

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

In the Matter of)	
)	
Expanding Flexible Use of the)	
12.2-12.7 GHz Band)	WT Docket No. 20-443
)	
To: The Commission)	

REPLY COMMENTS OF TECHFREEDOM

TechFreedom hereby files these Reply Comments in the above-referenced proceeding.¹ The NPRM posed several questions related to the 12 GHz spectrum (12.2-12.7 GHz), and whether it can be reallocated for terrestrial use without imposing harmful interference to incumbent users. In support of these Reply Comments, TechFreedom submits:

1. 5G Proponents Fail to Articulate How the FCC Can Reallocate the Spectrum Consistent with Section 303(y)

As we pointed out in our Comments,² the Commission asked the proper question of the impact of Section 303(y) on the proposals of RS Access and others to reallocate the 12 GHz spectrum for 5G uses.³ None of the commenters proposing the reallocation for mobile 5G

¹ *Expanding Flexible Use of the 12.2-12.7GHz Band*, WT Docket No. 20-443, Notice of Proposed Rulemaking, 36 FCC Rcd 606 (2021) [hereinafter 12 GHz NPRM]. The Federal Register Notice set the comment date as April 7, 2021 and reply comment date of May 7, 2021. 86 Fed. Reg. 13266 (Mar. 8, 2021). By Order, DA 21-370 (March 29, 2021), the Wireless Telecommunications Bureau (WTB) extended the comment date to May 7, 2021, and the reply comment date to June 7, 2021. The WTB subsequently extended the reply comment deadline to July 7, 2021, by Order, DA 21-649 (June 3, 2021). These reply comments are timely filed.

² TechFreedom, Comments on 12 GHz NPRM (May 7, 2021), <https://ecfsapi.fcc.gov/file/105071361609490/TF%20Comments%2012%20GHz%20NPRM%204%207%2021.pdf>.

³ 12 GHz NPRM, 36 FCC Rcd 606 (proposed March 8, 2021) at ¶ 21.

services provides the Commission with a sufficient basis to overcome the limitations set forth in Section 303(y). While the FCC has significant discretion when it comes to allocating spectrum generally, and even modifying the licenses of incumbent users, this discretion is not absolute, and Congress demanded that the Commission take special care when faced with requests for “flexible use” of spectrum as between different services in the same spectrum band that might conflict. As the Commission put it in the 700 MHz proceeding:

Section 303(y) reflects Congressional concern that proposals for the flexible use of spectrum have the potential, if not thoroughly considered, to create interference between services and discourage investment and technical innovation. That section requires the Commission to make a positive determination that such issues have been considered, and that these potential problems will not be realized, before it approves such flexible use of spectrum allocations—i.e., allocation or service rules that enable the licensing of multiple services, as the term “service” is used in the Table of Allocations, on the same frequency band.⁴

Virtually no commenter addressed specifically the requirements of Section 303(y) and whether the requested “flexible use” could be realized without triggering the prohibitions in 303(y)(B) (“such use would not deter investment in communications services and systems, or technology development”) or 303(y)(C) (“such use would not result in harmful interference among users”). The major proponents of the reallocation of spectrum, DISH and RS Access, miss the mark. DISH cites to cases over fifty years old for the proposition that the Commission has wide latitude in allocating frequencies,⁵ all decided long before Section

⁴ Service Rules for the 746-764 and 776-794 MHz Bands, 15 FCC Rcd. 476, 481-82, ¶ 10 (2000). The Commission in that proceeding concluded that “no additional interference will be created by this approach to inter-service flexibility,” and thus passed muster under Section 303(y). *Id.* ¶ 22.

⁵ See Comments of DISH, p. 75, n. 248 (citing to *General Telephone Co. of Southwest v. United States*, 449 F.2d 846, 863 (5th Cir. 1971); *United States v. Storer Broadcasting Co.*, 351 U.S. 192 (1956); *American Airlines v. Civil Aeronautics Board*, 359 F.2d 624 (D.C. Cir. 1966); *Air Line Pilots Ass’n v. Quesada*, 276 F.2d 892 (2d Cir. 1960); *WBEN, Inc. v. United States*, 396 F.2d 601 (2d Cir. 1968)).

