Alaska Communications Internet Blanket VSAT License Modification Application

Technical Appendix

- 1. Kotzebue HQ
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 2. Noatak Office
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 3. Ambler Office
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 4. Noorvik Office
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 5. Kiana Office
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 6. Deering Office
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 7. Buckland Office
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 8. Selawik Office
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 9. Kivalina Office
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 10. Chugachmuit Chenega
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 11. Silver Bay False Pass
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 12. Trident Naknek
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 13. Trident Akutan
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 14. Trident Sand Point
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis
- 15. Pebble Mine
 - a. Frequency Coordination Report
 - b. Radiation Hazard Analysis

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: A1917809 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:

Kotzebue, 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:

07/17/2019 Original PCN

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.
WIRELESS APPLICATIONS CORP

Respectfully Submitted,

Jeremy S. Lewis

Page 1

Jeremy Lewis Systems Engineer

File: A1917809

		=========	
TECHNICAL CHARACTERIST	ICS OF TRANS	MIT ONLY EAR:	TH STATION
		=======	
		nications Int	ternet, LLC
	Kotzebue, AK		
Call Sign:			
Latitude		66 51	
Longitude		162 36	
Elevation AMSL		108.00	32.92
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	5925-6108	.1/6301.19-6360.14
Range of Satellite Orbital Long.	(deg W)	114.00	
Range of Azimuths from North	(deg)	129.02	
Antenna Centerline		6.56	
Antenna Elevation Angles	(deg)	6.43	6.74
Equipment Decemptons		 Transmit	
Equipment Parameters			
Antenna Gain, Main Beam	(dbI)	42.00	
15 DB Half Beamwidth			
Antennas Transmit: GENERAL	DYNAMICS 12	41 (2.4M)	
Max Transmitter Power	(dbW/4KHz)		-18.76
Max EIRP Main Beam	(dbW/4KHz)		23.24
Modulation / Emission Designator	DIGITAL	5M60G7W	
Coordination Parameters		 Transmit	
Max Greater Circle Distances	(km)	169.56	
Max Rain Scatter Distances	(km)	100.00	
Max Interference Power Long Term	(dbW)	-154.80	
Max Interference Power Short Term		-130.80	
Rain Zone / Radio Zone		3	А

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: L1917809 3.70 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:

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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:

07/17/2019 Original PCN

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

Respectfully Submitted,

Page 1

Jeremy Lewis Systems Engineer

File: L1917809

TECHNICAL CHARACTERISTIC		-	
		:=======	
	laska Communi	cations In	ternet, LLC
	otzebue, AK		
Call Sign:			
Latitude	(NAD83)	66 51	29.6 N
Longitude	(NAD83)	162 36	50.4 W
Elevation AMSL	(ft/m)	108.00	32.92
	(MHz)	3700-4200	
Transmit Frequency Range	,		
Range of Satellite Orbital Long.	_		
	(deg)	129.02	130.00
	(ft/m)		
Antenna Elevation Angles	(deg)	6.43	6.74
Equipment Parameters		Receive	
Antonno Coin Moin Doon	(alla T)	20 00	
	(dbI) (deg)		
	- 1041	(0.425)	
Antennas Receive: GENERAL 1	DYNAMICS 1241	(2.4M)	
Max Transmitter Power Max EIRP Main Beam	(dbW/4KHz)		
Modulation / Emission Designator	DIGITAL 7	'2M0G'/W	
Coordination Parameters		Pogojwo	
		Receive	
Max Greater Circle Distances	(lem)	191 09	
	(km)		
Max Interference Power Long Term	` ,		
Max Interference Power Short Term			
Rain Zone / Radio Zone	(CLOVV)	3	А
1.4211 20110 / 1.4410 20110		S	± ±

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC Site: Kotzebue State: AK

Latitude: 66 51 29.6 Longitude: 162 36 50.4 (NAD83) 08-06-2019

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 $5~\mathrm{mW/cm}^{**2}$ (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: ______

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) = 20.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319

Power Ratio:

AntiLog(GES/10)

рi

= 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

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) =
$$D^{**2}$$
 = 29.6907 m $4*lambda$

Near Zone Power Density (Rn) = $16.0(n)P$ = 10.6103 W/m**2 $pi(D^{**2})$

= 1.0610 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 = 2(P) = 8.8419 W/m**2

----Sa

= 0.8842 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 = P = 4.4210 W/m**2

----Sa

= 0.4421 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	4.5032	Complies with ANSI
2.	Near Zone	3.9390	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.1158	Complies with ANSI
5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.5032	Complies with ANSI
2.	Near Zone	-0.0610	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	0.1158	Complies with ANSI
5.	Main Reflector to Ground	0.5579	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.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: B1917809 5.93 GHz Licensee: Alaska Communications Internet, LLC

Licensee: Alaska Communications Internet, LLC Page 1

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:

Noatak, 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:

07/17/2019 Original PCN

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.
WIRELESS APPLICATIONS CORP

Respectfully Submitted,

Jeremy S. Lewis

Jeremy Lewis Systems Engineer

File: B1917809

TECHNICAL CHARACTERISTIC	CS OF TRANSMI	IT ONLY EAR	TH STATION
=======================================			
1 2	laska Communi oatak, AK	ications In	ternet, LLC
Latitude Longitude Elevation AMSL Receive Frequency Range Transmit Frequency Range Range of Satellite Orbital Long. Range of Azimuths from North	(deg W) (deg)	162 58 89.00 5925-6425 114.00 128.81	14.5 W 27.13 115.00 129.80
Antenna Centerline	(ft/m)		
Antenna Elevation Angles	-		6.17
Equipment Parameters		Transmit	
Antenna Gain, Main Beam 15 DB Half Beamwidth	(dbI) (deg)		
Antennas Transmit: GENERAL I	DYNAMICS 1241	(2.4M)	
Max Transmitter Power Max EIRP Main Beam Modulation / Emission Designator	DIGITAL 5	5M60G7W	-18.76 23.24
Coordination Parameters		Transmit	
Max Greater Circle Distances Max Rain Scatter Distances Max Interference Power Long Term Max Interference Power Short Term Rain Zone / Radio Zone	(km) (dbW)	100.00	A

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M1917809 3.70 GHz Licensee: Alaska Communications Internet, LLC

Licensee: Alaska Communications Internet, LLC Page 1

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:

