

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

In the Matter of )
The Tomorrow Companies, Inc. ) ICFS File Nos.:
Application to construct, deploy, and operate an ) SAT-LOA-20221201-00167
NGSO satellite system for weather monitoring ) SAT-AMD-20230406-00075
Call Sign: S3156

ORDER

Adopted: May 17, 2024

Released: May 17, 2024

By the Chief, Satellite Programs and Policy Division, Space Bureau:

I. INTRODUCTION

1. In this Order, we address the request of Space Exploration Technologies Corp. (SpaceX), filed in an ex parte letter, that the Commission impose certain conditions on a license for deployment and operations of a new satellite system requested by The Tomorrow Companies, Inc. (Tomorrow.io).1 We grant in part SpaceX’s request that we impose conditions on this license, but deny that request insofar as it involves conditions that are not germane to the facts presented in this case. The grant-in-part of Tomorrow.io’s request to deploy and operate satellites as part of what it refers to as the “Tomorrow.io Weather Constellation,”2 is contained in the attached grant stamp and includes relevant license conditions.

II. BACKGROUND

2. On January 17, 2023, SpaceX filed a letter requesting that certain conditions that have been imposed on SpaceX’s license to construct, deploy, and operate up to 7,500 satellites in its Second Generation (Gen2) constellation also be imposed on several pending non-geostationary satellite applications and petitions, including the instant Tomorrow.io application.3 In support of its request,

1 Satellite Licensing and Satellite Programs and Policy Division Information, Space Station Applications Accepted for Filing, Public Notice, Report No. SAT-01745 (July 28, 2023). This proceeding was also designated as “permit-but-disclose” for purposes of the Commission’s rules governing ex parte communications. See Satellite Policy Branch Information, Actions Taken, Public Notice, Report No. SAT-01695 (Jan. 20, 2023); 47 CFR §§ 1.1200(a), 1.1206 and 1.1208 note 2. See also Letter from David Goldman, Director of Satellite Policy, SpaceX, to Marlene H. Dortch, Secretary, FCC at 1 (dated Jan. 17, 2023) (SpaceX Letter). This letter was filed prior to the public notice period.

2 Tomorrow.io requested authority to deploy and operate up to 18 satellites. See ICFS File Nos. SAT-LOA-20221201-00167; SAT-AMD-20230406-00075.

3 See SpaceX Letter at 1; see also Space Exploration Holdings, LLC, Request for Orbital Deployment and Operating Authority for the SpaceX Gen2 NGSO Satellite System, Order and Authorization, FCC 22-91 (2022) (SpaceX Gen2 Order). The SpaceX Letter requests that the FCC impose the following license conditions: (1) file semi-annual reports on collision avoidance maneuvers and satellite disposal, including any difficulties or failures related thereto; (2) apply an object-years metric for assessing disposal failures that accounts for both the number of failed satellites and their entire passive decay time; (3) communicate and collaborate with NASA to promote space safety and

(continued....)

SpaceX cites concerns raised by the National Aeronautics and Space Administration (NASA) and the National Science Foundation (NSF) in its own licensing proceeding, as well as “space sustainability requirements” from its 7,500 satellite license. SpaceX argues, among other things, that concerns expressed by NASA in connection with the Commission’s orbital debris proceeding suggest that any constellation of 25 or more satellites should be subject to additional debris mitigation requirements.<sup>4</sup> Tomorrow.io filed a responsive *ex parte* letter on March 10, 2023,<sup>5</sup> and SpaceX filed a further consolidated response directed to several of the NGSO applicants on March 31, 2023.<sup>6</sup>

### III. DISCUSSION

3. We conclude that some adoption of conditions analogous to the conditions specified in the SpaceX grant, but suited for the specific and distinct factual scenario presented by the Tomorrow.io Weather Constellation satellites, would serve the public interest.

