

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of	)	
	)	
Modernizing and Expanding Access to the	)	
70/80/90 GHz Bands	)	WT Docket No. 20-133
	)	
To: The Commission	)	

**REPLY COMMENTS OF TECHFREEDOM**

TechFreedom hereby files these Reply Comments in response to the *Public Notice*,<sup>1</sup> issued October 8, 2021, seeking additional comments in the above-referenced proceeding.<sup>2</sup>

In response to the Comments filed in this proceeding, TechFreedom submits:

**1. The Docket Reflects Broad Support for a Common “Light-Licensing” Regime for the 70 MHz Band**

Among the existing and potential users of the band (with exceptions noted below), there is wide support for maintaining the “light-licensing” and database-driven approach to the spectrum.<sup>3</sup> Many point to the key feature of the band that lends itself so well to many

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<sup>1</sup> FCC, Wireless Telecommunication Bureau Seeks To Supplement the Record on 70/80/90 GHz Bands Notice of Proposed Rulemaking, *Public Notice*, DA 21-1263, 86 Fed. Reg. 60436 WT Docket No. 20-133 (rel. Nov. 2, 2021); *see also*, Notice of Proposed Rulemaking, 35 FCC Rcd 6039 (2020) (*70/80/90 GHz NPRM*). The Federal Register Notice set the comment date as December 2, 2021, and reply comment date of January 3, 2022. These Reply Comments are timely filed.

<sup>2</sup> Modernizing and Expanding Access to the 70/80/90 GHz Bands, WT Docket No. 20-133, Notice of Proposed Rulemaking, 35 FCC Rcd 6039 (2020) (*70/80/90 GHz NPRM*).

<sup>3</sup> *See, e.g.*, Comments of New America’s Open Technology Institute and Public Knowledge at 1 (November 2, 2021) (“The Commission should extend its sharing framework for the 70/80/90 GHz band to include as many new use cases and users as feasible, ensuring open and equal access to this spectrum through the existing database coordination mechanism”) (*OTI/PKI Comments*); Comments of SpaceX at 7-8 (“In this way, a unified process represents

users in many different service types: “Highly directional, ‘pencil-beam’ signal characteristics permit systems in these bands to be engineered in close proximity to one another without causing interference.”<sup>4</sup> Others point out that the band, if coupled with a database-driven coordination regime, can host a number of different users. “Such widespread support for a unified database coordination mechanism reflects the fact that this band has long hosted several varying users and is fully capable of continuing to do so in the context of HAPS, other stratospheric and moving platform-based devices, and fixed satellite service gateways.”<sup>5</sup> TechFreedom agrees. The 70 GHz Band is highly unique, and the FCC should explore all options to make this spectrum as efficient to license and deploy as possible and expanded use of the current light-licensing regime appears to be the best answer to accommodate existing and future users of the spectrum.

## **2. Contrary to Some Comments Filed, 5G is *Not* the End of Technology**

The lone holdouts to broadening the uses of the 70 GHz are some 5G users, who covet the spectrum for wireless backhaul operations, to the exclusion of news uses (and apparently to the exclusion of existing allocations as well). 5G proponents are at it again, arguing that whatever the FCC does with regards to the 70 GHz spectrum, it must protect

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a dramatic improvement over gateway earth station licensing regimes in other bands, which require time- and resource-intensive reviews across multiple Bureaus that can delay deployment to consumers by months or more. In fact, including only some technologies and leaving others behind would irreparably skew the use of the bands and squeeze out technologies designed to reach the hardest-to-reach Americans.”).

<sup>4</sup> See FCC, Wireless Bureau Opens Filing Window for Proposals to Develop and Manage Independent Database of Site Registrations by Licensees in the 71-76 GHz, 81-86 GHz and 92-95 GHz Bands, Public Notice (Mar. 12, 2004).

<sup>5</sup> OTI/PK Comments at 5.

5G operations.<sup>6</sup> In the rush to embrace the newest communications protocol,<sup>7</sup> it seems, however, that 5G is *it*. It is the end of technology, it is, and will be forever, the highest and best use of spectrum. That is woefully short-sighted. Engineering changes, history changes, and we can't afford to go "all in" on 5G if it means robbing all other users of spectrum and shutting down technological innovation. Instead, the FCC must balance the need for more 5G spectrum with existing allocations and other spectrum users' needs.

