Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Heighliner Corp.	)	
	)	File No. SES-AMD-_____
Amendment to Application for Modification of Authority to Deploy and Operate Fixed Earth Stations in the Ku-band and Ka-band Frequencies	)	

AMENDMENT APPLICATION

Pursuant to Section 25.116 of the Federal Communications Commission's ("Commission's") rules,[1] Heighliner Corp. ("Heighliner"), a wholly owned subsidiary of Astranis Space Technologies Corp. ("Astranis"), respectfully files this amendment to its Modification Application[2] to (1) add additional Ka-band frequencies to its previously requested blanket license network of 4-meter and 4.8-meter antennas across the Contiguous United States ("CONUS") and United States ("U.S.") territories and (2) to add additional types of operations (emissions designators) in previously requested Ka-band frequencies.

I. FREQUENCIES AND POINTS OF COMMUNICATION

[1] 47 C.F.R § 25.116.

[2] *See* Heighliner Corp., *Application for Modification of Authority to Deploy and Operate Fixed Earth Stations in the Ku-band and Ka-band Frequencies,* ICFS File No. SES-MOD-20260417-01081 (E220162) (filed May 4, 2026) ("Modification Application"); *see also* Heighliner Corp., *Amendment to Application for Modification of Authority to Deploy and Operate Fixed Earth Stations in the Ku-band and Ka-band Frequencies*, ICFS File No. SES-AMD-20260512-01307 (E220162) (filed May 13, 2026) ("First Amendment Application").

Heighliner proposes to add the following Ka-band frequencies that are available for GSO earth stations on a blanket-license basis:[3]

- Conventional Ka-bands, on a transmit/receive basis:
  - 18.3–18.8 GHz (space-to-Earth);
  - 29.25–30 GHz (Earth-to-space).
- Extended Ka-bands, on a transmit/receive basis:
  - 18.8–19.3 GHz (space-to-Earth);
  - 28.6–29.1 GHz (Earth-to-space).

These additional Ka-band frequencies will be used for gateway emissions between Astranis's 4-meter and 4.8-meter gateway earth stations and its geostationary satellite orbit ("GSO") systems on the Commission's Permitted Space Station List.[4]

In addition, Astranis adds additional emissions to previously requested frequency bands (19.7-20.2 GHz and 28.35-28.6 GHz) to cover gateway-type operations in addition to the previously requested tracking, telemetry and control operations.[5]

II. WAIVER REQUEST, FOOTNOTE NG165

The Commission may waive any of its rules if there is "good cause" to do so.[6] In general, waiver is appropriate if (1) special circumstances warrant a deviation from the general rule; and (2) such deviation would better serve the public interest than would strict adherence to the rule.[7]

---

[3] *See* 47 C.F.R. § 25.103 (defining the conventional and extended Ka-band frequencies). *See also* 47 C.F.R. § 25.115(c)(3) (describing licensing of networks of earth stations in these frequency bands).

[4] *Approved Space Station List*, Federal Communications Commission, https://www.fcc.gov/approved-space-station-list (last visited Aug. 5, 2026). The Approved Space Station List includes space stations added to the Commission's Permitted Space Station List pursuant to 47 C.F.R. § 25.103.

[5] *See* attached modified Schedule B.

[6] *See* 47 C.F.R. § 1.3; *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).

[7] *See Northeast Cellular*, 897 F.2d at 1166.

Generally, the Commission will grant a waiver of its rules in a particular case if the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest.[8]

Heighliner requests a limited waiver of Footnote NG165 of the U.S. Table of Frequency Allocations[9] to permit operation of its earth stations in the 18.8–19.3 and 28.6–29.1 GHz bands on a blanket-licensed basis. Primary non-geostationary satellite orbit ("NGSO") FSS earth stations are allowed on a blanket-licensed basis in these bands.[10] Blanket licensing within the Commission's rules is generally allowed when there are no terrestrial services in a given frequency band. As a result, the Commission should allow Heighliner to license its earth stations on a blanket-license basis, subject to complying with the same conditions as on Astranis's space station licenses: first, Astranis "operations in the 18.8–19.3 GHz (space-to-Earth) and 28.6–29.1 GHz (Earth-to-space) frequency bands must not cause harmful interference to, or claim interference protection from, NGSO FSS systems licensed or granted market access in the United States;"[11] second, Astranis must "notify the Commission in writing when an agreement has been reached with the NGSO satellite system operator" and "refrain from… commencing operations in the United States…as compliance is demonstrated."[12] In compliance with these space station conditions, Astranis will not operate earth stations in these frequency bands until coordination is

