

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

In the Matter of)	
)	
Expanding Flexible Use of the 12.2-12.7 GHz Band)	WT Docket No. 20-443
)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7-24 GHz)	GN Docket No. 17-183
)	

REPLY COMMENTS OF SPACE EXPLORATION HOLDINGS, LLC

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SUMMARY

Over the past decade, DISH has mastered the use of empty promises and attacks on competitors to amass the world's largest storehouse of unused spectrum. So when DISH came knocking on the Commission's door yet again, this time asking to kick already-operational next-generation satellites out of the 12 GHz Band so DISH could be given the spectrum for free—while simultaneously asking to be released from its existing deployment requirements across multiple spectrum bands—the Commission rightly and forcefully rejected DISH's request. Instead, the Commission imposed a high burden on DISH and its allies, requiring them to demonstrate how any new proposal could protect existing users of the band, including the users of next-generation satellite broadband. This bar is particularly high since DISH itself said that this was not technically possible as recently as December 2019. The Commission explicitly stated that it was “mindful of the significant investments” made by satellite operators, that it “values the public interest benefits that could flow from investments made to provide satellite broadband services” and therefore it would only allow new services in the band if it could do so “without causing harmful interference to incumbent licensees.”

Yet, in the face of this rejection, DISH ignored the Commission's direction—as it so often does—and resorted to its standard arbitrage playbook. DISH quickly bankrolled an astroturf “coalition” with the same members it uses for all its lobbying campaigns in an effort to pressure the Commission to go back on its decision, harm competitors, and strand consumers, just to give DISH yet another spectrum windfall opportunity. Still, despite its glossy website and its highly-paid political spokesmen, DISH fails to make any proposal whatsoever, let alone a proposal that can meet the high burden the Commission set for it. Instead, DISH has confessed

in another proceeding that the reason it made next-generation satellite providers like SpaceX the target of its ire is specifically because they are new entrants that have “commenced providing service” to customers.

To the extent there is any attempt to meet the Commission’s request, it is by DISH’s partner in this latest arbitrage attempt, RS Access, a serial spectrum flipper wishing to ride DISH’s coattails by leveraging otherwise operationally useless MVDDS licenses – the child learning from the master. RS Access used its windfall profits from its last spectrum flip to pay for a technical “study” that purports to show that people that depend on next-generation satellite services will not be harmed too much by RS Access’s hoped-for windfall. But in its haste to make back its misguided investment in MVDDS licenses—and exposing its lack of understanding of spectrum or networks—RS Access also bought an economic study that contradicts every assumption relied upon in its technical study. While the technical study must assume a limited network that closely matches a small high-band deployment, the economic study reaches absurd results by assuming a true mid-band deployment. In other words, RS Access demonstrated that it can only limit the massive harm it intends to cause by limiting its own deployment, but such a limited deployment would not provide new services to anyone, meaning the costs of this harm far outweigh any possible benefits.

But even RS Access knew its studies could not pass muster, which is why it hid them until the last possible minute in an effort to cut short the time other stakeholders had to identify their many flaws. Despite this effort to conceal its secret studies, the fatal defects of the technical “study” are glaring at first glance. RS Access’s advocacy piece makes every assumption in favor of RS Access and implies an extremely limited deployment (though declares it a “robust

deployment”), that *still* shows massive interference to next-generation satellite users. To just name a few of the flaws:

- False urban/rural divide—assumes whomever RS Access flips its spectrum to will only place base stations “in the most densely populated areas” and that next-generation satellite users will only reside in the most rural and remote areas. Yet, RS Access has never proposed such a limitation on itself and most of its advocacy assumes a widespread deployment. Conversely, in just the first few months of offering its beta service, SpaceX has already received orders from thousands of consumers in urban areas.
- Artificially caps service—assumes only 2.5 million customers of all NGSO systems, despite the fact that SpaceX alone already received well over half a million orders for its beta service. And this demand continues to grow. NGSOs are already authorized for 2.5 million user terminals. RS Access’s assumption reveals the truth of its proposal—through its spectrum grab, it intends to strand millions of otherwise unserved Americans that would depend on next-generation satellite services.
- Cherry-picked interference criterion—the study uses incorrect assumptions of interference using decades-old ITU recommendations for *fixed* terrestrial services, not the mobile rights RS Access hopes to be given for free.
- False assumptions about NGSO operations—the study bases its entire analysis on the elevation angles used only by SpaceX, completely ignoring other satellite operators authorized to operate at even lower angles. Even then, the study misrepresents SpaceX’s actual distribution of elevation angles and the actual height of these stations above ground level.
- Unrealistic terrestrial deployment—in contradiction to its general advocacy claiming a robust deployment, the RS Access studies assume that every base station will operate in the absolute most optimistic conditions, with narrow beam width and high-gain antennas. Yet, such assumptions would drive up the cost of the deployment and further limit the service that could offered, which is likely why RS Access makes no commitment that whomever it eventually flips its spectrum to will operate in such a fashion.
- Massive interference—the study itself reveals why it makes such unrealistic assumptions and incorrect interference standards. Even under these hyper-optimistic conditions, the MVDDS windfall would cause massive interference in the range of 50-60 dB per user terminal. This interference would wipe out service to any broadband user within miles of a MVDDS handset.

Together, these assumptions and showings of interference render meaningless the one advocacy piece masquerading as a study offered to support the MVDDS windfall. If this flawed

“study” demonstrates anything, it is that DISH was correct when it declared in December 2019 that its hoped-for new rights would wipe out customers of next-generation satellite services. Neither RS Access nor any other MVDDS Licensee has pointed to any change in circumstances or technology in 2020 or 2021 that changes DISH’s initial demonstrations.

Further, DISH cannot show that even DBS operators will be safe from its spectrum grab.

As DISH recently claimed to the D.C. Circuit in its parallel attempt to attack competitors,

When a satellite television customer watches the nightly news or a football game, the signal travels over a portion of the electromagnetic frequencies called the 12 GHz band, from a satellite located more than 22,000 miles above the Earth to that customer’s home. When that customer’s dish receives another competing signal from a different satellite in the same frequency band, and that other signal exceeds certain power limits, it jams the video communication, resulting in a tiled picture, at best, or no picture at worst. There are about 22 million households that depend on DBS service provided by DISH and one other company for their television service.¹

Although DISH’s statement is plainly false with regard to satellite services like those provided by SpaceX that effectively operate below the noise floor, under DISH’s analysis, surely high-power terrestrial equipment in close range to DBS dishes would annihilate service for television watchers.

The rest of DISH’s allies fair no better. While they may wax poetic about the virtues of providing 5G to more people, the MVDDS windfall would do no such thing. These members of the DISH-bankrolled coalition assume that the MVDDS Licensees will build major new deployments to unserved areas of the country. But even assuming RS Access could find an actual operator to whom it could flip its spectrum rights, the only suggestion even resembling a proposal on the record is for a limited deployment to add capacity to dense urban environments

¹Statement of Issues to Be Raised, *DISH Network Corp. v. FCC*, No. 21-1127 (D.C. Cir. June 28, 2021).

where 5G is already available. In other words, assuming the MVDDS Licensees find some way to defy their long history of hoarding and flipping, the deployment would ensure only that the rich will get richer at the expense of the otherwise unserved customers across the country.

