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VIA ELECTRONIC FILING

March 25, 2019

Marlene H. Dortch
Office of the Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: AT&T Corp. Modification of Call Sign E980066 to Replace Antenna, Add Ku-Band Frequencies, and Correct Geographic Coordinates, SES-MOD-20180821-02252

Dear Ms. Dortch:

AT&T Corp. ("AT&T"), by its undersigned counsel, respectfully submits this correction to the above-captioned earth station modification application. Specifically, AT&T requests that the data currently provided in the application for Schedule B Items E38, E40, E48, E49, and E56-E59 be replaced with the data in Tables 1, 2, and 3 below for the specified frequency bands (where applicable):

Table 1: Total Input Power and Total EIRP

E38. Total Input Power at Antenna Flange (Watts)	E40. Total EIRP for All Carriers (dBW)
400.0	86.0

Table 2: EIRP and EIRP Density

Frequency Bands (MHz)	E48. Maximum EIRP per Carrier (dBW)	E49. Maximum EIRP Density per Carrier (dBW/4kHz)
5850-5925	78.27	38.37
5925-6425	78.47	38.57
13750-14000	84.67	45.11
14000-14500	84.87	45.31

Table 3: Elevation and Azimuth[1]

Frequency Bands (MHz)	E57. Antenna Elevation Angle Eastern Limit	E59. Antenna Elevation Angle Western Limit	E56. Earth Station Azimuth Angle Eastern Limit	E58. Earth Station Azimuth Angle Western Limit
3625-4200		8.6		257.9
10750-11700		9.4		257.3
11700-12200	25.1	9.4	116.1	257.3
13750-14000		15.2		252.8
14000-14500		15.2		252.8

An updated radiation hazard study to account for the change to the antenna's total input power is attached as Exhibit A.

Finally, AT&T seeks to replace all points of communications listed under the current authorization with "Permitted Space Station List" satellites only.

Please do not hesitate to contact the undersigned should you have any questions.

Respectfully Submitted,

/s/ Daniel P. Brooks

Daniel P. Brooks
Counsel for AT&T Corp.

[1] A shaded cell indicates no change to the data currently provided in the application.

<u>Exhibit A</u>

Radiation Hazard Study

Radiofrequency (RF) Radiation Hazard Study
9.0-meter Antenna

This report summarizes the non-ionizing radiofrequency (RF) exposure levels associated with the above antenna system. RF prediction models and associated exposure limits referenced in this study are outlined in the Federal Communications Commission (FCC) Office of Engineering and Technology (OET) Bulletin 65 Edition 97-01 (August 1997). The FCC-exposure limits define the level of RF energy that a person may be continuously exposed without experiencing adverse health effects. This "safe" level, herein referred to as Maximum Permissible Exposure (MPE) limit, is comprised of two-tiers: one for conditions which the public may be exposed (General Population/Uncontrolled) and the other for exposure situations usually involving workers (Occupational/Controlled). Therefore, the intent of this study is to define the maximum "worst-case" RF exposure levels and compare the results relative to the applicable MPE limits.

Based upon the following system parameters, the applicable **MPE limits** are: **1.0** mW/cm^2 and **5.0** mW/cm^2 for General Population/Uncontrolled and Occupational/Controlled environments, respectively, as specified in 47 CFR Part 1.1310.

System Parameters

Antenna Diameter (D1):	9.0	meters	Antenna Surface Area (D1a):	63.62	meters^2
Subreflector Diameter (D2):	1.20	meters	Subreflector Surface Area (D2a):	1.13	meters^2
Operating Frequency:	14250	MHz	Wavelength (λ):	0.021	meters
Antenna Gain (G), @ 6125 MHz:	60.1	dBi	Numerical Gain:	1023292.99	
Transmit Power @ Antenna Input*:	400.0	watts			
Calculated Aperture Efficiency (*n*):	0.57		Center height above ground level:	4.5	meters

* Based on an 800 W maximum power rated amplifier, where the actual operating power level will be reduced by at least a factor of 2.0 (3 dB minimum output backoff, transmission loss, etc.). For purposes of study, this equates to an aggregate output EIRP for all carriers of **86.12** dBW maximum.