Noatak, AK

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

07/17/2019 Original PCN

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

Respectfully Submitted,

Jeremy Lewis Systems Engineer

File: M1917809

TECHNICAL CHARACTERISTI	CS OF RECEIVE	E ONLY EARTI	H STATION
	=======		
<u> </u>	laska Communi	ications In	ternet, LLC
•	oatak, AK		
Call Sign:			
Latitude	(NAD83) (NAD83) (ft/m)	67 34	17.0 N
Longitude	(NAD83)	162 58	14.5 W
Elevation AMSL			27.13
Receive Frequency Range	(MHz)	3700-4200	
1 1 2	(MHz)		
Range of Satellite Orbital Long.			
=	(deg)		
	(ft/m)		
Antenna Elevation Angles	(deg)	5.87	6.17
Equipment Parameters		Receive	
Antenna Gain, Main Beam	(dbI)	38.00	
15 DB Half Beamwidth	(deg)	4.90	
Antennas Receive: GENERAL	DYNAMICS 1241	(2.4M)	
Max Transmitter Power	(dbW/4KHz)		
Max EIRP Main Beam			
Modulation / Emission Designator	DIGITAL 7	72M0G7W	
Coordination Parameters		Receive	
Max Greater Circle Distances	(km)	502.42	
		413.59	
Max Interference Power Long Term		-158.60	
Max Interference Power Short Term	(dbW)	-149.90	
Rain Zone / Radio Zone		3	A

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Noatak State: AK

Latitude: 67 34 17.0 Longitude: 162 58 14.5 (NAD83) 08-06-2019

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 $5~\mathrm{mW/cm}^{**2}$ (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: ______

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) = 20.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319

Power Ratio:

AntiLog(GES/10)

рi

= 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

Distance to the Far Zone (Df) = (n)(D**2) = 71.2577 m
$$------$$
 lambda

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) =
$$D^{**2}$$
 = 29.6907 m $4*lambda$

Near Zone Power Density (Rn) = $16.0(n)P$ = 10.6103 W/m**2 $pi(D^{**2})$

= 1.0610 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 = 2(P) = 8.8419 W/m**2

----Sa

= 0.8842 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 = P = 4.4210 W/m**2

----Sa

= 0.4421 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	4.5032	Complies with ANSI
2.	Near Zone	3.9390	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.1158	Complies with ANSI
5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.5032	Complies with ANSI
2.	Near Zone	-0.0610	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	0.1158	Complies with ANSI
5.	Main Reflector to Ground	0.5579	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.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: E1917809 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:

Ambler, 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:

07/17/2019 Original PCN

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

Respectfully Submitted,

Page 1

Jeremy Lewis Systems Engineer

File: E1917809

TECHNICAL CHARACTERISTI	CS OF TRANSM	IT ONLY EAR	TH STATION
		=======	
1 1	laska Commun mbler, AK	ications In	ternet, LLC
Latitude Longitude Elevation AMSL Receive Frequency Range	(NAD83) (NAD83) (ft/m) (MHz)	157 51	40.7 W
Transmit Frequency Range Range of Satellite Orbital Long. Range of Azimuths from North	(MHz) (deg W) (deg) (ft/m)		115.00 134.79 2.00
Equipment Parameters		Transmit	
Antenna Gain, Main Beam 15 DB Half Beamwidth	(dbI) (deg)		
Antennas Transmit: GENERAL	DYNAMICS 124	1 (2.4M)	
Max Transmitter Power Max EIRP Main Beam Modulation / Emission Designator	DIGITAL	5M60G7W	-18.76 23.24
Coordination Parameters		Transmit	
Max Greater Circle Distances Max Rain Scatter Distances Max Interference Power Long Term Max Interference Power Short Term Rain Zone / Radio Zone	(km) (dbW)	100.00	A

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: P1917809 3.70 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:

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COMSEARCH INC

Respectfully Submitted,

Page 1

Jeremy Lewis Systems Engineer

File: P1917809

	.=======		
TECHNICAL CHARACTERISTI	CS OF RECEIVE	E ONLY EART	H STATION
	:========	=======	==========
<u> </u>	laska Commun:	ications In	ternet, LLC
•	mbler, AK		
Call Sign:	(NIA D O O)	67 -	11 F N
Latitude Longitude	(NAD83) (NAD83)	67 5 157 51 134.00	11.5 N
Elevation AMSL	(ft/m)	13/ 00	40.7 W
	(MHz)	3700-4200	40.04
Transmit Frequency Range	(MHZ)	3/00-4200	
Range of Satellite Orbital Long.		114 00	115 00
Range of Azimuths from North			
	(ft/m)		
Antenna Elevation Angles			
			7.33
Equipment Parameters		Receive	
Antenna Gain, Main Beam			
15 DB Half Beamwidth	(deg)	4.90	
Antennas Receive: GENERAL	DYNAMICS 1243	1 (2.4M)	
Max Transmitter Power	(dbW/4KHz)		
Max EIRP Main Beam	(dbW/4KHz)		
Modulation / Emission Designator	DIGITAL	72M0G7W	
Coordination Parameters		Receive	
Max Greater Circle Distances	(lem)	197 97	
Max Rain Scatter Distances		397.23	
Max Interference Power Long Term			
Max Interference Power Short Term	(dbW)	-149.90	
Rain Zone / Radio Zone	((CLOVV)	3	А
Talli Bolle / Radio Bolle		9	11

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Ambler State: AK

Latitude: 67 5 11.5 Longitude: 157 51 40.6 (NAD83) 08-09-2019

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 $5~\mathrm{mW/cm}^{**2}$ (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.

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(D) = 2.4000 m

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Transmit Power at Flange (P) = 20.0000 Watts

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Power Ratio:

AntiLog(GES/10)

= 3.1415927 рi

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Distance to the Far Zone (Df) = (n)(D**2) = 71.2577 m
$$------$$
 lambda

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Near Zone Power Density (Rn) = $16.0(n)P$ = 10.6103 W/m**2 $pi(D^{**2})$

= 1.0610 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.

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Main Reflector Power Density = 2(P) = 8.8419 W/m**2

----Sa

= 0.8842 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 = P = 4.4210 W/m**2

----Sa

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CALCULATED SAFETY MARGINS SUMMARY AND EVALUATION

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5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

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- B. Uncontrolled Environment

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: F1917809 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:

Noorvik, 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:

07/17/2019 Original PCN 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 UNICOM, INC. WIRELESS APPLICATIONS CORP

Respectfully Submitted,

Jeremy B. Lewis

Page 1

Jeremy Lewis Systems Engineer

File: F1917809

TECHNICAL CHARACTERISTIC	CS OF TRANSM	MIT ONLY EAR	TH STATION
	========		==========
1 4	laska Commur	nications In	ternet, LLC
·	oorvik, AK		
Call Sign: Latitude	(NAD83)	66 49	59 3 N
Longitude		161 2	
Elevation AMSL	(ft/m)	44.00	13.41
Receive Frequency Range	(MHz)	5005 6405	
Transmit Frequency Range Range of Satellite Orbital Long.	(MHz)	5925-6425 114.00	
Range of Azimuths from North	(deg W)	130.56	131.55
Antenna Centerline	(ft/m)	6.56	
Antenna Elevation Angles	(deg)	6.93	7.23
Equipment Parameters		Transmit	
Antenna Gain, Main Beam	(dhT)	42 00	
· · · · · · · · · · · · · · · · · · ·	(deg)		
Antennas Transmit: GENERAL I	DYNAMICS 124	11 (2.4M)	
Max Transmitter Power Max EIRP Main Beam	(dbW/4KHz)		-18.76
Max EIRP Main Beam	(dbW/4KHz)		23.24
Modulation / Emission Designator	DIGITAL	5M60G7W	
Coordination Parameters		Transmit	
Max Greater Circle Distances	(km)	167.27	
Max Rain Scatter Distances			
Max Interference Power Long Term			
Max Interference Power Short Term Rain Zone / Radio Zone	(dbW)	-130.80 3	7)
Rain Zone / Radio Zone		3	A