At least RS Access attempts to present some sort of proposal, even if it fails on multiple fronts as described above. After spending years claiming that an NPRM would be some sort of magic elixir that could solve all of its problems, DISH's comments only resort to the same sort of over-the-top rhetoric aimed at taking out new entrants. Even the members of DISH's own "coalition" cannot follow it on its anti-competition tirades. While DISH attacks new entrants and demeans their customers, other members of its coalition have stated publicly that they agree that next-generation satellite should be protected, including telling the press that Starlink is a good bet.²

Also ignoring the direction from the Commission and the plain language of the NPRM, T-Mobile resorts to its pro forma, ideologically extremist position that all spectrum should be auctioned with special allowances that suit its own purposes. Yet, aside from T-Mobile's one-size-fits-all approach to spectrum policy, it actually agrees with SpaceX that the Commission should examine other bands to determine whether they are being put to their highest and best use. SpaceX has identified the AWS-4 band as true mid-band spectrum that has been sitting fallow for nearly a decade and should be reassigned. T-Mobile further identified high-band spectrum with similar propagation characteristics as 12 GHz that could be allocated for 5G without harming satellite users. Specifically, T-Mobile suggested the Commission explore the 13

² S. Morrison, "The FCC's big bet on Elon Musk," VOX (May 17, 2021) (quoting Public Knowledge senior vice president Harold Feld as saying, with respect to SpaceX's receipt of Rural Digital Opportunity Fund support, that "I think a billion dollars is not necessarily a bad bet"); *available at* <https://www.vox.com/recode/22431261/starlink-spacex-elon-musk-fcc-satellite-internet> (last accessed June 30, 2021).

GHz and 17 GHz Bands. By moving past DISH's harmful arbitrage attempt in the 12 GHz Band, the Commission may have a real opportunity to provide more spectrum for 5G in these bands without harming otherwise unserved customers of next-generation satellite across the country.

Finally, one fact stands clear from the record—the MVDDS Licensees are poor stewards of spectrum rights. Despite having sat on the spectrum for a decade and half, the MVDDS Licensees cannot even meet their minimal substantial service requirements. Next-generation satellite services are putting this spectrum to extremely good use, connecting the unconnected and providing another competitive broadband option to those already served. To put the 12 GHz Band to its highest and best use, the Commission should remove the MVDDS encumbrances from the band to further unlock the true benefit delivered by next-generation satellite services.

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REPLY COMMENTS OF SPACE EXPLORATION HOLDINGS, LLC

Space Exploration Holdings, LLC (“SpaceX”) herby replies to the comments filed in response to the Notice of Proposed Rulemaking (“NPRM”) in the above-captioned proceeding in which the Federal Communications Commission (“Commission”) seeks comment on how to ensure the 12.2-12.7 GHz band (“12 GHz Band”) is being put to its highest and best use and avoid harmful interference to the consumers of next-generation satellite services.¹ In the NPRM, the Commission clearly—and correctly—declared that, as a threshold issue, any theoretical expanded terrestrial use of the 12 GHz Band must protect these services. The burden is therefore squarely on the proponents of such expanded use to make a showing that their sought-after grant of windfall rights can be accomplished without harming next-generation satellite operators—a bar that is especially high given these parties’ long history of spectrum hoarding, speculation, and abject failure to make any productive use of the 12 GHz Band (or any spectrum band’s) terrestrial rights. Despite investing untold amounts to form an astroturf “coalition” with highly

¹ *Expanding Flexible Use of the 12.2-12.7 GHz Band, Expanding Flexible Use in Mid-Band Spectrum Between 3.7-24 GHz, MVDDS Coalition Petition for Rulemaking to Permit MVDDS Use of the 12.2.12.7 GHz Band for Two-Way Mobile Broadband Service*, WT Docket No. 20-443, GN Docket No. 17-183, RM-11768 (Proceeding Terminated), Notice of Proposed Rulemaking, FCC 21-13 (2021) (“NPRM”).

paid political spokesmen that spew outdated banalities, DISH Network Corporation (“DISH”), RS Access, LLC (“RS Access”), and the other Multichannel Video Distribution and Data Service (“MVDDS”) licensees (together, the “MVDDS Licensees”) act consistently with their long history of arbitrage by failing to make any proposal that could overcome the burden the Commission set for them. No party has come anywhere near making the requisite showing. The only purported “study” submitted makes every inference in favor of the MVDDS speculators, implies an extremely limited deployment, attempts to cap next-generation satellite service, and still shows massive interference to consumers. What is clear from the record, however, is that MVDDS is a failed service and operates only to encumber the delivery of actual valuable service to consumers throughout the U.S. The Commission should therefore move expeditiously to terminate that service, unencumbering next-generation satellite services in their continuing work to put this spectrum to its highest and best use.

I. THE MVDDS PROPONENTS HAVE COMPLETELY FAILED TO MAKE A SHOWING THAT TERRESTRIAL USE OF THE 12 GHZ BAND CAN BE EXPANDED WITHOUT HARMING INCUMBENTS.

In the NPRM, the Commission unanimously and unequivocally rejected the MVDDS Licensees’ longstanding efforts to unjustly enrich themselves at the expense of the consumers of next-generation satellite services by eliminating NGSO FSS use from the band. Instead, the Commission affirmatively and conclusively stated that incumbent operations like next-generation satellite broadband must be protected.² Given the well-established technical record that giving the MVDDS Licensees more rights would necessarily harm consumers of next-generation satellite services, this threshold requirement imposed a heavy burden on the MVDDS Licensees.

² *Id.* at ¶¶ 22-31.

This bar is particularly difficult for the MVDDS Licensees to meet given their long history of hoarding spectrum, treating it merely as an asset to be flipped, and failing to provide any actual service of value to customers (as required by the Commission's rules). For instance, the party sitting on the most MVDDS licenses is the world's leading spectrum hoarder and the party with the second most MVDDS licenses acquired them using the windfall profits from its last effort flipping spectrum.

Despite spending a year promising that some sea-change development in the technical feasibility of sharing the 12 GHz Band would be revealed if only the Commission would open the door to their requested windfall, the only study that even purports to respond to the Commission's threshold requirement for action was also bought and paid for using the profits from RS Access's spectrum flipping bonanza. This one flawed "study" falls particularly flat when compared to the promises made by these arbitrage specialists—first claiming that they could not coexist with next-generation satellite services then abruptly reversing course. But even RS Access's purported showing contains no real proposal at all, and is in any event riddled with inaccuracies, flawed assumptions, baseless assertions, and cherry-picked, misleading data that render it wholly unreliable. Even then, RS Access *still* shows interference to next-generation satellite consumers.

Finally, the so-called "coalition" that the MVDDS Licensees claim demonstrates consensus frayed out of the gate. Perhaps because the MVDDS licensee that bankrolled this coin-operated effort lacks any plan or proposal, the members of the purported coalition submitted contradictory, and in many instances fundamentally incompatible, comments. Despite a glossy website and expensive political spokesmen, once again the MVDDS Licensees are left alone in

support of their transparent attempt to arrogate to themselves a windfall at the expense of all other interested parties.

A. RS Access’s “Studies” Are Riddled with Flawed Assumptions, Inaccuracies, and Internal Contradictions.

Despite a year of empty promises, only one party even attempted to make a purported technical showing on whether it could be given new rights without harming non-geostationary satellite orbit (“NGSO”) Fixed-Satellite Service (“FSS”) operations. RS Access’ billionaire backers, having reaped a windfall from their acquisition and flipping of television stations in the broadcast incentive auction, elected to reinvest a portion of those profits in their next speculation play at 12 GHz, spending on pricey lobbyists and skewed studies.

