

**Before the  
Federal Communications Commission  
Washington, DC 20554**

In the Matter of )  
 )  
 ) SB Docket No. 25-305  
Facilitating More Intensive Use of )  
Upper Microwave Spectrum )  
 )  
To: The Commission )

**COMMENTS OF  
OPEN TECHNOLOGY INSTITUTE AT NEW AMERICA  
AND PUBLIC KNOWLEDGE**

Jessica Dine  
Michael Calabrese  
Open Technology Institute at New America  
740 15<sup>th</sup> Street, NW Suite 900  
Washington, DC 20005

Harold Feld  
Senior Vice President  
Public Knowledge  
1818 N St, NW Suite 410  
Washington, DC 20036

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extension—of the successful 70/80/90 GHz sharing framework. An automated frequency coordination system that rapidly calculates interference protection and identifies the need to engage in voluntary coordination would optimize coexistence and be particularly productive in the mmWave UMFUS bands under consideration here, as well as in the Lower 37 GHz band and in other mmW shared satellite bands at and above 42 GHz.

## **II. The Commission Should Fully Replace Section 25.136 Restrictions and Part 101 Manual Coordination with Light-Licensing and Automated Database Coordination**

The current sharing framework no longer serves the public interest in high-capacity, low-latency satellite connectivity for home broadband, device-to-device (D2D) innovation, enterprise IoT, and a myriad of emerging satellite-enabled services. Our groups strongly support a complete overhaul of the existing rules. The geographic restrictions and extensive manual coordination that applicants must undergo under Section 25.136 and Part 101 should be entirely replaced by a two-step light licensing framework and automated coordination database that is continually updated with real-time deployment information by all licensees.

### **A. The Current Framework No Longer Meets Public Need and Wastes Spectrum**

OTI and PK applaud the Commission for acknowledging the dramatic shift in the economic realities of millimeter wave spectrum demand and use—and for proposing to overhaul the framework that governs the shared use of bands above 24 GHz. This spectrum, which is shared between the terrestrial Upper Microwave Flexible Use Service (“UMFUS”) and Fixed Satellite Service (FSS) operators, remains scarcely used by terrestrial providers, while the operators interested in making more intensive use of it—largely for satellite services that are rapidly becoming a critical part of our connectivity infrastructure—are stymied by Section 25.136 restrictions and onerous Part 101 manual coordination. Today’s burdensome and wholly

unnecessary restrictions on the siting of satellite earth station gateways are detrimental to consumers and innovation. The current sharing framework limits both the capacity and quality of emerging Low Earth Orbit (LEO) satellite services while supporting the continued warehousing of mmWave spectrum by licensees whose promises of widespread deployment never bore fruit.

### **1. Increased Demand for High-Throughput and Low-Latency LEO Satellite Services Requires a Corresponding Increase in Earth Station Deployment**

As the Commission notes, the current framework was created in 2016 with the assumption that the UMFUS bands would be intensively used for 5G mobile services and that any satellite usage would be relatively light. While those were not unreasonable assumptions a decade ago, that world has failed to materialize. Instead, 5G remains mainly confined to low- and mid-band spectrum with propagation characteristics that make it far more cost-efficient to deploy and maintain. The relatively few 5G mmWave deployments are limited primarily to heavily-trafficked (and mostly indoor) venues such as stadiums, airports and dense city squares.<sup>1</sup> As a result, as the *NPRM* acknowledges, mobile carriers are returning licenses or well on their way to failing to meet buildout requirements. In contrast, satellite operators are flocking to mmWave spectrum with applications for FSS earth stations which, as the Commission points out, have surged almost fourfold over the last 5-year period.<sup>2</sup>

The NGSO satellite sector's recent and dramatic growth will be increasingly constrained by its relatively limited access to spectrum and efficient siting for the large number of new earth

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<sup>1</sup> See, e.g., Roger Entner, "5G at the five-year mark: weak on vision, strong on execution," *Light Reading* (January 13, 2026), <https://www.lightreading.com/5g/5g-at-the-five-year-mark-weak-on-vision-strong-on-execution>. "Network quality from mid-band spectrum is real and measurable. Meanwhile, mmWave collapsed with no discernible consumer impact. . . . mmWave remains confined to stadiums and dense urban hotspots. It never became the transformative technology its advocates promised." *Id.*