[8] *See WAIT Radio*, 418 F.2d at 1157.

[9] *See* 47 C.F.R. § 2.106, n. NG165.

[10] *See* 47 C.F.R. § 25.115(f)(2).

[11] *See* Astranis Projects USA LLC, *Application for Authority to Launch and Operate the ASTRANIS 131W GSO System at the Nominal 131° W.L. Orbital Location in Ku-band and Ka-band Frequencies* (S00784), Grant Stamp, ICFS File No. SAT-LOA-20260122-00024, Condition 7 (granted May 6, 2026) (Astranis 131W Grant); Astranis Projects USA LLC, *Application for Authority to Launch and Operate the ASTRANIS 157E GSO System at the Nominal 157° E.L. Orbital Location in Ku-band and Ka-band Frequencies* (S3236), Grant Stamp, ICFS File Nos. SAT-LOA-20250618-00152 and SAT-AMD-20250919-00292, Condition 7 (granted Apr. 23, 2026) (Astranis 157E Grant).

[12] *See* Astranis 131W Grant, Condition 8; Astranis 157E Grant, Condition 8.

complete pursuant to the associated space station licenses. Grant of this waiver is consistent with Commission precedent.[13]

Furthermore, in a 2022 Report and Order, the Commission established an extended Ka-band for the fixed-satellite service ("FSS") in the 17.3-18.3 GHz (space-to-Earth), 18.8-19.4 GHz (space-to-Earth), 19.6-19.7 GHz (space-to-Earth), 27.5-28.35 GHz (Earth-to-space) and 28.6-29.1 GHz (Earth-to-space) bands.[14] The Commission stated that the proceeding was an effort "to streamline licensing of FSS earth stations in a closely harmonized regulatory framework for all similar FSS uplink transmissions in the conventional and extended Ka-bands."[15] While the Report and Order only explicitly adopted a rule to permit blanket-licensed FSS receiving earth stations in the 17.3–17.8 GHz band,[16] the underlying regulatory logic applies with equal force to Heighliner's requested operations in the 18.8–19.3 GHz and 28.6–29.1 GHz bands. Heighliner's operations in these bands will comply with two-degree spacing limits that facilitate compatible operation of GSO systems throughout Ka-band frequencies. Specifically, Heighliner's transmitting earth stations in 28.6–29.1 GHz will comply with standardized extended Ka-band uplink power limits for FSS operations,[17] and GSO FSS downlink operations in 18.8–19.3 GHz

[13] *See, e.g.*, Inmarsat Hawaii Inc., *Order and Authorization and Declaratory Ruling* (E120072), Grant Stamp, ICFS File Nos. SES-LIC-20120426-00397, SES-AMD-20120823-00781, and SES-AMD-20150114-00008, ¶ 22 (rel. Mar. 30, 2015); ViaSat, Inc., *Letter of Intent for Authority to Access the U.S. Market Using a Non-U.S. Licensed Ka-Band Geostationary Fixed Satellite Service Satellite at the Nominal 70º W.L. Orbital Location* (S2902), Grant Stamp, ICFS File No. SAT-LOI-20130319-00040, Condition 4 (granted Dec. 12, 2013); ViaSat, Inc., *Letter of Intent of ViaSat, Inc. for Authority to Access the U.S. Market Using Ka-Band Spectrum* (S2747), Grant Stamp, ICFS File Nos. SAT-LOI-20080107-00006, SAT-AMD-20080623-00131, and SAT-AMD-20090213-00023, Condition 4 (granted Aug. 18, 2009).