RS Access’s technical study is fatally flawed, transparently biased, and still is unable to avoid the conclusion that the MVDDS Licensees’ sought-after windfall will harm incumbents.-

The technical appendix (“RKF Study”) to RS Access’s initial comments is replete with flawed and unsupported assumptions based on best-case, theoretical terrestrial equipment performance and unrealistic deployment scenarios, and yet still shows interference to incumbent NGSO FSS operations. Moreover, the RKF Study starkly illustrates the falsity of the claims RS Access and others have made about their ability to use the 12 GHz Band to bring 5G to all Americans and provide “much needed broadband access in rural” areas.³ Instead, it details a much more limited terrestrial deployment than RS Access, DISH, and others have advertised—and represented to the Commission—demonstrating that their sought-after windfall would be

³ Letter from Trey Hanbury, Counsel to RS Access, LLC, to Marlene H. Dortch, Secretary, FCC, RM-11768, Attachment at 2 (filed July 2, 2020).

used for supplemental capacity and small cell deployments in dense urban environments only.⁴ And even that assumes that RS Access—with only one employee mentioned on its website—is capable of even that limited deployment.

But even with this limited deployment in mind, the RKF Study is plagued by erroneous assumptions, cherry-picked inputs clearly selected to provide best-case results, and outright inaccuracies. This is not surprising, given that RS Access and the other MVDDS Licensees have had nearly five years to produce any analysis on the record to refute their previous, forceful conclusion that sharing the 12 GHz Band between NGSO FSS and expanded terrestrial operations is not feasible. This new study does not accomplish that. In fact, even as biased and flawed as it is, it *still* finds interference to NGSO FSS operations.

False Urban/Rural Split. In its attempt to minimize the amount of harm it shows expanded terrestrial use of the 12 GHz Band will cause satellite users, the RKF Study uses a model of terrestrial 5G and NGSO FSS network overlap that is fatally flawed. Specifically, it sets up an urban-rural divide between terrestrial 5G and NGSO FSS broadband deployments, with terrestrial base stations placed “in the most densely populated areas” and small cell infrastructure “in areas of high traffic density” only.⁵ It further assumes that NGSO FSS user terminals will exist only in rural areas.⁶ Although the study’s authors twist themselves into knots attempting to claim that the study “conservatively” includes a substantial number of NGSO FSS user terminals in urban and suburban areas overlapping with terrestrial deployments, by the

⁴ See, e.g., Comments of RS Access, LLC, WT Docket No. 20-443, GN Docket No. 17-183, at 14-15 and Attachment A at 8, 9, 11 (filed May 7, 2021) (such comments, the “RS Access Comments,” and Attachment A, the “RKF Study”).

⁵ RKF Study at 8, 9.

⁶ *Id.* at 4 (“The primary markets for NGSO user terminals are in less densely populated areas, whereas terrestrial 12 GHz systems will be primarily deployed in areas of greater population density”).

study’s own terms it is clear that this is not the case. Of the 2.5 million user terminals sited by the model (an inaccurately low projection), only 14,600 of them are placed in “metropolitan” Rural Digital Opportunity Fund areas, with the remainder in “non-metropolitan” and rural areas where the study and RS Access, DISH, and the other MVDDS Licensees acknowledge they would never intend to deploy.⁷ That is, the study assumes that 99.4% of NGSO FSS user terminals will be deployed in such rural areas. This simply does not reflect reality. Although SpaceX’s Starlink system will bring service to the millions of Americans who are presently unserved and underserved by existing broadband options, including in the rural areas that the MVDDS Licensees apparently would have no intention of serving—if they even could or would build out any type of service, which is itself a dubious proposition given their history—SpaceX is authorized to provide, and is providing, a competitive broadband service throughout the United States, which will certainly overlap with any theoretical terrestrial buildout. In fact, a large proportion of SpaceX’s existing Starlink orders come from urban locations.

Likewise, the RKF Study uses an extremely unrealistic and low assumption of 2.5 million NGSO FSS user terminals nationwide, demonstrating yet again RS Access’s willingness to strand millions of Americans without broadband in the name of its own windfall. In contrast to the RKF lowball assumptions, at least 30 million Americans remain unserved or underserved by adequate broadband service.⁸ These unserved Americans’ best hope for gaining access to the benefits of the digital age will in many instances be next-generation satellite broadband. SpaceX alone received over half a million pre-orders for its service within just months of initiating its

⁷ *Id.* at 16-18.

⁸ FCC, Bridging the Digital Divide for All Americans, available at <https://www.fcc.gov/about-fcc/fcc-initiatives/bridging-digital-divide-all-americans> (last accessed May 29, 2021).

beta service and without any advertising or marketing. And the Commission has already granted blanket earth station licenses covering 2.5 million user terminals to SpaceX and one other NGSO FSS licensee alone, with applications for millions more pending.⁹ RKF likely uses such unrealistic and unrepresentative assumptions to get around the fact that it finds that where terrestrial deployments would overlap with NGSO services, the terrestrial deployment would cause long-term interference to NGSO FSS user terminals of up to 50-60 dB.¹⁰ RKF thus resorts to manufacturing geographic separation in the siting of NGSO FSS and terrestrial infrastructure. A more realistic assumption would return back to the results of DISH's original study, demonstrating that its hoped-for windfall is simply incompatible with serving customers using next-generation satellite broadband.

Cherry-Picked Interference Criterion. The RKF Study uses a long-term interference criterion of -8.5 dB I/N, with no explanation as to the basis for this selection. For good reason—as RKF is aware, this criterion is pulled from a nearly 30-year old ITU recommendation regarding interference between FSS and terrestrial *fixed* service, not the 5G mobile service modeled in the RKF Study and for which the MVDDS Licensees seek new windfall rights.¹¹ The study provides no reason why it fails to use the ITU interference protection criterion for International Mobile Telecommunications-Advanced systems into FSS receivers, set at -12.2 dB

⁹ See Radio Station Authorization, Call Sign E190066 (granted Mar. 13, 2020); Radio Station Authorization, Call Sign E190727 (granted Apr. 27, 2021); IBFS File No. SES-MOD-20200731-00807 (filed July 31, 2020).

¹⁰RKF Study at 50, Figure 4-1.

¹¹ See *id.* at 14 (citing ITU-R Rec. SF.1006, *Determination of the Interference Potential Between Earth Stations of the Fixed-Satellite Service and Stations in the Fixed Service*, International Telecommunication Union, Table 1 (04/1993)).

($\Delta T/T = 6\%$).¹² Indeed, this interference threshold is the same as the one NGSO FSS operators are subject to among themselves under the Commission's rules.¹³ The RKF Study provides no justification as to why theoretical terrestrial use of the 12 GHz Band should be subject to a laxer standard, except as an attempt to obfuscate the interference risk such use poses to incumbent NGSO FSS operations.

Incorrect Assumptions Regarding NGSO FSS Operations. The RKF Study further relies on a number of self-serving, flawed assumptions and inaccurate inputs as to NGSO FSS operations. Many of these false assumptions are inexplicable, given that RKF consults for NGSO satellite operators and should be well aware of how NGSO spectrum is actually used. For example, the model assumes a minimum elevation angle of 25° based on SpaceX's system, utterly disregarding without explanation that the Commission has authorized a number of other NGSO FSS systems in the 12 GHz Band, including those that will utilize lower elevation angles down to 10°.¹⁴ This may be because, just as DISH has confessed on the record, RS Access also targets SpaceX specifically because SpaceX is a new entrant serving customers. Moreover, even with respect to its exclusive focus on SpaceX, the RKF Study's conclusion that "most Starlink terminals will have look angles of between 55 and 85 degrees" is baseless.¹⁵ Specifically, the

¹² See ITU-R Rec. S.1432, *Apportionment of the allowable error performance degradations to fixed-satellite service (FSS) hypothetical reference digital paths arising from time invariant interference for systems operating below 30 GHz*, International Telecommunication Union (04/2006); see also, e.g., ITU-R Rep. S.2368, *Sharing Studies between International Mobile Telecommunication-Advanced systems and geostationary satellite networks in the fixed-satellite service in the 3400-4200 MHz and 4500-4800 MHz frequency bands in the WRC study cycle leading to WRC-15*, International Telecommunication Union (06/2015).