4. The Tomorrow.io Weather Constellation satellites that will be launched prior to September 29, 2024 are planned to operate at altitudes of 500-600 km (+/- 20 km) and any satellites launched on or after September 29, 2024 will operate at 500-580 km (+/- 20 km).<sup>7</sup> The satellites do not have a propulsion capability and plan to deorbit passively.<sup>8</sup> The satellites will pass through the International Space Station (ISS) and Chinese space station orbit altitude during natural decay and Tomorrow.io has explained that although the satellites do not possess propulsion capability, Tomorrow.io can employ differential drag techniques to adjust the rate of orbital decay.<sup>9</sup> Considering this, we adopt a condition that Tomorrow.io maintain control of its satellites to the greatest extent possible, including during deorbit through altitudes with inhabited space stations in order to facilitate collision avoidance.<sup>10</sup> In addition, we are granting authority for Tomorrow.io to deploy and operate four satellites at this time, but are deferring action on the remaining 14 requested satellites pending filing and approval by the Commission of a modification to the application with an updated orbital debris mitigation demonstration addressing the re-entry casualty risk associated with the deployment of future satellites.<sup>11</sup> Additionally, each satellite is larger than 10 cm in their smallest dimension<sup>12</sup> and Tomorrow.io has explained that the satellites will carry the latest attitude determination control system (ADCS) technology and avionics equipment, such that precise knowledge of each satellite’s location can be maintained.<sup>13</sup> Tomorrow.io will also continue to provide updated ephemeris data to the 18th Space Control Squadron and any other

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sustainability; (4) take all possible steps to assess and mitigate collision risk after receiving a conjunction warning from the 19th Space Defense Squadron or other source; and (5) coordinate with NSF to reach a mutually acceptable agreement to mitigate the impact of its satellites on optical ground-based astronomy, with associated annual reporting requirements). *Id.*

<sup>4</sup> SpaceX Letter at 2.

<sup>5</sup> See Letter from Kristina Hlopsidis, Vice President, Regulatory and Operations, The Tomorrow Companies Inc., to Marlene H. Dortch, Secretary, FCC (filed March 10, 2023) (Tomorrow.io Response Letter).

<sup>6</sup> See Letter from David Goldman, Senior Director of Satellite Policy, to Marlene H. Dortch, Secretary, FCC at 2 (filed Mar. 31, 2023) (SpaceX Omnibus Response).

<sup>7</sup> See attached grant stamp at condition 19.

<sup>8</sup> Revised Tech. Narrative at 10, 13 (filed June 14, 2023).

<sup>9</sup> *Id.* at 12. See also ODAR Update Ver B. at 18 (filed Dec. 12, 2023); ODAR Ver. C at 17 (filed Jan. 4, 2024).

<sup>10</sup> See attached grant stamp at condition 15.

<sup>11</sup> See attached grant stamp at condition 13.

<sup>12</sup> *Id.* at 9.

<sup>13</sup> See Narrative at 7.

operators involved in a conjunction warning.<sup>14</sup> Once the satellites descend to an altitude of 350 kilometers, we expect that the satellites would decay from orbit in a relatively short amount of time. In considering SpaceX's first generation satellite system, the Commission defined a disposal failure as any case in which control of a satellite is lost at an altitude of 350 kilometers or greater.<sup>15</sup> Under the circumstances, we adopt a condition that Tomorrow.io report any inability to command the Tomorrow.io Weather Constellation satellites in a way necessary to perform differential drag maneuvers at altitudes above 350 km.<sup>16</sup> 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.<sup>17</sup> Inclusion of a 100 post-failure object years metric in this instance, as with SpaceX's Second Generation grant, identifies a relevant metric where additional Commission action would be necessary before deployment of additional Tomorrow.io satellites following a certain level of failure.<sup>18</sup>

5. We also condition Tomorrow.io to provide information regarding potential conjunction events during the reporting period for its satellites, particularly with respect to any difficulties encountered in the collision avoidance process. We believe that such information can help identify potential issues in operator-to-operator coordination.

6. There have been no concerns raised in this proceeding by NASA, NSF, or any other party except SpaceX regarding the instant application. We are including conditions requiring coordination with NASA, including operator-to-operator coordination of physical operations. Additionally, we condition this grant to require Tomorrow.io to coordinate with NSF as well.<sup>19</sup> We conclude that it is in the public interest for Tomorrow.io to bear the responsibility of ensuring that these coordinations, which are separate from coordination of spectrum use, have been completed with these potentially interested federal agencies.