[14] See *Amendment of Parts 2 and 25 of the Commission's Rules to Enable GSO Fixed-Satellite Service (Space-to-Earth) Operations in the 17.3-17.8 GHz* Band, Report and Order and Notice of Proposed Rulemaking, FCC 22-63, IB Docket No. 20-330, ¶ 9, n. 42 (rel. Aug. 3, 2022) (defining the extended Ka-band to include the 18.8–19.4 GHz and 28.6–29.1 GHz bands specifically to harmonize and streamline licensing of FSS earth stations)

[15] *Id.* ¶ 2.

[16] *Id.* at 41; *see also* 47 C.F.R. § 25.115(e)(2).

[17] 47 C.F.R. § 25.218(i)(1).

will comply with standardized extended Ka-band power-flux density limits,[18] thus operating similarly to GSO FSS downlink operations in 17.3–17.7 GHz which are permitted on a co-primary basis. Complying with these two-degree spacing levels coupled with the fact that Astranis's space stations are conditioned to coordinate with primary NGSO systems, granting blanket authority in these bands directly advances the Commission's policy to harmonize and streamline Ka-band earth station licensing.

III. PUBLIC INTEREST

Grant of this amendment will serve the public interest, convenience, and necessity by permitting Astranis to deploy and operate gateway earth stations in the Ka-band frequencies to provide satellite connectivity to government institutions and enterprises across the United States, Canada, and Mexico. Such services will also facilitate the commercial development of Astranis, a U.S.-based company, and further enhance U.S. leadership in the global space economy.

IV. CONCLUSION

Except for the updates in this narrative, Exhibit B (providing the new radiation hazard study for the 4.8-meter antenna), and the newly attached Schedule B (with the additional Ka-band frequencies and additional emission designators for previously requested Ka-band frequencies), all information previously provided in the Modification Application and the First Amendment Application remains unchanged.[19] Exhibit A (providing the radiation hazard study for the 4-meter antenna) remains unchanged from the First Amendment Application, but is

[18] 47 C.F.R. § 25.140(a)(3)(iii).

[19] *See* Modification Application and First Amendment Application, *supra* note 2.

attached below for convenience. Heighliner respectfully requests that the Commission grant the Modification Application, as amended herein.

Respectfully submitted,

/s/ Kailey D. Lauter

Kailey D. Lauter
Regulatory Counsel

/s/ Kimberly M. Baum

Kimberly M. Baum
Head of Regulatory
Astranis Space Technologies Corp.
575 20th St.
San Francisco, CA 94107

Dated: August 14, 2026

EXHIBIT A – RADIATION HAZARD STUDY FOR 4.0M ANTENNAS

1. Introduction

This analysis assesses the non-ionizing radiation levels for the Communications & Power Industries (CPI) Antenna Technologies' 4.0-meter antenna to Ka-band earth stations. The calculations performed in this analysis are consistent with the recommendations articulated in the Commission's Office of Engineering and Technology Bulletin, Number 65 ("Bulletin 65"). This analysis demonstrates that the 4.0m earth station complies with the applicable radiation exposure rules with appropriate labeling and access control.[20]

2. Analysis

This analysis was performed on seven zones around the antenna with the results shown in the Table below labeled "Radiation Hazard Zones." The Table labeled "Input Values" provides the input data required to perform the analysis. The table labeled "OET 65 Calculated Values" provides the intermediate calculation used to perform the assessment in accordance with OET 65. The analysis is performed for each of the seven radiation zones as described below:

Zone 1.	Point between the feed and the sub-reflector
Zone 2.	The power at the surface of the antenna
Zone 3.	The power level between the main reflector and ground
Zone 4.	The near-field or Fresnel region in which the maxima can be reached before the field starts to diminish with distance
Zone 5.	The Transition region where power begins to decrease inversely with distance from the antenna
Zone 6.	The Far Field or Fraunhofer region where power decreases inversely with the square of the distance. This is the point at which the antenna beam is fully collimated
Zone 7.	The off-axis level in the near field. This is defined as the area outside of the main beam removed and at least one antenna diameter removed from the main beam