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: R1917809 3.70 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:

Noorvik, 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:

07/17/2019 Original PCN

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

Respectfully Submitted,

Page 1

Jeremy Lewis Systems Engineer

File: R1917809

			=========
TECHNICAL CHARACTERISTI	CS OF RECEIVE	ONLY EARTH	STATION
	========	=======	=========
Company: A	laska Communi	cations Int	ernet IIC
- -	oorvik, AK	Cacions inc	clice, die
Call Sign:	OOLVIN, III		
Latitude	(NAD83)	66 49	59.3 N
Longitude	(NAD83)		
Elevation AMSL	(ft/m)		
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)		
Range of Satellite Orbital Long.		114.00	115.00
Range of Azimuths from North	(deg)	130.56	131.55
Antenna Centerline	(ft/m)	5.91	1.80
Antenna Elevation Angles	(deg)	6.93	7.23
, and the second	. 3.		
Equipment Parameters		Receive	
		38.00	
15 DB Half Beamwidth	(deg)	4.90	
Antennas Receive: GENERAL	DYNAMICS 1241	(2.4M)	
	/		
Max Transmitter Power			
Max EIRP Main Beam		0110075	
Modulation / Emission Designator	DIGITAL /	ZMUG/W	
Coordination Parameters		Receive	
		receive	
Max Greater Circle Distances	(km)	487.87	
Max Rain Scatter Distances		403.04	
Max Interference Power Long Term		-158.60	
Max Interference Power Short Term	(dbW)	-149.90	
Rain Zone / Radio Zone	. (CLOVV)	3	A
nam zone / nam zone		9	7.7

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Noorvik State: AK

Latitude: 66 49 59.4 Longitude: 161 2 44.8 (NAD83) 08-09-2019

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 $5~\mathrm{mW/cm}^{**2}$ (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: ______

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) = 20.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319

Power Ratio:

AntiLog(GES/10)

= 3.1415927 рi

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

Distance to the Far Zone (Df) = (n)(D**2) = 71.2577 m
$$------$$
 lambda

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) =
$$D^{**2}$$
 = 29.6907 m $4*lambda$

Near Zone Power Density (Rn) = $16.0(n)P$ = 10.6103 W/m**2 $pi(D^{**2})$

= 1.0610 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 = 2(P) = 8.8419 W/m**2

----Sa

= 0.8842 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 = P = 4.4210 W/m**2

----Sa

= 0.4421 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	4.5032	Complies with ANSI
2.	Near Zone	3.9390	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.1158	Complies with ANSI
5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.5032	Complies with ANSI
2.	Near Zone	-0.0610	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	0.1158	Complies with ANSI
5.	Main Reflector to Ground	0.5579	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.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: G1917809 5.93 GHz Licensee: Alaska Communications Internet, LLC

Licensee: Alaska Communications Internet, LLC Page 1

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:

Kiana, 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:

07/17/2019 Original PCN

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 UNICOM, INC. WIRELESS APPLICATIONS CORP

Respectfully Submitted,

Jeremy B. Lewis

Jeremy Lewis Systems Engineer

File: G1917809

TECHNICAL CHARACTERISTI	CS OF TRANSMI	TONLY EART	H STATION
=======================================	========		
± ±	laska Communi iana, AK	ications Inte	ernet, LLC
Call Sign:			
Latitude		66 58 2	
Longitude	(NAD83)		
Elevation AMSL		107.00	32.61
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	5925-6425	
Range of Satellite Orbital Long.	(deg W)	114.00	115.00
Range of Azimuths from North	_	131.20	
	(ft/m)		
Antenna Elevation Angles	(aeg)	7.02	1.32
Equipment Parameters		Transmit	
Antenna Gain, Main Beam	(dbI)	42.00	
•	(deg)		
The same of the CENTRAL	DV/N/3 M T Q Q 1 Q 4 1	(
Antennas Transmit: GENERAL		,	
Max Transmitter Power Max EIRP Main Beam	(dbW/4KHz)		-18.76
Max EIRP Main Beam	(dbW/4KHz)		23.24
Modulation / Emission Designator	DIGITAL 5	5M60G7W	
Coordination Parameters		Transmit	
Max Greater Circle Distances	(km)	167.27	
Max Rain Scatter Distances			
Max Interference Power Long Term			
Max Interference Power Short Term	(dbW)	-130.80	
Rain Zone / Radio Zone	(/	3	A

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: S1917809 3.70 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:

Kiana, 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:

07/17/2019 Original PCN

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

Respectfully Submitted,

Page 1

Jeremy Lewis Systems Engineer

File: S1917809

	=========		
TECHNICAL CHARACTERISTI	CS OF RECEIVE	ONLY EARTH ST	ATION
	=========		========
Company	lagha Communi	cations Intern	o+ II <i>C</i>
± ±	iana, AK	Cations intern	et, LLC
Call Sign:	Italia, All		
Latitude	(NAD83)	66 58 24.	3 M
Longitude		160 25 49.	
Elevation AMSL		107.00	
Receive Frequency Range	(MHz)		52.01
Transmit Frequency Range	(MHz)	3700 1200	
Range of Satellite Orbital Long.	•	114 00	115 00
Range of Azimuths from North	(deg)	131.20	132.20
Antenna Centerline	(ft/m)	5.91	1.80
Antenna Elevation Angles	(deg)	7.02	7.32
	(3.2 3 /		
Equipment Parameters		Receive	
		38.00	
15 DB Half Beamwidth	(deg)	4.90	
Antennas Receive: GENERAL	DYNAMICS 1241	(2.4M)	
Max Transmitter Power			
Max EIRP Main Beam		01/0 0777	
Modulation / Emission Designator	DIGITAL /	2MUG/W	
Coordination Parameters		Receive	
		receive	
Max Greater Circle Distances	(km)	487.87	
Max Rain Scatter Distances		402.28	
Max Interference Power Long Term		-158.60	
Max Interference Power Short Term	(dbW)	-149.90	
Rain Zone / Radio Zone	. (/	3	А
Tall Lone / Taalo Lone		Ü	

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Kiana State: AK

Latitude: 66 58 24.3 Longitude: 160 25 49.3 (NAD83) 08-09-2019

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: ______

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) = 20.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319

Power Ratio:

AntiLog(GES/10)

= 3.1415927 рi

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

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) =
$$D^{**2}$$
 = 29.6907 m $4*lambda$

Near Zone Power Density (Rn) = $16.0(n)P$ = 10.6103 W/m**2 $pi(D^{**2})$

= 1.0610 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 = 2(P) = 8.8419 W/m**2

