60-Day Special Temporary Authorization Application Alaska Communications Internet LLC

Technical Appendix

- I. Frequency Coordination Report
- **II. Radiation Hazard Analysis**
- III. Draft FCC Form 312 Schedule B

I. Frequency Coordination Report

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

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:

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,

Jeremy B. Lemis

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 CHARACTERISTICS OF TRANSMIT RECEIVE EARTH STATION

		nications Inte alse Pas, AK	ernet, LLC	
Latitude Longitude Elevation AMSL Receive Frequency Range	(NAD83) (NAD83) (ft/m) (MHz)	54 51 163 24 11.00 3700-4200	10 0 101	
Transmit Frequency Range Range of Satellite Orbital Long.	(MHz) (deg W)	5925-6425	116.00	
Antenna Elevation Angles	(deg)	13.55		
Equipment Parameters		Receive		
Antenna Gain, Main Beam 15 DB Half Beamwidth		42.00 1.40		
Antennas Receive: PRODELI Transmit: PRODELI				
Max Transmitter Power Max EIRP Main Beam Modulation / Emission Designator		2M80G7W 72M00	-17.08 29.12 G7W	
Coordination Parameters		Receive	Transmit	
Max Greater Circle Distances Max Rain Scatter Distances Max Interference Power Long Term Max Interference Power Short Ter Rain Zone / Radio Zone	(km) (dbW)	374.45 -158.60	100.00 -154.80	

II. Radiation Hazard Analysis

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 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)
pi	= 3.1415927
Antenna Aperture Efficiency (n)	= 0.6000

1. FAR ZONE CALCULATIONS

Distance to the Far Zone	(Df) =	(n)(D**2) lambda	= 178.6392 m
Far Zone Power Density	(Rf) =	(GES) (P)	= 1.0395 W/m**2
		4*pi*(Df**2)	= 0.1040 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 4*lambda	= 74.4330 m
Near Zone Power Density	(Rn) =	16.0(n)P pi(D**2)	= 2.1162 W/m**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

Main Reflector	Power Density	=	2(P)	= 1.7635 W/m**2
			Sa	
				= 0.1763 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	= 0.8817 W/m**2
		Sa	
			$= 0.0882 \text{ mW/cm}^{*2}$

CALCULATED SAFETY MARGINS SUMMARY AND EVALUATION

C	Controlled Safety Margin = 5.0 - Calculated Zone Value (mW/cm**2)										
	Zones	Safety Margins (mW/cm**2)	Conclusions								
	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								
 U		= 1.0 - Calcul	lated Zone Value (mW/cm**2)								
	Zones	Safety Margins (mW/cm**2)	Conclusions								
1.	Far Zone	0.8960									
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.

Date & Time Filed: File Number: ---

FCC .	FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD - MAIN FORM FCC Use Only										
	FCC 312 MAIN FC	ORM FOR OFFICIAL USE ON	LY								
	ANT INFORMATION										
	Enter a description of this application to identify it on the main menu: Modification to Add a VSAT Network Site										
1-8. Legal I	1-8. Legal Name of Applicant										
Name:	Alaska Communications Int	ernet, LLC	Phone Nu	mber: 907	-297-3000						
DBA Name:			Fax Numb	er: 907	-297-3153						
Street:	600 Telephone Avenue		E-Mail:	Lisa	a.Phillips@acsalaska.com						
	MS #60										
City:	Anchorage		State:	AK							
Country:	USA		Zipcode:	905	03 -						
Attention:	Ms Lisa Phillips										
9-16. Name	e of Contact Representative										
Name:	Richard Cameron	Phone Number:		2022304962							
	LMI Advisors	Fax Number:									
Street:	2550 M Street NW	E-Mail:		rcameron@lm	liadvisors.com						
	Suite 343	_		2.0							
City:	Washington	State:		DC							
Country:	USA	Zipcode:									
	Mr. Richard Cameron	Relationship:		Other							
lr	FICATION OF FILING										
that applies and b. Choo for 17b.	the button next to the classification to this filing for both questions a. ose only one for 17a and only one th Station ce Station	 (N/A) b1. Application for License of New Station (N/A) b2. Application for Registration of New Domestic Receive-Only Station b3. Amendment to a Pending Application b4. Modification of License or Registration b5. Assignment of License or Registration b6. Transfer of Control of License or Registration b7. Notification of Minor Modification (N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite (N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States 									
		(N/A) b10. Other (Please specify	/) h Station to A	Access a Non-U.S	satellite Not Currently Authorized to Provide.						
	e submitted with this application? complete and attach FCC Form 159.										
Govern	If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114). Governmental Entity Noncommercial educational licensee Other(please explain):										
17d. Fee Class	sification CGX - Fixed Satell	ite Transmit/Receive Earth	Station								
18. If this f station, ent	filing is in reference to an existing er:	19. If this filing is an amendmer please enter only the file numbe		ng application ent	er both fields, if this filing is a modification						
(a) Call sig E170205	n of station:	(a) Date pending application wa	s filed:	(b) File	e number:						
				SESN	4OD2018062601472						

