EXHIBIT A – APPLICATION SUMMARY

1.0 - Description of Application

The instant modification application seeks authority for DNET Group, Inc. ("DNET") to communicate with the Amazonas-3 satellite located at 61° West longitude in the geostationary arc using extended Ku-band frequencies.[1] Specifically, DNET seeks to modify its authority under Call Sign E120231 to permit transmission earth-to-space to the Amazonas-3 in the 13.75 to 14.00 GHz frequency range.[2] The proposed communications with the Amazonas-3 will use an existing 4.5 antenna operated Call Sign E120231.[3]

The Amazonas-3 has already been approved to serve the United States market using conventional Ku-band frequencies (11.70-12.20 GHz and 14.00-14.5 GHz).[4] DNET seeks to incorporate by reference the technical parameters for the Amazonas-3's extended Ku-band transponders, which were provided to the Commission concurrently with the parameters for the satellite's conventional Ku-band transponder payload.[5]

DNET seeks authority to use extended Ku-band transponders on the Amazonas-3 because conventional Ku-band capacity from high-power satellites with high look angles over the continental United States is scarce and likely to remain so for the foreseeable future. Specifically, DNET requires a satellite with a footprint with sufficient signal strength on the ground to work with secondary or tertiary cable network partners throughout the U.S. that intend to deploy small antennas at cable headends in underserved or unserved communities to receive Hispanic television programming. The extended Ku-band transponder payload on the Amazonas-3 is presently the only capacity that satisfies these power and performance requirements.

DNET does not seek authority to communicate with any other commercial satellite in the 13.75-14.00 GHz frequency range. Beyond authorization to communicate with the Amazonas-3 in the above frequencies, DNET does not seek to modify any of the technical or carrier parameters authorized under Call Sign E120231.

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[1] The Amazonas-3 is operated by Hispamar Satellites, S.A., and was added to the FCC Permitted List as an approved point of communication for conventional C-band, Ka-band, andKu-band fixed satellite services on March 14, 2013. *See* Petition for Declaratory Ruling, Hispamar Satellites, S.A., IBFS File No. SAT-PPL-20121018-00183 ("*Amazonas-3 FCC Application*").

[2] The Amazonas-3's extended Ku-band transponders are paired with space-to-earth transponders that operate in the conventional band (*i.e*., 11.7-12.2 GHz). Accordingly, DNET will downlink from the Amazonas-3 pursuant to its existing authority to receive signals from ALSAT satellites.

[3] The proposed antenna is identified on the current license for Call Sign E120231 as the 4.5m. *See* IB File No. SES-LIC-20121109-00999.

[4] *See Amazonas-3 FCC Application*.

[5] *See Id.*, Schedule-S.

2.0 - Exhibit Table of Contents

EXHIBIT B

Compliance with FCC Report & Order (FCC 96-377) for the 13.75 - 14.0 GHz Band Analysis and Calculations

Exhibit For
DNET Group, Inc.
N. Miami Beach, Florida
Andrew 4.5 Meter Earth Station

Compliance with FCC Report & Order (FCC96-377) for the 13.75 - 14.0 GHz Band
Analysis and Calculations

1. Background

This Exhibit is presented to demonstrate the extent to which a DNET Group, Inc. satellite earth station in North Miami Beach, Florida is in compliance with FCC REPORT & ORDER 96-377. The potential interference from the earth station to US Navy shipboard radiolocation operations (RADAR) and the NASA space research activities in the 13.75 - 14.0 GHz Band is addressed in this exhibit. The parameters for the earth station are:

Table 1. Earth Station Characteristics

- Coordinates (NAD83): 25° 56’ 59.4” N, 80° 11’ 31.8” W
- Satellite Location for Earth Station: Amazonas-3 (61.0° W)
- Frequency Band: 13.75-14.0 GHz for uplink
- Polarizations: Linear and Circular
- Emissions: 36M0G7W
- Modulation: Digital
- Maximum Aggregate Uplink EIRP: 72.3 dBW for a 36 MHz Carrier
- Transmit Antenna Characteristics
  - Antenna Size: 4.5 meters in Diameter
  - Antenna Type/Model: Andrew
  - Gain: 53.6 dBi
- RF power into Antenna Flange: 36 MHz
  18.7 dBW, or 3.2 dBW/ MHz
  or -20.8 dBW/4 kHz (Maximum)
- Minimum Elevation Angle:
  N Miami Beach, FL 52.9° @ 141.5° Az. (Amazonas-3) at 61.0° W
- Side Lobe Antenna Gain: 32 - 25*log(θ)

Because the above uplink spectrum is shared with the Federal Government, coordination in this band requires resolution data pertaining to potential interference between the earth station and both Navy Department and NASA systems. Potential interference from the earth station could impact with the Navy and/or NASA systems in two areas. These areas are noted in FCC Report and Order 96-377 dated September 1996, and consist of (1) Radiolocation and radio navigation, (2) Data Relay Satellites.