<sup>2</sup> *Facilitating More Intensive Use of Upper Microwave Spectrum*, Notice of Proposed Rulemaking, SB Docket No. 25-305, at ¶ 14 (rel. Oct. 29, 2025).

station gateways that are essential backhaul infrastructure. The coordination and construction of hundreds and potentially thousands of additional gateways will be needed to satisfy the continuing surge of demand for high-throughput satellite capacity and thereby ensure continued U.S. leadership in the global satellite economy. The Commercial Space Federation described this exploding demand in its Spectrum Abundance comments last year: “Rising demand, driven by streaming services, cloud computing, global connectivity initiatives, and emerging AI applications, is fueling new investment across the sector with plans for tens of thousands more satellite deployments planned by 2030.”<sup>3</sup> The satellite industry group went on to explain that mostly vacant mmWave bands, such as the 42 GHz band currently allocated for UMFUS, “are particularly well suited for satellite backhaul, offering wide bandwidth and high-gain, narrowly focused ‘pencil beam’ transmissions that enable high-capacity data transport with minimal interference to other users.”<sup>4</sup>

NGSOs’ need for both spectrum and backhaul infrastructure is increasing steadily as the number of satellites proliferate and the throughput capacity of next generation satellites multiply. Starlink alone now serves 6 million consumers globally, almost a third of which were added over the last year.<sup>5</sup> A new surge in demand for LEO satellite broadband service is anticipated in the near future given the technology’s significant participation in the BEAD program. An eventual near-universal adoption of satellite direct-to-device connectivity for mobile handsets—and the upgrading of these connections to 3G or even 4G capabilities—will drive far greater needs for

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<sup>3</sup> Comments of Commercial Space Federation, *Satellite Spectrum Abundance*, SB Docket No. 25-180, at 1 (Aug. 26, 2025).

<sup>4</sup> *Id.* at 2.

<sup>5</sup> Starlink, “Starlink Network Update,” accessed Jan. 2026, <https://starlink.com/updates/network-update>.

backhaul infrastructure most efficiently done on mmWave bands. Steadily increasing demand for high-capacity LEO satellite broadband must be accompanied by a corresponding increase in satellite gateway deployments and the spectrum and flexible siting needed to support it.

## **2. Coordination Rules Impose Unnecessary Restrictions on Current Users**

Unfortunately, large swaths of the high-band spectrum best positioned to meet this need—the mmW UMFUS bands that provide vast amounts of bandwidth, enabling faster speeds—offer limited, slow and costly access for satellite operators due to onerous siting restrictions and cumbersome coordination rules. As the Commission notes, each of the UMFUS bands is allocated to FSS in addition to terrestrial services—on a secondary basis in the 28 GHz band, on a co-primary basis in the other bands. And yet in practice, this coexistence is extraordinarily limited. NGSO operators are required to protect UMFUS operations except in a restrictive list of circumstances outlined in section 25.136. The UMFUS Protection Criteria place limits on the number of earth stations in an area, restrict their locations and areas of operations, and require them to employ the onerous manual coordination outlined under part 101 of the Commission’s rule in areas with co-channel UMFUS operations.<sup>6</sup> In short, despite enjoying purported co-primary status in the majority of the bands, in practice satellite operators are relegated to a second-tier service forced to comply with extensive restrictions. At the same time, mobile operators have abandoned the UMFUS bands for the more economically viable propagation of mid-band spectrum for 5G and some day 6G.

Flush with a current surplus of mid-band spectrum—and with another 800 megahertz in the statutory pipeline—the three nationwide mobile network operators (MNOs) are focusing now more than ever on spectrum below 8 GHz for 5G and future 6G deployments. As a result, it

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<sup>6</sup> NPRM at ¶ 10.

appears virtually certain that there will be few, if any, wide-area outdoor terrestrial deployments for satellite operators to protect in UMFUS bands. To achieve mobile coverage over even a relatively small area outdoors, the limited propagation in a mmWave band requires the sort of dense deployment of cell sites that can be justified only in very heavily-trafficked and mostly indoor locations. As OTI, PK and other public interest organizations (PIOs) have previously pointed out, the sort of capital investment required to achieve wide-area coverage with mmW spectrum is “something mobile carriers have steadfastly refused to do outside dense urban and other very high ARPU areas.”<sup>7</sup>