303(y) was added by Congress in 1997, and all pointing to other authorities previously granted to the FCC in Section 303 (or the decision-making processes of other agencies). RS Access' Section 303(y) analysis (at least as it relates to the impact on NGSO systems) consists of two cursory sentences and a citation to *Teledesic LLC v. FCC*, in which Section 303(y) was not even addressed by the court.⁶

Attempts by the proponents in this proceeding to sidestep a thorough analysis of Section 303(y) is understandable, given that a decision to reallocate spectrum to grant a mobile 5G use would impact both 303(y)(B) and 303(y)(C) in ways the statute prohibits. The 5G proponents' claims today that mobile deployment of 5G systems using 12 GHz can coexist with NGSO operations stand in stark contrast to the claims in 2016 that the two services were fundamentally incompatible.⁷

As we pointed out in our Comments,⁸ and as Microsoft also stated in its comments,⁹ Section 303(y) requires more than the "wave of a hand" that DISH and RS Access claim, but rather a thorough analysis of the issues. That analysis reaches the unequivocal conclusion that mobile 5G use of the 12 GHz spectrum is fundamentally incompatible with a stable space use of those frequencies.

⁶ See Comments of RS Access, p. 72 (citing *Teledesic LLC v. FCC*, 275 F.3d 75, 79, 84 (D.C. Cir. 2001) ("Currently, the FCC reports that no non-governmental satellite earth stations operate in the 18 GHz band")). It should be noted that at the time the *Teledesic* case, while it had a license, it had deployed no satellites (and never did).

⁷ Tom Peters, MVDDS 12.2-12.7 GHz Co-Primary Service Coexistence 35 (2016) ("MVDDS Coexistence Study"), as attached to Comments of MVDDS 5G Coalition, RM-11768 (filed June 8, 2016) ("MVDDS Comments") ("coexistence between MVDDS 5G operations and NGSO FSS operations is not possible without severe operational constraints on MVDDS, NGSO FSS, or both services.").

⁸ TechFreedom, Comments on 12 GHz NPRM (May 7, 2021), p. 18.

⁹ See Comments of Microsoft, p. 3.

2. RS Access’s use of a “Monte Carlo” Simulation Admits that Harmful Interference Will Exist if the Spectrum is Reallocated for Mobile Terrestrial Use as Proposed

As to the interference issue governed by Section 303(y)(C), RS Access submits a “Monte Carlo” simulation to allege that the probability of actual interference would be low.¹⁰ But a Monte Carlo simulation is nothing more than gambling – it runs a series of random simulations, based on variables and assumptions made by the simulation creator to determine whether there is a likelihood that two interfering devices will be deployed in the same area.¹¹ By definition, parties resorting to using Monte Carlo simulations admit that harmful interference will exist, but then try and anticipate how often such interference will be experienced. Unlike in other Section 303 allocation settings, we believe that Section 303(y) requires more than just “guessing” as to whether harmful interference will result from real-world deployments, especially here, where the proponents of mobile 5G are on record as saying that debilitating interference will occur to NGSO systems such that the two services are incompatible.

In its Section 303(y) analysis, the Commission must also account for the fact that there is no international allocation for mobile terrestrial use in that frequency band.

We note the 12 GHz band has not been proposed at the International Telecommunication Union (ITU) for 5G or International Mobile

¹⁰ See *Assessment of Feasibility of Coexistence between NGSO FSS Earth Stations and 5G Operations in the 12.2 – 12.7 GHz Band*, submitted by RS Access on May 7, 2021.

¹¹ See IBM Cloud Education (Aug. 24, 2020), <https://www.ibm.com/cloud/learn/monte-carlo-simulation> (“The Monte Carlo Method was invented by John von Neumann and Stanislaw Ulam during World War II to improve decision making under uncertain conditions. It was named after a well-known casino town, called Monaco, since the element of chance is core to the modeling approach, similar to a game of roulette.”).

Telecommunications (IMT) use at this time. We seek comment on the pertinence of this observation.¹²

Making a terrestrial mobile allocation in the United States will thus put America at odds with the international community. Further, introducing the kind of debilitating interference into NGSO systems previously admitted by the 5G proponents puts U.S. satellite interests at a distinct disadvantage vis-à-vis its foreign competitors, thus reducing the incentive for innovation and investment specifically called out in Section 303(y)(B). As set forth below, given the impending competition posed by China, reallocating this spectrum is prohibited by the statute.