Summary of Coordination Issues:

1) Potential Impact to Government Radiolocation (Shipboard Radar)
2) Potential Impact to NASA Data Relay Satellite Systems (TDRSS)

2. Potential Impact to Government Radiolocation (Shipboard Radar)

Radiolocation operations (RADAR) may occur anywhere in the 13.4 - 14 GHz frequency band aboard ocean going United States Navy ships. The Federal Communication Commission (FCC) order 96-377 allocates the top 250 MHz of this 600 MHz band to the Fixed Satellite Service (FSS) on a co-primary basis with the radiolocation operations and provides for an interference protection level of -167 $dBW/m^2/4$ kHz.

The closest distance to the shoreline from the North Miami Beach earth station is approximately 7.35 km East toward the Atlantic Ocean. The distance to the shoreline based upon transmissions to the Amazonas-3 satellite at 61.0° WL (Azimuth: 141.5°), is 11.74 km. The calculation of the power spectral density at this distance is given by:

	36 MHz
1. Clear Sky EIRP:	72.3 dBW
2. Carrier Bandwidth:	36 MHz
3. PD at antenna Input: (dBW/4 kHz)	-20.8
4. Transmit Antenna Gain:	53.6 dBi
5. Antenna Gain Horizon:	FCC Reference Pattern
6. Antenna Elevation Angle:	52.9°

The proposed earth station will radiate interference toward the Atlantic Ocean according to its off-axis side-lobe performance. A conservative analysis, using FCC standard reference pattern, results in off-axis antenna gains of -8.6 dBi toward the Atlantic Ocean.

The signal density at the shoreline, through free space is:

36 MHz Carriers
PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss (dBw-m^2).

$$= -20.8 \text{ dBw/4 kHz} + (-8.6) \text{ dBi} - 10*\log[4\Pi*(11740\text{m})^2]$$
$$= -121.8 \text{ dBW/m}^2\text{/4 kHz} + \text{Additional Path Losses } (\sim 87.2 \text{ dB})$$
$$= -209.0 \text{ dBW/m}^2\text{/4 kHz}$$

Our calculations identified additional path losses of approximately 87.2 dB including absorption loss and earth diffraction loss for the actual path profiles from the earth station toward the shoreline in the direction of the Amazonas-3 satellite.

The worst case calculated PFD including additional path losses to the shoreline in the direction of the Amazonas-3 satellite (Azimuth 141.5°) location is –209 dBW/m^2/4 kHz for the 36 MHz carriers. This is 42.0 dB below the –167 dBW/ m^2/4 kHz interference criteria of R&O 96-377. Therefore, there should be no interference to the US Navy RADAR from the North Miami Beach earth station due to the distance and the terrain blockage between the site and the shore.

3. Potential Impact to NASA's Data Relay Satellite System (TDRSS)

The geographic location of the DNET Group earth station in North Miami Beach, Florida is outside the 390 km radius coordination contour surrounding NASA's White Sands, New Mexico ground station complex. Therefore, the TDRSS space-to-earth link will not be impacted by the DNET Group earth station in North Miami Beach, Florida.

The TDRSS space-to-space link in the 13.772 to 13.778 GHz band is assumed to be protected if an earth station produces an EIRP less than 71 dBW/6 MHz in this band. The maximum EIRP for the 36 MHz carriers is 72.3 dBW, and the equivalent EIRP per 6 MHz segment for a 36 MHz carrier will be 66.3 dBW/6 MHz. Therefore, there should not be interference to the TDRSS space-to-space link for the 36 MHz carriers.

4. Coordination Issue Result Summary and Conclusions

The results of the analysis and calculations performed in this exhibit indicate that compatible operation between the earth station at the North Miami Beach facility and the US Navy and NASA systems space-to-earth link are possible for all of the proposed carriers. Operations in NASA systems space-to-space link (13772.0 to 13778.0 MHz) will also be permitted for the 36 MHz carriers.