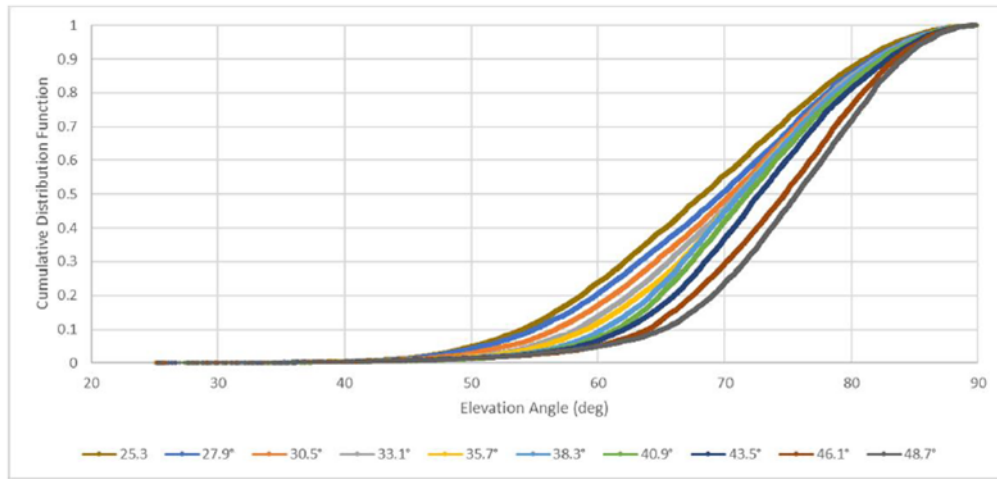
¹³ See 47 C.F.R. § 25.261.

¹⁴ See, e.g., *Kepler Communications, Inc.*, 33 FCC Rcd 11453 (2018) (authorizing a system utilizing user terminals with a minimum elevation angle of 10°); *Theia Holdings A, Inc.*, 34 FCC Rcd 3526 (2019) (authorizing a system utilizing user terminals with a minimum elevation angle of 12°).

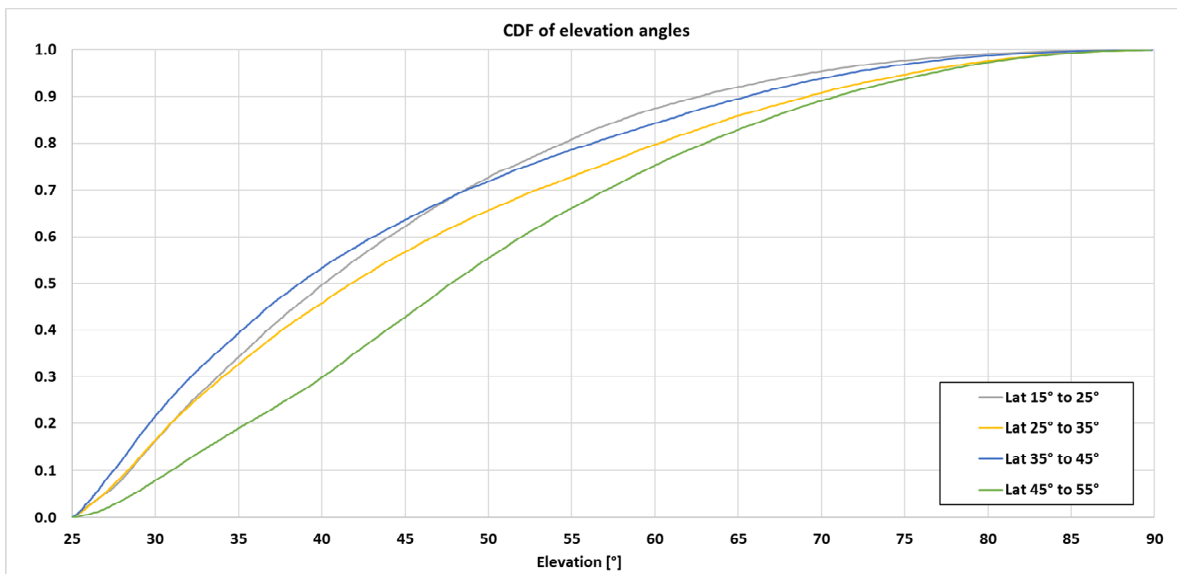
¹⁵ RKF Study at 24.

RKF Study claims that the distribution of Starlink user terminal elevation angles is depicted in the following figure:¹⁶

Figure 2-7: Distribution of Starlink Terminal Elevation Angles at Ten Latitudes (as labeled) over CONUS



In reality, however, the distribution of Starlink user terminal elevation angles is as follows:



This actual distribution renders moot the RKF Study's already fatally flawed results.

¹⁶ *Id.* at 25, Figure 2-7.

The RKF Study additionally relies on inaccurate assumptions as to the Starlink user terminals' operating characteristics. It employs the "standard ITU pattern for NGSO earth stations" providing in ITU-R Recommendation S.1428-1.¹⁷ This antenna pattern, however, is entirely unrealistic for small, phased-array user terminal receive antennas such as those used in the SpaceX system. For example, contrary to the RKF Study's reliance on the S.1428-1 antenna gain value of 33.7 dBi, the applicable ETSI standard for user terminals such as those employed in the Starlink system provides:¹⁸

For Class B WBES, the maximum antenna gain of each of the co-polarized components in any direction ϕ degrees from the antenna main beam axis shall not exceed the following limits:

$$G = 40 - 25 \log \phi \text{ dBi for } 6^\circ \leq \phi < 48^\circ$$

$$G = -2 \text{ dBi for } 48^\circ \leq \phi \leq 180^\circ$$

The RKF Study also relies on inaccurate assumptions regarding the NGSO FSS 12 GHz channel plan and access to other Ku-band consumer downlink spectrum. The advocacy piece masquerading as a technical study claims that NGSO FSS operators have access to eight channels in the Ku-band. This claim is simply false. As SpaceX has explained over and over again, unlike most mobile operators, it does not have exclusive use rights with respect to any spectrum and it shares every megahertz to which it has access. And in this case, the lowest channel RKF includes is not useable at all because it actually serves as a guard band to protect adjacent-band radio-astronomy operations.

¹⁷ *Id.* at 23-24.

¹⁸ ETSI, *Satellite Earth Stations and Systems (SES); Fixed and in-motion Wide Band Earth Stations communication with non-geostationary satellite systems (WBES) in the 11 GHz to 14 GHz frequency bands; Harmonised Standard for access to radio spectrum*, ETSI EN 303 981 V1.1.0, at 27 (2020-10).

RKF further argues—in an acknowledgement of the likelihood of interference in the 12 GHz Band—that SpaceX has access to “1,500 megahertz of spectrum that is not co-frequency with the 5G infrastructure and UE envisioned for deployment in the 12 GHz band.”¹⁹ Of course, as RKF is well aware and fully understands, the Ku-band is subject to other encumbrances under which NGSO FSS providers must operate, including the fact that NGSO FSS operations in the 10.7-11.7 GHz band are on an unprotected, non-interference basis with respect to fixed service links. A recent review of the Commission’s Universal Licensing System revealed more than 880,000 such links, meaning that the 12 GHz Band provides vital flexibility to avoid these widespread terrestrial deployments and still provide service. The RKF Study’s failure to acknowledge these well-established facts about NGSO FSS use of the Ku-band raises serious questions about even RKF’s own sincerity in producing the study.