----Sa

= 0.8842 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 = P = 4.4210 W/m**2

----Sa

= 0.4421 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	4.5032	Complies with ANSI
2.	Near Zone	3.9390	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.1158	Complies with ANSI
5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.5032	Complies with ANSI
2.	Near Zone	-0.0610	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	0.1158	Complies with ANSI
5.	Main Reflector to Ground	0.5579	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.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: H1917809 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:

Deering, 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:

07/17/2019 Original PCN
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 UNICOM, INC. WIRELESS APPLICATIONS CORP

Respectfully Submitted,

Jeremy B. Lewis

Page 1

Jeremy Lewis Systems Engineer

File: H1917809

TECHNICAL CHARACTERISTIC	CS OF TRANSI	MIT ONLY EAR	TH STATION
	=======	========	
Company: A	laska Commur	nications In	ternet, LLC
·	eering, AK		
Call Sign:	(D. D. O. D. V.	6.6	20 7 N
Latitude Longitude		66 4 162 43	
Elevation AMSL		12.00	
Receive Frequency Range	(MHz)	12.00	3.00
	(MHz)	5925-6425	
Range of Satellite Orbital Long.	(deg W)	114.00	
Range of Azimuths from North	(deg)	128.74	129.73
Antenna Centerline	(ft/m)	6.56	
Antenna Elevation Angles	(deg)	6.90	7.22
Equipment Parameters		Transmit	
Antenna Gain, Main Beam	(dbI)	42.00	
·	(deg)		
The transfer CONTRACT	DVAIDATOO 10.	41 (0 414)	
Antennas Transmit: GENERAL 1	DINAMICS 124	41 (2.4M)	
Max Transmitter Power Max EIRP Main Beam	(dbW/4KHz)		-18.76
			23.24
Modulation / Emission Designator	DIGITAL	5M60G7W	
Coordination Parameters		Transmit	
Max Greater Circle Distances	(km)	167.27	
Max Rain Scatter Distances			
Max Interference Power Long Term	(dbW)	-154.80	
Max Interference Power Short Term	(dbW)	-130.80	
Rain Zone / Radio Zone		3	А

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: T1917809 3.70 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:

Deering, 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:

07/17/2019 Original PCN

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

Respectfully Submitted,

Page 1

Jeremy Lewis Systems Engineer

File: T1917809

TECHNICAL CHARACTERISTIC		-	
	laska Communi	cations In	ternet, LLC
	eering, AK		
Call Sign:			
Latitude	(NAD83)	66 4	32.7 N
Longitude	(NAD83) (NAD83) (ft/m)	162 43	22.0 W
Elevation AMSL	(ft/m)	12.00	3.66
Receive Frequency Range		3700-4200	
Transmit Frequency Range			
Range of Satellite Orbital Long.			
Range of Azimuths from North		128.74	129.73
	(ft/m)		1.80
Antenna Elevation Angles	(deg)	6.90	7.22
Equipment Parameters		Receive	
Antenna Gain, Main Beam	(dbI)	38.00	
	(deg)		
Antennas Receive: GENERAL	DYNAMICS 1241	(2.4M)	
Max Transmitter Power Max EIRP Main Beam	(dbW/4KHz)		
Max EIRP Main Beam	(dbW/4KHz)		
Modulation / Emission Designator		72M0G7W	
Coordination Parameters		Receive	
Max Greater Circle Distances	(km)	487.87	
	(km)		
Max Interference Power Long Term			
Max Interference Power Short Term			
Rain Zone / Radio Zone		3	A

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Deering State: AK

Latitude: 66 4 32.7 Longitude: 162 43 22.0 (NAD83) 08-09-2019

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: ______

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) = 20.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319

Power Ratio:

AntiLog(GES/10)

= 3.1415927 рi

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

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) =
$$D^{**2}$$
 = 29.6907 m $4*lambda$

Near Zone Power Density (Rn) = $16.0(n)P$ = 10.6103 W/m**2 $pi(D^{**2})$

= 1.0610 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 = 2(P) = 8.8419 W/m**2

----Sa

= 0.8842 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 = P = 4.4210 W/m**2

----Sa

= 0.4421 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	4.5032	Complies with ANSI
2.	Near Zone	3.9390	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.1158	Complies with ANSI
5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.5032	Complies with ANSI
2.	Near Zone	-0.0610	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	0.1158	Complies with ANSI
5.	Main Reflector to Ground	0.5579	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.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: I1917809 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:

Buckland, 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:

07/17/2019 Original PCN

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 UNICOM, INC. WIRELESS APPLICATIONS CORP

Respectfully Submitted,

Jeremy B. Lewis

Page 1

Jeremy Lewis Systems Engineer

File: I1917809

TECHNICAL CHARACTERISTI	CS OF TRANSMI	T ONLY EART	TH STATION
	========		
<u> </u>	laska Communi uckland, AK	cations Int	ernet, LLC
Latitude Longitude Elevation AMSL	(NAD83) (NAD83) (ft/m) (MHz)	161 7	29.5 W
Transmit Frequency Range Range of Satellite Orbital Long. Range of Azimuths from North	(MHz) (deg W) (deg) (ft/m)		131.29 2.00
Equipment Parameters		Transmit	
Antenna Gain, Main Beam 15 DB Half Beamwidth	(dbI) (deg)		
Antennas Transmit: GENERAL	DYNAMICS 1241	(2.4M)	
Max Transmitter Power Max EIRP Main Beam Modulation / Emission Designator	DIGITAL 5	M60G7W	-18.76 23.24
Coordination Parameters		Transmit	
Max Greater Circle Distances Max Rain Scatter Distances Max Interference Power Long Term Max Interference Power Short Term Rain Zone / Radio Zone	(km) (dbW)	100.00	А

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: U1917809 3.70 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:

Buckland, 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:

07/17/2019 Original PCN

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

Respectfully Submitted,

Page 1

Jeremy Lewis Systems Engineer

File: U1917809

TECHNICAL CHARACTERISTI	CS OF RECEIVE	ONLY EARTH	STATION
	laska Communi	cations Inte	ernet, LLC
	uckland, AK		
Call Sign:			
Latitude	(NAD83) (NAD83) (ft/m)	65 58 4	12.0 N
Longitude	(NAD83)	161 7 2	29.5 W
Elevation AMSL			7.01
Receive Frequency Range	(MHz)	3700-4200	
1 1 2	(MHz)		
Range of Satellite Orbital Long.			
	(deg)		
	(ft/m)		
Antenna Elevation Angles	(deg)	7.47	7.79
Equipment Parameters		Receive	
Antenna Gain, Main Beam	(dbT)	30 00	
15 DB Half Beamwidth	(dbI) (deg)		
	D.D.T. 1041	(0.425)	
Antennas Receive: GENERAL	DYNAMICS 1241	(2.4M)	
Max Transmitter Power	(dbW/4KHz)		
Max EIRP Main Beam			
Modulation / Emission Designator	DIGITAL 7	2M0G7W	
Coordination Parameters		Receive	
	(km)		
		398.83	
Max Interference Power Long Term			
Max Interference Power Short Term	(abW)	-149.90	7
Rain Zone / Radio Zone		3	A

