

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

In the Matter of )
Kuiper Systems LLC ) ICFS File Nos.:
Request for Modification of the Authorization for ) SAT-MOD-20210806-00095
the Kuiper NGSO Satellite System ) SAT-AMD-20230329-00067
) Call Sign: S3051
)

ORDER AND AUTHORIZATION

Adopted: April 22, 2024

Released: April 22, 2024

By the Chief, Space Bureau:

I. INTRODUCTION

1. In this Order and Authorization (Order), we grant the application, as amended, of Kuiper Systems LLC (Kuiper) for modification of the authorization for its constellation of non-geostationary orbit (NGSO) fixed-satellite service (FSS) satellites operating in the Ka-band. Specifically, we grant Kuiper’s request for a partial waiver of section 25.146(c) of the Commission’s rules and accordingly modify the condition on Kuiper’s authorization that requires Kuiper to obtain a favorable or qualified favorable finding from the International Telecommunications Union (ITU) regarding compliance with applicable equivalent power flux density (EPFD) limits, permitting Kuiper to begin operations prior to receiving a favorable or qualified favorable finding from the ITU that takes into account the joint effect of its multiple ITU filings. Our action in this modification is consistent with Commission precedent. As

1 See Kuiper Systems LLC, Request for Modification of the Authorization for the Kuiper System, ICFS File No. SAT-MOD-20210806-00095 (filed Aug. 6, 2021) (Kuiper Modification Application); Kuiper Systems LLC, Application for Minor Amendment of Pending Modification of the Kuiper System, ICFS File No. SAT-AMD-20230329-00067 (filed Mar. 29, 2023) (Kuiper Amendment).

2 See Kuiper Systems, LLC, Application for Authority to Deploy and Operate a Ka-band Non-Geostationary Satellite Orbit System, Order and Authorization, 35 FCC Rcd 8324, 8345, Para. 60 (Jul. 30, 2020) (Kuiper Authorization); Kuiper Systems, LLC, Request for Modification of the Authorization for the Kuiper Systems LLC NGSO Satellite System, Order and Authorization, 38 FCC Rcd 1112, 1122, para. 44 (2023) (Kuiper Orbital Debris Modification Order); Kuiper Systems, LLC, Request for Modification of the Authorization for the Kuiper NGSO Satellite System, Order and Authorization, DA 24-224, para. 37 (rel. Mar. 8, 2024) (Kuiper Orbital Parameters Modification Order); Kuiper Systems, LLC, Grant Stamp, ICFS File No. SAT-MOD-20230201-00013 (granted Apr. 5, 2024) at para. 18 (Processing Round Coordination Modification Grant). We note that Kuiper’s Modification Application references condition 60, while its amendment refers to condition 44 of its authorization. Condition 60 in the Kuiper Authorization became condition 44 in the Kuiper Orbital Debris Modification Order. Condition 44 became condition 18 in the most recent Kuiper modification authorization. See Processing Round Coordination Modification Grant, at para. 18. We will refer to this condition as condition 18 throughout this Order.

3 See 47 CFR § 25.146.

4 See Space Exploration Holdings, LLC, Request for Orbital Deployment and Operating Authority for the SpaceX Gen2 NGSO Satellite System, Order and Authorization, 37 FCC Rcd 14882, 14905, 14951, paras. 32, 135s (2022) (SpaceX Gen2 First Partial Grant), appeals pending sub nom International Dark-Sky Association v. FCC, No. 22-

(continued....)

part of this Order, we deny the petition to deny of Hughes Network Systems LLC (Hughes),<sup>5</sup> and also deny Hughes's motion to consolidate.<sup>6</sup> Our action today serves the public interest by promoting rapid deployment of competitive low-earth orbit satellite broadband service for unserved and underserved areas of the United States, while providing additional assurance of protection from harmful interference for operators of geostationary orbit (GSO) satellites.

## II. BACKGROUND

2. In Article 22, Section 2, and Resolution 76 of the ITU Radio Regulations, the ITU has established EPFD limits that NGSO operators must comply with to protect GSO operations from harmful interference. The Commission has incorporated these limits into its rules by reference, and therefore an applicant proposing operations in the 10.7-30 GHz frequency range must certify that it will comply with all applicable EPFD limits as established by the ITU.<sup>7</sup> Additionally, prior to beginning service, an NGSO operator licensed to operate in the 10.7-30 GHz frequency range must obtain a favorable or qualified favorable finding from the ITU regarding its compliance with applicable EPFD limits, in accordance with Resolution 85 of the ITU Radio Regulations.<sup>8</sup> The operator must then communicate the ITU finding to the Commission and submit the input data files used for the ITU validation software for public disclosure.<sup>9</sup>

3. As part of its original application for authorization of its NGSO constellation, Kuiper submitted multiple filings to the ITU to describe its system.<sup>10</sup> When it granted Kuiper's application on July 30, 2020,<sup>11</sup> the International Bureau<sup>12</sup> required Kuiper to obtain an ITU finding "explicitly indicat[ing] that the joint effect of Kuiper's ITU filings associated with its constellation was taken into

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1337 (D.C. Cir. filed Dec. 29, 2022), *Dish Network Corp. v. FCC*, No. 23-1001 (D.C. Cir. filed Jan. 3, 2023). Two parties have also filed petitions for reconsideration regarding the *SpaceX Gen2 First Partial Grant*. See Petition for Reconsideration of LeoLabs, Inc., ICFS File Nos. SAT-LOA-20200526-00055 and SAT-AMD-20210818-00105 (filed Dec. 30, 2023); Petition for Clarification of Viasat, Inc., ICFS File Nos. SAT-LOA-20200526-00055 and SAT-AMD-20210818-00105 (filed Jan. 3, 2023). The Space Bureau has also granted a second partial grant authorizing SpaceX to communicate using E-band frequencies. The condition on SpaceX's authorization that Kuiper requests to match in this modification request is condition 22t. See *Space Exploration Holdings, LLC, Request for Orbital Deployment and Operating Authority for the SpaceX Gen2 NGSO Satellite System*, Order and Authorization, DA-24-222 at para. 22t (granted Mar. 8, 2024) (*SpaceX E-band Order*).

<sup>5</sup> Petition to Deny of Hughes Network Systems LLC, ICFS file nos. SAT-MOD-20210806-00095 and SAT-AMD-20230329-00067 (filed May 8, 2023) (Hughes Amendment Petition).

<sup>6</sup> Motion to Consolidate of Hughes Network Systems LLC, ICFS File Nos. SAT-20200417-00037 and SAT-MOD-20210806-00095 (filed Nov. 22, 2021) (Hughes Motion to Consolidate).

<sup>7</sup> See 47 CFR § 25.146(a)(2).

<sup>8</sup> See 47 CFR § 25.146(c).

<sup>9</sup> *Id.*

<sup>10</sup> See *Kuiper Authorization*, 35 FCC Rcd at 8331, para. 26.

<sup>11</sup> See generally *Kuiper Authorization*, 35 FCC Rcd. 8324.