Despite RS Access having argued for years that NGSO operations represent “the internet of rooftops,” the RKF Study does an unexplained about-face to baselessly assume that 80 percent of Starlink user terminals are installed at ground level, with only 20 percent installed on customers’ rooftops. The reason for this false assumption is clear; the RKF Study seeks to manufacture any mechanism it can to take advantage of increased clutter shielding of such terminals when modeling terrestrial interference to NGSO FSS operations. In reality, the majority of SpaceX users install their terminals as high as possible, and most frequently on rooftops, to enhance reception and minimize obstructions (as common sense would dictate to anyone who has ever noted the location of most DBS receivers, such as those deployed by DISH).

¹⁹ RKF Study at 55.

Finally, and fundamentally, the RKF Study gets it precisely wrong when it conclusorily declares that “[b]oth NGSO systems and terrestrial 12 GHz systems are designed to operate in – and mitigate – an interference-prone environment.”²⁰ In fact, the truth with respect to 12 GHz terrestrial systems is precisely the opposite. As RKF understands but does not state, NGSO user terminals only receive in the 12 GHz Band, meaning they cause no risk whatsoever to a terrestrial operator. Instead, NGSO user terminals receive signals from satellites well below the PFD limits applicable in any terrestrial wireless service and indeed below the noise floor. The only interference concern in the band is from terrestrial operations to NGSO FSS, which is why the MVDDS Licensees show so little worry about the harmful interference environment they are creating.

In contrast, next-generation satellite operators have used cutting-edge technology to design systems to operate in a difficult interference environment, with known sources of interference, typically from other NGSO FSS operations, GSO operations, and fixed service links. Such interference is at levels very near to the signal being received at the Earth’s surface—approximately -148 to -146 dBW/m²/4 kHz—and comes from known directions. The MVDDS Licensees propose to destroy this carefully calibrated environment, by causing highly variable, unpredictable noise in all directions. The interference environment is significantly more challenging with a variable noise source with a mobile two-way application, as opposed to the directional point-to-point environment. This fundamental incompatibility is why the Commission has never authorized separate operator, co-frequency sharing between ubiquitously deployed satellite services and terrestrial mobile service, an approach the Commission recently

²⁰ RKF Study at iii.

reaffirmed in the C-band proceeding.²¹ RKF can point to no fact or technology that changes this well-established approach for the 12 GHz Band.

Unrealistic 5G Operating Parameters. Just as the MVDDS Licensees provide no proposal for using the 12 GHz Band, the RKF Study provides very little detail about the operating parameters it assumed for a hypothetical terrestrial deployment. This absence of detail is not surprising, given that the study's sponsor has absolutely no knowledge of how to deploy a network of any kind, the lack of global interest in the 12 GHz Band for terrestrial application, and the lack of any standards whatsoever for the band. This lack of stated assumptions also means that Intelsat is correct in concluding that "a thorough independent analysis of proposed MVDDS operations would be extremely difficult."²² What little detail RKF deigned to provide, however, indicates that the RKF Study relies on unrealistic and overly optimistic assumptions as to the performance of imaginary 12 GHz terrestrial equipment. For example, the RKF Study provides that "[t]he base station beamforming 3D pattern is modeled consistent with 3GPP specifications pertaining to 5G New Radio operations in the 7 to 24 GHz frequency range, 3GPP TR 38.820, and assumes 256 elements with a peak gain of 27.7 dBi."²³ But that 3GPP publication provides that 256 elements is actually the *maximum* number of elements in a base station antenna array.²⁴ That is, the RKF Study assumes that all terrestrial base stations are deployed according to the most optimistic scenario from an interference avoidance perspective,

²¹ See, e.g., *Expanding Flexible Use of the 3.7 to 4.2 GHz Band et al.*, GN Docket No. 18-122 *et al.*, Notice of Proposed Rulemaking, FCC 18-91, at ¶ 55 (2018) (concluding that "co-channel sharing is not feasible" between FSS downlinks received at ubiquitously deployed earth stations and new terrestrial mobile operations).

²² Comments of Intelsat License LLC, WT Docket No. 20-443, GN Docket No. 17-183, at 5 n.9. (filed May 7, 2021).

²³ RKF Study at 33 (citing 3GPP TR 38.820 V16.0.0 (2020-06)).

²⁴ See 3GPP TR 38.820 V16.1.0 (2021-03), Table 5.6.5-1: NR deployment scenarios for 7 -24 GHz frequency range.

using the highest gain and narrowest beamwidth antennas, while ignoring the likelihood that terrestrial base stations could be deployed with lower gain antennas and wider beamwidths. Tellingly, RS Access makes no commitment to deploy such a system—likely because tying the hands of whomever it hopes to flip its licenses to would diminish the value of its hoped-for windfall. Further, the base station antenna pattern relied upon in the RKF Study is similarly overly optimistic, as it employs an unrealistic minimum gain of -30 dBi and appears to be a mathematical model of a theoretical phased array antenna, which does not account for real-world performance and imperfections.²⁵ But even with all of these unrealistic and optimistic assumptions, the RKF study *still* shows massive interference to next-generation satellite users.

RS Access’s economic study unabashedly contradicts the RKF Study.

In its rush to pay for studies that provide predetermined outcomes, RS Access cannot even keep its own story straight. While the RKF Study can only reach its results by assuming an extremely limited deployment using high-band spectrum, RS Access’s economic study assumes a large-scale deployment consistent with those using actual mid-band spectrum. Simply put, RS Access’s economic study can only reach its laughably over-the-top conclusions by making the precise opposite assumptions of those made in the RKF Study. RS Access and the other MVDDS Licensees must therefore make clear on the record whether they plan to sell their spectrum to others that will build 1) a large-scale nationwide 5G network in rural and remote areas or 2) a small-scale supplemental capacity network for people already served in dense urban environments. If RS Access plans the first, its technical study—even as flawed as it is—demonstrates it will cause widespread interference to broadband users across the country. But if

²⁵ RKF Study at 34, Figure 2-12.

it's the second, the economic study shows the minimal benefits are outweighed by the extraordinary costs.

Despite RS Access's and its paid economic consultants' extensive efforts to claim that the 12 GHz Band is somehow crucial to delivering 5G across America, RS Access' own technical study and its comments make one thing clear: for terrestrial use purposes, 12 GHz is not C-band; any deployment more closely resembles millimeter wave, of which the Commission has already released nearly 5,000 megahertz of *exclusive use* (not shared, as with satellite licenses) spectrum, with more on the horizon at 26 and 42 GHz. While RS Access's comments, the RKF Study, and DISH's comments never come close to an actual proposal, they all strongly imply that terrestrial use would be comprised of supplemental capacity near macrocell nodes, small-cell deployments in high-density, high-traffic urban areas, and limited point-to-point wireless backhaul from macrocells and small cells in such urban environments. Indeed, the RKF Study employs the Commission's power limits for millimeter wave service, adopted because the "propagation properties in the mmW band make higher powers necessary. Signal attenuation with distance is higher in the mmW bands than at lower frequencies and signals are more severely attenuated due to obstacles such as foliage and walls."²⁶ The RKF Study thus concedes that these characteristics are equally true of terrestrial use of the 12 GHz Band. As OneWeb observed, as a result of "free space losses that are about sixteen times higher than the free space losses at mid-band frequencies . . . [m]obile networks using the 12 GHz band will typically require about 10-20 times more base stations to cover the same geographical area than they would with mid-band