#### IV. ORDERING CLAUSES

7. Accordingly, IT IS ORDERED that the Tomorrow Companies, Inc. request for a license to deploy and operate a non-geostationary satellite orbit system is GRANTED-IN-PART and DEFERRED-IN-PART, pursuant to section 303(r) of the Communications Act of 1934, as amended, 47

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<sup>14</sup> See attached grant stamp at condition 11.

<sup>15</sup> As the Commission observed in its authorization of the SpaceX Gen2 system, "SpaceX's practice of testing its satellites at injection altitude, before orbit-raising, allows it to deorbit any non-functional satellites in a matter of days or weeks, helping to ensure that non-maneuverable satellites do not reach operational orbit." *Request for Orbital Deployment and Operating Authority for SpaceX Gen2 NGSO Satellite System*, Order and Authorization, FCC 22-91, at 91 (Nov. 29, 2022).

<sup>16</sup> See attached grant stamp at condition 16.

<sup>17</sup> There are potentially material differences between the Tomorrow.io Weather Constellation and the Starlink constellation that may warrant differing treatment of the two constellations. These include smaller satellite size, and consequent lower collision risk when comparing non-maneuverable satellites and a smaller number of satellites requested overall. There is also no indication that the Tomorrow.io satellites will be "checked out" at lower altitudes, so immediate identification of any issues with effective maneuverability, rather than periodic reporting, is warranted.

<sup>18</sup> See attached grant stamp at condition 16. Although this partial grant is limited to four satellites, each of which will re-enter the Earth's atmosphere within 25 years even if a disposal failure occurs immediately upon deployment, we include this metric in anticipation that there may be favorable action regarding additional satellites in the Tomorrow.io Weather Constellation. This makes it clear that the satellites authorized herein would be taken into account for any assessment of post-failure object years.

<sup>19</sup> See attached grant stamp at condition 18.


U.S.C. § 303(r), and sections 0.51 and 0.261 of the Federal Communication Commission's rules, 47 CFR §§ 0.51 and 0.261.

8. IT IS FURTHER ORDERED that petitions for reconsideration under section 1.106 or applications for review under section 1.115 of the Commission's Rules, 47 CFR §§ 1.106 and 1.115, may be filed within 30 days of the date of the public notice of this action taken.

FEDERAL COMMUNICATIONS COMMISSION

Merissa L. Velez  
Chief, Satellite Programs and Policy Division  
Space Bureau

**ATTACHMENT TO GRANT**  
**The Tomorrow Companies, Inc.**  
**ICFS File Nos. SAT-LOA-20221201-00167; SAT-AMD-20230406-00075**

<b>ICFS File No(s):</b>	SAT-LOA-20221201-00167; SAT-AMD-20230406-00075 <sup>20</sup>	<p><b>GRANT IN PART / DEFER IN PART – With Conditions</b></p>  <p><b>Space Bureau Satellite Programs and Policy Division</b></p>
<b>Licensee/Grantee:</b>	The Tomorrow Companies, Inc. (Tomorrow.io)	
<b>Call Sign:</b>	S3156	
<b>Satellite Name:</b>	Tomorrow.io Weather Constellation	
<b>Orbital Location: (required station-keeping tolerance)</b>	Non-geostationary orbit (NGSO) with operational apogee and perigee altitudes from 500-600 km (+/-20 km) for satellites launched on or before September 29, 2024, and from 500-580 km (+/- 20 km) <sup>21</sup> for any satellites launched after September 29, 2024. Two satellites with 97.7 degrees inclination (+/- 0.4 degrees) and two satellites with 45 degrees inclination (+/- 1.1 degrees). <sup>22</sup> Each plane will consist of 2 satellites equally spaced within the plane.	
<b>Administration:</b>	United States of America	
<b>Nature of Service:</b>	Earth Exploration-Satellite Service (EESS)	
<b>Scope of Grant:</b>	Authority to deploy and operate up to four non-geostationary orbit satellites <sup>23</sup> as part of the Tomorrow.io Weather Constellation <sup>24</sup>	
<b>Service Area(s):</b>	Global, subject to conditions ( <i>see also</i> Appendix A)	
<b>Frequencies:</b>	<p>EESS: 8025 - 8400 MHz center frequency of 8030.0 MHz on right RHCP with 8.0 MHz bandwidth (space-to-Earth)</p> <p>EESS (Passive): 90.13 – 92.65 GHz 114.5 – 122.75 GHz 182.19 – 191.31 GHz 202.04 – 205.8 GHz</p>	