[20] Bulletin 65 and Section 1.310 of the Commission's rules specify two separate exposure limits: one for Occupational/Controlled Exposures and one for General Population/Uncontrolled Exposures. The maximum level of non-ionizing radiation to which employees may be exposed under the occupational threshold is limited to a power density level of 5 milliwatts per square centimeter (5 mW/cm^2) averaged over any 6-minute period in a controlled environment. The maximum level of non-ionizing radiation to which the General Population may be exposed is limited to a power density level of 1 milliwatt per square centimeter (1 mW/cm^2) averaged over any 30-minute period in an uncontrolled environment.

Radiation Hazard Analysis						
	Operator:	Astranis				
	Local Designation:					
	County:					
	ANTENNA	CPI 4 m LEO/MEO gateway				
	State/Zip:					
	Input Value	**Value**	**Unit**			
	D = Aperture Diameter	4	Meters			
	d = Subreflector Diameter	n/a	Meters			
	G= Antenna Gain	58.8	dBi			
	FCC Designation	Ka	Band			
	F - Frequency	28600	MHz			
	P = Transmitter Power Watts	160	Watts			
	p = Number of Transmitters	1	#			
	Rua = Closest Point to Uncontrolled Area	50	Meters			
	Elevation angle at closest point Rua	45	Degrees			
	Antenna Efficiency (Manual Input)		Percentage			
	OET 65 Calculated Values	**Formula**	**Value**	**Unit**		
	λ = Wavelength	c/F	0.01	Meters		
	Antenna Gain dB	10^(G/10)	758577.58	linear		
	η = Aperture Efficiency	(Gλ^22 / 4π)/ (π D^2/4)	52.78%	Percentage		
	A = Area of reflector	π(D/2)^2	12.57	Meters2		
	a = area of subreflector	π(d/2)^2	n/a	Meters2		
	Pl = Total Antenna Input Power	P*p	160.00	Watts		
	Rnf = Near-Field Region	Rnf = D^2/4λ	381.60	Meters		
			381.60	>Meters		
	Transition Region	>Rnf <Rff	915.83	<Meters		
			915.83	Meters		
	Rff = Far-Field Region	Rff = 0.6D2/λ	647.59	Meters AGL		

					Exposure Limits	
					General Public	Occupational
	Radiation Analysis Zone	**Formula**	**Level**	**Value**	**<1mW/cm2**	**<5mW/cm2**
1	Power Subreflector	4Pl/a	n/a	mW/cm2	n/a	n/a
2	Antenna Surface	4Pl/A	5.09	mW/cm2	Fail	Fail
3	Main Reflector Ground	Pl/A	1.27	mW/cm2	Fail	Pass
4	Snf = Near-Field Power Density	4(Pl/ηA)	9.65	mW/cm2	Fail	Fail
5	Max Transition Power Density	Snf*Rnf/Rnf	9.65	mW/cm2	Fail	Fail
6	Max Far-Field Power Density	Pl*G/4πR2	1.15	mW/cm2	Fail	Pass
7	Off Axis level near Field	Snf-20dB	0.10	mW/cm2	Pass	Pass

3. Conclusion

The analysis above demonstrates that the 4.0-meter terminals will exceed the general population exposure threshold in five zones. To ensure the terminal will not pose a risk of harmful radiation hazard to the general population, access to the teleport will be controlled to prevent casual occupancy of the area in front of the antennas within the limits prescribed above.