<sup>12</sup> On January 4, 2023, the Commission adopted an Order that established the Space Bureau to handle the policy and licensing matters related to satellite communications and other in-space activities formerly handled by the International Bureau, which the Order eliminated. See *Establishment of the Space Bureau and the Office of International Affairs and Reorganization of the Consumer and Governmental Affairs Bureau and the Office of the Managing Director*, MD Docket No. 23-12, Order, FCC 23-1, paras. 1-2 (adopted Jan. 4, 2023). The Space Bureau officially launched on April 11, 2023. See Press Release, FCC, FCC Space Bureau & Office of International Affairs to Launch Next Week (April 7, 2023), <https://docs.fcc.gov/public/attachments/DOC-392418A1.pdf>. All references in this document to the International Bureau and the Satellite Division refer to filings made with, or actions taken by, the International Bureau prior to the establishment of the Space Bureau.

account when verifying compliance with the applicable EPPD limits.”<sup>13</sup>

4. On August 6, 2021, Kuiper filed the instant modification, in which it originally requested the Bureau remove the condition in its authorization that required the finding Kuiper obtains from the ITU explicitly indicate the joint effect of its multiple ITU filings was taken into account, to match a condition in the Commission’s *SpaceX Third Modification Order*.<sup>14</sup> The Satellite Division placed the Kuiper Modification Application on public notice on August 20, 2021.<sup>15</sup> SES Americom and O3b Limited (SES/O3b) filed comments,<sup>16</sup> and SpaceX, Viasat Inc. (Viasat), Kuiper, and SES/O3b filed replies.<sup>17</sup> Hughes Network Systems, LLC (Hughes), which had also filed a petition for reconsideration of the *SpaceX Third Modification Order*, filed an *ex parte* letter and motion to consolidate Kuiper’s Modification Application with its petition for reconsideration.<sup>18</sup> Parties have continued to make *ex parte*

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<sup>13</sup> See *Kuiper Authorization*, 35 FCC Rcd at 8331, 8345, paras. 26, 60. This condition was included in later modifications of Kuiper’s authorization as well. See *Kuiper Orbital Debris Modification Order*, 38 FCC Rcd at 1122, para. 44; *Kuiper Orbital Parameters Modification Order* at para. 37; *Processing Round Coordination Modification Grant*, at para. 18. The Commission has also twice addressed the issue of an operator of a large NGSO constellations submitting multiple ITU filings to validate compliance with applicable EPPD limits. *Space Exploration Holdings, LLC, Request for Modification of the Authorization for the SpaceX NGSO Satellite System*, Order and Authorization and Order on Reconsideration, 36 FCC Rcd 7995, 8017-18, 8048, Para. 33-34, 97p (2021) (*SpaceX Third Modification Order*). See *SpaceX Gen2 First Partial Grant*, 37 FCC Rcd at 14901-10, paras. 26-40. In the *SpaceX Third Modification Order*, the Commission did not impose the same condition requiring SpaceX to receive a finding from the ITU that explicitly stated the ITU had taken into account the joint effect of SpaceX’s multiple ITU filings. See *SpaceX Third Modification Order*, 36 FCC Rcd at 8018, para. 34. Hughes has filed a petition for reconsideration on the *SpaceX Third Modification Order* requesting the Commission reconsider this decision and impose the same joint-effect condition that is on Kuiper’s license. See *Petition for Reconsideration of Hughes Network Systems, LLC*, ICFS File No. SAT-MOD-20200417-00037 (filed May 27, 2021). However, in the *SpaceX Gen2 First Partial Grant*, the Commission found it was in the public interest to require SpaceX to receive a finding from the ITU that took into account the joint effect of SpaceX’s eighteen separate ITU filings and prescribed a process for acquiring that finding from the ITU. See *SpaceX Gen2 First Partial Grant*, 37 FCC Rcd at 14904, para. 31. In both the *SpaceX Third Modification Order* and *SpaceX Gen2 First Partial Grant*, the Commission granted SpaceX’s waiver request to permit it to begin operations prior to receiving its ITU finding. *SpaceX Third Modification Order*, 36 FCC Rcd at 8021, 8048, para. 41, 97p; *SpaceX Gen2 First Partial Grant*, 37 FCC Rcd at 14909-10, 14951, 14954, paras. 40, 135s, 141.

<sup>14</sup> See *Kuiper Modification Application*.

<sup>15</sup> See *Satellite Policy Branch Information, Space Station Applications Accepted for Filing*, Report No. SAT-01574 (Aug. 20, 2021).

<sup>16</sup> See *Comments of SES Americom and O3b Limited*, ICFS File Nos. SAT-MOD-20200417-00037 and SAT-MOD-20210806-00095 (filed Sept. 20, 2021) (SES/O3b Comments).

<sup>17</sup> See *Reply of Space Exploration Holdings, LLC*, ICFS File Nos. SAT-MOD-20200417-00037 and SAT-MOD-20210806-00095 (filed Sept. 30, 2021) (*SpaceX Reply*); *Reply of Viasat, Inc.*, ICFS File Nos. SAT-MOD-20210806-00095 (filed Oct. 5, 2021) (*Viasat Reply*); *Reply of Kuiper Systems LLC*, ICFS File Nos. SAT-MOD-20210806-00095 (filed Oct. 5, 2021) (*Kuiper Reply*); *Reply of SES Americom and O3b Limited*, ICFS File Nos. SAT-MOD-20200417-00037 and SAT-MOD-20210806-00095 (filed Oct. 18, 2021) (SES/O3b Reply).

<sup>18</sup> See *Hughes Motion to Consolidate*. SpaceX and Kuiper opposed Hughes’s motion to consolidate. See *Opposition of Space Exploration Holdings LLC*, ICFS File Nos. SAT-MOD-20200417-00037 and SAT-MOD-20210806-00095 (filed Dec. 7, 2021) (*SpaceX December 7, 2021 Opposition*); *Opposition of Kuiper Systems Inc.*, ICFS File Nos. SAT-20200417-00037 and SAT-MOD-20210806-00095 (filed Dec. 10, 2021) (*Kuiper December 10, 2021 Opposition*); see also *Letter from Jennifer A. Manner, Senior Vice President Regulatory Affairs, Hughes Network Systems LLC, to Marlene H. Dortch, Secretary, FCC*, ICFS File Nos. SAT-MOD-20200417-00037 and SAT-MOD-20210806-00095 (dated Jan. 18, 2022) (*Hughes January 18, 2022 Letter*).

