

Micronet Communications, Inc.

812 Lexington Dr
Plano, Texas 75075
972-422-7200

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M2023912 5.93 GHz
Licensee: Alaska Communications Internet, LLC

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Pursuant to Parts 25.203 and 101.103(d) of the FCC Rules and Regulations, a frequency coordination study was conducted by Micronet Communications, Inc. for the following proposed earth station:

Red Dog Port, AK

The results of the study indicate that no unacceptable interference will result with existing, proposed or prior coordinated radio facilities.


Coordination was performed with existing, proposed and prior coordinated carriers within coordination range on the following dates:

09/03/2020 Original PCN (Expedited response requested by 09/17/2020)
There were no unresolved interference objections.

The attached coordination data was forwarded on the latest date to the following parties within coordination range or their authorized coordination agents:

COMSEARCH INC
TECK ALASKA INCORPORATED/TECK AMERICA INCORPORATED
UNICOM, INC

Respectfully Submitted,



Jeremy Lewis
Systems Engineer

Attached: 1 data sheet

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TECHNICAL CHARACTERISTICS OF TRANSMIT ONLY EARTH STATION

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Company: Alaska Communications Internet, LLC
Site Name, State: Red Dog Port, AK
Call Sign:
Latitude (NAD83) 67 34 39.8 N
Longitude (NAD83) 164 3 27.7 W
Elevation AMSL (ft/m) 22.97 7.00
Receive Frequency Range (MHz)
Transmit Frequency Range (MHz) 5925-6425
Range of Satellite Orbital Long. (deg W) 114.00 116.00
Range of Azimuths from North (deg) 127.74 129.71
Antenna Centerline (ft/m) 13.12 4.00
Antenna Elevation Angles (deg) 5.53 6.14

Equipment Parameters Transmit

Antenna Gain, Main Beam (dbI) 41.70
15 DB Half Beamwidth (deg) 2.00

Antennas Transmit: GENERAL DYNAMICS 1241 (2.4M)

Max Transmitter Power (dbW/4KHz) -17.14
Max EIRP Main Beam (dbW/4KHz) 24.56
Modulation / Emission Designator DIGITAL 12M4G7W

Coordination Parameters Transmit

Max Greater Circle Distances (km) 178.16
Max Rain Scatter Distances (km) 100.00
Max Interference Power Long Term (dbW) -154.80
Max Interference Power Short Term (dbW) -126.80
Rain Zone / Radio Zone 3 A

ANALYSIS OF NON-IONIZING RADIATION
for Alaska Communications Internet LLC
Site: Red Dog Port State: AK
Latitude: 67 34 39.8 Longitude: 164 3 27.7 (NAD83)
09-22-2020

The Office of Science and Technology Bulletin, No. 65, October 1985 and revised August 1997, specifies that the maximum level of non-ionizing radiation that a person may be exposed to over a six minute period is an average power density equal to 5 mW/cm**2 (five milliwatts per centimeter squared) for a controlled environment. For an uncontrolled environment, the maximum level of non-ionizing radiation that a person may be exposed to over a thirty minute period is an average power density equal to 1 mW/cm**2 (one milliwatt per centimeter squared). It is the purpose of this report to determine the maximum power flux densities of the earth station in the far zone, near zone, transition zone, at the main reflector surface, and between the antenna edge and the ground.

Parameters which were used in the calculations:

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Antenna Diameter, (D) = 2.4000 m
Antenna Surface Area (Sa) = $\pi(D^2)/4$ = 4.5239 m**2
Wavelength at 6.1750 GHz (λ) = 0.0485 m
Transmit Power at Flange (P) = 60.0000 Watts
Antenna Gain at Earth Site (GES) = 41.7000 dBi = 14791.0839
Power Ratio:
AntiLog(GES/10)
pi = 3.1415927
Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

