictable timeline of equipment upgrades.

Attachment 2
5G Americas, *Radio Frequency Receiver Standards* (Feb. 2023)