submissions.<sup>19</sup>

5. On March 29, 2023, Kuiper amended its Modification Application, requesting that the same condition be applied to its authorization as the Commission had applied in the 2022 license grant to SpaceX for its second generation system (*SpaceX Gen2 First Partial Grant*).<sup>20</sup> In amending its application, Kuiper no longer requests removal of the EPFD-related condition regarding the joint effect of multiple ITU filings as part of this modification proceeding,<sup>21</sup> but instead requests partial waiver of section 25.146 of the Commission's rules to permit Kuiper to initiate service at its own risk, prior to receiving a finding from the ITU that explicitly indicates the ITU has taken the joint effect of Kuiper's multiple ITU filings into account.<sup>22</sup> The Satellite Division placed the Kuiper application, as amended, on public notice on April 7, 2023.<sup>23</sup> Hughes filed a petition to deny,<sup>24</sup> and SES/O3b, Viasat, and SpaceX filed comments.<sup>25</sup> Kuiper filed a consolidated opposition and reply,<sup>26</sup> and SpaceX and SES/O3b replied.<sup>27</sup> Hughes subsequently submitted an ex parte presentation regarding Kuiper's Modification Application, as amended.<sup>28</sup> At this time, Kuiper states that it has received separate favorable findings from the ITU for each of its three individual ITU filings.<sup>29</sup>

### III. DISCUSSION

6. After review of the record, we conclude that grant of Kuiper's Modification Application,

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<sup>19</sup> See Ex Parte Presentation of Kuiper Systems LLC, ICFS File No. SAT-MOD-20210806-00095 (filed Nov. 8, 2021) (Kuiper November 8, 2021 Ex Parte); Ex Parte Presentation of Hughes Network Systems LLC, ICFS File Nos. SAT-MOD-20200417-00037 and SAT-MOD-20210806-00095 (filed Feb. 3, 2022) (Hughes February 3, 2022 Ex Parte); Ex Parte Presentation of Hughes Network Systems LLC, ICFS File Nos. SAT-MOD-20200417-00037 and SAT-MOD-20210806-00095 (filed Feb. 24, 2022) (Hughes February 24, 2022 Ex Parte); Ex Parte Presentation of Kuiper Systems LLC, ICFS File No. SAT-MOD-20210806-00095 (filed May 18, 2022) (Kuiper May 18, 2022 Ex Parte).

<sup>20</sup> See *SpaceX Gen2 First Partial Grant*, 37 FCC Rcd at 14905, 14951, paras. 32, 135s.

<sup>21</sup> See Opposition of Kuiper Systems LLC, ICFS file No. SAT-AMD-20230329-00067 (filed May 23, 2023) (Kuiper Amendment Opposition) at 1, n. 1 (“Amazon continues to believe that the “joint effect” condition is inappropriate, including because it is contrary to Commission precedent and the public interest . . . [n]evertheless, and for the avoidance of doubt, Amazon is seeking a partial waiver of Section 25.146(c) of the Commission's rules as set forth herein, but does not waive any future arguments regarding the appropriateness of a joint effect condition.”).

<sup>22</sup> See generally Kuiper Amendment. Prior to filing its amendment, on February 21, 2023, Kuiper filed a letter requesting modification of condition 18 of its authorization—the condition requiring an ITU finding prior to commencing operations that explicitly takes into account the joint effect of Kuiper's multiple ITU filings—not only to remove the joint effect language but also to permit Kuiper to begin operations prior to receiving an ITU finding.

<sup>23</sup> See *Satellite Policy Branch Information, Space Station Applications Accepted for Filing*, Report No. SAT-01714 (Apr. 7, 2023).

<sup>24</sup> Hughes Amendment Petition.

<sup>25</sup> Comments of SES Americom and O3b Limited, ICFS File No. SAT-AMD-20230329-00067 (filed May 9, 2023) (SES/O3b Amendment Comments); Comments of Viasat Inc., ICFS File Nos. SAT-MOD-20210806-00095 and SAT-AMD-20230329-00067 (filed May 5, 2023) (Viasat Amendment Comments); Comments of Space Exploration Holdings LLC, ICFS File No. SAT-AMD-20230329-00067 (filed May 8, 2023) (SpaceX Amendment Comments).

<sup>26</sup> Kuiper Amendment Opposition.

<sup>27</sup> Reply of SES Americom and O3b Limited, ICFS file no. SAT-AMD-20230329-00067 (filed Jun. 5, 2023) (SES/O3b Amendment Reply); Reply of Space Exploration Holdings LLC, ICFS file no. SAT-AMD-20230329-00067 (filed Jun. 5, 2023) (SpaceX Amendment Reply).

<sup>28</sup> Ex Parte presentation of Hughes Network Systems LLC, ICFS file nos. SAT-MOD-20210806-00095 and SAT-AMD-20230329-00067 (filed Jun. 20, 2023) (Hughes June 20, 2023 Ex Parte).

<sup>29</sup> Kuiper Amendment, Narrative at 4, n.14.

as amended, will serve the public interest subject to the requirements and conditions specified herein. Below, we address the various outstanding issues raised by commenters on Kuiper's application, as amended. Where appropriate, and consistent with prior authorizations for Kuiper, we defer matters of general applicability to ongoing or potential future rulemakings.

#### A. Motion to Consolidate

7. As a preliminary matter, we deny Hughes's motion requesting we consolidate review of Hughes's reconsideration petition for the *SpaceX Third Modification Order* and the Kuiper Modification Application.<sup>30</sup> Hughes argued that consolidated review of both proceedings is consistent with Commission rules, policies, and precedents because the proceedings involve similarly situated applicants and will be resolved on a common set of law and facts.<sup>31</sup> As noted, in its application as amended, Kuiper no longer seeks removal of the joint-effect requirement for its ITU finding in this proceeding and focuses instead on a partial waiver request to allow it to begin operations while the ITU considers the joint effect of its multiple filings.<sup>32</sup> Since Hughes' arguments in its motion to consolidate focus on the existence of the joint effect condition, we find there is no persuasive argument at this time for consolidating review.<sup>33</sup>

#### B. The Joint Effect Condition

8. We maintain the joint effect condition on Kuiper's authorization. For purposes of this proceeding, we interpret Kuiper's amendment, seeking partial waiver of section 25.146(c) to begin operations prior to receiving the finding from the ITU on the joint effect of its multiple ITU filings, as superseding its initial request for this modification to remove the joint-effect language altogether.<sup>34</sup> We therefore do not address Kuiper's request to remove the joint-effect finding requirement.

9. In accordance with Commission precedent, we describe herein the process for Kuiper to meet the requirements of the joint effect condition, including submitting certain materials to the Commission and making those available to other parties.<sup>35</sup> Kuiper must submit a single combined filing to the Space Bureau, including an input datafile and output file for all of its proposed satellites, prior to deploying additional authorized satellites.<sup>36</sup> Kuiper must confirm via certification that this combined filing demonstrates compliance with all applicable EPFD limits. Several commenters argue they need assurances that Kuiper's system as a whole will not violate the EPFD limits and cause harmful interference to their operations.<sup>37</sup> To that end, SES/O3b and Hughes both propose the Bureau require

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<sup>30</sup> Hughes Motion to Consolidate at 1.

<sup>31</sup> *Id.* at 1-2.

<sup>32</sup> Kuiper February 21, 2023 Letter at 1-2; Kuiper Amendment, Narrative at 1, 5. As discussed below, based on Kuiper's statements in the record, we find that Kuiper has clarified that it is no longer seeking removal of the joint-effect requirement in this proceeding. Kuiper Amendment Opposition at 1.