Hazard Assessment

For parabolic aperture antennas, three (3) regions are defined for predicting maximum RF exposure levels within the main-beam (on-axis) path: ***near-field, transition, and far-field*** regions. RF prediction methods are based on where the point-of-interest falls within these regions:

1. The far field (Rff) region is determined by the following equation: 0.6 D^2/λ. This equates to a linear distance of approximately 2308.50 meters from the antenna. The maximum main beam RF exposure level (Sff), in terms of power density units, at this point can be calculated as follows:

Sff = PG / 40 π(Rff)^2 = 0.61 mW/cm^2

2. The near field (Rnf) region is determined by the following equation: D^2/ 4λ. This equates to a linear distance of approximately 961.88 meters from the antenna. The maximum RF exposure level (Snf), in terms of power density units, within this region can be calculated as follows:

Snf = 0.4*n* P/ D1a = 1.43 mW/cm^2

(Assume maximum value maintained throughout the near field region)

** The transition (Rt) region is between the near-field and far-field regions, defined as Rff - Rnf. This equates to a region extending 1346.63 meters, beginning at 961.88 meters and ending 2308.50 meters from the antenna. While the exposure intensity decreases inversely with the square of the distance in the

Hazard Assessment - Continued

far field region, the exposure intensity decreases inversely with distance in the transition region. Therefore, the maximum RF exposure level in the transition region will not exceed the above calculated near field value (Snf). If the point-of-interest falls within the transition region, the estimated RF exposure level (St), in terms of power density units, can be calculated using the following mid-point (Rt) example:

St = Snf * Rnf / R = 0.84 mW/cm^2 - at mid-point of Rt

note: where 'R' is the point-of-interest within the Rt

This dual-reflector (cassegrain) antenna design uses a shaped subreflector to direct RF energy from the feed horn back towards the main reflector dish. The following calculations are used to predict the RF exposure levels directly in front of the main reflector surface (rim), and regions between the main reflector and subreflector surfaces:

3. The maximum RF exposure level (Smain-surface) in front of the main reflector surface (at rim), in terms of power density units, can be calculated as follows:

Smain-surface = 0.4*P / D1a = 2.52 mW/cm^2

4. The maximum RF exposure level at the subreflector surface (Ssub-surface), in terms of power density units, can be calculated as follows:

Ssub-surface = 0.4*P / D2a = 141.47 mW/cm^2

For evaluating accessible areas outside the main beam path, a practical estimation is to consider the maximum allowable gain pattern envelope for fixed-satellite services. Specifically, the antenna gain shall lie below the envelope defined as -10 dBi for angles greater than 48 degrees and less than/equal to 180 degrees from the main lobe axis. In considering areas immediately below the main reflector rim, the maximum RF exposure levels directed towards this region (Spoi), in terms of power density units, can be calculated as follows:

