# Before the FEDERAL COMMUNICATIONS COMMISSION Washington, DC 20554

In the Matter of	)		
	)		
Astranis Bermuda Ltd.	)		
	)		
Amendment to Petition for Declaratory	)	File No.: SAT-AMD	
Ruling for the Arcturus Satellite to	)		
Access the U.S. Market and to Be	)	Call Sign: S3092	
Added to the Permitted Space Station	)		
List at the 163° W.L. Orbital Location	)		
in Ka-band Frequencies	)		

## AMENDMENT TO PETITON FOR DECLARATORY RULING

Pursuant to Section 25.116 of the Federal Communications Commission's ("Commission") rules, 47 C.F.R § 25.116, Astranis Bermuda Ltd. ("Astranis Bermuda"), a wholly owned subsidiary of U.S.-based Astranis Space Technologies Corp. ("Astranis"), hereby amends its Petition for Declaratory Ruling to access the U.S. market using the Arcturus satellite and to add the satellite to the Permitted Space Station List (the "Petition").<sup>1</sup> Astranis Bermuda amends the Petition to clarify that the proposed operations of the Arcturus satellite includes (i) the 19.3-19.4 GHz and the 19.6-19.7 GHz (space-to-Earth) bands to support gateway operations at a single teleport located in the contiguous United States ("CONUS"); and (ii) the 29.25-29.3 GHz (Earth-to-space) band to support gateway operations only at the same teleport. The gateway operations described herein are consistent with the Commission's rules and policies and will enable Astranis Bermuda to provide robust broadband services to underserved communities and others in the Alaska region. Accordingly, expeditious grant of the Petition, as amended herein, would strongly serve the public interest.

<sup>&</sup>lt;sup>1</sup> Astranis Bermuda, Ltd., File No. SAT-PPL-20210607-00075, Call Sign S3092 (filed June 7, 2021) (the "Petition"). The Arcturus satellite is also known as the Aurora 4A satellite.

## I. DISCUSSION

Through its Petition, Astranis Bermuda requests authority to serve the U.S. market using the using the 18.2-19.3 GHz and 19.7-20.2 GHz bands (space-to-Earth) and 28.0-29.1 and 29.3-30.0 GHz bands (Earth-to-space) for its service links, and the 18.2-19.4 GHz and 19.6-20.2 GHz bands (space-to-Earth) and 28.0-29.1 and 29.25-30.0 GHz bands (Earth-to-space) for its gateway links. Although the Schedule S and Frequency and Polarization Plan in the Technical Description attached to the Petition provided the relevant information to support this request,<sup>2</sup> the narrative document inadvertently omitted the additional 19.3-19.4 GHz, 19.6-19.7 GHz, and 29.25-29.3 GHz gateway bands, and the Schedule S inadvertently suggested that the Arcturus satellite would operate service links rather than gateway links in the 29.25-29.3 GHz band.

Astranis Bermuda hereby amends its Petition to clarify that it seeks authority to operate gateway links at a single CONUS teleport in using the 19.3-19.4 GHz, 19.6-19.7 GHz bands and the 29.25-29.3 GHz band.<sup>3</sup> All other information provided in the Petition remains the same.

#### A. Legal Qualifications

Astranis Bermuda is legally qualified to hold the market access authority requested in the Petition, as amended herein. The information provided in the Petition and the attached Form 312 demonstrates Astranis Bermuda's compliance with the Commission's basic legal qualifications.<sup>4</sup>

<sup>&</sup>lt;sup>2</sup> The Schedule S filed with the Petition includes all relevant technical information necessary to operate the Arcturus satellite in the 19.3-19.4 GHz, 19.6-19.7 GHz, and 29.25-29.3 GHz bands. *See id.*, Schedule S, at 5, 11, 19. Moreover, the Frequency and polarization plan in the Technical Description demonstrates the proposed gateway downlink operations in the 19.3-19.4 GHz and 19.6-19.7 GHz bands. *See id.*, Technical Description, §A.4.

<sup>&</sup>lt;sup>3</sup> *See* Petition, Narrative, at 2, 6 (noting a gateway earth station for the Arcturus satellite will be located within CONUS to provide backhaul and on-station TT&C communications).

<sup>&</sup>lt;sup>4</sup> See Petition, Narrative at 4-5.

#### **B.** Technical Qualifications

Pursuant to Commission rule 47 C.F.R. § 25.137(d), Astranis Bermuda demonstrates in the Petition, and clarifies through this amendment, that the proposed operations of the Arcturus satellite comply with applicable Commission rules for non-U.S. licensed satellites to operate in the United States. Astranis Bermuda provides the attached Schedule S and Supplemental Technical Description regarding its gateway operations.<sup>5</sup>

#### **1.** Spectrum Compatibility

The United States Table of Frequency Allocations ("Table of Allocations") allocates the 19.3-19.4 GHz and 19.6-19.7 GHz band segments for fixed-satellite service ("FSS") and fixed service operations on a co-primary basis.<sup>6</sup> FSS operations are required to comply with applicable power flux-density ("PFD") limits established to protect fixed service stations,<sup>7</sup> and are subject to coordination with Federal FSS systems and non-Federal space and terrestrial systems.<sup>8</sup>

As described in the Technical Description, the Arcturus satellite will comply with the PFD limit and other applicable requirements in the Commission's rules (including the Table of Allocations).<sup>9</sup> Astranis Bermuda will also seek to coordinate its space-to-Earth operations with

<sup>&</sup>lt;sup>5</sup> The Schedule S attached to this amendment includes relevant technical information regarding Arcturus satellite operations in the 19.3-19.4 GHz, 19.6-19.7 GHz, and 29.25-29.3 GHz bands. *See* Schedule S, at 11, 19. The updated Frequency and Polarization Plan indicates the proposed gateway operations in the foregoing bands. *See* Attachment A, Supplemental Technical Description.