In response to these economic realities, mobile deployments in mmWave spectrum have been limited to airports, stadiums, and congested city centers rather than the more expansive suburban, exurban and rural sprawl surrounding them. The Commission’s *NPRM* acknowledges that “outside of a few urban hotspots, there do not appear to be many dense 5G deployments to protect. Even in urban areas, building loss appears to be the primary impediment to 5G deployment, not interference from other operations in the bands.”<sup>8</sup>

Indeed, as the PIOs opined, exclusive licensing of the mmWave spectrum to terrestrial operators is a recipe for warehousing. The Spectrum Frontiers auctions that opened up high-band spectrum for 5G use do little to dispel these concerns: “In 2019 and 2020, in auctions 101, 102 and 103, the Commission assigned 4,950 megahertz of spectrum for exclusive use, calling it ‘flexible use,’ but then packaging most of it as Partial Economic Area (PEA) licenses that would not be relevant or affordable to more than a few national or regional mobile carriers. As a result,

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<sup>7</sup> Comments of the Public Interest Organizations, *Expanding Flexible Use of the 12.2- 12.7 GHz Band, Expanding Use of the 12.7-13.25 GHz Band for Mobile Broadband or Other Expanded Use*, WT Docket No. 20-443, GN Docket No. 22-352, at 28 (Aug. 9, 2023) (Comments of the PIOs).

<sup>8</sup> NPRM at ¶ 13.

the lion’s share of those 4,950 megahertz sits in mobile carrier warehouses, without even an option for others to use that wasting bandwidth on an opportunistic basis.”<sup>9</sup>

Despite this lack of deployment, the complex siting requirements for satellite gateway earth stations in the mmWave bands cause uncertainty and delays that worsen as satellite usage of the bands ramps up. More unfortunately, this impact is being felt most by the consumers in rural, remote and Tribal areas who are reliant on LEO satellite broadband and whose access to that service depends on gateways near or on top of data centers and internet points of presence in urban areas.<sup>10</sup> While it may seem counterintuitive, smaller cities, towns, rural and tribal communities across the country will not benefit fully from the far faster speeds and lower latencies that LEO satellite broadband is on a path to provisioning if their backhaul must run through very remote earth station gateways.

**B. A Two-Step Light Licensing Framework and Automated Database Coordination Should Replace Part 101 Manual Coordination and Section 25.136 Restrictions**

The current sharing framework no longer serves the public interest in high-capacity, low-latency satellite connectivity for home broadband, device-to-device (D2D) innovation, enterprise IoT and a myriad of emerging satellite-enabled services. The geographic restrictions and extensive manual coordination that applicants must undergo under Section 25.136 and Part 101 should be entirely replaced by a two-step light licensing framework and automated coordination database that is continually updated with real-time deployment information by all licensees.

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<sup>9</sup> Comments of the PIOs at 27.

<sup>10</sup> See, e.g., Letter from Joseph Bissonnette, Principal, Satellite Policy, SpaceX, to Marlene H. Dortch, Secretary, FCC, SB Docket Nos. 25-305 and 25-306, at 4 (Oct. 22, 2025) (SpaceX Letter). “...Outsized negative impacts for consumers in rural, remote, and Tribal areas whose low-latency satellite broadband depends on gateways sited near data centers and internet points of presence in and around urban areas.” *Id.*

The Commission need not start from scratch. It has a successful light-licensing coordination example in the 70/80/90 GHz bands, which can be effectively emulated or even literally expanded in scope to streamline access and coexistence in all of the shared UMFUS and other mmWave spectrum. The 70/80/90 GHz coordination framework is simple, fast and offers total transparency to users. It would be a cost-effective departure from the cumbersome and complicated process that restricts satellite access to vacant spectrum in the UMFUS bands today.