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Buckland State: AK

Latitude: 65 58 42.0 Longitude: 161 7 29.5 (NAD83) 08-09-2019

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: ______

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) = 20.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319

Power Ratio:

AntiLog(GES/10)

рi

= 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

Distance to the Far Zone (Df) = (n)(D**2) = 71.2577 m
$$------$$
 lambda

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) =
$$D^{**2}$$
 = 29.6907 m $4*lambda$

Near Zone Power Density (Rn) = $16.0(n)P$ = 10.6103 W/m**2 $pi(D^{**2})$

= 1.0610 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 = 2(P) = 8.8419 W/m**2

----Sa

= 0.8842 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 = P = 4.4210 W/m**2

----Sa

= 0.4421 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	4.5032	Complies with ANSI
2.	Near Zone	3.9390	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.1158	Complies with ANSI
5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.5032	Complies with ANSI
2.	Near Zone	-0.0610	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	0.1158	Complies with ANSI
5.	Main Reflector to Ground	0.5579	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.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: J1917809 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:

Selawik, 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:

07/17/2019 Original PCN

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 UNICOM, INC. WIRELESS APPLICATIONS CORP

Respectfully Submitted,

Jeremy B. Lewis

Page 1

Jeremy Lewis Systems Engineer

File: J1917809

TECHNICAL CHARACTERISTI	 CS OF TRANSMI	T ONLY EAR	 TH STATION
	laska Communi elawik, AK	cations Int	ternet, LLC
Latitude Longitude Elevation AMSL Receive Frequency Range	(NAD83) (NAD83) (ft/m) (MHz)	160 0 18.00	52.7 W
Range of Satellite Orbital Long. Range of Azimuths from North	(deg W) (deg) (ft/m) (deg)	131.54 6.56	132.53 2.00
Equipment Parameters		Transmit	
	(dbI) (deg)	42.00 3.10	
Antennas Transmit: GENERAL	DYNAMICS 1241	(2.4M)	
Max Transmitter Power Max EIRP Main Beam Modulation / Emission Designator	(dbW/4KHz)		-18.76 23.24
Coordination Parameters		Transmit	
Max Greater Circle Distances Max Rain Scatter Distances Max Interference Power Long Term Max Interference Power Short Term Rain Zone / Radio Zone	(km) (dbW)	167.27 100.00 -154.80 -130.80	A

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: V1917809 3.70 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:

Selawik, 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:

07/17/2019 Original PCN

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

Respectfully Submitted,

Page 1

Jeremy Lewis Systems Engineer

File: V1917809

	=========	:=======	:=========
TECHNICAL CHARACTERIST	ICS OF RECEIVE	ONLY EARTH	STATION
	Alaska Communi Selawik, AK	cations Int	ernet, LLC
Latitude Longitude Elevation AMSL Receive Frequency Range Transmit Frequency Range	(NAD83) (NAD83) (ft/m) (MHz) (MHz)		52.7 W
Range of Satellite Orbital Long.	(deg W)	114.00 131.54 5.91 7.40	
Equipment Parameters		Receive	
Antenna Gain, Main Beam 15 DB Half Beamwidth	(dbI) (deg)	38.00 4.90	
Antennas Receive: GENERAL	DYNAMICS 1241	(2.4M)	
Max Transmitter Power Max EIRP Main Beam Modulation / Emission Designator	(dbW/4KHz) (dbW/4KHz) DIGITAL 7	2M0G7W	
Coordination Parameters		Receive	
Max Greater Circle Distances Max Rain Scatter Distances Max Interference Power Long Term Max Interference Power Short Term Rain Zone / Radio Zone	(km) (dbW)	487.87 399.38 -158.60 -149.90	A

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Selawik State: AK

Latitude: 66 36 24.4 Longitude: 160 0 52.6 (NAD83) 08-09-2019

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: ______

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) = 20.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319

Power Ratio:

AntiLog(GES/10)

= 3.1415927 рi

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

Distance to the Far Zone (Df) = (n)(D**2) = 71.2577 m
$$------$$
 lambda

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) =
$$D^{**2}$$
 = 29.6907 m $4*lambda$

Near Zone Power Density (Rn) = $16.0(n)P$ = 10.6103 W/m**2 $pi(D^{**2})$

= 1.0610 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 = 2(P) = 8.8419 W/m**2

----Sa

= 0.8842 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 = P = 4.4210 W/m**2

----Sa

= 0.4421 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	4.5032	Complies with ANSI
2.	Near Zone	3.9390	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.1158	Complies with ANSI
5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.5032	Complies with ANSI
2.	Near Zone	-0.0610	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	0.1158	Complies with ANSI
5.	Main Reflector to Ground	0.5579	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.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: K1917809 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:

Kivalina, 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:

07/17/2019 Original PCN

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.
WIRELESS APPLICATIONS CORP

Respectfully Submitted,

Jeremy B. Lewis

Page 1

Jeremy Lewis Systems Engineer

File: K1917809

TECHNICAL CHARACTERIST	CS OF TRANSM	IT ONLY EART	TH STATION
	Alaska Commun: Kivalina, AK	ications Int	cernet, LLC
Latitude Longitude Elevation AMSL Receive Frequency Range Transmit Frequency Range	(NAD83) (ft/m) (MHz) (MHz)	67 43 164 32 15.00 5925-6425	15.8 W 4.57
Range of Satellite Orbital Long. Range of Azimuths from North Antenna Centerline Antenna Elevation Angles	(deg) (ft/m) (deg)	127.30 6.56	128.28 2.00
Equipment Parameters		Transmit	
Antenna Gain, Main Beam 15 DB Half Beamwidth	(dbI)	42.00 3.10	
Antennas Transmit: GENERAL DYNAMICS 1241 (2.4M)			
Max Transmitter Power Max EIRP Main Beam Modulation / Emission Designator	(dbW/4KHz)		-18.76 23.24
Coordination Parameters		Transmit	
Max Greater Circle Distances Max Rain Scatter Distances Max Interference Power Long Term Max Interference Power Short Term Rain Zone / Radio Zone	(km) (dbW)	173.96 100.00 -154.80 -130.80	A

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: W1917809 3.70 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:

Kivalina, 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:

07/17/2019 Original PCN

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

Respectfully Submitted,

Page 1

Jeremy Lewis Systems Engineer

File: W1917809

		.=======	
TECHNICAL CHARACTERISTIC		-	
	laska Communi	cations Int	ternet, LLC
·	ivalina, AK		
Call Sign:			
Latitude	(NAD83)	67 43	34.9 N
Longitude	(NAD83) (ft/m)	164 32	15.8 W
Elevation AMSL	(ft/m)	15.00	4.57
Receive Frequency Range		3700-4200	
Transmit Frequency Range		444.00	4.4.50.0
Range of Satellite Orbital Long.			
Range of Azimuths from North			128.28
	(ft/m)		1.80
Antenna Elevation Angles	(aeg)	5.30	5.60
Equipment Parameters		Receive	
Antenna Gain, Main Beam	(dbI)	38.00	
	(deg)		
Antennas Receive: GENERAL 1	NYNAMICS 1241	(2 4M)	
		(2.11)	
Max Transmitter Power Max EIRP Main Beam	(dbW/4KHz)		
Modulation / Emission Designator	DIGITAL 7	2M0G7W	
Coordination Parameters		Receive	
Max Greater Circle Distances	(km)	506.08	
	(km)		
Max Interference Power Long Term	, ,		
Max Interference Power Short Term			
Rain Zone / Radio Zone	•	3	A

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC Site: Kivalina State: AK

Latitude: 67 43 34.9 Longitude: 164 32 15.8 (NAD83) 08-09-2019

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:

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) = 20.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319Power Ratio:

AntiLog(GES/10)

pi = 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

Distance to the Far Zone (Df) = (n)(D**2) = 71.2577 m
$$------$$
 lambda

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) =
$$D^{**2}$$
 = 29.6907 m $4*lambda$

Near Zone Power Density (Rn) = $16.0(n)P$ = 10.6103 W/m**2 $pi(D^{**2})$

= 1.0610 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 = 2(P) = 8.8419 W/m**2

----Sa

= 0.8842 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 = P = 4.4210 W/m**2

----Sa

= 0.4421 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	4.5032	Complies with ANSI
2.	Near Zone	3.9390	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.1158	Complies with ANSI
5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.5032	Complies with ANSI
2.	Near Zone	-0.0610	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	0.1158	Complies with ANSI
5.	Main Reflector to Ground	0.5579	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.

Micronet Communications, Inc.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

Page 1

File Number: M1916411 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:

Chugachmuit Chenega, 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:

06/25/2019 Original PCN (Expedited response requested by 07/09/2019)

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:

ALASCOM, INC.
ALASKA, STATE OF
CHUGACH ELECTRIC ASSOCIATION, INC.
COMSEARCH INC
COPPER VALLEY TELEPHONE COOPERATIVE, INC.
COPPER VALLEY WIRELESS, LLC
MICRONET COMMUNICATIONS INC

Respectfully Submitted,

Jeremy S. Lewis

Jeremy Lewis Systems Engineer

Attached: 1 data sheet

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

File: M1916411

TECHNICAL CHARACTERISTI	CS OF TRANSM	IIT ONLY EART	H STATION
	=======		==========
		nications Int	ernet, LLC
	hugachmuit C	Chenega, AK	
Call Sign: Latitude	(NAD83)	60 3	56 3 N
Longitude		148 1	
Elevation AMSL		40.00	
Receive Frequency Range	(MHz)		
Transmit Frequency Range Range of Satellite Orbital Long.	(MHz)	5925-6425 114.00	115 00
Range of Azimuths from North	(deg w)	142.09	143 14
Antenna Centerline	(ft/m)	5.91	
Antenna Elevation Angles	(deg)	16.09	16.41
Equipment Parameters		Transmit	
Antenna Gain, Main Beam	(dbT)	42 00	
· · · · · · · · · · · · · · · · · · ·	(deg)		
	. 3,		
Antennas Transmit: GENERAL	DYNAMICS 124	11 (2.4M)	
Max Transmitter Power Max EIRP Main Beam	(dbW/4KHz)		-14.95
			27.05
Modulation / Emission Designator	DIGITAL	5M60G7W	
Coordination Parameters		Transmit	
Max Greater Circle Distances	(km)	124 63	
Max Rain Scatter Distances			
Max Interference Power Long Term	(dbW)	-154.80	
Max Interference Power Short Term	(dbW)	-130.80	7
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: N1916411 3.70 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:

Chugachmuit Chenega, 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:

06/25/2019 Original PCN

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,

Page 1

Jeremy Lewis Systems Engineer

Attached: 1 data sheet

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

File: N1916411

TECHNICAL CHARACTERISTI	CS OF RECEIVE	E ONLY EART	H STATION
	========		==========
	laska Communi		ternet, LLC
Site Name, State: C	hugachmuit Cr	nenega, AK	
Call Sign: Latitude	(NDD83)	60 3	56 3 N
Longitude	(NAD83) (NAD83) (ft/m)	148 1	1 6 W
Elevation AMSL	(ft/m)	40.00	12.19
Receive Frequency Range	(MHz)	3700-4200	
Transmit Frequency Range			
Range of Satellite Orbital Long.		114.00	115.00
Range of Azimuths from North	(deg)	142.09	143.14
	(ft/m)		
Antenna Elevation Angles	(deg)	16.09	16.41
Equipment Parameters		Receive	
Antenna Gain, Main Beam	(dbI)	38.00	
	(deg)		
	_		
Antennas Receive: GENERAL	DYNAMICS 1241	L (2.4M)	
Max Transmitter Power	(dbW/4KHz)		
Max Transmitter Power Max EIRP Main Beam	(dbW/4KHz)		
Modulation / Emission Designator		72M0G7W	
Coordination Parameters		Receive	
		receive	
Max Greater Circle Distances			
Max Rain Scatter Distances		369.66	
Max Interference Power Long Term	(dbW)	-158.60	
Max Interference Power Short Term	(dbW)	-149.90	_
Rain Zone / Radio Zone		3	A

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC Site: Chugachmuit Chenega State: AK

Latitude: 60 3 56.3 Longitude: 148 1 1.6 (NAD83) 07-12-2019

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:

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) = 42.0000 dBi = 15848.9319Power Ratio:

AntiLog(GES/10)

pi = 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

Far Zone Power Density (Rf) = (GES)(P) =
$$9.9354 \text{ W/m**2}$$

------ $4*\text{pi*(Df**2)}$
= 0.9935 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.

pi(D**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 = 2(P) = 17.6839 W/m**2

Sa

= 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 = P = 8.8419 W/m**2

Sa

= 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	4.0065	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)

Safety
Margins Conclusions

(mW/cm**2)

1. Far Zone

0.0065 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.

Micronet Communications, Inc.