<sup>20</sup> This application was placed on public notice on July 28, 2023. *Satellite Licensing and Satellite Programs and Policy Division Information, Space Station Applications Accepted for Filing*, Public Notice, Report No. SAT-01745 (July 28, 2023). This proceeding was also designated as “permit-but-disclose” for purposes of the Commission’s rules governing *ex parte* communications. *Satellite Policy Branch Information, Actions Taken*, Public Notice, Report No. SAT-01695 (Jan. 20, 2023); *see* 47 CFR §§ 1.1200(a), 1.1206 and 1.1208 note 2.

<sup>21</sup> *See* ODAR Update Ver. B (filed Dec. 12, 2023); ODAR Ver. C at 17, 20 (filed Jan. 4, 2024). Tomorrow.io requested an orbital altitude range up to 600 km (+/- 20 km), however given that satellites placed into orbits above 600 km would require more than five years to deorbit post-operations or require Tomorrow.io to cut short its scientific mission, *see* ODAR Update Ver. B Table 10 and ODAR Ver. C at 17, 20, we only authorize the full requested range of 500-600 km (+/- 20 km) for satellites launched on or before September 29, 2024, after which the Commission’s 5-year post-mission disposal requirement will be in effect. *See Space Innovation, Mitigation of Orbital Debris in the New Space Age*, IB Docket Nos. 22-271, 18-313, Report and Order, 37 FCC Rcd 11818, 11827 para. 22 (2022).

<sup>22</sup> *See* Letter from Kristina Hloptsidis, Vice President, Regulatory & Operations, The Tomorrow Companies, Inc., to Marlene H. Dortch, Secretary, FCC at 1-2 (dated Apr. 23, 2024) (describing inclination range).

<sup>23</sup> Tomorrow.io has requested authority to deploy and operate 18 satellites. *See* Narrative at 7. We defer action of the remaining 14 satellites. *See* Condition 13.

<sup>24</sup> On January 17, 2023, Space Exploration Technologies Corp. (SpaceX) filed an *ex parte* letter. Letter from David Goldman, Director of Satellite Policy, SpaceX, to Marlene H. Dortch, Secretary, FCC at 1 (dated Jan. 17, 2023) (*SpaceX Letter*). These issues are fully addressed in the accompanying Order.

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	<p>Telemetry, tracking, and command (TT&amp;C):  2025 - 2110 MHz (center frequency of 2054.625 MHz on right hand circular polarization RHCP) with 200 kHz bandwidth) (Earth-to-space)  8025 - 8400 MHz center frequency of 8030.0 MHz on right RHCP with 8.0 MHz bandwidth (space-to-Earth)</p> <p>GPS L1 (receive-only):  1575.42 MHz (space-to-space)</p>
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**Unless otherwise specified herein, operations under this grant must comport with the legal and technical specifications set forth by the applicant or petitioner and with the Federal Communications Commission's rules not waived herein. This grant is also subject to the following conditions<sup>25</sup>:**