5. Spoi = PG/40 π(R)^2 = 0.016 mW/cm^2

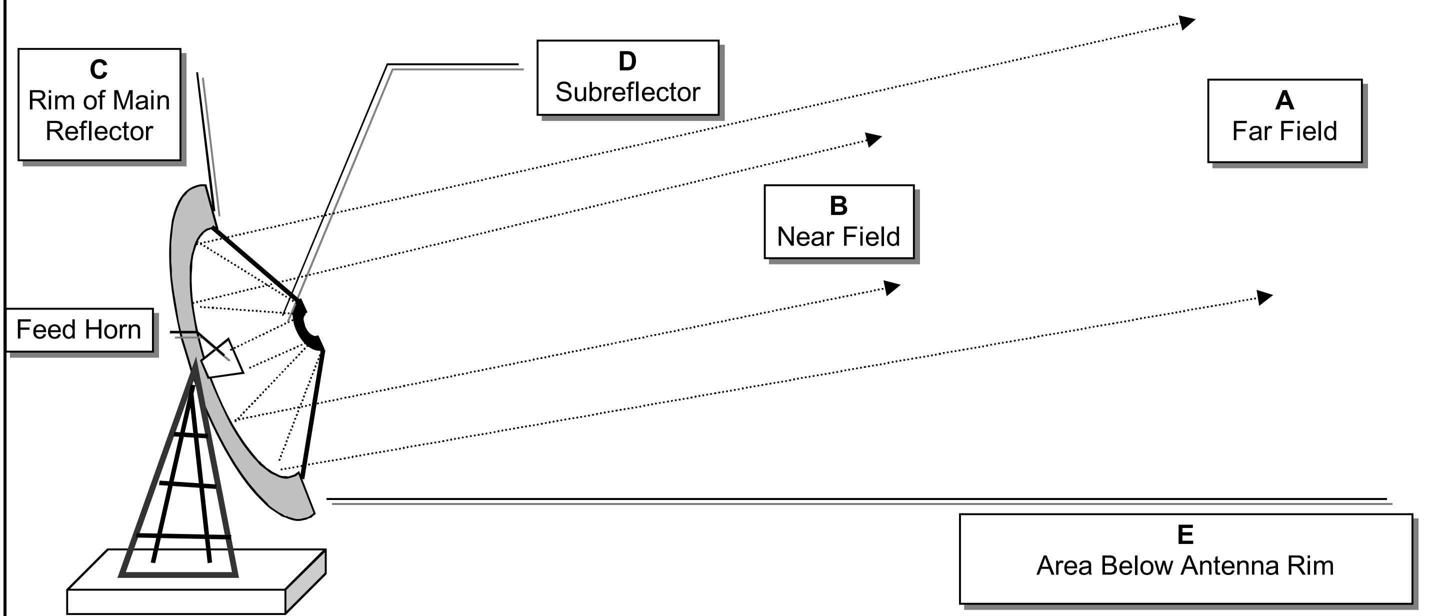
***Note**: where 'R' is the point-of-interest is just below antenna rim, which equates (in this case) to a centerline distance:* 4.5 meters

Radiofrequency (RF) Radiation Hazard Study - Continued
9.0-meter Antenna

Hazard Assessment - Summary

Summary of Calculated RF Exposure Levels

Region			Level (mW/cm^2)	Assessment
A. Far Field (Rff),	2308.50	meters, =	0.61	Satisfies FCC MPE Limits
B. Near Field (Rnf),	961.88	meters, =	1.43	Potential to exceed FCC Public/Uncontrolled MPE Limit
C. Rim of Main Reflector =			2.52	Potential to exceed FCC Public/Uncontrolled MPE Limit
D. Subreflector =			141.47	Potential to exceed FCC Occupational MPE Limit
E. Area below Antenna Rim =			0.016	Satisfies FCC MPE Limits



Conclusion

The results of this study indicate that accessible ground level areas, surrounding the antenna base and horizontal to the main beam axis, do not exceed the most restrictive FCC-General Population/Uncontrolled MPE limit.

The highest RF exposure levels are isolated to regions located between the feed horn and subreflector surface, which are typically inaccessible during normal operations. To ensure compliance with the FCC Occupational/Controlled MPE limit, these areas shall be controlled (restricted access) and the antenna system de-energized during any maintenance/service activities occurring within the main reflector or subreflector regions.

This study concludes that operation of this satellite earth station will not expose workers or public members to RF levels in excess of the applicable MPE limits. Therefore, in accordance with 47 CFR Part 1.1307 (b), preparation and submission of an Environmental Assessment (EA) is not required.

Performed by: Navid Motamed

Date: March 19 2019

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