### **3. Contrary to Some Comments Filed, the FCC has already Authorized the 70 GHz Band for Satellite Gateway Links**

In their rush for more spectrum, some 5G advocates seem to ignore the fact that the FCC has authorized use of the 70 GHz spectrum for the fixed satellite service since 2003.<sup>9</sup> This is not an issue, therefore, of space users seeking access to spectrum currently allocated for other uses,<sup>10</sup> but rather, whether satellite operators can fit comfortably within

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<sup>6</sup> See, e.g., Comments of Nokia at 2 ("The Commission must act quickly to modernize the rules for 5G wireless backhaul, so entities seeking Federal funds can use those funds most efficiently to deploy 5G to more communities."); Comments of Qualcomm at 5; Comments of T-Mobile at 3 ("Now that the record is complete, the Commission should modify its rules to promote more intense use of the 70/80/90 GHz bands for backhaul instead of diverting resources for the not-yet-available services contemplated by the Public Notice.").

<sup>7</sup> 5G, after all, is merely a communications protocol. It is neither a service, nor is it spectrum. Nor is it the last communications protocol that will be adopted. Before 5G is fully deployed, scientists are already touting 6G, able "to download 142 hours of Netflix in a second." See V. Ramirez, "6G Will Be 100 Times Faster Than 5G—and Now There's a Chip for It," SingularityHub, August 21, 2020, <https://singularityhub.com/2020/08/21/6g-will-be-100-times-faster-than-5g-and-now-theres-a-chip-for-it/>.

<sup>9</sup> Allocations and Service Rules for 71–76 GHz and 92–95 GHz Bands, WT Docket No. 02–146, Report and Order, 18 FCC Rcd 23318, 23322, ¶ 10 (2003) (70/80/90 GHz Report and Order) ("Accordingly, the 71-76 GHz band is allocated to the fixed, fixed-satellite (space-to-Earth), and mobile services on a primary basis; the 71-74 GHz band is additionally allocated to the mobile-satellite (space-to-Earth) on a primary basis; and the 74-76 GHz band is additionally allocated to the broadcasting and broadcasting-satellite services on a primary basis and to the space research service (space-to-Earth) on a secondary basis.").

<sup>10</sup> T-Mobile's argument that space operators should somehow now have to demonstrate that they "need" this spectrum or lose it is not part of this proceeding. Comments of T-Mobile, p. 6 ("SpaceX fails to demonstrate why its non-geostationary satellite ("NGSO")

the light licensing regime, which the docket demonstrates they can. The Commission should reject, therefore, the efforts of some to strip space users of those frequencies.

#### **4. The D.C. Circuit has just Upheld a Similar Database-Driven Approach in the 6 GHz Band**

If there is any lingering question as to the efficacy or legality of database-driven frequency coordination and licensing approaches, the D.C. Circuit's recent decision in *AT&T v. FCC* should put that to rest.<sup>11</sup> The court recognized the FCC's expertise in wading through complex engineering studies and concluded that in such instances the Commission's judgments are entitled to "particularly deferential review, as long as they are reasonable."<sup>12</sup> The court upheld the FCC's approach to using Automated Frequency Coordination (AFC) "a technology designed to ensure that unlicensed devices do not cause harmful interference with licensed devices."<sup>13</sup> The FCC may proceed with fully integrating

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operations require access to the 70/80/90 GHz bands in the first place. In fact, just the opposite is true – NGSOs already have access to a significant amount of spectrum. The Commission should therefore not expand NGSO use of the 70/80/90 GHz bands that will potentially complicate what should be the primary use of the band – wireless access technologies.”). There is no current proposal within the NPRM to take the 70 GHz Band away from satellite users. As to the “need,” TechFreedom in its Comments demonstrated why the 70 GHz Band is the last portion of the spectrum that can support high throughput satellite gateway links. TechFreedom Comments at 2-3.

<sup>11</sup> *AT&T v. FCC*, No. 20-1190 (D.C. Cir., decided Dec. 28, 2021).

