Exhibit D

Analysis of Non-Ionizing Radiation for a 0.823 m Earth Station Antenna System

This report analyzes the non-ionizing radiation levels of the Kymeta KyWay™ u7 Ku-band earth station (ES) antenna system.

The FCC's Office of Engineering Technology's (OET) Bulletin No. 65 specifies that there are two separate tiers of exposure limits that are dependent upon the situation in which the exposure takes place and/or the status of the individuals who are subject to the exposure. The two tiers are General Population / Uncontrolled environment, and an Occupational / Controlled environment.

This ES antenna is mounted on ground vehicles including the MRZR and HMMWV. On the MRZR and HMMWV, the antenna is installed above and behind the occupants in the cabin. The antenna is mounted flat on the roof and is not able to rotate. The antenna will be turned off during maintenance windows where personnel may have access to areas near the antenna. The vehicle may be mobile or parked when the system is active. Operation of the vehicle when stopped will be controlled so there will be no public access. The public would be at risk with an exposure of 1 milliwatt per centimeter^2 averaged over 30 minutes. Based on the analysis below, the general population would have to be right next to the vehicle (within ½ meter) while it is moving to have any chance of exceeding this limit. During mobile operation, the public will not be near the vehicle. Therefore, there will be no impact.

Because the environment is controlled and any potential exposure is of a transitory nature, the limits for Occupational/Controlled Exposures are assumed to apply. Accordingly, this analysis discusses only the Maximum Permissible Exposure (MPE) limit for those types of exposures, which is a power density equal to five milliwatts per centimeter squared averaged over a six-minute period.

Terminal Description

The ES terminal transmits information at designated times that are assigned to the terminal by the network. The carrier frequency of each transmission burst depends on the ES terminal's traffic requirements. The duty cycle of the ES terminal can be set between 0 and 100% depending on the congestion of the network and the service plan. Dedicated channels allocated to ES terminals with duty cycle of 100% are a typically reserved for customers with high throughput, high service availability requirements.

The ES terminal incorporates a “fail safe" feature that limits the potential for human exposure. The transmitter is not enabled until the receive down link connection to the satellite has been established and an acceptable down link bit error rate has been achieved, ensuring correct antenna pointing. The transmitter is disabled very quickly, in less than 40 milliseconds, if a loss of down link connectivity occurs. This includes the case where human interference causes degradation in the link. Transmissions will not resume until approximately 10 seconds after downlink communications have been reestablished.

The “fail safe" feature also activates when the receive signal is lost due to signal blockage. Since the areas of high field strength near the antenna aperture are very sensitive to blockage of the down link, this “fail safe" feature minimizes the potential for human exposure in the area near the aperture. If the blockage due to human exposure occurs in these areas, the down link will be interrupted causing the transmitter to turn off almost immediately and it will remain off until the blockage is removed. After the blockage is removed, the ES terminal will have to reacquire the receive downlink and wait to be invited back into the network before the transmitter will be enabled. The complete downlink recovery time is 10 seconds. Accordingly, the power value would be multiplied by 0.004 because the transmitter cannot transmit more than 0.4% of any rolling six-minute period (the period over which the power density is averaged) with significant blockage near the aperture.

The Kymeta antenna is a phased array that can be programmed to form beams toward any visible satellite. The analysis requires that the Kymeta antenna will not point toward any satellite below a minimum elevation angle of 15 degrees. Based on antenna measurements performed by Kymeta and described in the Kymeta RF Safety Analysis[1] (herein referred to as “Safety Analysis”), MPE operational limits will not be exceeded outside the vehicle or in the passenger compartments of the vehicle. The compliance measurement details are described below.

The Terminal’s antenna will operate at elevation angles between 15° and 90° relative to horizontal. Operation at elevation angles less than 15° is inhibited by terminal on-board software such that no RF energy can be radiated from the antenna. If the software process responsible for generating pointing commands attempts to scan the main beam to an elevation angle lower than 15°, the block upconverter is muted such that RF power is no longer delivered to the antenna.

Safety Analysis

The existing Safety Analysis provides an analysis of independent, third-party laboratory measurements of radio frequency (RF) power density near the Kymeta™ KyWay™ 1, 70 cm diameter Ku-band satellite earth station terminal (known as the U7 terminal or “Terminal”). The study examines the operation of the Terminal with 16 watts input power. RF power density measurements were taken at the following locations relative to the front of the antenna.

