

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

In the Matter of)	
)	
AST&Science LLC)	Call Sign S3065
)	
Petition for Declaratory Ruling Granting Access)	SAT-PDR-20200413-00034
to the U.S. Market for a Non-U.S.-Licensed)	SAT-APL-20200727-00088
Non-Geostationary Orbit Satellite Constellation)	SAT-APL-20201028-00126

REPLY COMMENTS OF CTIA

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REPLY COMMENTS OF CTIA

I. INTRODUCTION AND SUMMARY.

CTIA hereby submits these reply comments in response to the AST&Science (“AST” or “SpaceMobile”) Consolidated Response and Opposition to Petitions to Deny (“Opposition”) the AST Petition for Declaratory Ruling (“Petition”) and application seeking U.S. market access for a constellation of low-earth orbit (“LEO”) non-geostationary orbit (“NGSO”) spacecraft.¹ The record before the Federal Communications Commission (“FCC” or “Commission”) supports CTIA’s requested denial of the AST Petition, as AST has failed to demonstrate that it will protect terrestrial mobile systems and requests sweeping waivers of Commission rules and the Table of Frequency Allocations that should be considered by the full Commission after a meaningful opportunity for all stakeholders to participate in a notice and comment rulemaking proceeding.

As outlined in CTIA’s Petition to Deny, existing Commission rules do not permit AST’s planned use of terrestrial mobile spectrum for satellite services, nor does AST’s requested V-

¹ Consolidated Response and Opposition to Petition to Deny, AST&Science, IBFS File Nos. SAT-PDR-20200413-00034, SAT-APL-20200727-00088, SAT-APL-20201028-00126 (filed Nov. 12, 2020) (“AST Opposition”).

Band use conform to the Table of Frequency Allocations or the service rules for the bands.² Further, CTIA highlighted that AST's request to utilize the V-Band must comply with the Upper Microwave Flexible Use Service ("UMFUS") sharing framework implemented by the Commission.³ The Opposition fails to address these issues and merely asserts that the Commission should ignore well-established precedent governing satellite authorizations for Mobile-Satellite Service ("MSS"), regardless of possible future harms to terrestrial mobile services and the fact that AST has provided no evidence in its application to demonstrate how it will provide MSS without interfering with other primary licensed users.

AST also incorrectly claims that CTIA lacks standing to bring its Petition to Deny, despite the fact that CTIA members hold licenses both in and adjacent to the lower frequency bands where AST envisions future operations communicating with mobile end user devices, and in and adjacent to the V-Band frequencies where AST requests authority to operate MSS gateway earth stations in the remaining portion of its Petition. Additionally, the mobile industry has an interest in future terrestrial access to the 42-42.5 GHz band, which is the subject of an open rulemaking proceeding and currently has an allocation for terrestrial non-Federal Fixed and Mobile Services, and no satellite allocation whatsoever. These issues are not moot, as CTIA's members would be directly injured by any interference introduced by AST's operations in mobile terrestrial spectrum bands, in spite of AST's claim that it is not seeking authority for mobile spectrum at this time, as well as by non-conforming use of the V-Band frequencies. Accordingly, the Commission should deny the AST Petition and application, and instead subject

² See CTIA Petition to Deny, IBFS File Nos. SAT-PDR-20200413-00034, SAT-APL-20200727-00088, SAT-APL-20201028-00126, at 3-4 (filed Nov. 2, 2020) ("CTIA Petition").

³ See *id.* at 8.

AST's requests for use of terrestrial mobile spectrum and V-Band operations to proper rulemaking procedures, consistent with Commission precedent.

II. AST'S PETITION REQUESTS AUTHORITY FOR OPERATIONS THAT ARE INCONSISTENT WITH EXISTING COMMISSION RULES AND THE TABLE OF ALLOCATIONS AND SHOULD BE DENIED.

A. AST's Planned Use of Terrestrial Spectrum for MSS Requires a Rulemaking Process and a Demonstration That It Will Protect Primary Terrestrial Mobile Operations from Interference.

