

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of

Fixed Wireless Communications Coalition,  
Inc., Request for Modified Coordination  
Procedures in Bands Shared Between Fixed  
Service and the Fixed Satellite Service

RM-11778

**REPLY COMMENTS OF GOOGLE FIBER INC.**

Most commenters on the Petition for Rulemaking (*Petition*) filed by the Fixed Wireless Communications Coalition (FWCC)<sup>1</sup> agree that the practice of full-band, full-arc licensing leads to serious inefficiencies in the bands shared between the fixed-satellite service (FSS) and fixed service. Google Fiber, the Dynamic Spectrum Alliance (DSA), Federated Wireless, Mimosa Networks, Nokia, and the Wireless Internet Service Providers Association (WISPA), among others, further point out that the coordination issue FWCC identifies is just one source of inefficiency in the 3.7–4.2 GHz band, specifically.<sup>2</sup> As urged by these diverse commenters, the Commission should

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<sup>1</sup> Petition for Rulemaking of Fixed Wireless Communications Coalition in RM-11778 (filed Oct. 11, 2016) (*Petition*).

<sup>2</sup> See Comments of Google Fiber Inc. on the Petition for Reconsideration in RM-11778 (filed Jan. 9, 2017) (*Google Fiber Comments*); Comments of the Dynamic Spectrum Alliance on the Petition for Reconsideration in RM-11778 (filed Jan. 10, 2017) (*DSA Comments*); Comments of Federated Wireless on the Petition for Reconsideration in RM-11778 (filed Jan. 9, 2017) (*Federated Wireless Comments*); Comments of Mimosa Networks on the Petition for Rulemaking in RM-11778 (filed Jan. 9, 2017) (*Mimosa Networks Comments*); Comments of Nokia on the Petition for Reconsideration in RM-11778 (filed Jan. 9, 2017) (*Nokia Comments*); Comments of the Wireless Internet Service Providers Association on the Petition for Reconsideration in RM-11778 (filed Jan. 9, 2017) (*WISPA Comments*).

commence a rulemaking to consider not only FWCC's proposal, but also broader modernization of its rules to allow more intensive use of this valuable spectrum.

Satellite industry interests argue that FWCC's proposed rule changes would cause unnecessary harm to FSS operations. None of their arguments, however, genuinely suggests that further examination of the current coordination framework for FSS and fixed services is unwarranted. To the contrary, their arguments reinforce that—especially given the growing demand for spectrum for last-mile fixed wireless broadband and other applications—the Commission should seize this opportunity for relatively easy “wins” within its broader project of freeing spectrum for more intensive commercial use.

**I. The Commission Should Open a Rulemaking to Address Options for Improved Efficiency in the Bands Shared by FSS and Fixed Services.**

Commenters on the *Petition* generally agree with its basic premise: full-band, full-arc licensing creates inefficiencies that can no longer be ignored. The Commission should grant the *Petition* and consider FWCC's proposed reforms in a rulemaking.

Beyond this single point, commenters suggest additional ways that the Commission can intensify usage of existing fixed service allocations to meet rising demand for spectrum. Consistent with Google Fiber's opening comments, New America's Open Technology Institute and Public Knowledge (OTI & PK) and WISPA propose adjustments to the Commission's Part 101 rules that could help these efforts, including increasing power limits, modifying antenna requirements, adjusting utilization

standards, and allowing fixed point-to-multipoint links in these bands.<sup>3</sup> DSA, Mimosa Networks, and Nokia urge the Commission to focus on improving the sharing framework of the 3.7–4.2 GHz band specifically, emphasizing its “strong potential for innovative wireless applications.”<sup>4</sup>

The comments on FWCC’s *Petition* also highlight the need to clean up the Commission’s IBFS database, which seemingly includes entries for inactive licenses that could block access to available spectrum. Consistent with Google Fiber’s own investigation,<sup>5</sup> a preliminary audit of FSS earth station licenses in Ka-band satellite uplinks conducted by Engineers for the Integrity of Broadcast Auxiliary Services Spectrum (EIBASS) found that more than 200 licenses either contained inaccurate location data or, based on satellite imagery, did not appear to correspond to an existing station.<sup>6</sup> Indeed, despite its insistence that cutting back on current satellite spectrum reservations “would fundamentally compromise the critical public interest benefits offered by satellite systems’ ability to provide service anytime, anywhere,” SES’s own licenses show that there is much room for improvement to the current system.<sup>7</sup> As just one example, since 2006, SES Government Solutions has held a license for a 36-foot