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$$\text{Distance to the Far Zone} \quad (D_f) = \frac{(n) (D^{**2})}{\text{lambda}} = 71.2577 \text{ m}$$

$$\text{Far Zone Power Density} \quad (R_f) = \frac{(GES) (P)}{4 * \text{pi} * (D_f^{**2})} = 13.9084 \text{ W/m}^{**2}$$
$$= 1.3908 \text{ mW/cm}^{**2}$$

2. NEAR ZONE CALCULATIONS

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Power Flux Density is considered to be at a maximum value throughout the entire length of this Zone. The Zone is contained within a cylindrical volume which has the same diameter as the antenna. Beyond the Near Zone, the Power Flux Density will decrease with distance from the Antenna.

$$\text{Distance to the Near Zone} \quad (D_n) = \frac{D^{**2}}{4 * \text{lambda}} = 29.6907 \text{ m}$$

$$\text{Near Zone Power Density} \quad (R_n) = \frac{16.0 (n) P}{\text{pi} (D^{**2})} = 31.8310 \text{ W/m}^{**2}$$
$$= 3.1831 \text{ mW/cm}^{**2}$$

3. TRANSITION ZONE CALCULATIONS

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The Power Density begins to decrease with distance in the Transition Zone. While the Power Density decreases inversely with distance in the Transition Zone, the Power Density decreases inversely with the square of the distance in the Far Zone. Since the maximum Power Density in the Transition Zone will not exceed the Near Zone values, it is not calculated.

4. MAIN REFLECTOR ZONE
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$$\begin{aligned} \text{Main Reflector Power Density} &= \frac{2(P)}{S_a} = 26.5258 \text{ W/m}^{**2} \\ &= 2.6526 \text{ mW/cm}^{**2} \end{aligned}$$

5. ZONE BETWEEN THE MAIN REFLECTOR AND THE GROUND
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Applying uniform illumination of the Main Reflector Surface:

$$\begin{aligned} \text{Main to Ground Power Density} &= \frac{P}{S_a} = 13.2629 \text{ W/m}^{**2} \\ &= 1.3263 \text{ mW/cm}^{**2} \end{aligned}$$

CALCULATED SAFETY MARGINS SUMMARY
AND EVALUATION

Controlled Safety Margin = 5.0 - Calculated Zone Value (mW/cm**2)

Zones	Safety Margins (mW/cm**2)	Conclusions
1. Far Zone	3.6092	Complies with ANSI
2. Near Zone	1.8169	Complies with ANSI
3. Transition Zone	Rf < Rt < Rn	Complies with ANSI
4. Main Reflector Surface	2.3474	Complies with ANSI
5. Main Reflector to Ground	3.6737	Complies with ANSI

Uncontrolled Safety Margin = 1.0 - Calculated Zone Value (mW/cm**2)

Zones	Safety Margins (mW/cm**2)	Conclusions
1. Far Zone	-0.3908	POTENTIALLY HAZARDOUS
2. Near Zone	-2.1831	POTENTIALLY HAZARDOUS
3. Transition Zone	Rf < Rt < Rn	Complies with ANSI
4. Main Reflector Surface	-1.6526	POTENTIALLY HAZARDOUS
5. Main Reflector to Ground	-0.3263	POTENTIALLY HAZARDOUS

6. EVALUATION
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A. Controlled Environment

B. Uncontrolled Environment

The FAR ZONE does not comply with the ANSI standards!
The system will be FENCED so that no one can enter the affected Zone while the system is in use. Additionally, the system will be shut down for servicing.

The NEAR ZONE does not comply with the ANSI standards!
The system will be FENCED so that no one can enter the affected Zone while the system is in use. Additionally, the system will be shut down for servicing.

The MAIN Reflector Surface ZONE does not comply with the ANSI standards!
The system will be FENCED so that no one can enter the affected Zone while

the system is in use. Additionally, the system will be shut down for servicing.

The MAIN Reflector to GROUND ZONE does not comply with the ANSI standards! The system will be FENCED so that no one can enter the affected Zone while the system is in use. Additionally, the system will be shut down for servicing.