3. The Commission Should Not Cede the High Frontier to China by Removing Functional Use of the 12 GHz Band for NGSO Operations in the United States

Multiple FCC Commissioners have emphasized the need for the United States to deploy 5G quickly in order to maintain worldwide leadership in wireless technology.¹³ The main competitor in this “race” is China. Lose the 5G race to China, Commissioners have argued, we lose the high ground, our networks become vulnerable, and we might never recover.¹⁴ But there is an equally important high ground involved here, literally the high frontier of outer space that the U.S. risks ceding in this proceeding.

¹² See 12 GHz NPRM, n. 66 (citations omitted).

¹³ Keynote Remarks Of FCC Commissioner Brendan Carr At The American Enterprise Institute, Washington, DC, "Extending America's 5G Leadership", <https://www.fcc.gov/document/carr-aei-keynote-extending-americas-5g-leadership>; See Drew Fitzgerald, "FCC Chief in Charge of America's 5G Rollout Confronts a Long To-Do List," Wall Street Journal (March 22, 2021, 10:30 AM) <https://www.wsj.com/articles/fcc-chief-in-charge-of-americas-5g-rollout-confronts-a-long-to-do-list-11616423421>; See also News Release, FCC, Carr Praises 5G Workforce Bill, at 1 (Feb. 2, 2021) <https://docs.fcc.gov/public/attachments/DOC-369662A1.pdf>.

¹⁴ *Id.*; See also Comments of DISH at 8-25.

U.S. companies currently are the world leaders in developing and deploying NGSO systems for delivering high speed broadband to the world. This is the result of two key factors – American technological ingenuity, and an FCC astute enough to realize the value of NGSO systems, reserving spectrum for such systems, and expeditiously licensing such systems.¹⁵

U.S.-based NGSO systems are now threatened by foreign competitors, and specifically a newly announced Chinese system (dubbed “GW”), that is proposing a 13,000 satellite constellation in the nearly identical orbits and inclinations to the SpaceX Starlink system.¹⁶ As one commentator stated, “China’s on a mission to dominate space internet,” using the same model it used for 5G – state supported companies able to offer cheap hardware and services to “undercut competitors and spread global influence.”¹⁷ Huawei, which the FCC has worked for the past 2 years to try and extricate from U.S. terrestrial networks,¹⁸ is

¹⁵ *Cut-Off Established for Additional NGSO-Like Satellite Applications or Petitions for Operations in the 10.7-12.7 GHz, 14.0-14.5 GHz, 17.8-18.6 GHz, 18.8-19.3 GHz, 27.5-28.35 GHz, 28.35-29.1 GHz, and 29.5-30.0 GHz Bands*, Public Notice, 31 FCC Rcd. 7666, DA 20-325 (2016) (Processing Round Public Notice rel. May 26, 2017 by Order, DA 17-524); *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters, Report and Order and Further Notice of Proposed Rulemaking*, 32 FCC Rcd. 7809, 7829, para. 61 (2017) (“The purpose of the recent processing rounds was to establish a sharing environment among NGSO systems, to provide a measure of certainty in lieu of adopting an open-ended requirement to accommodate all future applicants.”); *Space Exploration Holdings, LLC, Application for Approval for Orbital Deployment and Operating Authority for the SpaceX NGSO Satellite System*, Memorandum Opinion, Order and Authorization, 33 FCC Rcd. 3391 (2018).

¹⁶ See Andrew Jones, *China establishes company to build satellite broadband megaconstellation* SpaceNews (May 26, 2021), <https://spacenews.com/china-establishes-company-to-build-satellite-broadband-megaconstellation/>.

¹⁷ See Margaret Harding Hill, *China’s on a mission to dominate the internet*, Axiom (March 19, 2021) <https://www.axios.com/china-spacex-satellite-broadband-starlink-7ed34084-c8a6-4a46-894e-c33dbdec2bd7.html>.

¹⁸ Linda Hardesty, *FCC advances \$1.9B program to rip and replace Huawei gear*, Fierce Wireless (Feb. 18, 2021) <https://www.fiercewireless.com/regulatory/fcc-advances-1-9b-program-to-rip->

supposedly part of the China team going after global NGSO broadband dominance.¹⁹ China's ITU filing specifically request access to the 12 GHz spectrum.²⁰

