

**Micronet Communications, Inc.**

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M2030407 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:

Hooper Bay, 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:

10/30/2020 Original PCN (Expedited response requested by 11/13/2020)  
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  
UNITED2, LLC  
WIRELESS APPLICATIONS CORP

Respectfully Submitted,



Jeremy Lewis  
Systems Engineer

Attached: 1 data sheet

Micronet Communications, Inc.  
812 Lexington Dr  
Plano, Texas 75075  
972-422-7200

File: M2030407

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TECHNICAL CHARACTERISTICS OF TRANSMIT ONLY EARTH STATION

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Company:	Alaska Communications Internet, LLC		
Site Name, State:	Hooper Bay, AK		
Call Sign:			
Latitude	(NAD83)	61 31	40.0 N
Longitude	(NAD83)	166 6	22.5 W
Elevation AMSL	(ft/m)	26.00	7.92
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	5925-6137.75/6167.75-6389.79/6419.79-6425	
Range of Satellite Orbital Long.	(deg W)	95.00	191.00
Range of Azimuths from North	(deg)	106.74	207.83
Antenna Centerline	(ft/m)	16.40	5.00
Antenna Elevation Angles	(deg)	0.20	17.34

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Equipment Parameters Transmit

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Antenna Gain, Main Beam	(dbI)	46.20
15 DB Half Beamwidth	(deg)	0.90

Antennas Transmit: GENERAL DYNAMICS 1385 (3.8M)

Max Transmitter Power	(dbW/4KHz)	-18.89
Max EIRP Main Beam	(dbW/4KHz)	27.31
Modulation / Emission Designator	ANALOG 12M4G7W	

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Coordination Parameters Transmit

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Max Greater Circle Distances	(km)	226.48
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

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WIRELESS APPLICATIONS CORP

Respectfully Submitted,



Jeremy Lewis  
Systems Engineer

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Micronet Communications, Inc.  
 812 Lexington Dr  
 Plano, Texas 75075  
 972-422-7200

File: N2030407

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TECHNICAL CHARACTERISTICS OF TRANSMIT ONLY EARTH STATION

=====

Company:	Alaska Communications Internet, LLC		
Site Name, State:	Hooper Bay, AK		
Call Sign:			
Latitude	(NAD83)	61 31	40.0 N
Longitude	(NAD83)	166 6	22.5 W
Elevation AMSL	(ft/m)	26.00	7.92
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	5925-6137.75/6167.75-6389.79/6419.79-6425	
Range of Satellite Orbital Long.	(deg W)	95.00	191.00
Range of Azimuths from North	(deg)	106.74	207.83
Antenna Centerline	(ft/m)	16.40	5.00
Antenna Elevation Angles	(deg)	0.20	17.34

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Equipment Parameters	Transmit	
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Antenna Gain, Main Beam	(dbI)	46.20
15 DB Half Beamwidth	(deg)	0.90
Antennas	Transmit: GENERAL DYNAMICS 1385 (3.8M)	
Max Transmitter Power	(dbW/4KHz)	-15.44
Max EIRP Main Beam	(dbW/4KHz)	30.76
Modulation / Emission Designator	ANALOG	5M60G7W

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Coordination Parameters	Transmit	
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Max Greater Circle Distances	(km)	244.69
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

**Micronet Communications, Inc.**

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: P2030407 3.70 GHz  
Licensee: Alaska Communications Internet, LLC

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Hooper Bay, AK

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COMSEARCH INC

Respectfully Submitted,



Jeremy Lewis  
Systems Engineer

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

File: P2030407

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TECHNICAL CHARACTERISTICS OF RECEIVE ONLY EARTH STATION

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Company:	Alaska Communications Internet, LLC		
Site Name, State:	Hooper Bay, AK		
Call Sign:			
Latitude	(NAD83)	61 31	40.0 N
Longitude	(NAD83)	166 6	22.5 W
Elevation AMSL	(ft/m)	26.00	7.92
Receive Frequency Range	(MHz)	3700-4200	
Transmit Frequency Range	(MHz)		
Range of Satellite Orbital Long.	(deg W)	95.00	191.00
Range of Azimuths from North	(deg)	106.74	207.83
Antenna Centerline	(ft/m)	16.40	5.00
Antenna Elevation Angles	(deg)	0.20	17.34