<sup>33</sup> See Hughes Amendment Petition.

<sup>34</sup> Commenters on Kuiper's amendment application ask the Commission to deny the portion of the modification seeking to remove the joint effect requirement. See e.g. Hughes Amendment Petition at 2; Viasat Amendment Comments at 2.

<sup>35</sup> See *SpaceX Gen2 First Partial Grant*, 37 FCC Rcd at 14904, para. 31.

<sup>36</sup> To date, Kuiper has deployed two authorized prototype satellites which were originally authorized under an experimental license but have been incorporated into its part 25 license. See *Kuiper Orbital Parameters Modification Order* at paras. 8-9.

<sup>37</sup> Viasat Reply at 2; Viasat Amendment Comments at 1-2; Hughes Amendment Petition at 1-2; SES/O3b Amendment Comments at 1-2; Hughes June 20, 2023 Ex Parte, attachment at 1. Kuiper argues that its commitment to operate on a non-interference basis until it receives an ITU finding taking into account the joint effect of its multiple filings, along with its commitment to modify its operations should it receive an unfavorable finding, should be sufficient assurance for these GSO operators. Kuiper Amendment Opposition at 3-4.

Kuiper to provide the input data necessary to run the ITU compliance software for its system as a whole.<sup>38</sup> Kuiper agrees it must be subject to the same obligations as the Commission has previously applied,<sup>39</sup> and states that it will accept a condition requiring it to provide information regarding its EPFD compliance for its entire system to interested parties.<sup>40</sup> We note that Kuiper's authorization is already conditioned such that Kuiper must provide its input files for running the ITU validation software to any requesting party.<sup>41</sup> Again, consistent with Commission precedent,<sup>42</sup> we find that it is in the public interest to continue to require Kuiper to provide its EPFD input datafiles to requesting parties, particularly given our grant herein of Kuiper's request for a partial waiver of 25.146(c) to allow it to begin operations prior to obtaining a joint-effect finding from the ITU. We note that Kuiper's proposed condition mirrors the condition the Commission placed on SpaceX's second generation system authorization,<sup>43</sup> but SES/O3b is correct that the Commission did require SpaceX to provide both its input and output files for its combined filing.<sup>44</sup> We therefore condition Kuiper's authorization as follows: Kuiper must make available to any requesting party the data used as input to the ITU approved validation software and the results it obtained from running the ITU validation software to demonstrate compliance with applicable EPFD limits, including the data that combine the Kuiper System satellites into one consolidated file.

### C. Partial Waiver Request of Section 25.146(c)

10. Generally, the Commission may waive any rule for good cause shown.<sup>45</sup> A waiver is appropriate if (1) special circumstances warrant a deviation from the general rule, and (2) such deviation

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<sup>38</sup> SES/O3b Amendment Comments at 1-2; SES/O3b Comments at 5; Hughes Amendment Petition at 2, 5. Hughes proposes the Bureau require Kuiper "(i) clarify that its self-certification of EPFD compliance is based upon the operations of its entire system; and (ii) submit for public review both input data files and output calculations showing EPFD compliance." Hughes Amendment Petition at 2, 5; Hughes June 20, 2023 Ex Parte, Attachment at 1, 2. Hughes argues these conditions are in line with the Commission's rules and will provide important safeguards for GSO operators, especially if the Commission chooses to grant Kuiper's waiver request. Hughes Amendment Petition at 5. Similarly, SES/O3b specifically proposes the Bureau condition Kuiper's authorization such that Kuiper "must make available to any requesting party within 30 days of the request: the data used as input to the ITU-approved validation software to demonstrate compliance with applicable [EPFD] limits as well as the EPFD results it obtained by running the ITU software, along with confirmation that the EPFD input files and results reflect the operations of its complete system pursuant to all ITU filings associated with its NGSO satellite constellation." SES/O3b Comments at 5, 6; SES/O3b Amendment Comments at 1-2, 3. Initially Kuiper objected to these proposed conditions. Kuiper Reply at 2, 4-5; Kuiper November 8, 2022 Ex Parte at 4; *see also* SpaceX Reply at 1, 3, 4. Kuiper now acknowledges it should be subject to the same sharing condition as SpaceX. Kuiper Amendment Opposition at 7.

<sup>39</sup> *See SpaceX Gen2 First Partial Grant*, 37 FCC Rcd at 14905-06, para. 33.

<sup>40</sup> Kuiper Amendment Opposition at 7. Kuiper proposes the Bureau condition its authorization such that Kuiper "must make available to any requesting party the data used as input to the ITU approved validation software to demonstrate compliance with applicable Equivalent Power Flux-Density (EPFD) limits, including the data that combine the Kuiper System satellites into one consolidated file." Kuiper Amendment Opposition at 7. SES/O3b objects that Kuiper does not commit to also providing the outputs from running a combined file through the ITU validation software and requests the Commission require it to do so, as it required SpaceX to do for its Gen2 system. SES/O3b Amendment Reply at 1, 2-3.

<sup>41</sup> *See Processing Round Coordination Modification Grant*, at para. 18.

<sup>42</sup> *See SpaceX Gen2 First Partial Grant*, 37 FCC Rcd at 14906, para. 33.

<sup>43</sup> Kuiper Amendment Opposition at 7; *SpaceX Gen2 First Partial Grant*, 37 FCC Rcd at 14951, para. 135t.

<sup>44</sup> SES/O3b Amendment Reply at 1, 2-3; *SpaceX Gen2 First Partial Grant*, 37 FCC Rcd at 14905, para. 32.

<sup>45</sup> 47 CFR § 1.3.

better serves the public interest.<sup>46</sup> In making this determination, we may take into account considerations of hardship, equity, or more effective implementation of overall policy on an individual basis.<sup>47</sup>

11. In its amendment, Kuiper requests partial waiver of section 25.146(c) of the Commission's rules.<sup>48</sup> Specifically, Kuiper requests that we waive the part of the rule requiring that a licensee receive a favorable or qualified favorable finding from the ITU regarding its compliance with applicable ITU EPFD limits "[p]rior to the initiation of service," allowing Kuiper to deploy its satellites and begin operations prior to receiving the finding from the ITU regarding the joint effect of its multiple ITU filings.<sup>49</sup> Kuiper asserts that should any harmful interference occur to GSO systems in frequency bands subject to ITU EPFD limits during the period prior to receiving the finding, Kuiper will take all reasonable steps to eliminate such interference.<sup>50</sup> Kuiper argues that there is good cause for such a waiver because the ITU does not currently have a process for assessing the joint effect of multiple ITU filings, nor is it subject to a timeframe to complete such an assessment; thus, Kuiper would be unnecessarily delayed in commencing operations.<sup>51</sup> Kuiper also argues that waiver is appropriate because it will enable faster deployment of its system and accelerate its efforts to close the digital divide with low-latency, high speed broadband connectivity.<sup>52</sup> Finally, Kuiper argues that the waiver is supported by equity grounds, because Kuiper is similarly situated to SpaceX, and the Commission granted a similar partial waiver in the *SpaceX Gen2 Partial Grant*.<sup>53</sup>

12. Commenters object to Kuiper's waiver request, arguing it would allow Kuiper to begin operations and continue operating with no assurance that there will ever be a finding from the ITU that its system as a whole complies with the applicable EPFD limits, essentially rendering the joint-effect condition meaningless.<sup>54</sup> Hughes claims Kuiper's waiver request falls short of the Commission's standard for granting waivers, because it would plainly undermine the purpose of the rule, namely the protection of

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<sup>46</sup> *NetworkIP, LLC v. FCC*, 548 F.3d 116, 125-128 (D.C. Cir. 2008) (citing *Northeast Cellular Telephone Co.*, 897 F.2d 1164, 1166 (1990)).