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<sup>3</sup> See *Google Fiber Comments*; *WISPA Comments*; Comments of the Open Technology Institute at New America and Public Knowledge on the Petition for Reconsideration in RM-11778 (filed Jan. 9, 2017) (*OTI & PK Comments*).

<sup>4</sup> *Nokia Comments* at 3; see also *DSA Comments*; *Mimosa Networks Comments*.

<sup>5</sup> *Google Fiber Comments* at 9-10.

<sup>6</sup> Comments of Engineers for the Integrity of Broadcast Auxiliary Service Spectrum on the Petition for Reconsideration in RM-11778, at 7, Figures 1-4 (filed Jan. 9, 2017) (*EIBASS Comments*).

<sup>7</sup> Comments of SES Americom on the Petition for Reconsideration in RM-11778 at 5-6 (filed Jan. 9, 2017) (*SES Americom Comments*).

dish operating in the C-band in Colorado.<sup>8</sup> The coordinates in the license correspond to a field on Schriever Air Force Base that, according to the latest-available satellite imagery (from Nov. 2015), is empty. The closest apparent 36-foot dish is some 650 meters northwest, and that may not even be SES's licensed earth station. For context, the horizontal location accuracy (or inaccuracy) of this FSS license is, at best, more than an order of magnitude worse than the required 50 meter location accuracy the Commission mandates for Citizens Broadband Radio Service (CBRS) devices.<sup>9</sup> As stated by Federated Wireless, "the more accurate the information being exchanged, the more efficiently a coordination regime can provide for other operations in unused spectrum."<sup>10</sup> Inaccurate or even phantom reservations of spectrum limit options for every other potential user, whether satellite or terrestrial. It would benefit *all* users of these bands, including FSS, to ensure that the information provided in IBFS is accurate.

Finally, commenters suggest an automated frequency coordination process that is similar to, but considerably simpler than, that approved for the CBRS band (3.55–3.7 GHz).<sup>11</sup> Such automated processes are fairly new, but their outlook is promising. Indeed, the International Bureau, Wireless Telecommunications Bureau, and Office of Engineering and Technology recently reviewed a streamlined and automated coordination process developed by Higher Ground for 6 GHz band spectrum (5925–6425 MHz) that is allocated to FSS and fixed service use on a co-primary basis. They found that Higher Ground's automated coordination process would "provid[e]

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<sup>8</sup> See Call Sign E860942 (IBFS File No. SES-RWL-20061117-02039).

<sup>9</sup> See 47 C.F.R. § 96.39(a).

<sup>10</sup> *Federated Wireless Comments* at 2.

<sup>11</sup> See, e.g., *WISPA Comments*.

necessary safeguards against harmful interference to users in the band.”<sup>12</sup> Further, they noted generally that “the Commission supports new, innovative and increasingly efficient ways of achieving spectrum sharing without harmful interference to other users.”<sup>13</sup> In its rulemaking responding to the *Petition*, the Commission should examine opportunities to implement its pro-innovation policy by authorizing automated coordination systems for the 3.7–4.2 GHz band and other spectrum shared between FSS and fixed service users.

## **II. Satellite Industry Arguments Against Opening a Rulemaking Are Unpersuasive.**

The Satellite Industry Association (SIA) and other satellite industry interests argue that the *Petition* is repetitive and unnecessary, and would significantly undermine FSS operations. These arguments, though, contain numerous inaccuracies. Even on their own terms, they fail to disprove the need to consider improvements to current coordination procedures and other technical rules for the FSS-fixed service shared bands.