720 F Avenue, Suite 100 Plano, Texas 75074 972-422-7200

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M1833223 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:

Silver Bay False Pas, 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:

12/06/2018 Original PCN 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,

Page 1

Jeremy Lewis Systems Engineer

Attached: 1 data sheet

Micronet Communications, Inc. 720 F Avenue, Suite 100 Plano, Texas 75074 972-422-7200

File: M1833223

TECHNICAL CHARACTERIS			
Company:	Alaska Commu		
	Silver Bay F		cernee, and
Call Sign:		,,	
Latitude	(NAD83)	54 51	54.0 N
Longitude	(NAD83)	163 24	
Elevation AMSL	(ft/m)	11.00	3.35
Receive Frequency Range	(MHz)	3700-4200	
Transmit Frequency Range	(MHz)	5925-6425	
Range of Satellite Orbital Long			
Range of Azimuths from North			
Antenna Centerline	(ft/m)		
Antenna Elevation Angles	(deg)	13.55	14.52
Equipment Parameters		Receive	Transmit
Antenna Gain, Main Beam	(dhT)	42 00	46.20
15 DB Half Beamwidth	(dea)	1.40	1 30
10 DD Hall Dodinwiden	(acg)	1.10	1.00
Antennas Receive: PRODEL: Transmit: PRODEL:			
May Transmittor Dowor	(3bw/1ku=1		_17 00
Max Transmitter Power Max EIRP Main Beam	(dbW/4KHz)		29 12
Modulation / Emission Designator			
,			
Coordination Parameters		Receive	Transmit
Max Greater Circle Distances	(km)	448.34	158.44
Max Rain Scatter Distances	(km)	448.34 374.45	100.00
Max Interference Power Long Terr	m (dbW)	-158.60	-154.80
Max Interference Power Short Ter			
Rain Zone / Radio Zone		3	A

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC Site: Silver Bay False Pas State: AK Latitude: 54 51 54.0 Longitude: 163 24 42.2 (NAD83) 01-25-2019

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 $5~\mathrm{mW/cm}^{**2}$ (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: ______

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) = 10.0000 Watts

Antenna Gain at Earth Site (GES) = 46.2000 dBi = 41686.9383

Power Ratio: AntiLog(GES/10)

= 3.1415927 рi

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

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) =
$$D^{**2}$$
 = 74.4330 m 4^* lambda

Near Zone Power Density (Rn) = $16.0(n)P$ = $2.1162 W/m^{**2}$

Near Zone Power Density
$$(Rn) = 16.0(n)P = 2.1162 \text{ W/m**}^2$$

pi(D**2)

= 0.2116 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

2(P) = 1.7635 W/m**2Main Reflector Power Density =

Sa

= 0.1763 mW/cm**2

5. ZONE BETWEEN THE MAIN REFLECTOR AND THE GROUND _____

Applying uniform illumination of the Main Reflector Surface:

P = 0.8817 W/m**2Main to Ground Power Density =

Sa = 0.0882 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	4.8960	Complies with ANSI
2.	Near Zone	4.7884	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.8237	Complies with ANSI
5.	Main Reflector to Ground	4.9118	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions	
1.	Far Zone	0.8960	Complies with ANSI	
2.	Near Zone	0.7884	Complies with ANSI	
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI	
4.	Main Reflector Surface	0.8237	Complies with ANSI	
5.	Main Reflector to Ground	0.9118	Complies with ANSI	

6. EVALUATION ========

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

Micronet Communications, Inc.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M1909812 5.93 GHz Licensee: Alaska Communications Internet, LLC

Licensee: Alaska Communications Internet, LLC Page 1

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:

Trident Naknek, 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:

04/16/2019 Original PCN (Expedited response requested by 04/30/2019)
There were no unresolved interference objections.

05/2/2019 Major Mod (Expedited response requested by 05/06/2019)
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:

NUSHAGAK ELECTRIC AND TELEPHONE COOPERATIVE INC.
RADIO DYNAMICS
UNITED UTILITIES, INC.
WIRELESS APPLICATIONS CORP

Respectfully Submitted,

Jeremy Boyce Systems Engineer

Attached: 1 data sheet

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

File: M1909812

TECHNICAL CHARACTERIST	======================================		
=======================================	========	=======	=======================================
Company: Site Name, State: Call Sign:	Alaska Communi Trident Naknek E170205		ternet, LLC
Latitude Longitude	(NAD83) (NAD83)		
	(ft/m) (MHz) (MHz)	9.84 3700-4200 5925-6425	3.00
Range of Satellite Orbital Long. Range of Azimuths from North Antenna Centerline	(deg) (ft/m)	132.50 5.91	134.51 1.80
Antenna Elevation Angles	_	13.88	14.67
Equipment Parameters		Receive	Transmit
Antenna Gain, Main Beam 15 DB Half Beamwidth	(dbI) (deg)		
Antennas Receive: GENERAI Transmit: GENERAI			
Max Transmitter Power Max EIRP Main Beam Modulation / Emission Designator	r DIGITAL 5	M60G7W 72M	
Coordination Parameters			Transmit
Max Greater Circle Distances Max Rain Scatter Distances Max Interference Power Long Term Max Interference Power Short Term Rain Zone / Radio Zone	(km) m (dbW)		100.00 -154.80

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Trident Naknek State: AK

Latitude: 58 43 41.4 Longitude: 157 0 26.2 (NAD83) 05-02-2019

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:

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) = 20.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319

Power Ratio:
AntiLog(GES/10)

pi = 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

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

= 0.4968 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) =
$$D^*2$$
 = 29.6907 m = $4*lambda$ Near Zone Power Density (Rn) = $16.0(n)P$ = $10.6103 W/m**2$ = $1.0610 mW/cm**2$

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 =

2(P) = 8.8419 W/m**2

Sa

= 0.8842 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 = P = 4.4210 W/m**2

Sa

= 0.4421 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	4.5032	Complies with ANSI
2.	Near Zone	3.9390	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.1158	Complies with ANSI
5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.5032	Complies with ANSI
2.	Near Zone	-0.0610	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	0.1158	Complies with ANSI
5.	Main Reflector to Ground	0.5579	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.

Micronet Communications, Inc.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: N1909812 5.93 GHz Licensee: Alaska Communications Internet, LLC

Licensee: Alaska Communications Internet, LLC Page 1

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:

Trident Akutan, 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:

04/16/2019 Original PCN (Expedited response requested by 04/30/2019)

There were no unresolved interference objections.

05/2/2019 Major Mod (Expedited response requested by 05/06/2019)

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:

(No licensees within range)

Respectfully Submitted,

Jeremy Boyce Systems Engineer

Attached: 1 data sheet

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

File: N1909812

TECHNICAL CHARACTERIST			
			=======================================
Company: Site Name, State:	Alaska Commur Trident Akuta		ternet, LLC
Call Sign:	E170205		
Latitude	(NAD83)	54 7	59.3 N
Longitude	(NAD83)	165 47	22.1 W
Elevation AMSL	/ C . / \	1000	E E0
Receive Frequency Range	(MHz)	18.96 3700-4200	
Transmit Frequency Range	(MHz)	5925-6425	
Range of Satellite Orbital Long	. (deg W)	114.00	116.00
Range of Azimuths from North	(deg)	122.54	124.41
Antenna Centerline	(ft/m)	20.01	6.10
Antenna Elevation Angles	(deg)	20.01 12.78	13.80
Equipment Parameters		Receive	Transmit
Antenna Gain, Main Beam 15 DB Half Beamwidth	(dbI) (deg)		
Antennas Receive: GENERAI Transmit: GENERAI			
Max Transmitter Power	(dhw/Akur)		-9.46
Max EIRP Main Beam	(dbW/4KHz)		32.54
Modulation / Emission Designator			
			JG / W
Coordination Parameters		Receive	Transmit
Max Greater Circle Distances Max Rain Scatter Distances Max Interference Power Long Terr	(km) m (dbW)	376.27 -158.60	100.00 -154.80
Max Interference Power Short Ter Rain Zone / Radio Zone	rm (dbW)	-149.90 3	-130.80 A

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Trident Akutan State: AK

Latitude: 54 7 59.3 Longitude: 165 47 22.1 (NAD83) 05-02-2019

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:

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) = 42.0000 dBi = 15848.9319

Power Ratio:
AntiLog(GES/10)

pi = 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

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) =
$$D^{**2}$$
 = 29.6907 m = $4*lambda$ Near Zone Power Density (Rn) = $16.0(n)P$ = $21.2207 W/m**2$ = $2.1221 mW/cm**2$

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 = 2(P) = 17.6839 W/m**2

----Sa

= 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 = P = 8.8419 W/m**2

Sa

= 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	4.0065	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	0.0065	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.