<sup>47</sup> See *Northeast Cellular*, 897 F.2d at 1166 ("[A] waiver is appropriate only if special circumstances warrant a deviation from the general rule and such deviation will serve the public interest. The agency must explain why deviation better serves the public interest and articulate the nature of the special circumstances to prevent discriminatory application and to put future parties on notice as to its operation"); *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969) ("The agency's discretion to proceed in difficult areas through general rules is intimately linked to the existence of a safety valve procedure for consideration of an application for exemption based on special circumstances.").

<sup>48</sup> 47 CFR § 25.146(c).

<sup>49</sup> *Id.* See Kuiper Amendment, Narrative at 1, 5; Kuiper February 21, 2023 Letter at 2.

<sup>50</sup> Kuiper February 21, 2023 Letter at 2. Moreover, Kuiper argued that Condition 18 should require it: (1) adjust operations if it receives an unfavorable finding from the ITU; and (2) acknowledge that, in the event of actual harmful interference to GSO operations, the FCC will take appropriate action. *Id.*

<sup>51</sup> Kuiper Amendment at 6.

<sup>52</sup> *Id.* at 5.

<sup>53</sup> *Id.* at 6-7. Kuiper cites to the similar condition in the *SpaceX Gen2 First Partial Grant* that it must "(1) commence operations at its own risk; (2) adjust operations if it does not receive a favorable joint effect determination from the ITU; and (3) operate on a non-interference basis until the Commission has been notified of the ITU joint effect findings." *Id.* Should any interference occur during this period, Kuiper stated it would take all reasonable steps to eliminate such interference. *Id.*

<sup>54</sup> Hughes Amendment Petition at 1, 3; Viasat Amendment Comments at 2; Hughes June 20, 2023 Ex Parte, attachment at 1.

GSO systems from harmful interference.<sup>55</sup> Hughes also argues that uncertainty and delay caused by the ITU review process does not rise to the level of special circumstances required to justify a waiver, as these circumstances are applicable to all NGSO operators.<sup>56</sup> Hughes further asserts that the Commission's grant of a similar waiver to SpaceX does not bear upon Kuiper's request, as Kuiper is not planning to launch its first commercial satellites until the first half of 2024 at the earliest and Kuiper does not provide evidence that the launch of its initial commercial satellites is sufficient to begin providing service.<sup>57</sup>

13. We grant Kuiper a partial waiver of section 25.146(c). We disagree with Hughes's claim that Kuiper has not presented special circumstances to justify a waiver under our rules.<sup>58</sup> On the contrary, we find that Kuiper is poised to begin rapidly deploying and operating its satellite constellation,<sup>59</sup> which will bring broadband service to unserved and underserved Americans across the United States. Kuiper has already deployed two prototype satellites and has stated that it is preparing to deploy and begin operations with its constellation in the coming months.<sup>60</sup> Kuiper sought a partial waiver of section 25.146(c) in advance of its planned deployment to prevent delay in initiation of service and allow the Commission time to review its modification request.<sup>61</sup> We do not find that the timing of Kuiper's modification request—filed prior to launch of its satellites—weighs against granting a partial waiver of section 25.146(c).<sup>62</sup> While Kuiper may not be able to begin providing broadband service immediately after its initial launches,<sup>63</sup> the sooner it begins deploying and operating its satellites, the sooner it will be capable of providing service. Delaying deployment and operations until after it has received an ITU finding on its combined filing will only delay the provision of competitive broadband service even further. There is not currently a standard timeline for the ITU to make a “favorable” or “qualified favorable” finding indicating that it has taken into account the joint effect of Kuiper's ITU filings.<sup>64</sup> Kuiper's individual ITU filings previously required 30 months to receive a favorable finding from the ITU,<sup>65</sup> and the only other operator required to obtain a joint-effect finding, SpaceX, has not yet received a finding on its combined filing, which was submitted to the ITU over a year ago. Thus, requiring Kuiper to receive the joint-effect finding prior to commencing operations could significantly delay Kuiper's

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<sup>55</sup> Hughes Amendment Petition at 3; Hughes June 20, 2023 Ex Parte, attachment at 1. Hughes further argues that grant of Kuiper's waiver request would remove any incentive for Kuiper to receive a timely ITU finding. Hughes Amendment Petition at 3.

<sup>56</sup> Hughes Amendment Petition at 3-4. Hughes also argues that the fact that Kuiper has received favorable findings for its three separate filings belies its claims of uncertainty and delay at the ITU. *Id.* at 4.

<sup>57</sup> *Id.* at 4; Hughes June 20, 2023 Ex Parte, attachment at 2. We note that Kuiper has now launched two prototype satellites, which the Space Bureau has incorporated into its part 25 commercial license. *See Kuiper Orbital Parameters Modification Order* at para. 9.

<sup>58</sup> *See* Hughes Amendment Petition at 2-4.

<sup>59</sup> Kuiper Amendment Opposition at 6.

<sup>60</sup> Kuiper Amendment, Narrative at 4, n.13.

<sup>61</sup> *See* Kuiper Amendment Opposition at 6-7.

<sup>62</sup> *See* Hughes Amendment Petition at 4.

<sup>63</sup> *See id.*; Hughes June 20, 2023 Ex Parte, attachment at 2.

<sup>64</sup> *See e.g.* Kuiper Amendment Opposition at 2, 6. Kuiper notes that it took thirty months for it to receive favorable findings on its three individual filings and it expects a finding regarding its combined operations could take even longer. *Id.* at 6. We note that SpaceX's consolidated filing is still under review at the ITU for compliance with applicable ITU EPFD limits.

<sup>65</sup> *See* Kuiper Amendment Opposition at 6.



initiation of service.<sup>66</sup> This would thereby delay provision of competitive broadband services to unserved and underserved areas of the United States. While we have outlined a process for Kuiper to receive a finding from the ITU that would satisfy the joint-effect finding requirement, the timeline for such a process is currently uncertain. We conclude that such circumstances go beyond any typical uncertainty or delay that could occur in the context of more established ITU processes.<sup>67</sup> We also note that we may consider equity in deciding to grant a waiver request.<sup>68</sup> The full Commission has previously granted a similar partial waiver of this rule based on the delay in receiving an ITU finding and the extensive public interest benefits in rapid deployment.<sup>69</sup> Permitting Kuiper to begin operations on a non-interference basis will benefit the public interest by creating additional competitive options for low-Earth orbit satellite broadband services in the United States.