EXHIBIT B: RADIATION HAZARD STUDY FOR 4.8-METER ANTENNAS

1. Introduction

This analysis assesses the non-ionizing radiation levels for the Communications & Power Industries (CPI) Antenna Technologies' 4.8-meter compact Cassegrain design antenna to Ka-band earth stations. The calculations performed in this analysis are consistent with the recommendations articulated in the Commission's Office of Engineering and Technology Bulletin, Number 65 ("Bulletin 65"). This analysis demonstrates that the 4.8m earth station complies with the applicable radiation exposure rules with appropriate labeling and access control.[21]

2. Analysis

This analysis was performed on seven zones around the antenna with the results shown in the Table below labeled "Radiation Hazard Zones." The Table labeled "Input Values" provides the input data required to perform the analysis. The table labeled "OET 65 Calculated Values" provides the intermediate calculation used to perform the assessment in accordance with OET 65. The analysis is performed for each of the seven radiation zones as described below:

Zone 1.	Point between the feed and the sub-reflector
Zone 2.	The power at the surface of the antenna
Zone 3.	The power level between the main reflector and ground
Zone 4.	The near-field or Fresnel region in which the maxima can be reached before the field starts to diminish with distance
Zone 5.	The Transition region where power begins to decrease inversely with distance from the antenna
Zone 6.	The Far Field or Fraunhofer region where power decreases inversely with the square of the distance. This is the point at which the antenna beam is fully collimated
Zone 7.	The off-axis level in the near field. This is defined as the area outside of the main beam removed and at least one antenna diameter removed from the main beam

[21] *Id.*

Radiation Hazard Analysis

	Operator:	Astranis				
	Local Designation:					
	County:					
	ANTENNA	CPI 4.8 m Cassegrain				
	State/Zip:					
	Input Value	**Value**	**Unit**			
	D = Aperture Diameter	4.8	Meters			
	d = Subreflector Diameter	0.6	Meters			
	G= Antenna Gain	59.9	dBi			
	FCC Designation	Ka	Band			
	F - Frequency	28600	MHz			
	P = Transmitter Power Watts	550	Watts			
	p = Number of Transmitters	1	#			
	Rua = Closest Point to Uncontrolled Area	50	Meters			
	Elevation angle at closest point Rua	45	Degrees			
	Antenna Efficiency (Manual Input)		Percentage			
	OET 65 Calculated Values	**Formula**	**Value**	**Unit**		
	λ = Wavelength	c/F	0.01	Meters		
	Antenna Gain dB	10^(G/10)	977237.22	linear		
	η = Aperture Efficiency	(Gλ^22 / 4π)/ (π D^2/4)	47.22%	Percentage		
	A = Area of reflector	π(D/2)^2	18.10	Meters2		
	a = area of subreflector	π(d/2)^2	0.28	Meters2		
	PI = Total Antenna Input Power	P*p	550.00	Watts		
	Rnf = Near-Field Region	Rnf = D^2/4λ	549.50	Meters		
			549.50	>Meters		
	Transition Region	>Rnf <Rff	1318.80	<Meters		
			1318.80	Meters		
	Rff = Far-Field Region	Rff = 0.6D2/λ	932.53	Meters AGL		

					Exposure Limits	
					General Public	Occupational
	Radiation Analysis Zone	**Formula**	**Level**	**Value**	**<1mW/cm2**	**<5mW/cm2**
1	Power Subreflector	4PI/a	778.09	mW/cm2	Fail	Fail
2	Antenna Surface	4PI/A	12.16	mW/cm2	Fail	Fail
3	Main Reflector Ground	PI/A	3.04	mW/cm2	Fail	Pass
4	Snf = Near-Field Power Density	4(PI/ηA)	25.75	mW/cm2	Fail	Fail
5	Max Transition Power Density	Snf*Rnf/Rnf	25.75	mW/cm2	Fail	Fail
6	Max Far-Field Power Density	PI*G/4πR2	2.46	mW/cm2	Fail	Pass
7	Off Axis level near Field	Snf-20dB	0.26	mW/cm2	Pass	Pass

3. Conclusion

The analysis above demonstrates that the 4.8-meter terminals will exceed the general population exposure threshold in six zones. To ensure the terminal will not pose a risk of harmful radiation hazard to the general population, access to the teleport will be controlled to prevent casual occupancy of the area in front of the antennas within the limits prescribed above. Where the occupational limit could be exceeded by a factor of more than ten, orange “WARNING” signs will be put up in the surrounding the area in which the occupational exposure limit in a controlled environment is exceeded.