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Equipment Parameters Receive

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Antenna Gain, Main Beam	(dbI)	41.80
15 DB Half Beamwidth	(deg)	1.40

Antennas Receive: GENERAL DYNAMICS 1385 (3.8 M)

Max Transmitter Power	(dbW/4KHz)	
Max EIRP Main Beam	(dbW/4KHz)	
Modulation / Emission Designator	ANALOG	72M0G7W

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Coordination Parameters Receive

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Max Greater Circle Distances	(km)	609.53
Max Rain Scatter Distances	(km)	341.64
Max Interference Power Long Term	(dbW)	-158.60
Max Interference Power Short Term	(dbW)	-153.90
Rain Zone / Radio Zone		3 <span style="float: right;">A</span>

ANALYSIS OF NON-IONIZING RADIATION  
for Alaska Communications Internet LLC  
Site: Hooper Bay State: AK  
Latitude: 61 31 40.0 Longitude: 166 6 22.5 (NAD83)  
11-23-2020

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) = 3.8000 m  
Antenna Surface Area (Sa) = pi(D\*\*2)/4 = 11.3411 m\*\*2  
Wavelength at 6.1750 GHz (lambda) = 0.0485 m  
Transmit Power at Flange (P) = 40.0000 Watts  
Antenna Gain at Earth Site (GES) = 46.2000 dBi = 41686.9383  
Power Ratio:  
AntiLog(GES/10)  
pi = 3.1415927  
Antenna Aperture Efficiency (n) = 0.6000

### 1. FAR ZONE CALCULATIONS

$$\text{Distance to the Far Zone} \quad (D_f) = \frac{(n) (D^{**2})}{\text{lambda}} = 178.6392 \text{ m}$$

$$\text{Far Zone Power Density} \quad (R_f) = \frac{(GES) (P)}{4 * \text{pi} * (D_f^{**2})} = 4.1581 \text{ W/m}^{**2}$$
$$= 0.4158 \text{ mW/cm}^{**2}$$

### 2. NEAR ZONE CALCULATIONS

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.

$$\text{Distance to the Near Zone} \quad (D_n) = \frac{D^{**2}}{4 * \text{lambda}} = 74.4330 \text{ m}$$

$$\text{Near Zone Power Density} \quad (R_n) = \frac{16.0 (n) P}{\text{pi} (D^{**2})} = 8.4648 \text{ W/m}^{**2}$$
$$= 0.8465 \text{ mW/cm}^{**2}$$

### 3. TRANSITION ZONE CALCULATIONS

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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$$\begin{aligned} \text{Main Reflector Power Density} &= \frac{2(P)}{S_a} = 7.0540 \text{ W/m}^2 \\ &= 0.7054 \text{ mW/cm}^2 \end{aligned}$$

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

$$\begin{aligned} \text{Main to Ground Power Density} &= \frac{P}{S_a} = 3.5270 \text{ W/m}^2 \\ &= 0.3527 \text{ mW/cm}^2 \end{aligned}$$

CALCULATED SAFETY MARGINS SUMMARY  
AND EVALUATION

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Controlled Safety Margin = 5.0 - Calculated Zone Value (mW/cm\*\*2)  
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Zones	Safety Margins (mW/cm**2)	Conclusions
1. Far Zone	4.5842	Complies with ANSI
2. Near Zone	4.1535	Complies with ANSI
3. Transition Zone	Rf < Rt < Rn	Complies with ANSI
4. Main Reflector Surface	4.2946	Complies with ANSI
5. Main Reflector to Ground	4.6473	Complies with ANSI

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Uncontrolled Safety Margin = 1.0 - Calculated Zone Value (mW/cm\*\*2)  
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Zones	Safety Margins (mW/cm**2)	Conclusions
1. Far Zone	0.5842	Complies with ANSI
2. Near Zone	0.1535	Complies with ANSI
3. Transition Zone	Rf < Rt < Rn	Complies with ANSI
4. Main Reflector Surface	0.2946	Complies with ANSI
5. Main Reflector to Ground	0.6473	Complies with ANSI

6. EVALUATION  
=====

- A. Controlled Environment
  - B. Uncontrolled Environment
- All Zones comply with ANSI Standards.