²⁶ *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services et al.*, 31 FCC Rcd 8014, 8110 (2016); see also RKF Study at 34.

spectrum, thereby materially reducing the network efficiency and cost effectiveness” of terrestrial use of the band.²⁷ OneWeb also correctly explains that the 12 GHz Band is also “poorly suited to provide outdoor-to-indoor coverage in suburban or urban population centers” because the penetration loss through concrete structures is “likely to be approximately 34- 38 dB higher in the 12 GHz band relative to the 2.5 or 3.5 GHz bands. As a result, the 12 GHz band is uniquely inhospitable to both macro and micro cell deployments providing outdoor-to-indoor coverage in suburban or urban areas, as base stations deployed on roof tops or lamp posts cannot provide suitable in-building coverage.”²⁸ Indeed, RS Access itself relies on the effects of “clutter absorption by buildings, vegetation, and other obstructions in urban and suburban areas” in the 12 GHz Band.²⁹

By the MVDDS Licensees’ own admission, the 12 GHz Band could only be used for millimeter wave-type deployments, using frequencies whose propagation characteristics resemble those of millimeter wave frequencies. RS Access’s paid economic study nevertheless baselessly assumes that the Commission’s recently concluded C-band auction is the appropriate benchmark for valuation of the 12 GHz Band. This assumption is, of course, absurd on its face, and the economic study makes no real effort to justify this decision. It freely admits that the 12 GHz Band does not propagate like the C-band frequencies do, will not be used in the same manner, and will not cover nearly the same population as the C-band.³⁰ Nevertheless, it conclusorily declares that “the C-band is a good reference for assessing the value of the 12 GHz

²⁷ Comments of OneWeb, WT Docket No. 20-443, GN Docket No. 17-183, at 20 (filed May 7, 2021) (“OneWeb Comments”).

²⁸ *Id.* at 21.

²⁹ RS Access Comments at 43.

³⁰ *Id.* at Appendix B, at 15-20.

band.”³¹ This economic study baldly asserts that the C-band auction “appears to suggest some fundamental shift in spectrum value in the 5G era.”³² Yet the study completely and baselessly ignores the multiple other auctions the Commission has held in the “5G era,” including 24 GHz, 28 GHz, 37 GHz, 39 GHz, and 3.5 GHz. Even though the deployments using these millimeter wave bands more closely resemble what is assumed in the RKF Study, RS Access presumably chooses to ignore these benchmarks because they would demonstrate that any possible benefits here are far outweighed by the guaranteed harms from granting RS Access a windfall.

For example, using the \$0.01/MHz-Pop valuation of the millimeter wave frequencies,³³ the same U.S. population of 308 million,³⁴ and the admittedly limited coverage of 23.8% of such population as employed in the economic study, would have produced a valuation of approximately \$366.5 million. In reality, even this valuation is optimistic, considering those other bands were the target of wireless carriers with experience and ability to deploy a 5G network. In contrast, the parties primarily seeking the 12 GHz Band are famous for hoarding and flipping, destroying rather than creating value to the public. Yet, even this optimistic valuation would come nowhere near justifying the costs of deploying the huge numbers of base stations and small cells needed to provide even a marginal service in the limited geographies the MVDDS Licensees contemplate, let alone the costs of standardizing, developing, and integrating the “orphan” 12 GHz Band that will not be globally harmonized into future chips and devices.³⁵

³¹ *Id.* at 21.

³² *Id.* at 8.

³³ *Id.* at 31.

³⁴ *Id.* at 18.

³⁵ Comments of Microsoft Corporation, WT Docket No. 20-443, GN Docket No. 17-183, at 11 (filed May 7, 2021) (“Microsoft Comments”).

But more to the point, such a valuation obviously pales in comparison to the immense value of, and investment in, next-generation satellite services in the band.

B. The Largest MVDDS Licensee, DISH, Flatly Ignores the Commission’s Directions That Any Proposal Must Protect Next-Generation Satellite Systems and Resorts Once Again to Trying to Harm New Entrants

After imploring the Commission for years to issue an NPRM, when the Commission complied, DISH filed comments that are indistinguishable from its rejected 2016 Petition. Instead of making a proposal consistent with the Commission’s direction, DISH resorts to its same over-the-top anti-competitive rhetoric that has become its unfortunate hallmark across all proceedings in which it engages. When challenged in another proceeding, DISH confessed that it targets its baseless lobbying so aggressively against SpaceX because SpaceX is a new entrant that has “commenced providing service” to consumers in the U.S.³⁶

Unable to make any showing that meets the high bar the Commission set for it, DISH resorts to its usual arsenal of distraction and the regurgitation of arguments already comprehensively refuted on the record. DISH does not even attempt to keep up any pretense that its sought-after windfall could protect incumbent NGSO FSS operations as required by the Commission. Instead, the misleadingly captioned section of its comments entitled “Higher-Power Two-Way Terrestrial Service Can Share the 12 GHz Band with NGSO FSS” launches directly into lengthy and needlessly repetitious arguments as to why otherwise unserved users of next-generation satellite services should be ejected from the band and stranded with no service.³⁷

³⁶ Letter from Jeffrey H. Blum, Executive Vice President, External & Legislative Affairs, DISH Network Corporation, to Marlene H. Dortch, Secretary, FCC, IBFS File No. SAT-MOD-20200417-00037, WT Docket No. 20-443, at 5 (filed Mar. 17, 2021).

³⁷ Comments of DISH Network Corporation, WT Docket No. 20-443, GN Docket No. 17-183, at 45 (filed May 7, 2021) (“DISH Comments”).

Each of these harmful and anti-competitive arguments has been thoroughly rebutted in the record, which is why the Commission rejected them in the NPRM. Yet DISH remains undeterred by facts.

Indeed, after clamoring for this NPRM, DISH yet again makes empty promises about updated analysis of why its initial studies were wrong—without explaining why the intervening five years have been insufficient to prepare such analysis.³⁸ DISH’s conspicuous failure to include any reference to actual analyses tacitly admits what the record has long shown—DISH and its allies are fully aware that their requested windfall will harm NGSO FSS operators and the customers who rely on their actual use of the spectrum to provide real-world, valuable service.

For example, in total contravention to the direction from the Commission to find ways to protect next-generation satellite services, DISH repeats its inane exercise of counting the amount of hertz licensed to SpaceX. Yet, the math is simple: while DISH alone has over a hundred megahertz of exclusive unused mid- and low-land spectrum, all NGSOs combined have absolutely none. Given DISH’s well-documented decade of misrepresentations and misdirection about building a network, it should be required to relinquish its existing rights rather than be gifted any new ones.

Moreover, as many have exhaustively explained, because NGSOs must share all of their spectrum, the 12 GHz Band provides absolutely necessary flexibility to provide broadband to otherwise unserved consumers.³⁹ In contrast, DISH demands exclusive rights to the band to supplement its phantom network that serves no one.

³⁸ *Id.*

³⁹ Comments of Space Exploration Holdings, LLC, WT Docket No. 20-443, GN Docket No. 17-183, at 24 (filed May 7, 2021) (“SpaceX Comments”).