14. SES/O3b asserts that if the Bureau chooses to grant Kuiper's waiver request, it must also require Kuiper to provide its input and output data for running the ITU validation software to interested parties, as the Commission required SpaceX to do when it granted this waiver to SpaceX.<sup>70</sup> As discussed above, we are conditioning Kuiper's authorization to require it to provide the datafiles used as inputs to the ITU validation software and results from running the software, including for the combined filing it must submit to the Commission, to any interested party. We believe this condition will provide additional assurance to GSO operators that they will not experience harmful interference pending a finding from the ITU, particularly when combined with the other conditions on Kuiper's operations during this interim period. We also note Kuiper's commitment to operate on a non-interference basis until it receives a favorable or qualified favorable finding from the ITU on its combined filing as well as its commitment to adjust its operations to come into compliance with the applicable EPFD limits in the event it receives an unfavorable finding,<sup>71</sup> and we condition this authorization accordingly. We agree with Kuiper that these additional conditions should further assure GSO operators.<sup>72</sup>

15. For the foregoing reasons, we find that special circumstances warrant a partial waiver of section 25.146(c) and that it is in the public interest to permit Kuiper to deploy its satellites and begin operations prior to receiving a favorable or qualified favorable finding from the ITU, as required under section 25.146(c) and the conditions on its license. Although some commenters argue that grant of a waiver would undermine the purpose of the rule, we disagree, given that Kuiper is required to certify to the Commission that its EPFD analysis taking into account the joint effect of multiple filings will comply with ITU limits and that Kuiper has agreed that its operations will be on a non-interference and unprotected basis pending a finding from the ITU.

16. Therefore, we grant Kuiper's request for partial waiver of section 25.146(c) of the Commission's rules,<sup>73</sup> allowing it to commence operations on a non-interference basis prior to receiving a

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<sup>66</sup> See *id.* See also Kuiper Amendment at 6 (“[T]he ITU does not currently have a process for assessing the ‘joint effect’ of multiple ITU filings, nor is it subject to a timeframe to complete such an assessment. Amazon could therefore be waiting months, if not years, to commence operations.”); Kuiper Amendment Opposition at 2, 3 n.6 (“Waiting an indeterminate period of time for the ITU to establish procedures for a joint effect analysis could jeopardize Amazon’s ability to meet its buildout milestones or even prevent deployment of the Kuiper System altogether if the ITU never adopts such procedures.”).

<sup>67</sup> See Hughes Amendment Petition at 3-4.

<sup>68</sup> See *WAIT Radio*, 418 F.2d at 1159.

<sup>69</sup> See *SpaceX Gen2 First Partial Grant*, 37 FCC Rcd at 14909-10, 14951, 14954, paras. 40, 135s, 141.

<sup>70</sup> SES/O3b Amendment Comments at 3.

<sup>71</sup> See *e.g.* Kuiper Amendment Opposition at 2-3.

<sup>72</sup> See *id.* at 3-4.

<sup>73</sup> 47 CFR § 25.146(c).

favorable or qualified favorable finding from the ITU for its combined filing. Kuiper's operations during this time are at its own risk, and in the event that Kuiper's operations cause harmful interference, Kuiper must immediately cease operations and notify the Commission in writing of such an event. Additionally, if Kuiper receives an unfavorable finding from the ITU for its combined filing, it must adjust operations to come into compliance with the applicable EPFD limits.

#### **D. Orbital Debris Conditions**

17. SpaceX argues that if the Bureau finds that Kuiper is similarly situated with SpaceX and therefore partially waives section 25.146(c) of the Commission's rules, it must also impose all the "space sustainability" requirements that were included in SpaceX's *Gen2 Partial Grant*.<sup>74</sup> We continue to reject this argument, for the same reasons addressed in our March 8, 2024 Order granting a separate Kuiper modification request.<sup>75</sup> There is nothing about the instant Kuiper modification request as amended or in SpaceX's arguments in response that suggest any different or additional conditions should be applied to Kuiper with respect to orbital debris mitigation or related matters beyond what we recently specified in our separate Kuiper modification grant.

#### **IV. CONCLUSION AND ORDERING CLAUSES**

18. Accordingly, IT IS ORDERED, that the Kuiper Modification Application, as amended, filed by Kuiper Systems LLC (Kuiper), is GRANTED, pursuant to section 309(a) of the Communications Act of 1934, as amended, 47 USC § 309(a).

19. IT IS FURTHER ORDERED that Kuiper's authorization is subject to the following requirements and conditions:<sup>76</sup>

20. Prior to commencing operations in the 17.8-18.6 GHz and 18.8-20.2 GHz and 27.5-30 GHz bands, Kuiper must certify that it has completed a coordination agreement with or make a showing that it will not cause harmful interference to any operational system licensed or granted U.S. market access in the NGSO FSS processing rounds referred to in Public Notices DA 16-804, 31 FCC Rcd 7666 (IB 2016) and DA 17-525, 32 FCC Rcd 4180 (IB 2017). Kuiper may commence operations at its own risk, on a non-interference, unprotected basis with respect to any operations authorized in earlier processing rounds for which coordination has not been completed, prior to the approval of its showing by the Commission.

21. Kuiper's operations must comply with spectrum sharing procedures among NGSO FSS space stations specified in 47 CFR § 25.261 with respect to any NGSO system licensed or granted U.S. market access pursuant to the March 2020 Processing Round initiated by Public Notice, DA 20-325. Spectrum sharing between Kuiper's operations and operations of NGSO systems granted U.S. market access, where such operations do not include communications to or from the U.S. territory, are governed only by the ITU Radio Regulations and are not subject to section 25.261.

22. Kuiper must timely provide the Commission with the information required for Advance Publication, Coordination, and Notification of the frequency assignment(s) for this constellation, including a consolidated file containing information regarding its entire constellation and including due diligence information, pursuant to Articles 9 and 11 of the ITU Radio Regulations. This authorization may be modified, without prior notice, consistent with the coordination of the frequency assignment(s)

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<sup>74</sup> See SpaceX Amendment Comments at 1-2.

<sup>75</sup> See *Kuiper Orbital Parameters Modification Order* at paras. 15-18. SpaceX has filed an Application for Review of the *Kuiper Orbital Parameters Modification Order*. See Application for Review of Space Exploration Holdings, LLC, ICFS File Nos. SAT-MOD-20230228-00043 and SAT-AMD-20230613-00140 (filed Apr. 8, 2024).

<sup>76</sup> The conditions here replicate the full set of conditions applicable to Kuiper operations as specified in prior orders, except that a new condition has been added at paragraph 37, and conditions in paragraphs 22, 36, and 38 have been modified.

with other Administrations. See 47 CFR § 25.111(b). Kuiper is responsible for all cost-recovery fees associated with the ITU filings. 47 CFR § 25.111(d).