OTI and PK have long supported expanding the 70/80/90 GHz approach to all shared mmWave bands. Because of its propagation characteristics, mmWave bands are “well-suited for a sharing framework that is open, non-rivalrous, and that borrows elements from both CBRS and the 70/80/90 GHz bands.”<sup>11</sup> OTI has recently filed comments advocating for similar light licensing and automated database mechanisms to coordinate sharing in the Lower 37 GHz, the 42 GHz and higher frequency Spectrum Abundance bands proposed for earth station siting.<sup>12</sup> A diverse group of other stakeholders have agreed that the same model could be readily and cost-effectively employed in shared mmWave bands.<sup>13</sup>

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<sup>11</sup> Comments of Public Knowledge and Open Technology Institute at New America, *Lower 37 GHz Band*, WT Docket No. 24-243, (Jul. 14, 2025) (Lower 37 Comments), quoting Comments of Open Technology Institute at New America and Public Knowledge, *Shared Use of the 42-42.5 GHz Band*, WT Docket No. 23-158, at 6 (Aug. 30, 2023) (42 GHz Comments).

<sup>12</sup> See Lower 37 Comments; see also Comments of Open Technology Institute at New America and Public Knowledge, *Satellite Spectrum Abundance*, SB Docket No. 25-180 (Jul. 28, 2025) (Satellite Spectrum Abundance Comments).

<sup>13</sup> See, e.g., Comments of SpaceX, *Lower 37 GHz Band*, WT Docket No. 24-243 (Jul. 14, 2025); Comments of Comsearch, an Andrew Company, *Lower 37 GHz Band*, WT Docket No. 24-243 (Jul. 14, 2025); Comments Of Kuiper Systems LLC, *Satellite Spectrum Abundance*, SB Docket No. 25-180 (Jul. 28, 2025); Comments of Comsearch, an Andrew Company, *Satellite Spectrum Abundance*, SB Docket No. 25-180 (Jul. 28, 2025); Reply Comments of WISPA–The Association For Broadband Without Boundaries, *Satellite Spectrum Abundance*, SB Docket No. 25-180 (Aug. 26, 2025).

Under this framework, operators would first obtain a nationwide, non-exclusive license and then register each individual site with an automated spectrum management system, which would coordinate and authorize individual site deployments. Like the 70/80/90 GHz and 6 GHz frequency coordination systems, this database would contain real-time, regularly updated location and technical data for all deployments in the band. Operators seeking authorization for a new site would use an online portal to provide the information needed for a rapid, objective and consistent interference analysis designed to avoid harmful interference with existing deployments. Like the 70/80/90 GHz system, the UMFUS bands coordination mechanism could generate a similar “green/yellow/red light” response to a proposed registration—and ideally would advise non-conforming applications why they cannot be authorized as proposed. This would allow, for example, a LEO satellite operator to quickly determine what changes (e.g., in location, power, elevation, shielding) are necessary to receive a ‘green light’ to transmit.

In lieu of extensive reporting and pre-coordination requirements, as SpaceX described in a recent *ex parte*, a certified interference and coordination system would allow operators to “individually assess and self-coordinate terrestrial equipment and satellite earth stations using automated interference assessments based on real-world assumptions....”<sup>14</sup> This would in turn allow the Commission to adapt the streamlined rules and procedures from its successful 70/80/90 GHz framework, “including rapid construction timelines, good faith coordination obligations, database hygiene requirements, and private dispute resolution procedures that minimize the need for individualized Commission review of applications and coordination reports.”<sup>15</sup>

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<sup>14</sup> SpaceX Letter at 4.

<sup>15</sup> *Id.* at 4–5.

Of course, the ability of the coordination system to prevent interference and optimize shared use will depend on licensees submitting and updating information on their deployments. The *NPRM* asks whether “a link registration obligation creates the kind of undue burden for terrestrial operators that geographic licensing was intended to avoid?”<sup>16</sup> First, our groups hope and trust that geographic licensing was not intended primarily to avoid deployment reporting requirements. Of course, it has had that impact, to a degree, since not even the Commission knows all of the vast geographies in small town, rural and remote areas where mobile terrestrial spectrum lies vacant even today. More relevant here is that reporting the location of base station deployments would add no significant burden at all and, we believe would prove to be a net benefit for all stakeholders with rights to share the UMFUS bands. Just like site-based terrestrial licensees—who are required to this sort of information in ULS—mobile operators know exactly where all of their base stations are located and their basic technical characteristics. An AI algorithm could probably deposit this information in an AFC database tomorrow at minimal cost.