Analysis of Non-Ionizing Radiation for a 4.5-Meter Earth Station System

This report analyzes the non-ionizing radiation levels for a 4.5-meter earth station system. The analysis and calculations performed in this report comply with the methods described in the FCC Office of Engineering and Technology Bulletin, No. 65 first published in 1985 and revised in 1997 in Edition 97-01. The radiation safety limits used in the analysis are in conformance with the FCC R&O 96-326. Bulletin No. 65 and the FCC R&O specifies that there are two separate tiers of exposure limits that are dependant on the situation in which the exposure takes place and/or the status of the individuals who are subject to the exposure. The Maximum Permissible Exposure (MPE) limits for persons in a General Population/Uncontrolled environment are shown in Table 1. The General Population/Uncontrolled MPE is a function of transmit frequency and is for an exposure period of thirty minutes or less. The MPE limits for persons in an Occupational/Controlled environment are shown in Table 2. The Occupational MPE is a function of transmit frequency and is for an exposure period of six minutes or less. The purpose of the analysis described in this report is to determine the power flux density levels of the earth station in the far-field, near-field, transition region, between the subreflector or feed and main reflector surface, at the main reflector surface, and between the antenna edge and the ground and to compare these levels to the specified MPEs.

Table 1. Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Power Density (mW/cm^2)
30-300	0.2
300-1500	Frequency (MHz)*(0.8/1200)
1500-100,000	1.0

Table 2. Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Power Density (mW/cm^2)
30-300	1.0
300-1500	Frequency (MHz)*(4.0/1200)
1500-100,000	5.0

Table 3. Formulas and Parameters Used for Determining Power Flux Densities

Parameter	Symbol	Formula	Value	Units
Antenna Diameter	D	Input	4.5	m
Antenna Surface Area	$A_{surface}$	$\pi D^2 / 4$	15.90	m^2
Subreflector Diameter	D_{sr}	Input	47.9	cm
Area of Subreflector	A_{sr}	$\pi D_{sr}{}^2/4$	1802.03	cm^2
Frequency	F	Input	14250	MHz
Wavelength	λ	300 / F	0.021053	m
Transmit Power	P	Input	400.00	W
Antenna Gain (dBi)	G_{es}	Input	53.6	dBi
Antenna Gain (factor)	G	$10^{Ges/10}$	229086.8	n/a
Pi	π	Constant	3.1415927	n/a
Antenna Efficiency	η	$G\lambda^2/(\pi^2 D^2)$	0.51	n/a

1. Far Field Distance Calculation

The distance to the beginning of the far field can be determined from the following equation:

Distance to the Far Field Region $R_{ff} = 0.60\ D^2 / \lambda$ (1)
$= 577.1$ m

The maximum main beam power density in the far field can be determined from the following equation:

On-Axis Power Density in the Far Field $S_{ff} = G\ P / (4\ \pi\ R_{ff}^{\ 2})$ (2)
$= 21.893\ W/m^2$
$= 2.189\ mW/cm^2$

2. Near Field Calculation

Power flux density is considered to be at a maximum value throughout the entire length of the defined Near Field region. The region is contained within a cylindrical volume having the same diameter as the antenna. Past the boundary of the Near Field region, the power density from the antenna decreases linearly with respect to increasing distance.

The distance to the end of the Near Field can be determined from the following equation:

Extent of the Near Field $R_{nf} = D^2 / (4\ \lambda)$ (3)
$= 240.5$ m

The maximum power density in the Near Field can be determined from the following equation:

Near Field Power Density $S_{nf} = 16.0\ \eta\ P / (\pi\ D^2)$ (4)
$= 51.108\ W/m^2$
$= 5.111\ mW/cm^2$

3. Transition Region Calculation

The Transition region is located between the Near and Far Field regions. The power density begins to decrease linearly with increasing distance in the Transition region. While the power density decreases inversely with distance in the Transition region, the power density decreases inversely with the square of the distance in the Far Field region. The maximum power density in the Transition region will not exceed that calculated for the Near Field region. The power density calculated in Section 1 is the highest power density the antenna can produce in any of the regions away from the antenna. The power density at a distance R_t can be determined from the following equation:

Transition Region Power Density $S_t = S_{nf}\ R_{nf} / R_t$ (5)
$= 5.111\ mW/cm^2$