Others like OneWeb that share the Ku-band with SpaceX have explained that not only do NGSOs share the band, but they do not even have access to all the spectrum DISH claims, considering that the “lower half of this downlink band (10.7-11.7 GHz) is shared with the terrestrial Fixed Service on a co-primary basis.”⁴⁰ This means that sharing between the “Fixed Service and Fixed Satellite Service (downlink) is feasible because the Fixed Service stations are at known locations, allowing the satellite operator to avoid satellite user terminals sharing the same frequencies.”⁴¹ But even these bands are not fully accessible because “certain geographical areas in the United States have large deployments of fixed links that significantly constrain the use of the 10.7-11.7 GHz band” and “the requirement to protect the Radio Astronomy Service in the 10.6-10.7 GHz band constrains NGSO systems from using the lower part of the 10.7-11.7 GHz band over all of the United States.”⁴² Of course, DISH is fully aware of these facts, but continuously chooses to ignore them, in its hopes to mislead policymakers into giving it more spectrum to hoard.

DISH shamelessly still makes the absurd assertion that NGSO FSS operators seek “unconstrained” access to the 12 GHz Band. As DISH knows, NGSO operators do not have “unconstrained” access to any spectrum whatsoever. To the contrary, NGSOs have been arguing to preserve a sharing environment, while DISH and its paid allies argue to give DISH unconstrained access to the band. In fact, not only are NGSOs already constrained by EPFD rules in the 12 GHz Band, DISH itself has unleashed a no-holds-barred effort to even further

⁴⁰ OneWeb Comments at 17.

⁴¹ *Id.*

⁴² *Id.* at 17-18 (footnote omitted).

tighten those rules and constrain consumers even tighter. DISH simply cannot get its story straight—on one hand alleging in a separate proceeding that the constraints on NGSOs in the 12 GHz Band are so tight that SpaceX could not even provide a quality service,⁴³ but on the other hand, alleging that maintaining those same rules amounts to unconstrained access to the band. As usual, DISH will say anything to get a windfall at the expense of competitors.

DISH also tries to turn the facts on their head by repeating its debunked argument that—while no country has 5G service in the 12 GHz Band—somehow the Commission must deem the 12 GHz Band unnecessary to NGSO FSS operators’ provision of service because not every country uses the band for NGSO service. DISH ignores the fact that the European Union, the United Kingdom, Canada, Japan, and Singapore all reserve the 12 GHz Band for satellite communications.⁴⁴ Moreover, the fact that a small number of countries have established their own licensing regimes is neither a fact unique to the 12 GHz Band nor is it at all germane to the Commission’s determination about the highest and best use of the 12 GHz Band in the United States. In contrast to SpaceX, which is using the 12 GHz Band in countries around the world, DISH cannot point to a single deployment it has made in any spectrum band in any country. Considering DISH’s long history of accumulating spectrum and failing to use it, allowing the 12 GHz Band to land in its warehouse would virtually guarantee it sits fallow for the foreseeable future.

DISH also continues to lean on boilerplate language in satellite licenses that states that the rights granted therein are subject to future Commission decisions.⁴⁵ As many have pointed

⁴³ See Letter from Jeffrey H. Blum, Executive Vice President, External & Legislative Affairs, DISH Network Corporation, to Marlene H. Dortch, Secretary, FCC, IBFS File No. SAT-MOD-20200417-00037 (filed Apr. 6, 2021).

⁴⁴ See Microsoft Comments at 10.

⁴⁵ DISH Comments at 58-59.

out, that fact is true for all licenses for all services in all bands, with or without such a condition. If anything, NGSO use of the 12 GHz Band is more secure than most services in other bands because the Commission has issued multiple decisions over the past year confirming this use, including in the NPRM in this proceeding. In fact, if the Commission were to try to reassign this band to DISH, it would require a Further Notice that reversed course on the NPRM and its decision to include the 12 GHz Band as part of the Rural Digital Opportunity Fund, likely unwinding that entire auction. Instead, DISH’s licenses—including its MVDDS and AWS-4 licenses—are much more likely to be revoked due to its repeated misrepresentations to the Commission and its continued failure to meet its deployment requirements across all bands.

Moreover, as SpaceX has previously explained, the boilerplate language DISH bases so much of its arguments upon are standard in satellite licensing decisions broadly.⁴⁶ In fact, section 304 of the Communications Act of 1934, as amended, expressly provides that as a precondition to grant, *all* Commission licenses are subject to the licensee’s waiver of “any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power” of the Commission—including those presently held by the MVDDS Licensees, pending the Commission’s resolution of their paper-thin and potentially inaccurate substantial service showings.⁴⁷ In any event, the argument that an order conditioning a license grant on the outcome of all future rulemakings, including this one in which the Commission stated that next-generation satellite use of the 12 GHz Band must be protected, somehow provides a basis to eject otherwise unserved consumers from the band is absurd on its face.

⁴⁶ See Letter from David Goldman, Director, Satellite Policy, SpaceX, to Marlene H. Dortch, Secretary, FCC, RM-11768 (filed Dec. 3, 2020); *see also* 47 U.S.C. §§ 303, 304, 316.

⁴⁷ 47 U.S.C. § 304.

Finally, DISH once again completely ignores the Commission’s decisions by reiterating its claims regarding SpaceX’s ability to meet applicable equivalent power flux density limits. This, despite the fact the Commission just weeks ago unanimously rejected these claims.⁴⁸

C. The Other MVDDS Licensees Can Only Muster Absurd Claims in Support of Their Request for a Windfall.

Go Long Wireless, Ltd., Cass Cable TV, Inc., Story Communications, LLC, and Vision Broadband, LLC (together, the “Joint MVDDS Commenters”) largely parrot the claims rebutted above, but make two assertions that bear closer examination. First, having apparently had their comments drafted by DISH, the Joint MVDDS Commenters claim that a revolution in the use of their spectrum—which they have left fallow for more than 15 years—is just around the corner.⁴⁹ The Commission has heard these same empty promises from these squatters over and over, with absolutely nothing to show for it. Second, the Joint MVDDS Commenters make the unbelievable claim that the MVDDS rules—in place long before the MVDDS licenses were auctioned, and which the Commission itself expressly warned prospective bidders were “very conservative”—constitute circumstances beyond the MVDDS Licensees’ control, such that the public interest requires the Commission to now grant these same parties the windfall of expanded rights to bail them out of their voluntary and foreseeable poor business decisions.⁵⁰ The Joint MVDDS Commenters essentially claim that actual users of the band should be ejected so these squatters with no history of serving anyone can ensure a windfall for themselves. This argument is laughable. Instead, these claims of future use of the band raise even more questions about

⁴⁸ *Space Exploration Holdings, LLC*, Order and Authorization and Order on Reconsideration, FCC 21-48, at ¶¶ 35-42 (2021).

⁴⁹ Comments of Go Long Wireless, Ltd., Cass Cable TV, Inc., Story Communications, LLC, and Vision Broadband, LLC, WT Docket No. 20-443, GN Docket No. 17-183, at 9-10 (filed May 7, 2021).

⁵⁰ *Id.* at 19-20.

these licensees' already questionable substantial service showings in the band. Given the decade and half of failure by the MVDDS Licensees, this proceeding provides the Commission with the opportunity to finally remove the harmful MVDDS encumbrance and unlock the full potential of the 12 GHz Band for consumers.

D. DISH's So-Called "Coalition" Cannot Even Agree with Itself.

DISH, having hastily bankrolled an astroturf "coalition," seeks to argue that its existence is an indicator of consensus on the importance of giving DISH a windfall. But the most that can be said of this so-called coalition is that its members agree on the groundbreaking proposition that "5G is good." In fact, SpaceX agrees with this uncontroversial proposition. But this "consensus" has absolutely nothing to do with giving the 12 GHz Band to spectrum speculators at the expense of customers of next-generation satellite services. No doubt, most of the members of the coalition also agree that providing high-throughput, low-latency broadband to otherwise unserved Americans—which is what SpaceX is already doing—is also good. But once all parties agree on those two facts, the coalition's areas of consensus dissipate quickly. Indeed, the contradictions in the stances of the coalition's members are so pronounced that even DISH understatedly admits that "[t]he positions of each of these stakeholders may differ."⁵¹ No doubt.