In response to CTIA's concerns regarding the use of terrestrial mobile spectrum for satellite services, AST's Opposition claims that its proposed secondary market approach is not the subject of its Petition and application, and that its planned operations are line with the Commission's flexible use policies.⁴ The Opposition itself acknowledges that in allowing AST's planned cooperation with terrestrial services, the Commission would need to take affirmative action to make the "frequency bands available for flexible use," as it has done in other instances.⁵ CTIA disagrees with AST's suggestion that such a process need not be a prerequisite to authorizing its satellite operations in the V-Band.⁶ As reflected in the record, the use of Parts 24 and 27 terrestrial mobile spectrum is limited to fixed and mobile terrestrial use, not satellite use, under Section 2.106 of the Commission's rules.⁷ Any satellite use of this spectrum would require a petition for rulemaking seeking changes to the Table of Frequency Allocations and

⁴ AST Opposition at 11.

⁵ *Id.*

⁶ *Id.* at 7.

⁷ See CTIA Petition at 6; Petition to Deny of T-Mobile USA, Inc., IBFS File Nos. SAT-PDR-20200413-00034, SAT-APL-20200727-00088, SAT-APL-20201028-00126, at 5 (filed Nov. 2, 2020) ("T-Mobile Petition"); Petition to Deny of Verizon, IBFS File Nos. SAT-PDR-20200413-00034, SAT-APL-20200727-00088, SAT-APL-20201028-00126, at 13 (filed Nov. 2, 2020) ("Verizon Petition"); Letter from Michael P. Goggin, to Marlene H. Dortch, Secretary, Federal Communications Commission, IBFS File Nos. SAT-PDR-20200413-00034, SAT-APL-20200727-00088, SAT-APL-20201028-00126, at 4 (filed Nov. 2, 2020) ("AT&T Letter").

should be subject to notice and comment rulemaking procedures prior to any action on the AST request. The Opposition fails to rebut these points or assert why a rulemaking process would be harmful to its future endeavors.

AST instead asserts that the provision of these services using terrestrial spectrum will be addressed by the Wireless Telecommunications Bureau at a later date and, therefore, the issue is not material to the current application process. This argument does not make sense. First, as explained in CTIA's Petition to Deny, a decision of this magnitude and involving requests for sweeping waivers of existing rules and the Table of Frequency Allocations should be subject to rulemaking procedures and consideration by the full Commission, rather than Bureau-level waivers of existing Commission rules.⁸ This process would ensure that all interested stakeholders have meaningful notice of the proposed operations and an adequate opportunity to examine and comment on the issues raised, including potential interference to licensees in adjacent geographic areas and frequencies.

Second, an MSS system requires both a satellite and terrestrial mobile component to provide service. The Commission's rules define MSS as a radiocommunication service between mobile earth stations and one or more space stations.⁹ As AST has indicated in its application that it will be utilizing terrestrial mobile spectrum for the mobile earth stations, and as its license from Papua, New Guinea indicates that AST has been authorized to provide MSS,¹⁰ the Bureau

⁸ See CTIA Petition at 6-7.

⁹ See 47 C.F.R. § 25.103 ("Mobile-Satellite Service (MSS). (1) A radiocommunication service: (i) Between mobile earth stations and one or more space stations, or between space stations used by this service; or (ii) Between mobile earth stations, by means of one or more space stations. (2) This service may also include feeder links necessary for its operation. (RR).").

¹⁰ See Petition for Declaratory Ruling, IBFS File No. SAT-PDR-20200413-00034 (filed Apr. 9, 2020) at 32 ("AST PDR").

cannot take action solely on a space station request without a full understanding of the mobile earth station spectrum and operating parameters.¹¹ Indeed, there is robust Commission precedent for considering satellite and terrestrial issues together when authorizing a new satellite service.¹² Due to the critical nature of protecting terrestrial licensees from interference in this case, and in following established precedent, AST must deliver evidence of how it will provide its mobile earth station operations and how those radiocommunications will protect existing license holders. The company's current request does not provide sufficient data and information needed for terrestrial licensees to evaluate these issues, whether they may partner with AST or are concerned about the interference effects from the proposed system.¹³ Therefore, the Commission should deny AST's Petition.

B. The AST Petition's Requests to Use V-Band Frequencies for MSS Gateway Links Should Be Denied.

As explained in CTIA's Petition to Deny, AST seeks access to V-Band frequencies for gateway links in bands not allocated to the MSS, which would also require rule changes prior to authorization. Regarding the 37.5-40 GHz and 47.2-50.2 GHz bands, which do not contain allocations to the MSS, AST cites to existing Fixed-Satellite Service ("FSS") allocations as the basis for its request for market access.¹⁴ However, as CTIA explained in its Petition to Deny and directly above, AST's space station is authorized as an MSS system, not an FSS system. AST

¹¹ See AST Opposition at 3.