4. Region between the Main Reflector and the Subreflector

Transmissions from the feed assembly are directed toward the subreflector surface, and are reflected back toward the main reflector. The most common feed assemblies are waveguide flanges, horns or subreflectors. The energy between the subreflector and the reflector surfaces can be calculated by determining the power density at the subreflector surface. This can be determined from the following equation:

Power Density at the Subreflector $S_{sr} = 4000\ P / A_{sr}$ (6)
$= 887.890\ mW/cm^2$

5. Main Reflector Region

The power density in the main reflector is determined in the same manner as the power density at the subreflector. The area is now the area of the main reflector aperture and can be determined from the following equation:

Power Density at the Main Reflector Surface $S_{surface} = 4\ P / A_{surface}$ (7)
$= 100.602\ W/m^2$
$= 10.060\ mW/cm^2$

6. Region between the Main Reflector and the Ground

Assuming uniform illumination of the reflector surface, the power density between the antenna and the ground can be determined from the following equation:

Power Density between Reflector and Ground $S_g = P / A_{surface}$ (8)
$= 25.150\ W/m^2$
$= 2.515\ mW/cm^2$

7. Summary of Calculations

Table 4. Summary of Expected Radiation levels for Uncontrolled Environment

Region	Calculated Maximum Radiation Power Density Level (mW/cm^2)		Hazard Assessment
1. Far Field (R_{ff} = 577.1 m)	S_{ff}	2.189	Potential Hazard
2. Near Field (R_{nf} = 240.5 m)	S_{nf}	5.111	Potential Hazard
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	5.111	Potential Hazard
4. Between Main Reflector and Subreflector	S_{sr}	887.890	Potential Hazard
5. Main Reflector	$S_{surface}$	10.060	Potential Hazard
6. Between Main Reflector and Ground	S_g	2.515	Potential Hazard

Table 5. Summary of Expected Radiation levels for Controlled Environment

Region	Calculated Maximum Radiation Power Density Level (mW/cm^2)		Hazard Assessment
1. Far Field (R_{ff} = 577.1 m)	S_{ff}	2.189	Satisfies FCC MPE
2. Near Field (R_{nf} = 240.5 m)	S_{nf}	5.111	Potential Hazard
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	5.111	Potential Hazard
4. Between Main Reflector and Subreflector	S_{sr}	887.890	Potential Hazard
5. Main Reflector	$S_{surface}$	10.060	Potential Hazard
6. Between Main Reflector and Ground	S_g	2.515	Satisfies FCC MPE

It is the applicant's responsibility to ensure that the public and operational personnel are not exposed to harmful levels of radiation.

8. Conclusions

Based upon the above analysis, it is concluded that harmful levels of radiation may exist in those regions noted for the Uncontrolled (Table 4) and Controlled (Table 5) Environments.

The antenna will be installed at the DTNETGROUP, Inc. facility in North Miami Beach, Florida. The earth station will be fenced in and have secured access in and around the antenna. The earth station will be marked with the standard radiation hazard warnings, as well as the area in the vicinity of the earth station to inform those in the general population, who might be working or otherwise present in or near the direct path of the main beam.

The applicant will ensure that the main beam of the antenna will be pointed at least one diameter away from any building, or other obstacles in those areas that exceed the MPE levels. Since one diameter removed from the center of the main beam the levels are down at least 20 dB, or by a factor of 100, these potential hazards do not exist for either the public, or for earth station personnel.

Finally, the earth station's operating personnel will not have access to areas that exceed the MPE levels, while the earth station is in operation. The transmitter will be turned off during periods of maintenance, so that the MPE standard of 5.0 mw/cm**2 will be complied with for those regions in close proximity to the main reflector, which could be occupied by operating personnel.

The applicant agrees to abide by the conditions specified in Condition 5208 provided below:

> *Condition 5208 - The licensee shall take all necessary measures to ensure that the antenna does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR 1.1307(b) and 1.1310 wherever such exposures might occur. Measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Compliance can be accomplished in most cases by appropriate restrictions such as fencing. Requirements for restrictions can be determined by predictions based on calculations, modeling or by field measurements. The FCC's OET Bulletin 65 (available on-line at www.fcc.gov/oet/rfsafety) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for worker.*

EXHIBIT D – FAA NOTIFICATION

Pursuant to 47. C.F.R. §17.14 (b), FAA notification is not necessary because the proposed 4.5 meter antenna is less than 6.1 meters in height and will not adversely affect safety in air navigation.