23. In connection with the provision of service in any particular country, Kuiper is obliged to comply with the applicable laws, regulations, rules, and licensing procedures of that country.

24. Kuiper must accept any additional interference resulting from its orbital parameters modification<sup>77</sup> compared to its current authorization, from licensees or market access grantees authorized in the Commission's NGSO 2020 Processing Round.

25. Kuiper must comply with all conditions on its experimental licenses, except as modified in the *Kuiper Orbital Parameters Modification Order*,<sup>78</sup> for operations of its two prototype satellites.

26. Operations in portions of the 17.8-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz bands, including MSS operations in the 19.7-20.2 GHz and 29.5-30 GHz bands, are authorized up to the applicable power flux-density and equivalent power-flux density limits contained in Articles 21 and 22, as well as Resolution 76 of the ITU Radio Regulations. In addition, operations must comply with the out-of-band emissions limits in 25.202(f), 47 CFR § 25.202(f).

27. Operations in the 19.3-19.4 GHz and 19.6-19.7 GHz (space-to-Earth) frequency bands are authorized up to the power flux-density limits in Article 21 of the ITU Radio Regulations that govern NGSO FSS systems in the 17.7-19.3 GHz (space-to-Earth) frequency band. Operations in the band 19.3-19.4 GHz and 19.6-19.7 GHz are on a secondary basis with respect to the GSO FSS. Blanket authorized earth stations in the 19.3-19.4 GHz and 19.6-19.7 GHz bands operate on a secondary basis with respect to the fixed service.

28. Kuiper must cooperate with other NGSO FSS operators in order to ensure that all authorized operations jointly comport with the applicable limits for aggregate equivalent power flux density in the space-to-Earth direction contained in Article 22 of the ITU Radio Regulations, as well as Resolution 76 (WRC-03) of the ITU Radio Regulations.

29. Operations in the 17.7-17.8 GHz band are limited to service outside of the United States and must not cause harmful interference to nor claim protection from assignments in the broadcasting-satellite service operating in conformity with the Radio Regulations, pursuant to 5.517 of the U.S. Table of Frequency Allocations.

30. Operations in the 17.8-18.3 GHz frequency band are on a secondary basis with respect to the fixed service.

31. Operations in the 19.3-19.7 GHz and 29.1-29.5 GHz bands must be coordinated with any previously authorized NGSO MSS systems not included in the March 2020 Processing Round over the bands designated for use by NGSO MSS feeder links. Until any coordination agreement required is obtained, operations shall not be conducted in these frequency bands. Sharing of the 19.3-19.7 GHz and 29.1-29.5 GHz bands with other systems authorized within the March 2020 Processing Round will be subject to section 25.261.

32. MSS operations in the 19.7-20.2 GHz and 29.5-30 GHz bands shall be conducted on a non-interference, non-protected basis with respect to other FSS operations in these bands.

33. Operations in the 27.5-28.35 GHz band are secondary with respect to Upper Microwave Flexible Use Service (UMFUS) operations, except for FSS operations associated with earth stations authorized pursuant to 47 CFR § 25.136.

34. In accordance with footnote NG62 to 47 CFR § 2.106, in the 28.5-29.1 GHz and 29.25-

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<sup>77</sup> See *Kuiper Orbital Parameters Modification Order*.

<sup>78</sup> See *id.*

29.5 GHz bands, Kuiper shall not cause harmful interference to, or claim protection from, stations in the fixed service listed in that footnote.

35. Space-to-Earth operations in the 17.8-18.6 GHz, 18.8-19.3 GHz, and 19.7-20.2 GHz bands must complete coordination with U.S. Federal systems, in accordance with footnote US334 to the United States Table of Frequency Allocations, 47 CFR § 2.106, prior to being used. The use of space-to-Earth operations in the 17.8-18.6 GHz, 18.8-19.3 GHz, and 19.7-20.2 GHz bands must be in accordance with any signed coordination agreement between Kuiper and U.S. Federal operators. Two weeks prior to the start of any operations in the 17.8-18.6 GHz, 18.8-19.3 GHz, and 19.7-20.2 GHz bands, Kuiper must provide contact information for a 24/7 point of contact for the resolution of any harmful interference to Jimmy Nguyen, Email: Jimmy.Nguyen@us.af.mil.

36. Kuiper's request for partial waiver of section 25.146(c) of the Commission's rules, 47 CFR § 25.146(c), is GRANTED. Under 47 CFR § 25.146(c), Kuiper must receive a favorable or "qualified favorable" finding in accordance with Resolution 85 with respect to its compliance with applicable EPFD limits in Article 22 of the ITU Radio Regulations as per paragraph 26 of the original grant document.<sup>79</sup> Kuiper must communicate the ITU finding to the Commission and, in case of an unfavorable finding, adjust its operation to satisfy the ITU requirements.

37. Prior to receiving a favorable or qualified favorable finding from the ITU for its consolidated file, Kuiper must conduct operations on an unprotected, non-interference basis, i.e. Kuiper must not cause interference to, and must not claim protection from interference caused to it by, any other lawfully operating station. In the event of any harmful interference under this grant, Kuiper must immediately cease operations upon notification of such interference and inform the Commission, in writing, of such an event.

38. Kuiper must make available to any requesting party the data used as input to the ITU approved validation software and the results it obtained from running the ITU approved validation software to demonstrate compliance with applicable Equivalent Power Flux-Density (EPFD) limits, including the data that combine the Kuiper System satellites into one consolidated file.

39. Kuiper must comply with the sharing of ephemeris data procedures described in section 25.146 of the Commission's rules. 47 CFR § 25.146(e).

40. Kuiper must coordinate physical operations of spacecraft with any operator using similar orbits, for the purpose of eliminating collision risk and minimizing operational impacts. The orbital parameters specified in this grant are subject to change based on such coordination.

41. This authorization and any earth station licenses granted in the future are subject to modification to bring them into conformance with any rules or policies adopted by the Commission in the future.

42. During launch and early orbit phase operations, payload testing, and deorbit of its satellites, Kuiper must operate on a non-harmful interference basis, i.e. Kuiper must not cause harmful interference and must accept any interference received. In the event of any harmful interference under this grant, Kuiper must immediately cease operations upon notification of such interference and inform the Commission, in writing, of such an event.

43. Kuiper may not deploy any of its 3,232 satellites authorized in this grant directly to their operational altitudes.

44. Kuiper must provide a semi-annual report, by January 1 and July 1 each year, covering the preceding six month period, respectively, from June 1 to November 30 and December 1 to May 31. The report should include the following information:

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<sup>79</sup> See *Kuiper Authorization*, 35 FCC Rcd at 8331, 8345, paras. 26, 60.