¹² See, e.g., *The Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band*, Report and Order, 15 FCC Rcd 16127 ¶ 1 (rel. Aug. 25, 2000); *Application for Modification of License to Authorize a Second-Generation NGSO MSS Constellation*, Order and Authorization, 31 FCC Rcd 8675 ¶ 1 (rel. Aug. 1, 2016); *For Authority to Launch and Operate a Mobile-Satellite Service System in the 2 GHz Band*, Order and Authorization, 16 FCC Rcd 13739 ¶ 1 (rel. July 17, 2001).

¹³ See T-Mobile Petition at 3; Verizon Petition at 2.

¹⁴ AST Petition for Declaratory Ruling, IBFS File No. SAT-PDR-20200413-00034 (filed Apr. 9, 2020) ("AST Petition").

has not explained why its MSS system should be permitted to access FSS frequencies, nor has it requested waiver of these rules. In any event, a request for a new service to access these bands should be contained in a petition for rulemaking, which would allow all interested stakeholders notice and the opportunity to comment.

Regarding AST's requests for waiver to access the other V-Band frequencies listed in its Petition, AST has failed to meet or even address the elements necessary to justify a waiver request.¹⁵ Notably, AST requests access to the 42-42.5 GHz band, which is currently allocated to the terrestrial non-Federal Fixed and Mobile Services, and lacks any satellite allocation whatsoever.¹⁶ Indeed, the Commission is in the midst of an open rulemaking proceeding regarding terrestrial access to this band, at the direction of the U.S. Congress.¹⁷ For these reasons, the Commission should deny AST's requests to access V-Band frequencies for its MSS gateway links.

III. THE AST OPPOSITION INCORRECTLY ASSERTS THAT CTIA'S PETITION SHOULD BE DISMISSED FOR LACK OF STANDING AND MOOTNESS.

AST incorrectly asserts that CTIA's Petition to Deny should be dismissed for lack of standing and mootness.¹⁸ Applicable Commission rules in this case require that parties filing a petition to deny establish allegations of fact to support the relief requested, which shall be sufficient to demonstrate that the petitioner is a "party of interest" and that a grant of, or other

¹⁵ *See id.* at 6-8.

¹⁶ *See id.* at 7.

¹⁷ *See Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al.*, Third Report and Order, Memorandum Opinion and Order, and Third Further Notice of Proposed Rulemaking, 33 FCC Rcd 5576 (rel. June 8, 2018).

¹⁸ *See* AST Opposition at 12.

Commission action regarding, the application would be prima facie inconsistent with the public interest.¹⁹

As noted in CTIA’s Petition to Deny, CTIA’s members hold exclusive-use licenses for frequencies in and adjacent to the frequencies included in AST’s Petition and planned operations.²⁰ This remains true despite AST’s application modification withdrawing its request for waiver of the Table of Frequency Allocations as it relates to terrestrial frequencies authorized under Parts 24 and 27 of the Commission’s rules. First of all, AST’s MSS authorization from Papua New Guinea establishes that its authorization includes spectrum licensed in the United States to terrestrial wireless providers—spectrum in the 600-900 MHz bands.²¹ Additionally, AST’s modified application notified the Commission of its intent to provide service to handsets on frequencies authorized for service to terrestrial users, such as mid-band frequencies governed by Parts 24 and/or 27 of the Commission’s rules, which AST asserts will be achieved pursuant to lease agreements with terrestrial licensees that will permit AST to access a terrestrial licensee’s spectrum.²² Finally, AST seeks access to use V-Band frequencies for gateway links in bands not allocated to the MSS. CTIA members hold licenses in and adjacent to these same V-Band frequencies, and as noted above, also have an interest in future terrestrial access to the 42-42.5 GHz band that is the subject of ongoing rulemaking proceedings.²³

¹⁹ See 47 C.F.R. § 25.154.

²⁰ See CTIA Petition at 1.

²¹ See AST Petition at 32.

²² See Amendment to Petition for Declaratory Ruling, IBFS File No. SAT-APL-20200727-00088 (filed July 27, 2020).

²³ AST has failed to address CTIA’s concerns related to the 42-42.5 GHz band, which does not have any satellite allocation and is likely to be made available for UMFUS use in the near future. See CTIA Petition at 8-9.