Nor do MNO’s have any special proprietary interest in secreting the location of mobile base stations, since private databases and the MNO’s own deployment maps make this information available. Indoor deployments could even be exempt (or voluntary), based on the assumption there is not substantial risk of harmful interference vis-a-vis users outside the structure. The Commission could even require the certified coordination system to obscure precise location information, although as the 70/80/90 GHz database has demonstrated, a fully transparent database further reduces coordination costs (by facilitating pre-coordination due diligence) and increases accountability. Finally, if the Commission decides, as it should, to rescind the wasteful and outdated 2016 restrictions on earth station gateway siting, objective,

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<sup>16</sup> *NPRM* at ¶ 20.

consistent and transparent interference analysis by the certified coordination system will best protect mobile base stations and their customers from interference. If all band users are in the database, it will be far easier to identify and correct any detected harmful interference.

The *NPRM* also asks who should manage such a database. While the Commission could certainly manage this automated system in-house, the success of the similarly straightforward coordination databases for the 70/80/90 GHz and 6 GHz bands suggest that certifying an objective third-party administrator would spare both applicants and FCC staff from today's needlessly burdensome, frustrating and time-consuming manual process. Initially, it would be reasonable to employ a single, FCC-certified database provider with reasonable and uniform coordination fees assessed on licensees.

This streamlined licensing framework could coexist with the other alternatives offered in the *NPRM*. For example, as OTI wrote in an October *ex parte*, “commercial agreements to coordinate into locations where UMFUS licensees have deployed and a new satellite earth station (ES) would be precluded should be affirmatively authorized.”<sup>17</sup> There is no reason for the FCC to block productive collaboration if both parties are willing and able to coordinate. However, in locations where an UMFUS licensee has *not* deployed, the mere existence of exclusive terrestrial rights should not preclude the siting of satellite earth station gateways at risk of causing harmful interference to only hypothetical terrestrial deployments. Similarly, while some level of restriction on gateways in a county or PEA may remain necessary, it should be significantly relaxed from the current unnecessary and restrictive standards.

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<sup>17</sup> Letter from Michael Calabrese, Director, Wireless Future, Open Technology Institute at New America, to Marlene H. Dortch, Secretary, FCC, SB Docket No. 25-305, at 2 (Oct. 21, 2025).

### **III. The So-Called ‘Market-Based’ Approach to Coordinating FSS Earth Stations in UMFUS Bands is Detrimental to the Public Interest in Better Connectivity, Innovation and Competition**

The *NPRM* seeks comment “on allowing UMFUS licensees to voluntarily negotiate with FSS operators to permit operations in the relevant shared bands without providing interference protection to UMFUS operations.”<sup>18</sup> Our groups agree that the Commission should explicitly permit voluntary coordination agreements that could be contrary to what an automated coordination system would calculate and enforce. An example is the trade-off the Commission seems to anticipate in its question: A satellite operator and MNO should be able to negotiate an agreement whereby, for consideration, the satellite operator could deploy in one or more locations where an existing mobile terrestrial deployment could exclude them. This makes sense for another reason: most interference calculations are overly conservative and there are many customized adjustments that both parties could make to minimize the real-world risk of harmful interference that a standardized protection contour might not take into account (e.g., shielding, elevation angle, power levels, height above terrain, sectorization).

What the Commission should *not* do is rely on a so-called “market-based” approach to constrain shared access to vacant spectrum in co-primary or other shared bands that host entrenched licensees alongside a rapidly ascending competitive service. Mobile operators have little incentive to allow FSS deployments to proliferate through the bands and increasing incentives to veto them. It would be particularly anti-competitive—and harmful to consumers—if the Commission gave MNOs hold-out or veto power over earth station gateway siting by an emerging technology with which they will (hopefully) be competing more and more. In fact, given that NGSO operators are increasingly positioned as a close competitor to wireless service

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<sup>18</sup> *NPRM* at ¶ 25.

providers, earth station siting in areas where it will not cause interference with existing terrestrial deployments should not rely on affirmative agreement by a licensee.