### **A. FWCC’s *Petition* Is Properly Presented.**

SIA argues that the *Petition* is repetitive of a similar petition FWCC filed in 1999, and thus should be dismissed under 47 C.F.R. § 1.401(e). SIA states that any further deliberation on the subject of full-band, full-arc licensing would be “a needless waste of the Commission’s resources.”<sup>14</sup>

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<sup>12</sup> *In the Matter of Higher Ground LLC Application for Blanket Earth Station License*, Order and Authorization, IBFS File No. SES-LIC-20150616-00357, ¶ 25 (rel. Jan. 18, 2017).

<sup>13</sup> *Id.*

<sup>14</sup> See Comments of the Satellite Industry Association on the Petition for Rulemaking in RM-11778 at 23-24 (filed Jan. 5, 2017) (*SIA Comments*).

SIA fails to acknowledge that FWCC is putting forward a different proposal than in 1999, and has sought to address the issues that sparked the satellite industry's concern in the original proceeding.<sup>15</sup> SIA also ignores that when the Commission terminated that earlier proceeding, it specifically contemplated revisiting the FSS-fixed service coordination issue in light of "new proposals or approaches that could effectively address concerns that have been raised regarding the equitable sharing of the spectrum."<sup>16</sup> Rejection of FWCC's previous petition many years ago thus says nothing about proper treatment of the current one.

SIA also fails to acknowledge how dramatically the context of the discussion has changed in the last two decades. Demand for commercial spectrum has risen exponentially, particularly to fuel online applications and services. Of particular public importance are industry efforts to close the so-called "broadband access gap"—the final 20% of Americans still lacking high-speed Internet access at home, often in rural or remote areas—by looking to mid-band and higher-frequency spectrum. Promising frequencies for the deployment of last-mile fixed wireless broadband networks include the 3.7–4.2 GHz band, where fixed services already operate on a co-primary basis.<sup>17</sup>

Given today's spectrum needs, the *Petition*, as well as any other proposal that would eliminate spectrum inefficiencies, deserves consideration by the Commission. Historically, the Commission has sought to optimize spectrum usage for emerging

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<sup>15</sup> *Petition* at 11-12.

<sup>16</sup> *In the Matter of FWCC Request for Declaratory Ruling on Partial-Band Licensing of Earth Stations in Fixed-Satellite Service That Share Terrestrial Spectrum, et al.*, Second Report and Order, 17 FCC Rcd. 2002, ¶ 13 (2002).

<sup>17</sup> See *Google Fiber Comments*; *DSA Comments*; *Federated Wireless Comments*; *Mimosa Networks Comments*; *Nokia Comments*; *WISPA Comments*.

technologies, such as in opening the Broadband Personal Communications Service band in 1989, the Advanced Wireless Communications band in 2002, the CBRS band in 2015, and now in the Spectrum Frontiers proceeding.<sup>18</sup> FWCC's *Petition* is a natural and necessary part of this process, and should be considered in a rulemaking.

**B. SIA Fails to Disprove the Need for Review of Current Coordination Procedures.**

Contrary to other voices in the record, SIA contends that the issues identified in the *Petition* do not actually exist. It cites heavy usage of C-band uplink and Ku-band spectrum as evidence that accommodating fixed service use has not been a problem, and states that there are “hundreds of megahertz” more spectrum available for fixed service use.<sup>19</sup> It also states that FWCC has failed to provide concrete evidence of failures to coordinate between FSS and fixed service operators.<sup>20</sup> According to SIA, coordination is “successful” as long as “the microwave operator ends up with a spectrum assignment.”<sup>21</sup>

Multiple commenters dispute SIA's view that there is no coordination problem to solve. WISPA, for example, confirms that full-band, full-arc coordination claims “have effectively foreclosed any use of the 3700–4200 MHz band by WISPs and other [fixed

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<sup>18</sup> See FCC, *Broadband Personal Communications Service (PCS)*, at <https://www.fcc.gov/general/broadband-personal-communications-service-pcs> (last visited Jan. 24, 2017); FCC, *Advanced Wireless Service (AWS)*, at <https://www.fcc.gov/general/advanced-wireless-services-aws> (last visited Jan. 24, 2017); FCC, *3.5 GHz Band / Citizens Broadband Radio Service*, at <https://www.fcc.gov/rulemaking/12-354> (last visited Jan. 24, 2017); *In the Matter of Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al.*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd. 8014 (2016).