As the trade association representing the U.S. wireless communications industry, CTIA has standing to challenge AST's access to spectrum bands that contain or are adjacent to its members' operations and to question whether AST has verified that satellite use of the spectrum would protect primary licensees from harmful interference. In addition, given the national implications of the application, the issues of concern are germane to CTIA's purpose as an industry spectrum advocate.

Further, AST's modified application withdrawing the waiver request as it relates to terrestrial frequencies does not render moot any of the issues raised by AST's application. AST's request for market access for V-Band frequencies is inextricably intertwined with its planned future MSS operations in terrestrially licensed spectrum, and it would not make sense to grant market access here to support operations that are impermissible under the Commission's existing rules. Further, as explained above, the request to access V-Band frequencies itself is not in compliance with the Commission's rules or the Table of Frequency Allocations. Therefore, AST is incorrect to assert that the issues raised in CTIA's Petition to Deny are moot.

IV. AST'S TECHNICAL SHOWINGS RAISE QUESTIONS REGARDING INTERFERENCE AND COMPLIANCE WITH COMMISSION RULES.

In response to evidence that it may not be in compliance with the power flux density ("PFD") limits for satellite operations in the V-Band,²⁴ AST suggests that each petitioner has failed to understand the technical information provided in its application and that it will comply with the PFD requirements.²⁵ AST is incorrect in this assertion. CTIA used in its analysis of PFD limits the actual values provided by AST in its Schedule S submission. The actual

²⁴ See *id.* at 10; T-Mobile Petition at 8; Verizon Petition at 11.

²⁵ See AST Opposition at 15.

discrepancy in the record comes from AST, as it has filed conflicting information in its Schedule S as compared to its Petition.

AST suggests that its technical statement in its Petition shows compliance with the PFD limits.²⁶ However, the Schedule S technical information provided by the company is inconsistent with this technical statement. Moreover, the company has not shown how it will minimize its power in the V-Band to comply with the PFD limits. For example, the information provided in Schedule S shows that the maximum transmit EIRP for the 37.5-42.5 GHz band is 60.2 dBW.²⁷ If AST operates its satellite at this power level over five gigahertz of spectrum, it will greatly exceed the PFD limits in the Commission's rules. In contrast, AST's technical statement filed with its Petition fails to provide any value for its maximum transmit EIRP—thus, the Bureau and affected stakeholders must assume that the 60.2 dBW filed with its Schedule S is the accurate value. CTIA assumed that the maximum transmit EIRP value of 60.2 dBW would be applied across the five gigahertz of bandwidth shown in its Schedule S (37.5-42.5 GHz) which results in a EIRP density of -36.8 dBW/Hz (which exactly matches the value shown in the AST Schedule S for the 37.5-42.5 GHz band).²⁸ As its rebuttal to this point, AST claims that its technical statement in its Petition shows that it will limit its EIRP density over the 37.5-40 GHz and 42-42.5 GHz band to -40.6 dBW/Hz.²⁹ However, this submission fails to disclose its maximum transmit EIRP value and does not demonstrate how this limit will be met or calculated.

²⁶ *Id.* at 16-17.

²⁷ *See* Schedule S Technical Report, IBFS File No. SATAPL2020072700088 (filed July 27, 2020).

²⁸ *Id.*

²⁹ *See* AST Opposition at 16.

Based on these internal inconsistencies, CTIA remains concerned that AST's proposed satellite system would not comply with the Commission's PFD limits. At a minimum, AST should be required to provide an updated Schedule S that is consistent with the Commission's PFD restrictions as well as a technical discussion of how it will limit its PFD in spite of the maximum transmit EIRP the satellite system is apparently capable of utilizing. Following submission, the updated Schedule S should be published for public comment to allow all affected stakeholders the opportunity to review and address the revised information.

V. CONCLUSION.

For the reasons stated above and in CTIA's Petition to Deny, the Commission should deny the AST Petition for Declaratory Ruling and application and subject AST's request for operations to proper rulemaking procedures.

Respectfully submitted,

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November 19, 2020

CERTIFICATE OF SERVICE

I certify that on November 19, 2020, a copy of the foregoing Reply Comments of CTIA was served by electronic mail³⁰ on the following:

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³⁰ Pursuant to Section 1.47(d) of the FCC's rules, the party to be served may agree to accept service in an alternative form. *See* 47 C.F.R. § 1.47(d). AST has agreed to service by electronic mail of this Petition to Deny.