<sup>&</sup>lt;sup>6</sup> 47 CFR § 2.106; *see* Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters, *Report and Order*, 32 FCC Rcd 7809 ¶ 19 & n.46 (2017) ("NGSO Order").

<sup>&</sup>lt;sup>7</sup> See 47 C.F.R. § 25.208(c).

<sup>&</sup>lt;sup>8</sup> 47 CFR § 2.106, n. US334 ("Federal space stations in both geostationary (GSO) ... and associated earth stations in the fixed-satellite service (FSS) (space-to-Earth) may be authorized on a primary basis.").

<sup>&</sup>lt;sup>9</sup> See Petition, Technical Description, §A.7; see also 47 C.F.R. § 25.208(c).

Federal FSS systems in accordance with footnote US334 to the Table of Allocations.<sup>10</sup> Likewise, Arcturus operations will be fully compliant with the Commission's two-degree spacing policies, will not cause harmful interference to any other authorized user of the spectrum, and otherwise will be consistent with Commission precedent.<sup>11</sup>

Astranis Bermuda also clarifies that it seeks to operate in the 29.25-29.3 GHz band for gateway operations. The public notice accepting the Petition for filing ("Notice") correctly identifies the 29.25-29.3 GHz band request but does not specify the service of the band.<sup>12</sup> The Schedule S, as filed, suggests the Arcturus satellite will operate with a service uplink center frequency of 29625 MHz and a channel bandwidth of 750 MHz.<sup>13</sup>

Astranis Bermuda amends the Petition to clarify that this center frequency and bandwidth are for its gateway operations and it intends to operate its service links in the 29.3-30.0 GHz band only, with a service link center frequency of 29650 MHz and a channel bandwidth of 700 MHz for its service link. The table below shows the correct bandwidth and center frequency for the two channels.

Channel ID	Channel Bandwidth	Center Frequency	Link
FRG1	750.0	29625.0	Feeder Link
RRD1	700.0	29650.0	Service Link

<sup>&</sup>lt;sup>10</sup> 47 C.F.R. §2.106, n. US334.

<sup>&</sup>lt;sup>11</sup> See Petition, Narrative, at 11-12; *see, e.g.*, ViaSat, Inc., Application for Modification of Market Access Grant and for Extension or Waiver of Milestone Date, *Order and Declaratory Ruling*, No. SAT-MOD-20190617-00047, Call Sign S2917 (granted May 28, 2020) (granting GSO operations in the 19.3-19.4 GHz and 19.6-19.7 GHz bands).

<sup>&</sup>lt;sup>12</sup> Satellite Policy Branch Space Applications Accepted for Filing, Report No. SAT-01566 (rel. July 16, 2021) (the "Notice").

<sup>&</sup>lt;sup>13</sup> See Petition, Schedule S, at 11.

The updated Schedule S attached to this amendment reflects the foregoing clarification. Astranis Bermuda further clarifies that it will coordinate proposed operations with Iridium in accordance with the Commission's rules.

## 2. Two-Degree Spacing

Astranis Bermuda's operations will be fully compliant with the Commission's two-degree spacing policies and otherwise will be consistent with Commission precedent. Arcturus will also be operated consistent with applicable existing and future coordination agreements. For these reasons, the Petition, as amended, fully complies with the policies articulated in the *Space Station Licensing Reform Order* regarding processing of applications for GSO-like spacecraft.<sup>14</sup>

## C. Public Interest Considerations

Authorizing Astranis Bermuda to operate Arcturus satellite gateway links as described in the Petition, and amended herein, strongly serves the public interest. The Arcturus satellite will provide reliable broadband Internet access to Alaska and surrounding regions, resulting in increased connectivity and competition. Access to all intended gateway frequencies, as clarified herein, will help ensure robust broadband service to underserved communities to bridge the digital divide, while improving the local economies and enhancing all aspects of community life. Accordingly, grant of the Petition, as amended, strongly supports the public interest.

<sup>&</sup>lt;sup>14</sup> See Amendment of the Commission's Space Station Licensing Rules and Policies, 18 FCC Rcd 10760, ¶ 113 (2003) ("Space Station Licensing Reform Order").

# II. CONCLUSION

Astranis Bermuda seeks to amend its Petition to include authority for the Arcturus satellite to operate gateway links with a single U.S. teleport in the 19.3-19.4 GHz and the 19.6-19.7 GHz bands and the 29.25-29.3 GHz band. All other information in the Petition remains unchanged. For the reasons set forth herein, Astranis Bermuda respectfully requests that the Commission grant the Petition, as amended, at the earliest practicable time.