<sup>19</sup> *SIA Comments* at 10.

<sup>20</sup> *Id.* at 6-12.

<sup>21</sup> *Id.* at 12.

service] operators, even though large swaths of this band remain unutilized throughout much of the country.”<sup>22</sup> Even if there is heavy current usage, moreover, that would not disprove the need for more efficient spectrum policy. On the contrary, strong demand only emphasizes that more available spectrum is needed to accommodate future applications such as last-mile wireless broadband deployments. Also, as the *Petition* explains, not all spectrum is created equal: the presence of “hundreds of megahertz” of underutilized spectrum in other bands does not diminish the importance of lower-frequency bands, particularly the 3.7–4.2 GHz band, to these applications.<sup>23</sup>

While SIA cites low rejection rates for coordination requests by fixed service operators, this may reflect nothing more than that those operators adjust their plans to avoid time-consuming and expensive coordination engagements.<sup>24</sup> It is incorrect to say that “such unilateral decisions by individual microwave operators do not imply any failure of existing” procedures: a system that encourages overbroad spectrum reservations by FSS, while deterring and distorting deployment of fixed service applications, is not good spectrum policy.<sup>25</sup>

As one commenter puts the point, “it is time to revisit this super-priority routinely given to terrestrial FSS stations.”<sup>26</sup> The Commission should grant the *Petition* in order to explore various paths to a more balanced and scalable coordination framework. In doing so, it should draw inspiration from existing web-based coordination systems that

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<sup>22</sup> *WISPA Comments*; see also *OTI & PK Comments*.

<sup>23</sup> *Petition* at 7; *SIA Comments* at 10.

<sup>24</sup> *SIA Comments* at 7, 10.

<sup>25</sup> *Id.* at 12.

<sup>26</sup> *EIBASS Comments* at 3.



provide rapid, accurate frequency information to applicants, such as NTIA's system for the 70, 80, and 90 GHz bands.<sup>27</sup>

**C. The Commission Cannot Assume that FWCC's Suggested Rule Changes Would Compromise FSS Operations.**

FWCC's proposal would limit most FSS earth stations to the coordinates, frequencies, and pointing directions they actively use, subject to special temporary authority (STA) or license modification to change those parameters. SIA and other satellite industry members argue that this particular approach would deprive FSS operators of critical flexibility in meeting changing commercial and operational requirements.<sup>28</sup> This in turn would "seriously threaten" their services.<sup>29</sup>

It is doubtful that FWCC's proposal would have as grave of an impact on FSS operations as the satellite commenters say. The proposal includes accommodations for "growth capacity" and for satellites that are or will be incorporated into a larger network, and is flexible enough to accommodate short-term deviations from licensed frequencies and coordinates.<sup>30</sup> Situations requiring such deviations, like SES Americom's satellite drifting off-course in 2010, can easily be resolved without wholesale use of full-band, full-arc coordination, through grants of STAs for specific earth stations at the necessary times.<sup>31</sup>

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<sup>27</sup> See *In the Matter of Allocations and Service Rules for the 71-76 GHz, 81-86 GHz and 92-95 GHz Bands, et al.*, Report and Order, 18 FCC Rcd. 23318 (2003).

<sup>28</sup> *SIA Comments* at 18-21.

<sup>29</sup> *Id.* at 17.

<sup>30</sup> *Petition* at 8-9.

<sup>31</sup> See *SES Americom Comments* at 4-5.

Whatever the truth of the situation, there is no reason to avoid an inquiry. The very point of a notice-and-comment proceeding would be to weigh arguments for and against proposals like FWCC's. The Commission should assess the fixed service industry's concerns about excessive spectrum reservations alongside the satellite industry's claims of potential harm to FSS operations, taking into account the impact of proposed rule changes on the public interest.

**III. Conclusion.**

The Commission should grant the *Petition* and open a rulemaking to assess the proposals of FWCC and other commenters for improving current FSS-fixed service coordination procedures, as well as the proposals of Google Fiber and other commenters for other beneficial modifications to the Part 101 rules for the 3.7–4.2 GHz band.

Respectfully submitted,



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**CERTIFICATE OF SERVICE**

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