TYPE OF SERVICE								
20. NATURE OF SERVICE: This filing is for an authorization to provide or us	the following type(s) of service(s): Select all that apply:							
✓ a. Fixed Satellite								
b. Mobile Satellite								
c. Radiodetermination Satellite								
d. Earth Exploration Satellite								
e. Direct to Home Fixed Satellite								
f. Digital Audio Radio Service								
g. Other (please specify)								
21. STATUS: Choose the button next to the applicable status. Choose only	22. If earth station applicant, check all that apply.							
one.	Using U.S. licensed satellites							
Common Carrier Non-Common Carrier	✓ Using Non-U.S. licensed satellites							
23. If applicant is providng INTERNATIONAL COMMON CARRIER service	e, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:							
Connected to a Public Switched Network Not connected to a Public Sw								
24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable ✓ a. C-Band (4/6 GHz) _ b. Ku-Band (12/14 GHz)	frequency band(s).							
C.Other (Please specify upper and lower frequencies in MHz.)								
Frequency Lower: Frequency Upper: (Please specify additional frequence	ncies in an attachment)							
	STATION							
25. CLASS OF STATION: Choose the button next to the class of station that a	pplies. Choose only one.							
a. Fixed Earth Station								
O b. Temporary-Fixed Earth Station								
🔘 c. 12/14 GHz VSAT Network								
d. Mobile Earth Station								
e. Geostationary Space Station								
f. Non-Geostationary Space Station								
g. Other (please specify)								
26. TYPE OF EARTH STATION FACILITY:								
Transmit/Receive 🔿 Transmit-Only 🔿 Receive-Only 🔿 N	/A							
"For Space Station applications, select N/A."								
PURPOSE OF N	AODIFICATION							
27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)							
a authorization to add new emission designator and related service								
b authorization to change emission designator and related service								
c authorization to increase EIRP and EIRP density								
d authorization to replace antenna								
e authorization to add antenna								
f authorization to relocate fixed station								
\Box g authorization to change frequency(ies)								
 b authorization to add frequency 								
☐ i authorization to add Points of Communication (satellites & countries)								
□ j authorization to change Points of Communication (satellites & countri	es)							
\square k authorization for facilities for which environmental assessment and								
radiation hazard reporting is required								
□ 1 authorization to change orbit location								
m authorization to perform fleet management								
n authorization to extend milestones								
o Other (Please specify)								
ENVIRONME	NTAL POLICY							
28. Would a Commission grant of any proposal in this application or amendme defined by 47 CFR 1.1307? If YES, submit the statement as required by Sector								

rules, 47 C.F.R. 1.1308 and 1.1311, as an exhibit to this application.<u>A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.</u>

ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government?

🔵 Yes 💿 No

30. Is the applicant an alien or the representative of an alien?	Yes No N/A
31. Is the applicant a corporation organized under the laws of any foreign government?	Yes No N/A
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	Ves No N/A
33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	Ves No N/A
34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.	
BASIC QUALIFICATIONS	
35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	• Yes 🔿 No
36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explination of circumstances.	🔿 Yes 💿 No
37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explination of circumstances.	🔿 Yes 💿 No
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of circumstances	🔿 Yes 💿 No
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhinit, an explanation of the circumstances.	🔿 Yes 💿 No
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.	
41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.	• Yes 🔿 No
42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43.	• Yes 🔿 No
42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what add is in the process of coordinating the space station? Mexico	ministration has coordinated or
43. Description. (Summarize the nature of the application and the services to be provided). Modification to add a new s Network	ite to the C-band VSAT
43a. Geographic Service Rule Certification By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.	• A
By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.	ОВ
By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.	O C