The Public Interest Organizations ("PIOs"), for example, make the strange claim that granting the MVDDS Licensees' requested windfall is necessary to enable DISH to become a fourth nationwide wireless competitor.⁵² The PIOs then make the obvious claim that "new

⁵¹ DISH Comments at 43.

⁵² Comments of New America's Open Technology Institute, Public Knowledge, Next Century Cities, Consumer Federation of America, Center for Rural Strategies, National Digital Inclusion Alliance, Tribal Digital

service providers entering a market can substantially benefit consumers by lowering costs and increasing the quality of services offered when providers respond to competitive pressure.”⁵³ But even as recently as last year, DISH already claimed that its existing spectrum was all that it required to build a new network. As SpaceX chronicled in its initial comments, DISH has made this same claim repeatedly for over a decade, always promising that it would finally deliver on its promises, if only it was gifted yet more spectrum. Yet, far from benefiting anyone but DISH, these promises have actually harmed consumers, depriving them of use of the spectrum sitting in DISH’s warehouse. DISH’s steadfast refusal to make productive use of its stores of licensed spectrum and actually provide service over the course of many years has artificially constrained the supply of spectrum, thereby increasing the prices paid by both providers of actual service and, ultimately, consumers.

Further, apparently oblivious to the implied proposal in the RKF Study for a limited urban deployment, the PIOs contend that expanded terrestrial use of the 12 GHz Band will “help maximize the number of potential 5G broadband providers, particularly in rural areas.”⁵⁴ In fact, the PIOs decry the conduct suggested in the RKF Study as leaving suburban, exurban, and rural areas behind.⁵⁵ RS Access’ RKF Study is predicated on creating exactly this kind of urban-rural divide in terrestrial use of the 12 GHz Band, and DISH could find no room for a single mention of rural service in its 82-page comments.

Village, the Institute for Local Self-Reliance, Access Humboldt, and National Consumer Law Center, WT Docket No. 20-443, GN Docket No. 17-183, at 7 (filed May 7, 2021) (“Public Interest Organizations Comments”).

⁵³ *Id.* at 5.

⁵⁴ *Id.* at 2.

⁵⁵ *Id.* at 19-20.

But the most glaring fissure in the coalition is that the PIOs are unequivocal in their position that NGSO FSS operators like SpaceX must be protected in the 12 GHz Band, while DISH’s position is that those operations—and the rural and suburban consumers they serve—must be ejected. Indeed, despite having paid for the coalition, DISH finds no support within its ranks for its extreme position.⁵⁶ At bottom, DISH’s plan is that the rich get richer, and the rest get left behind, a position that is anathema to the principles espoused and advocated by the PIOs. Far from the “broad support” DISH claims for itself, the record demonstrates that DISH stands alone.

E. The Commission Should Eliminate the MVDDS Encumbrance on the 12 GHz Band Once and for All.

As noted above, the Commission requested proposals and analysis as to the question of whether terrestrial use of the 12 GHz Band could be expanded while satisfying the threshold requirement of protecting next-generation satellite services. No party has come close to meeting this bar, and only one commenter made any attempt at all, and still demonstrated conclusively that the MVDDS windfall would harm users of next-generation satellite services even with every benefit of the doubt—whether deserved or not. It is now time for the Commission to bring this proceeding to a close.

DISH’s comments are instructive. Having finally succeeded in convincing the Commission to open this proceeding, DISH could mount *no new arguments* in support of its

⁵⁶ See, e.g., Joint Comments of INCOMPAS and CCIA, WT Docket No. 20-443, GN Docket No. 17-183, at 8-9 (filed May 7, 2021) (discussing protection of DBS and NGSO FSS incumbents); Comments of Federated Wireless, Inc., WT Docket No. 20-443, GN Docket No. 17-183, at 2 (filed May 7, 2021); Comments of Dynamic Spectrum Alliance, WT Docket No. 20-443, GN Docket No. 17-183, at 9 (filed May 7, 2021) (“DSA believes that any sharing approach must not delete the primary spectrum allocation for NGSO FSS or downgrade it to a secondary spectrum allocation.”).

demands. Instead, it resorted to recycling the same bill of goods it has been trying to sell the Commission since 2016. This should come as no surprise, however, given that the parties seeking these new rights are the same licensees who needed 15 years and two buildout extensions just to make the paltry—and still-pending after nearly two years—substantial service showings claiming compliance with the Commission’s minimal safe harbor requirements.

The record is clear that MVDDS is nothing but an encumbrance to the true uses of the band and this latest arbitrage play is simply a feeble attempt to disguise this fact. To the extent the Commission elects to take action to facilitate greater access to next-generation broadband services in the 12 GHz Band, it should do so by concluding its review of the MVDDS Licensees’ paper-thin substantial service showings. OneWeb agrees with SpaceX that if the Commission concludes that “MVDDS licenses have not satisfied applicable construction and renewal requirements,” the Commission should seriously examine the “wisdom of maintaining the current MVDDS allocation” in the band.⁵⁷ By eliminating this failed service and its encumbrance on the band, the Commission would further enhance the ability of NGSO FSS operators to deliver on the full potential of the 12 GHz Band and provide robust broadband services to American consumers regardless of where they reside, helping to close the digital divide.

II. SPACEX REMAINS OPEN TO OTHER PROPOSALS THAT DO NOT HARM CONSUMERS OF NEXT GENERATION SATELLITE SYSTEMS

SpaceX also reiterates for the record its openness to further study of potential future uses of the 12 GHz Band that sufficiently protect incumbent operations. Although no party has

⁵⁷ OneWeb Comments at 26.

brought forth a proposal of any rigor regarding such potential uses that could justify further Commission action, SpaceX notes the PIOs' advocacy for an unlicensed, low-power, indoor-only underlay in the band, a topic on which SpaceX has previously stated it welcomes additional analysis.⁵⁸ SpaceX hopes the PIOs will abandon their counterproductive adversarial approach and will instead take up SpaceX's repeated offers to explore these options.

Similarly, T-Mobile elected to take an aggressive posture in repeating its ideologically extreme, one-size-fits-all position that all spectrum in any band must be auctioned in a manner advantageous to T-Mobile. But T-Mobile also put forward a productive suggestion that the Commission might be better served exploring whether the 13 GHz or the 17 GHz Bands would be better suited for 5G.⁵⁹ SpaceX agrees that these bands appear more promising than the 12 GHz Band. They offer similar high-band propagation properties to the 12 GHz Band, but without causing the extraordinary harm to Americans across the country proposed by the MVDDS Licensees. Pending a determination as to how such use could be accomplished without unduly harming adjacent-band satellite operations, the Commission may wish to examine these bands as potentially preferable alternatives to the 12 GHz Band for expanded terrestrial operations.

III. CONCLUSION

For the foregoing reasons, the Commission should deny the MVDDS windfall and eliminate the encumbrance of the failed MVDDS service on the 12 GHz Band. Doing so will best advance the Commission's goals of facilitating rapid and meaningful deployment of

⁵⁸ Public Interest Organizations Comments at 23-26.

⁵⁹ T-Mobile Comments at 14-15.

valuable next-generation broadband services to consumers throughout the country and ensuring that scarce spectrum resources are put to productive use in service of the public interest, not speculators' narrow pecuniary interests.

Respectfully submitted,

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