1. Tomorrow.io must prepare the necessary information, as may be required, for submission to the International Telecommunication Union (ITU) to initiate and complete the advance publication, coordination, due diligence, and notification process for these space stations, in accordance with the ITU Radio Regulations. Tomorrow.io will be held responsible for all cost-recovery fees associated with ITU filings. No protection from interference caused by radio stations authorized by other administrations is guaranteed unless coordination and notification procedures are timely completed or, with respect to individual administrations, by successfully completing coordination agreements. Any radio station authorization for which coordination has not been completed may be subject to additional terms and conditions as required to effect coordination of the frequency assignments of other administrations. *See* 47 CFR § 25.111(b).
2. We grant, on our own motion, a waiver of the U.S. Table of Frequency Allocations, 47 CFR § 2.106(a), to allow non-conforming use of the 2025-2110 MHz band for Tomorrow.io's satellites TT&C, subject to the condition that Tomorrow.io operates on an unprotected and non-interference basis, accepts any interference from authorized services, and complies with the other conditions below regarding operations in this band. Tomorrow.io intends to operate TT&C in these frequencies but will not operate in the EESS using these frequency bands. In the band 2025-2110 MHz, non-Federal Earth-to-space transmissions may be authorized in the space research and Earth exploration-satellite services, however, this does not include operations solely in the space operations service. 47 CFR § 2.106(a), (c)(347). In this instance we find good cause to waive the Table of Allocations to allow Tomorrow.io to operate command links only with its satellites based on Tomorrow.io's coordination with federal users in the frequency band, which should ensure that any authorized federal users are protected from harmful interference.
3. Tomorrow.io's request for a waiver of the U.S. Table of Frequency Allocations, 47 CFR § 2.106(a), to allow reception of data for EESS (passive) in certain bands not allocated for EESS (passive) use is GRANTED.<sup>26</sup> We note that the allocations for EESS (passive) in the international and U.S. Table of Frequency Allocations do not include Tomorrow.io's requested EESS (passive) operations between 92 to 92.65 GHz and between 122.25 to 122.75 GHz. However, in this case we find that the reception by Tomorrow.io satellites of weather data in these frequency bands will not alter the interference environment as no signals will be transmitted in those frequency bands either by Tomorrow.io's satellites or by any earth station facility. Tomorrow.io will be operating on an unprotected and non-interference

<sup>25</sup> With respect to those frequency bands shared with Federal spectrum users, Federal operators have indicated that Federal missions brought into use after Tomorrow.io's requested 18-satellite constellation may prevent future modification or renewal of Tomorrow.io's operations.

<sup>26</sup> *See* Letter from Kristina Hloptsidis, Vice President, Regulatory & Operations, The Tomorrow Companies, Inc., to Marlene H. Dortch, Secretary, FCC at 1-2 (dated Mar. 29, 2024).

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basis and cannot claim protection from authorized users in the frequency bands. Based on the limited, receive-only operations by Tomorrow.io's "sounder" instrument, we find good cause to grant a waiver in this instance. The non-conforming use will augment the quality of the measurements for Tomorrow.io's scientific mission, and we conclude that in these circumstances grant of a waiver to permit these EESS (passive) operations is in the public interest. Waiver is limited to this authorization, and is without prejudice to any determination the Commission may make on a future request for waiver to operate in these frequency bands by Tomorrow.io or any other party. Tomorrow.io shall not claim protection from nor cause harmful interference to any authorized users operating consistent with the U.S. Table of Frequency Allocations, 47 CFR § 2.106(a).