<sup>12</sup> *Id.*, Slip Op. at 8, quoting *In re Core Communications, Inc.*, 455 F.3d 267, 282 (D.C. Cir. 2006)). See also, Slip Op. at 13 (“Petitioners have offered no reason for us to depart from our court’s longstanding practice of according ‘considerable deference’ to the Commission’s expertise on such a ‘highly technical question,’” quoting *American Radio Relay League, Inc. v. FCC*, 524 F.3d 227, 237 (D.C. Cir. 2008)).

<sup>13</sup> *Id.*, Slip Op. at 6. The court went on to note that the FCC never stated that its goal was zero interference, rather it was to adopt a licensing regime that minimized harmful interference. *Id.*, Slip Op. at 9:

Petitioners mischaracterize the Commission’s goal. It never claimed that the Order would reduce the risk of harmful interference to zero. To the contrary, the Commission repeatedly explained that the Order makes the “potential for harmful interference to incumbent services operating in the 6 GHz band

existing and new users into the “light licensing” regime for the 70 GHz Band, confident that its decision will withstand judicial review.

## 5. The FCC Should Not Pick Winners and Losers in this Band

While some commentators already wish to declare HAPS and other innovative uses of this spectrum dead on arrival,<sup>14</sup> it is way too early to pick winners and losers in the 70 GHz band. The OTI/PK comments get it right:

As is the case with all emerging technologies, neither stakeholders nor the Commission can predict in advance all the ways this very high-capacity band can be used to advance connectivity and the capabilities of moving platforms in the future. As a result, we believe that rules for this band that are technology-neutral and that accommodate as many different services and users as possible will best set the stage for innovation in services and competition that produces the greatest long-term benefits to consumers and the economy.<sup>15</sup>

Again, because the wavelength in 70 GHz is so small, this presents the opportunity for many different uses of the spectrum in close proximity.<sup>16</sup> Whereas some have moved

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... insignificant.” Order ¶¶ 104 (emphasis added); see also id. ¶¶ 110, 122 n.317, 145–46, 245 (repeatedly characterizing such risk as low or insignificant, not zero). The Commission acknowledged that it had to “balance unlicensed device access and incumbent protection,” id. ¶ 63, and explained that “in the unlikely event that harmful interference does occur,” “the Commission’s Enforcement Bureau has the ability to investigate reports of such interference and take appropriate enforcement action as necessary,” id. ¶ 149. This aligns perfectly with existing Commission regulations, which (1) acknowledge that full compliance “will not prevent harmful interference under all circumstances” and (2) authorize the Commission to order interfering users to cease operations. 47 C.F.R. § 15.15(c).

<sup>14</sup> See, e.g., Comments of T-Mobile at 4-5.

<sup>15</sup> OTI/PK Comments at 6-7.

<sup>16</sup> See Comments of SpaceX, pp. 8-9 (“A common light-licensing database would also promote rapid deployment of myriad innovative services to consumers by enabling operators to efficiently plan, coordinate, and deploy their networks. With a comprehensive picture from the database, operators would be able to quickly find prospective sites that present no interference risk and automatically receive approval to deploy, cutting months out of the traditional licensing timeline and enabling consumers to receive high-speed, low-latency broadband services faster. Even where coordination between operators is required

away from HAPS, others are filling that void.<sup>17</sup> As TechFreedom stated in its comments, and reiterates here, the FCC should adopt technology and service-neutral rules that allow the marketplace to decide the best use of this spectrum.

## **6. The FCC Should Protect Against Database “Warehousing”**

TechFreedom agrees with Geneva Systems: at the same time the FCC considers expanding the use of its light-licensing regime, it should also take steps to avoid duplicate database entries and eliminate coordinated locations that are not built. “[T]he Commission should amend its rules to address the significant number of links registered in the third-party database that are not – and never will be – constructed. The solution is simple: the Commission should require licensees to mark operational links as constructed. The Commission should also amend its rules to permit licensees to update registrations to upgrade equipment while preserving its first-in-time status.”<sup>18</sup> The “light-licensing”

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to avoid harmful interference, a transparent database of highly directional links facilitates timely self-coordination with existing users of the bands by allowing operators to identify, contact, and coordinate with earlier operators.”).

