EXHIBIT 2

RADIOFREQUENCY EXPOSURE ANALYSIS
(2.4 m. Gateway Antenna)

Introduction

This analysis calculates the non-ionizing radiofrequency ("RF") exposure levels for the proposed gateway earth station using a 2.4 m. (diameter) antenna. The calculations performed in this analysis comply with the methods described in FCC Office of Engineering and Technology Bulletin, Number 65 (Edition 97-01) ("Bulletin 65").[1] This analysis demonstrates that the proposed gateway operations will not result in RF exposure levels exceeding applicable maximum permissible exposure ("MPE") limits and are compliant with Bulletin 65 guidelines for mitigating such levels through restricted access and other safety measures.

Bulletin 65 and Section 1.1310 of the Commission's rules specify two separate tiers of exposure limits: one for Occupational/Controlled Exposure and one for General Population/Uncontrolled Exposure. Limits for Occupational/Controlled Exposure apply in situations where persons are exposed due to their occupation and are fully aware of and can control their exposure. These limits also apply in situations where a person is transient through a location where such limits would otherwise apply, provided the person is made aware of the potential for exposure. The limits for General Population/Uncontrolled Exposure apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure. The proposed gateway will operate in an Occupational/Controlled Exposure environment, and thus is subject to an MPE limit of 5 mW/cm^2 averaged over a six-minute period for Occupational/Controlled Exposure.[2]

As described in the definitional section below, this report analyzes the maximum power density levels in the vicinity of the proposed gateway antenna in the following five regions, based upon Bulletin 65's definitions and formulas for aperture antennas: (1) the far field, (2) the near field, on-axis, (3) the near field, off-axis, (4) near the main reflector surface, and (5) at the sub-reflector surface. The analysis calculates potential exposure levels under worst-case operating conditions, and results of this analysis are summarized in Tables 1 and 2, below.

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[1] Off. Eng' & Tech., FCC, OET Bulletin 65, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields* (ed. 97-01; Aug. 1997); *see also Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields; Reassessment of Federal Communications Commission Radiofrequency Exposure Limits and Policies*, ET Docket No. 19-226, Resolution of Notice of Inquiry, Second Report and Order, Notice of Proposed Rulemaking, and Memorandum Opinion and Order, 34 FCC Rcd 11687 (2019).

[2] 47 C.F.R. § 1.1310(e).

Definitions

1) Far Field Region

The far field region extends outward from the antenna surface, beginning at a distance of 0.6 D^2/λ meters, where the D is the diameter of the antenna.

2) Near Field Region

The near field region is a volume co-incident with the direction of the main beam extending outward from the antenna surface the length of $D^2/4\lambda$ meters, where the D is the diameter of the antenna.

3) Transition Region

The transition region is located between the near field region and the far field region. This region has a power density that decreases with increasing distance. Therefore, the power density in the transition region will be less than the maximum power density in the near field and more than the maximum power density in the far field for the purpose of evaluating potential exposure.

4) Region Near the Antenna Surface

The power density near the antenna surface can be estimated as equal to four times the power divided by the area of the main reflector surface (main reflector illumination is uniform).

5) Region Near the Sub-reflector Surface

The power radiated from the feed toward the sub reflector. The maximum power at the sub-reflector can be estimated as four times the transmit power divided by the surface area of the sub-reflector.

Gateway Description

The gateway antenna is a 2.4-meter parabolic dish capable of steering its beams to track NGSO satellites passing within its field of view. At the antenna flange, the maximum transmit power is 2.3 W. For purposes of this analysis, we have conservatively assumed that the gateway can transmit at 100% duty cycle.

Calculations[1]

Table 1: Input and Calculated Parameters

Input Parameters	**Value**	**Unit**
D = Aperture Diameter	2.4	Meters
d = Subreflector Diameter	0.12	Meters
Frequency	48700	MHz
P = Transmitter Power	2.3	Watts
η = Aperture Efficiency	33	%
Elevation angle at closest point	10	Degrees
Maximum Transmit Duty Cycle	100	%
Calculated Parameters	**Value**	**Unit**
λ = Wavelength = c/F	0.0062	Meters
PI = Total Antenna Input Power = P	2.3	Watts
A = Area of reflector = $\pi(D/2)^2$	4.52	$Meters^2$
a = area of subreflector = $\pi(d/2)^2$	0.01	$Meters^2$
G = Antenna Gain = $4\pi\ \eta\ A/\lambda^2$	499554.6	Linear
Antenna Gain dB = 10log10(G)	57	dBi
Rnf = Near-Field Region = $D^2/4\lambda$	233.9	Meters
	40.6	Meters AGL
Rff = Far-Field Region = 0.6 D^2/λ	561.4	Meters
	97.5	Meters AGL
Rnf < Transition Region (Rt) < Rff	223.9 < Rt < 561.4	Meters

Table 2: Power Density Calculations

Region (Max Power Density Formula)	**Value**	**Unit**
Subreflector Surface ($4P_I/a$)	81.346	mW/cm^2
Antenna Surface ($4P_I/A$)	0.203	mW/cm^2
Near-Field Region ($S_{nf} = 4(P_I/\eta A)$)	0.611	mW/cm^2
Transition Region ($S_{nf}*R_{nf}/R_{nf}$)	0.611	mW/cm^2
Far-Field Region ($P_I*G/4\pi R^2$)	0.029	mW/cm^2
Off-Axis Near-Field (OANF = Snf - 20dB)	0.00611	mW/cm^2

[1] Calculations in the tables below are based upon Bulletin 65's formulae for a system with continuous (100% transmit duty cycle) transmission. These calculations include the maximum power density in the near field, off axis, for spacings at least one antenna diameter removed from the center of the main beam as well as the maximum power density in the near field, off axis, for a spacing several antenna diameters away, based upon a reference cited in Bulletin 65.

Results and Conclusion

This analysis demonstrates that the proposed gateway operations will not result in unacceptable RF exposure levels. As shown in Table 2 above, the proposed gateway operations will generate power density levels below the applicable MPE limit of 5 mW/cm^2 for Occupational/Controlled Exposure areas, except at the subreflector surface, and are otherwise compliant with Bulletin 65 guidelines for mitigation through restricted access and other safety measures. The gateway will be located in an area clearly marked with Radiation Hazard signage and within a controlled facility, which maintains a boundary several antenna diameters from any given antenna, restricting access to the general public. Outside the controlled facility, the antenna main beam is not accessible to the general public because the antenna minimum elevation angle will be 10 degrees, and no nearby buildings or elevated terrain will intersect with this portion of the antenna main beam. The near-field region creates no concern for the general public as it lies behind signage where only authorized personnel may enter, and power levels in the off-axis region will be far below the applicable MPE limit. Furthermore, power to the transmitters will be turned off remotely whenever work needs to be performed at the subreflector surface area where levels may exceed the applicable MPE limit of 5 mW/cm^2. Signage will mark the area for Radiation Hazard and access by qualified personnel only, thus ensuring awareness and enhancing safety. Consequently, there is no risk of RF exposure beyond acceptable limits.