- Radial distance from center of antenna (centimeters): 0, 10, 20, 30, 40, 50, 60, 80, 100, 200, 300
- Height above the face of the antenna (centimeters): 0, 10, 20, 30, 40, 50, 100, 200, 300

[1] *See* File No. SES-AMD-20170614-00647

- Angular rotation around the center of the antenna: 0° to 360° in 30° steps

In the existing Safety Analysis, results were reported assuming a duty cycle of 30%. The analysis provided graphs that showed the antenna complying with the general public MPE limit of 1 mW/cm2 and where they meet the 5 mW/cm^2 operational limit. There were no locations where the power densities exceed 5 mW/cm^2.

In this new filing, the terminal will operate at a 100% duty cycle. To extend the results in the Safety Analysis to 100% duty cycle, the reported measured results are multiplied by 100/30. Since the Safety Analysis has only quantized results, Kymeta was contacted to obtain the original measurement values. All the scaled measurements were examined to determine for a given distance from the antenna, the maximum power density, over all the measured radials and antenna pointing elevation angles. Table 1 shows the maximum measured power density values, over all the measured values, scaled to 100% duty cycle, resulting from this examination. The operational limit is met 10 cm from the front of the antenna and the general public limit is met 50 cm from the front of the antenna. The “fail safe” feature mentioned above offers operator protection by ceasing transmission due to human blockage of the down link signal. Additionally, to avoid exceeding the operational limit, we will display a sign on the antenna cautioning to stay more than 10cm away from the antenna. Note, almost all exceedances are near the radial center of the antenna.

Table 1: Maximum power density measured in front of the antenna
(16 W input power; 100% duty cycle)

Distance from the antenna (cm)	**Power density (mW/cm^2)**
0	7.91
10	4.98
20	4.14
30	2.11
40	1.14
50	<1.00

Radiation in the back of the Antenna is significantly lower than that of the forward directed (main lobe) radiation, producing power densities much less than the public, uncontrolled MPE limits. RF exposure of the driver and passengers of a VMES is further reduced because of the shielding effect afforded by the metallic backplane of the Antenna as well as any vehicle roof. Figure 1 shows seven measurement locations made in the back of the antenna. Table 2 shows the measurement results from the Safety Analysis scaled to 100% duty cycle. None of the measured values exceed the general public limit (1 mW/cm^2), an inch from the back of the antenna. Therefore, there is no risk to operators in the passenger compartment of the car.

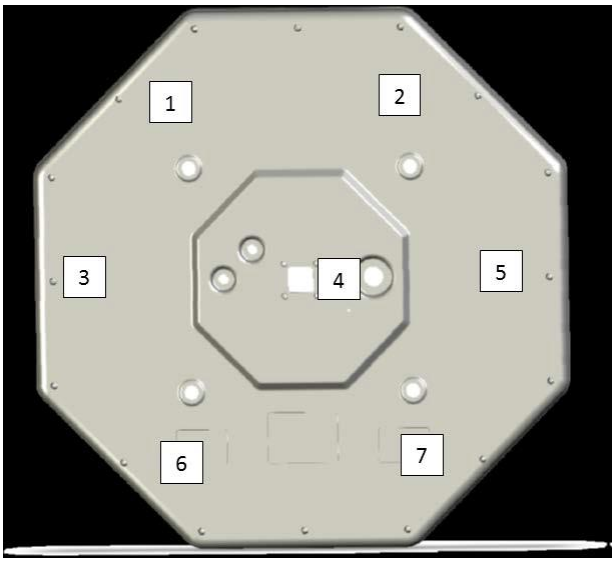

Figure 1: Solid model of the back of the u7 antenna module showing measurement locations for the RF power density measurements

Table 2: Scaled power density levels at the back of the u7 antenna
(16 W input power, 100% duty cycle) (mW/cm²)

Location	1" from the back of the antenna	3" from the back of the antenna
1	0.0000	0.0000
2	0.0000	0.0000
3	0.0000	0.0000
4	0.4320	0.2160
5	0.0000	0.0000
6	0.0000	0.0000
7	0.0000	0.0000

As required by 47 CFR 15.228 (d), earth station in motion terminals exhibiting radiation exposure levels exceeding 1.0 mW/cm^2 in accessible areas, such as at the exterior surface of the radome, will have a label attached to the surface of the terminal warning about the radiation hazard and will include thereon a diagram showing the regions around the terminal where the radiation levels could exceed the maximum radiation exposure.