Alaska Communications Internet LLC

Call Sign E170205

Amendment to Pending Modification of
Earth Station License SES-MFS-20220804-00834

for

Yakutat, Alaska (Site #32)

Technical Appendix

I. Site-specific Coordination Report

and

II. 2.4m Radiation Hazard Report

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M2227702 5.93 GHz
Licensee: Alaska Communications Internet, LLC

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:

Yakutat, AK

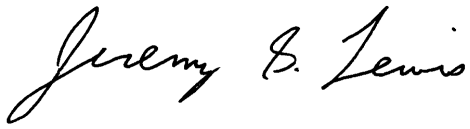
The results of the study indicate that no unacceptable interference will result with existing, proposed or prior coordinated radio facilities.

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

10/06/2022 Original PCN (Expedited response requested by 10/20/2022)
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:

Respectfully Submitted,



Jeremy Lewis
Systems Engineer

Attached: 1 data sheet

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

File: M2227702

TECHNICAL CHARACTERISTICS OF TRANSMIT RECEIVE EARTH STATION

Company:		Alaska Communications Internet, LLC	
Site Name, State:		Yakutat, AK	
Call Sign:			
Latitude	(NAD83)	59 33 0.0 N	
Longitude	(NAD83)	139 43 48.0 W	
Elevation AMSL	(ft/m)	48.00	14.63
Receive Frequency Range	(MHz)	3700-4200	
Transmit Frequency Range	(MHz)	5925-6425	
Range of Satellite Orbital Long.	(deg W)	95.00	191.00
Range of Azimuths from North	(deg)	131.03	235.34
Antenna Centerline	(ft/m)	6.56	2.00
Antenna Elevation Angles	(deg)	12.63	9.94

Equipment Parameters		Receive	Transmit
Antenna Gain, Main Beam	(dbI)	38.00	41.70
15 DB Half Beamwidth	(deg)	2.20	2.60
Antennas	Receive: PRODELIN 1241 (2.4 M)		
	Transmit: PRODELIN 1241 (2.4 M)		
Max Transmitter Power	(dbW/4KHz)		-17.78
Max EIRP Main Beam	(dbW/4KHz)		23.92
Modulation / Emission Designator	DIGITAL	9M60G7W	11M3G7W

Coordination Parameters		Receive	Transmit
Max Greater Circle Distances	(km)	479.32	167.45
Max Rain Scatter Distances	(km)	385.39	100.00
Max Interference Power Long Term	(dbW)	-158.60	-154.80
Max Interference Power Short Term	(dbW)	-153.90	-126.80
Rain Zone / Radio Zone		3	A

ANALYSIS OF NON-IONIZING RADIATION
for Alaska Communications Internet LLC
Site: Yakutat State: AK
Latitude: 59 33 0.0 Longitude: 139 43 48.0 (NAD83)
11-08-2022

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 (lambda) = 0.0485 m

Transmit Power at Flange (P) = 40.0000 Watts

Antenna Gain at Earth Site (GES) = 41.6000 dBi = 14454.3977
Power Ratio:
AntiLog(GES/10)

pi = 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

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

Far Zone Power Density (Rf) = $\frac{(GES)(P)}{4*pi*(Df^{**}2)}$ = 9.0612 W/m**2

= 0.9061 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.

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

Near Zone Power Density (Rn) = $\frac{16.0(n)P}{pi(D^{**}2)}$ = 21.2207 W/m**2

= 2.1221 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

Main Reflector Power Density = $\frac{2(P)}{Sa}$ = 17.6839 W/m**2

= 1.7684 mW/cm**2

5. ZONE BETWEEN THE MAIN REFLECTOR AND THE GROUND

Applying uniform illumination of the Main Reflector Surface:

Main to Ground Power Density = $\frac{P}{Sa}$ = 8.8419 W/m**2

= 0.8842 mW/cm**2

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	4.0939	Complies with ANSI
2.	Near Zone	2.8779	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	3.2316	Complies with ANSI
5.	Main Reflector to Ground	4.1158	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.0939	Complies with ANSI
2.	Near Zone	-1.1221	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	-0.7684	POTENTIALLY HAZARDOUS
5.	Main Reflector to Ground	0.1158	Complies with ANSI

6. EVALUATION

A. Controlled Environment
B. Uncontrolled Environment
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.