4. Tomorrow.io shall be aware that space-to-Earth and Earth-to-space operations shall be strictly limited to durations when the Tomorrow.io space stations referenced within this license request are visible to the corresponding earth station locations listed in Appendix A of the attachment to this grant, noting the additional restrictions within this grant.
5. Transmissions in the 2025-2110 MHz and 8025-8400 MHz bands may only be made to/from earth stations coordinated with federal agencies, including National Aeronautics and Space Administration (NASA), Department of Commerce/National Oceanic and Atmospheric Administration (DOC/NOAA), and the United States Air Force Spectrum Management Office (AFSMO). Any use of Federal ground stations shall be coordinated by Tomorrow.io's federal government customers with AFSMO (jimmy.nguyen@us.af.mil), NASA (HQ-SatCoord@mail.nasa.gov) and DOC/NOAA (edna.prado@noaa.gov). A list of coordinated non-Federal earth stations is attached as Appendix A. Tomorrow.io shall provide the FCC with an updated list of coordinated non-Federal earth stations within ten business days following any changes to that list.
6. Transmissions in the 2025-2110 MHz and 8025-8400 MHz bands are limited to the center frequencies and emission bandwidths coordinated with Federal users set forth in the Frequencies section of this grant. Combined uplink (Earth-to-space) and downlink (space-to-Earth) per earth station per satellite duty cycles shall be limited to no more than 59% for the mid-inclination satellites and no more than 49% for the near-polar satellites, with the uplink (Earth-to-space) typically requiring less than 1 minute per visibility opportunity and the downlink (space-to-Earth) typically requiring less than 3 minutes per visibility opportunity.
7. Earth station transmissions from the United States to Tomorrow.io Weather Constellation satellites in the 2025-2110 MHz band must be coordinated with the SBE (Society of Broadcast Engineers).
8. Power flux-density levels at the surface of the Earth from space-to-Earth operations in the 8025-8400 MHz band must not exceed the limits in No. 22.5 and Table 21-4 of the International Telecommunication Union's Radio Regulations, the power spectral density levels at space research service earth stations from space-to-Earth operations in the 8025-8400 MHz band must not exceed the protection criteria in Recommendation ITU-R SA.1157-1, and the guidelines for systems operating in the 8025-8400 MHz band in Recommendation ITU-R SA.1810 must be followed.
9. Given the opportunity for additional entrants to operate in Tomorrow.io's requested frequency bands, we grant Tomorrow.io's request for a waiver of the modified processing round requirements in 47 CFR §§ 25.156 and 25.157. See *DigitalGlobe, Inc.*, Order and Authorization, 20 FCC Rcd 15696 (Sat. Div., Int'l Bur. 2005) at para. 8.
10. Tomorrow.io shall provide the FCC and other federal agencies the initial orbital parameters (e.g. operating altitudes, inclination angle) for each pair of satellites in a plane within 30 days following launch. Notification shall be provided to AFSMO (jimmy.nguyen@us.af.mil), NASA (HQ-SatCoord@mail.nasa.gov) and DOC/NOAA (edna.prado@noaa.gov).

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11. Upon receipt of a conjunction warning from the 18th Space Control Squadron or other sources, Tomorrow.io 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; and modifying spacecraft attitude and/or operations.
12. Tomorrow.io 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.
13. Tomorrow.io is authorized to deploy up to four Tomorrow.io Weather Constellation satellites. We defer action with respect to the additional satellites, pending filing and approval by the Commission of a modification to the application with an updated orbital debris mitigation demonstration addressing the re-entry casualty risk associated with the deployment of future Tomorrow.io Weather Constellation satellites, along with any other updated orbital debris mitigation information.
14. In connection with the provision of service in any particular country, Tomorrow.io is obliged to comply with the applicable laws, regulations, rules, and licensing procedures of that country.
15. Tomorrow.io must maintain control of the Tomorrow.io Weather Constellation satellites to the greatest extent possible to facilitate collision avoidance, including during deorbit through altitudes with inhabitable space stations.
16. Tomorrow.io 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: number of conjunction events identified for Tomorrow.io 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.

Tomorrow.io must report any inability to command the satellites in a way necessary to perform differential drag maneuvers at altitudes above 350 km not later than 10 days following the loss of ability.

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. In the event of Tomorrow.io Weather Constellation satellite failures resulting in more than 100 post-failure object years, Tomorrow.io may not deploy any additional Tomorrow.io Weather Constellation satellites until the Commission has approved a license modification that includes an updated orbital debris mitigation plan addressing reduction in the failure rate or mitigation of the risk of satellite failures.

17. Tomorrow.io must communicate and collaborate with NASA to support safety of both Tomorrow.io and NASA assets and to preserve long-term sustainable space-based communications services. Tomorrow.io must report on the progress of its communications and collaboration efforts to the Commission in its regular reports specified in condition 16, above. Tomorrow.io must coordinate and collaborate with NASA to promote a mutually beneficial space environment that would minimize impacts to NASA's science missions involving astronomy.
18. Tomorrow.io must coordinate with the National Science Foundation (NSF) to achieve a mutually acceptable agreement to mitigate the impact of its satellites (call sign S3156) on optical ground-based astronomy. Tomorrow.io must submit an annual report to the Commission, by January 1st each year covering the preceding year (1) describing whether it has reached a coordination agreement with NSF addressing optical astronomy. and (2) any steps Tomorrow.io has taken to reduce the impact of its



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satellites on optical astronomy. If Tomorrow.io provides a statement in the record that NSF has no concerns within 45 days following arrival of the first two Tomorrow.io satellites at their operational altitude, no further reporting will be required.