What this means is that if U.S.-based NGSO operators cannot use the 12 GHz spectrum in the U.S. market, they will not deploy satellites with those capabilities and will be at a huge disadvantage in competing on the world market for satellite broadband services. And unlike with terrestrial 5G, where the U.S. can oust Chinese companies and the securities vulnerabilities they interject, hamstringing U.S. NGSO systems with restrictions on 12 GHz opens a clear lane for Chinese dominance, something that clearly is not in the national security interests of the United States. Do we really want to sacrifice our worldwide NGSO lead to China in order to double down in our efforts to catch up to China on 5G? Given the ample evidence in the record as to whether the 12 GHz spectrum is even suitable or wanted for terrestrial 5G deployment, the answer to this question must be a resounding "NO!" Instead, the FCC should expeditiously remove the shadow hanging over 12 GHz NGSO operations and adopt an order concluding that the current frequency allocations within that band should be retained.

and-replace-huawei-gear. See Anne Veigle, *FCC Designates Huawei and Zte as National Security Threats*, (June 30, 2020) <https://www.fcc.gov/document/fcc-designates-huawei-and-zte-national-security-threats>; See also Anne Veigle, *FCC Affirms Designation of Huawei as A National Security Threat*, (Dec. 20, 2020) <https://www.fcc.gov/document/fcc-affirms-designation-huawei-national-security-threat/>.

¹⁹ See Karen Chiu, *Huawei joins China's push to catch up with Elon Musk's Starlink satellites*, abacus (Jun. 8, 2020) <https://www.scmp.com/abacus/news-bites/article/3088025/huawei-joins-chinas-push-catch-elon-musks-starlink-satellites> (paywall), See also Kim Hart, Alison Snyder & Sara Fischer, *Why Huawei is the United States' 5G boogeyman*, AXIOS (Mar. 28, 2019) <https://www.axios.com/us-5g-boogeyman-china-technology-race-7fb3fa1f-1213-4f08-9bf0-772c9b86c80b.html>.

²⁰ China's GW-A59 filing: <https://www.itu.int/ITU-R/space/asreceived/Publication/DisplayPublication/23708>; China's GW-2 filing: <https://www.itu.int/ITU-R/space/asreceived/Publication/DisplayPublication/23706>.

4. The Proposal to Modify NGSO Licenses is not a “Moderate” Change Under Section 316.

In addition to violating Section 303(y), the proposed reallocation would require a modification to NGSO licenses that violates the Commission’s discretion under Section 316.

In analyzing this discretion, the D.C. Circuit said in *PSSI Global Services, LLC v. FCC*:

Although broad, the modification power has limits. The word modify connotes “moderate” but not “fundamental” changes. *MCI Telecomms. Corp v. AT&T*, 512 U.S. 218, 227-29, 114 S. Ct. 2223, 129 L. Ed. 2d 182 (1994). In *MCI*, the Supreme Court applied that understanding to limit the scope of § 203(b)(2) of the Communications Act, which authorizes the FCC to “modify” any statutory requirement to file rate schedules. *See id.* We have applied the same understanding to address the scope of the FCC’s power to modify station licenses. *See Cellco*, 700 F.3d at 543.²¹

As shown in the record of this proceeding, and as admitted by the proponents of the frequency reallocation, the FCC would have to modify NGSO licenses to require them to suffer debilitating interference from mobile terrestrial users. The loss of the 12 GHz spectrum will no doubt limit overall data throughput on NGSO systems. At a time when many advocate for the definition of “broadband” to be expanded from 25/3 Mbps to 100/10, or even higher,²² constraining NGSO systems’ spectrum will impede, if not destroy, their ability to meet these thresholds. Denying a licensee the ability to conduct the business for which the frequency was originally allocated certainly qualifies as a “fundamental” change.

²¹ 983 F.3d 1, 7 (DC Cir. 2020).

²² Joanna Nelius, *Lawmakers Are Finally Asking the FCC to Redefine High-Speed Broadband*, Gizmodo (Mar. 04, 2021, 3:50 PM), <https://gizmodo.com/lawmakers-are-finally-asking-the-fcc-to-redefine-high-s-1846406536>; Sen. Michael F. Bennet, Sen. Angus S. King Jr., Sen. Rob Portman & Sen. Joe Manchin III, *Bipartisan Broadband Speed Letter* (March 4, 2021), https://www.bennet.senate.gov/public/_cache/files/c/7/c76028fb-488d-498e-8506-7d8a2dce3172/05DDC9148CC7F12A9F09235F77BB7A0D.bipartisan-broadband-speed-letter.pdf.

For the reasons set forth in these Reply Comments and our prior Comments, TechFreedom respectfully requests that the FCC issue an order which retains the existing spectrum allocations in the 12 GHz band.

Respectfully submitted,

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