<sup>17</sup> Comments of Sceye at 5 (“Sceye is also participating in a Southwest area-consortium focused on achieving universal broadband connectivity across the Navajo Nation in New Mexico and Arizona. The consortium includes Sacred Wind Communications, CellularOne, the Penasco Valley Telecommunications Cooperative, the Santa Fe Indian School, and Navajo Technical University. An estimated sixty percent (60%) of the Navajo Nation’s 300,000 residents do not have broadband service today. Sceye is targeting the delivery of commercially ready broadband Internet to these areas by in or about 2024, and plans to manufacture five of its platforms to deliver service across New Mexico.”). *See also* Comments of Raven Aerostar at 2 (“We provided more than 500 flights to customers over the last five years, proving high altitude platforms are already commercially viable. We maintain current accounts with National Aeronautics and Space Administration, Department of Defense, and Department of Homeland Security, and we are actively developing new federal and commercial industry customers.”).

<sup>18</sup> Comments of Geneva Systems at 5. Those comments continue: “The Commission noted that its existing rules do not allow registrations to be amended to, for example, upgrade equipment with more spectrally efficient or lower latency technologies. This limitation, coupled with the first-in-time priority, impedes future innovative use of the band, even for future HAPS or other stratospheric-based platform services. The rules encourage a

approach must be coupled with rules that ensure, to the full extent possible, that the database used to coordinate new users reflects actual builds, and not just planned systems that are filed as placeholders, often abandoned later in the planning process. By guarding against such “warehousing” of first-in-time coordinated locations, the band may be fully utilized for innovative uses. TechFreedom supports the following requirements:

- 1) Strict construction deadlines for newly coordinated locations;
- 2) A completed construction notice be provided to the database operators; and
- 3) Allowing minor amendments to be filed with the database coordinators without losing first-in-time rights.

## **7. Technical Rules Should Prioritize Limiting Interference to the Horizon Over Other Measures**

Comsearch’s comments propose a number of technical rules that the FCC should adopt in opening up the band to new users to facilitate sharing:

In addition, sharing between these systems and Fixed Service links may be enhanced by limitations on operational parameters of ground stations and earth stations including: limited number of stations per system, stand-off distances from urban areas or minimum required shielding, minimum elevation angle employed, maximum EIRP or antenna gain towards the horizon, and maximum antenna height above ground level.<sup>19</sup>

Especially as it related to both HAPs and satellite gateway operations, it appears that the key criteria necessary to protect terrestrial users (including 5G usages) is the interference to the horizon. Layering on additional complex technical rules at this juncture

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registrant to continue using less efficient technologies instead of forfeiting its protection by filing a later registration for new equipment. The Commission could make additional spectrum resources in these bands available for HAPS or other stratospheric-based platform services by permitting minor modifications of a registration to adopt more spectrally efficient technology without sacrificing first-in-time priority.” *Id.* at 9.

<sup>19</sup> Comsearch Comments at 1.

may stunt innovative use of the spectrum, and goes against the Commission’s prior conclusions in 2005 when it declined to adopt specific technical limits to “allow[] users the maximum flexibility in link design and the freedom to upgrade as their needs evolve.”<sup>20</sup> TechFreedom urges the Commission to maintain this flexibility until such time as users can better demonstrate what additional technical rules, if any, are needed to maximize the utility of the 70 GHz spectrum.

### CONCLUSION

The 70 GHz Band presents a unique opportunity for the FCC to craft an allocation and licensing regime which matches the quickening pace of innovation. The Commission should proceed with alacrity to integrate both existing and new users into the “light licensing” and database-driven coordination process for users within the band, while retaining, as much as possible, flexible technical approaches to a band that engineers are just-now seeing as the last great swath of spectrum for high-throughput data. TechFreedom applauds these efforts and supports the stated goals of the *70/80/90 GHz NPRM*.

Respectfully submitted,

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<sup>20</sup> See *Allocations and Service Rules for the 71–76 GHz, 81–86 GHz, and 92–95 GHz Bands*, 20 FCC Rcd 4889, ¶ 19 (2005) (“2005 Order”).