19. Tomorrow.io satellites launched after September 29, 2024 must meet the Commission's five-year post-mission disposal requirement and must not be integrated into a launch vehicle that could place them into an orbital altitude above 600 km.<sup>27</sup>
20. This authorization is also subject to the following requirements:
  - a. Tomorrow.io must post a surety bond in satisfaction of 47 CFR § 25.165(a)(1) & (b) no later than June 17, 2024, 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. Tomorrow.io must launch at least two of its authorized Tomorrow.io Weather Constellation satellites, place them in the assigned orbit, and operate them in accordance with this authorization no later than May 17, 2030, and must launch the remaining space stations necessary to complete its authorized service constellation, place them in their assigned orbits, and operate them in accordance with the authorization no later than May 17, 2033. 47 CFR § 25.164(b).
21. Failure to post and maintain a surety bond will render this authorization null and void automatically, without further Commission action. Failure to meet the milestone requirements of 47 CFR § 25.164(b) may result in Tomorrow.io's authorization being reduced to the number of satellites in use at the milestone date. Failure to comply with the milestone requirements of 47 CFR § 25.164(b) will also result in forfeiture of Tomorrow.io's surety bond. By June 2, 2030, Tomorrow.io must either demonstrate compliance with this milestone requirement or notify the Commission in writing that the requirement was not met. 47 CFR § 25.164(f).
22. The license term is 15 years and will begin at 3 a.m. ET on the date that Tomorrow.io certifies to the Commission that the first of Tomorrow.io Weather Constellation space station(s) have been successfully placed into orbit and the operations fully conform to the terms and conditions of this authorization. Tomorrow.io must file such certification within five business days of placing the initial Tomorrow.io Weather Constellation space station(s) into operation.

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<sup>27</sup> See *Space Innovation, Mitigation of Orbital Debris in the New Space Age*, IB Docket Nos. 22-271, 18-313, Report and Order, 37 FCC Rcd 11818, 11827 para. 22 (2022); see also ODAR Update V.B, Table 10, ODAR Ver. C at 20 (demonstrating that satellites placed into orbits above 600 km would not demise within the required timeframe even while employing maximum drag techniques).

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Licensee/grantee is afforded thirty (30) days from the date of release of this action to decline the grant as conditioned. Failure to respond within this period will constitute formal acceptance of the grant as conditioned.

This action is taken pursuant to Section 0.261 of the Commission’s rules on delegated authority, 47 CFR § 0.261, and is effective upon release.

Station licenses are subject to the conditions specified in Section 309(h) of the Communications Act of 1934, as amended, 47 U.S.C. § 309(h).

<b>Action Date:</b>	May 17, 2024	
<b>Term Dates</b>	<b>From:</b> see conditions	<b>To:</b> see conditions

**Approved:**

Merissa L. Velez  
Chief, Satellite Programs and Policy Division

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**APPENDIX A**

Earth Stations<sup>28</sup>

GS # - City - Country - Max# of Passes per Day

- 1 Awarua 1 New Zealand 78
- 2 Barrow AK, USA 98
- 3 Dubai UAE 67
- 4 Dundee Scotland, UK 74
- 5 Mingenew Australia 80
- 6 Harmon Guam 57
- 7 Accra Ghana 55
- 8 Alice Springs Australia 66
- 9 Cordoba Argentina 82
- 10 **Fairbanks AK, USA** 72
- 11 Guildford UK 76
- 12 Ojebyn Sweden 74
- 13 **Pendergrass GA, USA** 81
- 14 Pretoria South Africa 69
- 15 Ushuaia Argentina 74
- 16 Awarua 2 New Zealand 78
- 17 Baku Azerbaijan 78
- 18 Blonduos Iceland 76
- 19 Kandy Sri Lanka 56
- 20 Peterborough South Australia 81
- 21 Plana Bulgaria 77
- 22 Unst Shetland (UK) 66
- 23 Azores (Santa Maria) Portugal 79
- 24 Nangetty West Australia 80
- 25 Mon Loisir Mauritius 61

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<sup>28</sup> This list includes the locations of the baselined earth stations identified by Tomorrow.io, including expected future sites. See Updated Tech. Narrative (filed June 14, 2023) at 6-7, Table 2.