- a. The number of conjunction events identified for Kuiper satellites during the reporting period, and the number of events that resulted in an action (maneuver or coordination with another operator), as well as any difficulties encountered in connection with the collision avoidance process and any measures taken to address those difficulties,
- b. Satellites that, for purposes of disposal, were removed from operation or screened from further deployment at any time following initial deployment, and identifying whether this occurred less than five years after the satellite began regular operations or were available for use as an on-orbit replacement satellite,
- c. Satellites that re-entered the atmosphere,
- d. Satellites for which there was a disposal failure, i.e., a satellite that loses the capability to maneuver effectively after being raised from its injection, including a discussion of any assessed cause of the failure and remedial actions,
- e. Identification of any collision avoidance system outages or unavailability, either on a system-wide basis or for individual satellites. An “outage” would include any individual satellite anomaly that results in a satellite not achieving targeted risk mitigation via maneuver.

45. Kuiper must also provide a report if during any continuous one-year period there are two or more satellite disposal failures. Such report shall be filed not later than 10 days following the second disposal failure and must either state the assessed cause of the failure and remedial actions for each of the disposal failures during the period, if available, or provide a schedule for completion of a process for doing so. Based on the information reported, the license may be subject to additional terms and conditions, including additional reporting obligations, limitations on additional deployments, requirements for early removal of satellites from orbit, or any other appropriate conditions to limit collision risk.

46. Upon receipt of a conjunction warning from the 18th Space Control Squadron or other source, Kuiper must review and take all possible steps to assess the collision risk and mitigate collision risk if necessary. As appropriate, steps to assess and mitigate should include, but are not limited to: contacting the operator of any active spacecraft involved in such warning; sharing ephemeris data and other appropriate operational information with any such operator; modifying spacecraft attitude and/or operations.

47. Kuiper must communicate and collaborate with NASA to ensure that deployment and operation of its satellites does not unduly constrain deployment and operation of NASA assets and missions, supports safety of both Kuiper and NASA assets and missions, and preserves long-term sustainable space-based communications services. Kuiper must report on the progress of its communications and collaboration efforts to the Commission in its regular reports specified in condition para. 25.

48. Kuiper must continue to coordinate and collaborate with NASA to promote a mutually beneficial space environment that would minimize impacts to NASA’s science missions involving astronomy.

49. Kuiper must monitor its satellites’ propellant reserves to ensure that the Kuiper satellites are able to fully perform collision avoidance maneuvers during operations at the relevant altitudes specified in its application as well as complete maneuvers to lower the apogee to below any inhabitable space stations. Should a Kuiper satellite engage in more maneuvers than originally projected or otherwise consume propellant more rapidly than anticipated, Kuiper must initiate deorbit operations early in order to ensure that sufficient propellant remains to complete deorbit maneuvers. Kuiper must make available to other operators supplemental information, based on GPS readings or other supplemental sources, such as third-party observations, sufficient to reduce covariance of predicted trajectories to a level that facilitates

collision avoidance procedures, as coordinated with other operators.

50. Kuiper must coordinate with NSF to achieve a mutually acceptable agreement to mitigate the impact of its satellites on optical ground-based astronomy. Kuiper must submit an annual report to the Commission, by January 1st each year covering the preceding year containing the following information: (1) whether it has reached a coordination agreement with NSF addressing optical astronomy; and (2) any steps Kuiper has taken to reduce the impact of its satellites on optical astronomy, including but not limited to darkening, deflecting light away from the Earth, attitude maneuvering, and provision of orbital information to astronomers for scheduling observations around satellites' locations.

51. This authorization is subject to modification to bring it into conformance with any rules or policies adopted by the Commission in the future. Accordingly, any investments made toward operations in the bands authorized in this Order by Kuiper in the United States assume the risk that operations may be subject to additional conditions or requirements as a result of any future Commission actions. This includes, but is not limited to, any conditions or requirements resulting from any action in the proceedings associated with IB docket 22-271 and IB Docket 18-818,<sup>80</sup> WT Docket 20-443,<sup>81</sup> WT docket 20-133,<sup>82</sup> IB docket 21-456,<sup>83</sup> and GN Docket 22-352.<sup>84</sup>

52. This authorization is also subject to the following requirements:

- a. Kuiper must post a surety bond in satisfaction of 47 CFR §§ 25.165(a)(1) & (b) no later than August 30, 2020, and thereafter maintain on file a surety bond requiring payment in the event of a default in an amount, at minimum, determined according to the formula set forth in 47 CFR § 25.165(a)(1); and
- b. Kuiper must launch 50% of the maximum number of proposed space stations, place them in the assigned orbits, and operate them in accordance with the station authorization no later than July 30, 2026, and Kuiper must launch the remaining space stations necessary to complete its authorized service constellation, place them in their assigned orbits, and operate each of them in accordance with the authorization no later than July 20, 2029, 47 CFR § 25.164(b).<sup>85</sup>

53. Failure to post and maintain a surety bond will render this grant null and void automatically, without further Commission action. Failure to meet the milestone requirements of 47 CFR § 25.164(b) may result in Kuiper's authorization being reduced to the number of satellites in use on the milestone date. Failure to comply with the milestone requirement of 47 CFR § 25.164(b) will also result in forfeiture of Kuiper's surety bond. By August 14, 2026, Kuiper must either demonstrate compliance

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<sup>80</sup> See generally *Mitigation of Orbital Debris in the New Space Age*, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd 4156 (2020).

<sup>81</sup> See generally *Expanding Flexible Use of the 12.2-12.7 GHz Band, et. al.*, WT Docket No. 20-443, Notice of Proposed Rulemaking, 36 FCC Rcd 606 (2021).

<sup>82</sup> See generally *Modernizing and Expanding Access to the 70/80/90 GHz Bands, et al.*, WT Docket No. 20-133, Report and Order and Notice of Proposed Rulemaking, 35 FCC Rcd 6039 (2020).

<sup>83</sup> See generally *Revising Spectrum Sharing Rules for Non-Geostationary Orbit, Fixed-Satellite Service Systems; Revision of Section 25.261 of the Commission's Rules to Increase Certainty in Spectrum Sharing Obligations Among NGSO FSS Systems*, IB Docket No. 21-456, Order and Notice of Proposed Rulemaking, 36 FCC Rcd 17871 (2021).

<sup>84</sup> See generally *Expanding Use of the 12.7-13.25 GHz Band for Mobile Broadband or Other Expanded Use*, GN Docket No. 22-352, Notice of Inquiry and Order, 37 FCC Rcd 13427 (2022).

<sup>85</sup> We note that the *NGSO FSS Order* modified section 25.164(b) to offer additional flexibility and requires launch and operation of 50% of an authorized system within six years of grant and the remaining satellites within nine years of grant.

with its milestone requirement or notify the Commission in writing that the requirement was not met. 47 CFR § 25.164(f).

54. IT IS FURTHER ORDERED that the Petition to Deny of Hughes Network Systems is DENIED.

55. IT IS FURTHER ORDERED that the Motion to Consolidate of Hughes Network Systems is DENIED.

FEDERAL COMMUNICATIONS COMMISSION

Julie M. Kearney  
Chief  
Space Bureau