The efficiency and competition benefits of adopting automated database coordination as the default mechanism for authorizing coordination are clear and should be the baseline. This would come at little cost. As noted in the section just above, both terrestrial and FSS operators would benefit from more efficient and intensive use of the bands, with automated management that guarantees protection from interference while not precluding use of unoccupied spectrum. Operators, licensees and the general public all stand to gain significantly from a more efficient and streamlined registration process that maximizes spectrum usage and minimizes waste.

#### **IV. The Proven Benefits of the Successful 70/80/90 GHz Model Can Be Extended to the UMFUS, Lower 37 GHz, 42 GHz and Other mmW Bands**

An automated database coordination system could readily support more abundant and productive spectrum use in the mmWave bands. The physics of mmWave spectrum, which supports only limited propagation and therefore requires dense deployments, makes it impractical for operators to employ costly and inefficient manual coordination for each individual siting. Automating the process streamlines coordination and enables operators to make more intensive use of the spectrum while continuing to avoid harmful interference.

The two-step light licensing and automated database coordination system described above can readily support more abundant and productive spectrum use in multiple mmWave bands, in addition to the UMFUS bands that are the focus of this proceeding. Indeed, the Commission has separate open proceedings that propose sharing among different services in the Lower 37 GHz band, the greenfield 42–42.5 GHz band, and higher frequency bands enumerated in the Spectrum Abundance proceeding. All of these bands can be most intensively and cost-

effectively shared by employing a common, automated database coordination mechanism. And just as the 70/80/90 GHz system interfaces with a NTIA database of federal users to quickly ensure there would be no interference to federal operations, a more generalized mmW coordination system that includes the UMFUS bands, as well as the Lower 37 and 42 GHz bands, can either incorporate NTIA data or interface with the NTIA's database before authorizing a site.<sup>19</sup>

As OTI and PK have previously noted, an automated database coordination system in Lower 37 GHz “would allow FSS earth stations to coordinate more easily with terrestrial users and potentially eliminate the cumbersome rules that make it harder to coordinate in particular mmWave bands. And because sharing in the Lower 37 GHz band is on a co-primary basis, a database that rapidly identifies the need to engage in voluntary coordination optimizes coexistence and would be particularly productive.”<sup>20</sup>

These same considerations apply to the mmWave UMFUS bands under consideration here, as well as to mmW shared satellite bands at and above 42 GHz. As with other bands the Commission is currently examining under its Spectrum Abundance proceeding, we believe that a “lightweight and completely transparent third-party database registration and coordination system”—akin to that in 70/80/90 GHz—is the best solution to streamline deployments and coordination and to lower the cost of FSS uplink and downlink registration at a time when the satellite industry is rapidly expanding.<sup>21</sup> Accordingly, we recommend that the Commission adopt

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<sup>19</sup> OTI & PK, Lower 37 Comments, *supra* note 11; OTI & PK, 42 GHz Comments, *supra* note 11.

<sup>20</sup> OTI & PK, Satellite Spectrum Abundance Comments, *supra* note 12, at 12 [citation omitted].

<sup>21</sup> *Id.* at 15.

this same sharing and coordination framework for all bands under consideration, and in doing so “create consistency, synergies, and lower costs for all users eligible to coordinate.”<sup>22</sup>

## V. Conclusion

The Commission is right to consider an overhaul of the sharing framework that governs the bands above 24 GHz, including, and in particular, all of the shared bands shared between satellites and UMFUS terrestrial use. In order to bring its plans for intensive and productive use of the mmWave bands to fruition, the Commission should adopt the tried-and-true two-step light licensing framework and automated coordination database that is already successfully employed in the 70/80/90 GHz bands. This more speedy, cost-effective and flexible framework will streamline the registration process for applicants and FCC staff members alike, provide the NGSO satellite industry with the satellite gateway earth stations needed to support flourishing growth in demand, and ensure all vacant spectrum is made available for productive use while maintaining protection for terrestrial licensees.

/s/ Jessica Dine

/s/ Michael Calabrese

Open Technology Institute at New America  
740 15<sup>th</sup> Street, NW Suite 900  
Washington, DC 20005

/s/ Harold Feld

Senior Vice President  
Public Knowledge  
1818 N St, NW Suite 410  
Washington, DC 20036

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<sup>22</sup> *Id.*