CERTIFICATION

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The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the

	es that all statements made in this app and are made in good faith.	lication and in all attached o	exhibits are true, complete and correct	to the best	of his or	her		
	(Choose the button next to applicable	response.)						
O Individual								
 Unincorporated A 	ssociation							
O Partnership								
Corporation								
Governmental Ent	lity							
• Other (please spec	cify)							
45. Name of Person Si Rick Benken	gning	46. Title VP	of Person Signing					
	L FALSE STATEMENTS MADE O (U.S. Code, Title 18, Section 1001), (U.S. Code, Title 47, Section 312(a	AND/OR REVOCATION		TION	/IENT			
			AUTHORIZATIONS nd Operational Descript	ion)				
	н	OR OFFICIAL USE	ONLY					
	r	OK OFFICIAL USE	ONLI					
Location of Earth Static	on Site							
E1: Site Identifier:	SilverBay False Pass	E5. Call Sign:						
E2: Contact Name	Greg Tooke	E6. Phone Number:	(907) 550-8364					
E3. Street:	N/A	E7. City:	False Pass					
		E8. County:	Aleutians East Boroug	h				
E4. State	AK	E9. Zip Code	99583	,				
E10. Area of Operation		AK						
E11. Latitude:	54 ° 51 ' 54.0 " N							
E12. Longitude:	163 ° 24 ' 42.2 " W							
E13. Lat/Lon Coordina		NAD-27	• NAD-83		C	N/A		
E14. Site Elevation (Al		3.35 meters			0	14/14		
antenna(s) comply with qualification measurement	tenna(s) operate in the Fixed Satellite the antenna gain patterns specified in ent? If NO, provide as a technical anal	Service (FSS) with geostatic Section 25.209(a) and (b) a ysis showing compliance w	s demonstrated by the manufacturer's ith two-degree spacing policy.	OYes	No	○N/A		
Service (FSS) with non-	tenna(s) do not operate in the Fixed Sa geostationary satellites, do(es) the pro- 209(a2) and (b) as demonstrated by the	posed antenna(s) comply w	vith the antenna gain patterns	⊖Yes	○No	• N/A		
E17. Is the facility oper	ated by remote control? If YES, provid	de the location and telephor	ne number of the control point.	O Yes	۲	No		
E18. Is frequency c Freq Coord	oordination required? If YES,	attach a frequency coo	rdination report as FalsePass	• Yes	0	No		
E19. Is coordination plot of coordination	n with another country required a contours as	1? If YES, attach the n	ame of the country(ies) and	○ Yes	۲	No		
notification is requ FAA's study regar FAILURE TO CO	E20. FAA Notification - (See 47 CFR Part 17 and 47 CFR part 25.113(c)) Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and/or the FAA's study regarding the potential hazard of the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.							
POINTS OF COMMU								
Satellite Name:EU' following:	TELSAT115WB(S2938) EUT	ELSAT 115 WB 114	.9 W.L. If you selected OTHEI	R, please	enter th	e		
E21. Common Nan	ne:		E22. ITU Name:					
E23. Orbit Location	n:		E24. Country:					
25. Orbit Location.								

POINTS OF COMMUNICATION (Destination Points)

E25. Site Identifier:

E26. Common Name:

E27. Country:

ANTENNA																	
Site I	D Ant	28. tenna Id	E29 Quan		E30. Manufacti	ırer	E31 Mod		E32 Anten Size	na	E41/42. Anten Recieve(_						
SilverBay False Pas		Т	1	-	Prodelin	/	2385	3.8	8		46.2	dBi at 5965	t 5965				
Antenna Linen/Maion(motors)		G	5. Above Fround el(meters)	Leve	Sea	motors) Ground		ove Input Powe at antenna		er Antenna Height			EI carr	40. Total RP for al iers(dBW)			
	0.0/0.0			3.0		3.35			0.0			10.0	0.0	0		49.42	2
FREQUEN	11													-			
	Antenna Frequency T/R E46. Antenna Emission F		E48. MaximumE49. Maximum IEIRP perDensity perCarrier(dBW)Carrier(dBW/44)				r 🛛										
VSAT	3700 4200	0	R	Ho	orizontal			72M	0G7W	/ 0	.0			0.0			
E50. Moc	dulation an	d Servi	ices Mo	dula	tion and Se	ervice	s Dig	ital									
VSAT	5925 6425	5	Т	Ve	ertical			2M8	0G7W	/ 4	9.42			29.12			
E50. Mod	lulation an	d Servi	ices Mo	dula	tion and Se	ervice	s Dig	ital									
FREQUEN	CY COORD	INATIO	DN														
E28. Antenna Id	Orbit Ty	pe Li	E52/5 Freque imits(N	ency of Satellite Arc		ge rc ern	Station AzimuthEAngle EasternI		E57. Antenna Elevation Angle Eastern Limit		E58. Earth Station Azimuth Angle Western Limit	Angle Wostorn		n EIRP Density toward the		ensity l the	
VSAT	Geostation	nary 37	700 420	0	114.0/116	.0	12	25.02	1	13.55		126.93	14.52		0.0		
	Geostation				114.0/116	.0	12	25.02	1	13.55		126.93	14.52		-62.91		
	CONTROL	POINT	LOCAT	ION													
E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.																	
E62. Street	Audress																
E63. City							E68.	Count	ty					E67/68. State/Cou /	ntry	E6	4. Zip Code

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