Micronet Communications, Inc.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: R1909812 5.93 GHz Licensee: Alaska Communications Internet, LLC

Licensee: Alaska Communications Internet, LLC Page 1

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:

Trident Sand Point, 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:

04/16/2019 Original PCN (Expedited response requested by 04/30/2019)

There were no unresolved interference objections.

05/2/2019 Major Mod (Expedited response requested by 05/06/2019)

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:

(No licensees within range)

Respectfully Submitted,

Jeremy Boyce Systems Engineer

Attached: 1 data sheet

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

File: R1909812

TEGUNICAL GUADAGERTO			
TECHNICAL CHARACTERIS			-
Company: Site Name, State: Call Sign:	Alaska Commun Trident Sand E170205		ternet, LLC
Latitude Longitude Elevation AMSL Receive Frequency Range	(NAD83) (NAD83) (ft/m) (MHz)		8.3 W
Transmit Frequency Range Range of Satellite Orbital Long Range of Azimuths from North Antenna Centerline	. (deg W)	114.00 127.97	116.00 129.93
Antenna Elevation Angles	(deg)	14.65	
Equipment Parameters		Receive	Transmit
Antenna Gain, Main Beam 15 DB Half Beamwidth	(dbI) (deg)	38.00 2.45	42.00 1.65
Antennas Receive: GENERA Transmit: GENERA			
Max Transmitter Power Max EIRP Main Beam Modulation / Emission Designato	(dbW/4KHz) (dbW/4KHz) r DIGITAL	5M60G7W 72M0	-9.46 32.54 OG7W
Coordination Parameters		Receive	Transmit
Max Greater Circle Distances Max Rain Scatter Distances Max Interference Power Long Ter Max Interference Power Short Te Rain Zone / Radio Zone	(km) m (dbW)	439.61 372.18 -158.60 -149.90	

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Trident Sand Point State: AK
Latitude: 55 20 10.9 Longitude: 160 30 8.3 (NAD83)
05-02-2019

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:

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) = 42.0000 dBi = 15848.9319

Power Ratio:
AntiLog(GES/10)

pi = 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

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) =
$$D^{**2}$$
 = 29.6907 m = $4*lambda$ Near Zone Power Density (Rn) = $16.0(n)P$ = $21.2207 W/m**2$ = $2.1221 mW/cm**2$

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 = 2(P) = 17.6839 W/m**2

----Sa

= 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 = P = 8.8419 W/m**2

Sa

= 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	4.0065	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	0.0065	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.

Micronet Communications, Inc.

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

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: T1909812 5.93 GHz Licensee: Alaska Communications Internet, LLC

Licensee: Alaska Communications Internet, LLC Page 1

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:

Pebble Mine Illiamna, 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:

04/16/2019 Original PCN (Expedited response requested by 04/30/2019)
There were no unresolved interference objections.

05/02/2019 Major Mod (Expedited response requested by 05/06/2019)
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
NUSHAGAK ELECTRIC AND TELEPHONE COOPERATIVE INC.
RADIO DYNAMICS
UNITED UTILITIES, INC.
WIRELESS APPLICATIONS CORP

Respectfully Submitted,

Jeremy Boyce Systems Engineer

Attached: 1 data sheet

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

File: T1909812

TECHNICAL CHARACTERIST	TICS OF TRANS	MIT RECEIVE I	EARTH STATION	
=======================================	========	========	=========	
Commonwell	Alaska Cammu	niantiana Tad	harmah IIG	
Company:	Alaska Commu		ternet, LLC	
Site Name, State:	Pebble Mine	IIIIamna, AK		
Call Sign:	E170205	F0 4F	06.0.37	
Latitude		59 45		
Longitude		154 54	22.8 W	
Elevation AMSL	(ft/m)	150.07 3700-4200	45.74	
Receive Frequency Range	(MHz)	3700-4200		
Transmit Frequency Range				
Range of Satellite Orbital Long.	_			
	(deg)	134.92	136.95	
Antenna Centerline	(ft/m)	5.91	1.80	
Antenna Elevation Angles	(deg)	5.91 13.95	14.68	
Equipment Parameters		Receive	Transmit	
Antenna Gain, Main Beam				
15 DB Half Beamwidth	(deg)	2.45	1.65	
		44 (0 4)		
Antennas Receive: GENERAI				
Transmit: GENERAI	_ DYNAMICS 12	41 (2.4M)		
Max Transmitter Power	(dbW/4KHz)		-12.46	
Max EIRP Main Beam			29.54	
Modulation / Emission Designator				
Coordination Parameters		Receive	Transmit	
Max Greater Circle Distances				
Max Rain Scatter Distances				
Max Interference Power Long Term				
Max Interference Power Short Ter	cm (dbW)	-149.90	-130.80	
Rain Zone / Radio Zone		3	A	

ANALYSIS OF NON-IONIZING RADIATION for Alaska Communications Internet LLC

Site: Pebble Mine Illiamna State: AK
Latitude: 59 45 25.9 Longitude: 154 54 22.8 (NAD83)
05-02-2019

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:

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) = 20.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319

Power Ratio: AntiLog(GES/10)

pi = 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

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

= 0.4968 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) =
$$D^*2$$
 = 29.6907 m = $4*lambda$ Near Zone Power Density (Rn) = $16.0(n)P$ = $10.6103 W/m**2$ = $1.0610 mW/cm**2$

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 =

2(P) = 8.8419 W/m**2

Sa

= 0.8842 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 = P = 4.4210 W/m**2

Sa

= 0.4421 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	4.5032	Complies with ANSI
2.	Near Zone	3.9390	Complies with ANSI
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	4.1158	Complies with ANSI
5.	Main Reflector to Ground	4.5579	Complies with ANSI

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

	Zones	Safety Margins (mW/cm**2)	Conclusions
1.	Far Zone	0.5032	Complies with ANSI
2.	Near Zone	-0.0610	POTENTIALLY HAZARDOUS
3.	Transition Zone	Rf < Rt < Rn	Complies with ANSI
4.	Main Reflector Surface	0.1158	Complies with ANSI
5.	Main Reflector to Ground	0.5579	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.