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July 16, 2007

Mr. Bill Buttrum
Federal Aviation Administration
222 West 7th Avenue
Anchorage, Ak

Re: Detailed Interference Analysis Report
Nikolski, Alaska
C-Band Transmit-Receive Earth Stations

Dear Mr. Buttrum,

Enclosed please find the detailed interference analysis for the above referenced transmit-receive earth station.

Based on the results of the detailed interference analysis, it is recommended that this site be coordinated with the common carriers as the first step toward FCC licensing.

If you have any questions, please call me at (703) 726-5665.

Sincerely,

Timothy O. Crutcher
Senior Frequency Coordinator
Microwave and Satellite Services

Enclosure

DETAILED INTERFERENCE ANALYSIS REPORT

Transmit-Receive Earth Station

Prepared For

Federal Aviation Administration
Nikolski, Alaska

July 16, 2007

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SECTION 1

INTRODUCTION

Transmit-Receive Earth Station

This report presents the results of a detailed interference analysis for a proposed C-band transmit-receive earth station. The site was selected by the Federal Aviation Administration and is located in Nikolski, Alaska.

The analysis presented in this report is based upon the following:

- Scientific-Atlanta Corp. 4.5 Meter Antenna Model 8345
- Satellite Arc: 103.8 to 194.0 Degrees West Longitude
- Interference Objective: -154 dBW at 6 GHz
-156 dBW at 4 GHz
- Antenna Centerline 10 Feet
- Antenna Uplink Power: -14.3 dBW/4 kHz
- Frequency Band: 5925.00 - 6425.00 MHz (Uplink)
3700.00 - 4200.00 MHz (Downlink)

This detailed interference analysis is meant to provide an overview of potential interference at this location, and to recommend a course of future action.

It should be noted that this interference analysis will identify potential 4 GHz interference into the proposed earth station from terrestrial interference. This analysis does not predict interference into, your earth station from, out of band interference. Over the past several years interference from PCS base stations, aircraft radio altimeters, government shipboard and airborne radars have been identified as interfering sources into receive earth station antennas.

SECTION 2

REPORT CONTENTS AND PROCEDURES

Transmit-Receive Earth Station

This section describes the contents of the report for a proposed C-band transmit-receive earth station.

Section 1 describes the site location, the antenna considered, and the system parameters considered in the detailed interference analysis. The analysis was undertaken to determine the potential for microwave interference for the transmit-receive earth station at the site specified.

Initially, a computer analysis of this site was performed to determine the extent of potential interference on a line-of-sight (LOS) basis. This analysis considers the microwave environment with respect to the earth station and calculates predicted signal levels between these systems. Paths, which exceed a given objective level, are listed for further analysis. The objective levels present the maximum interference levels allowed between the earth station and the surrounding terrestrial microwave environment for the frequency band of interest.

To further analyze the effect of the predicted interference conflicts, terrain path profiles were prepared for the critical cases. This involves identifying potential terrain blockage via digitized USGS terrain data between the proposed earth station and the potential interference source. Once this has been accomplished, predicted over-the-horizon (O-H) losses are calculated using the techniques of the National Bureau of Standards Technical Note 101 (Revised).

These calculations give the amount of signal attenuation achieved due to terrain blockage.

Section 3 summarizes the results of the site analysis. This summary includes the number of cases that were considered, the interference cases that remain, and the proposed resolution of the interference problems.

Section 4 presents summary and recommendations. It gives an overall description of the microwave environment and suggests a future course of action.

Table 5.1-1 contains the operational parameters for the proposed earth station.

Table 5.1-2 provides azimuth and elevation data for the geostationary arc, and identifies the locations of particular satellites within that arc.

Figure 5.1-1 indicates the location of the site analyzed. This location should be verified. **If it is not the desired site, Comsearch should be notified immediately so that the precise location can be analyzed.**

SECTION 3

SUMMARY AND RESULTS

Transmit Band 5925 - 6425 MHz

The detailed interference analysis for the proposed earth station site to be located in Nikolski, Alaska identified no cases of potential 6 GHz interference that exceeded the -154 long term objective.

Receive Band 3700 - 4200 MHz

The detailed interference analysis for the proposed earth station site to be located in Nikolski, Alaska identified no cases of potential 4 GHz interference that exceeded the -156 long term objective.

SECTION 4

CONCLUSION AND RECOMMENDATIONS

Conclusions

Transmit Band 5925 - 6425 MHz

The detailed interference analysis for the proposed earth station site to be located in Nikolski, Alaska identified no cases of potential 6 GHz interference that exceeded the -154 long term objective.

Receive Band 3700 - 4200 MHz

The detailed interference analysis for the proposed earth station site to be located in Nikolski, Alaska identified no cases of potential 4 GHz interference that exceeded the -156 long term objective.

Recommendations

Based on the results of the detailed interference analysis, it is recommended that this site be coordinated with the common carriers as the first step toward FCC licensing.

TABLE 5.1-1

SATELLITE EARTH STATION DATA
06/27/2007

Company	FEDERAL AVIATION ADMINISTRATION
Earth Station Name, State	NIKOLSKI, AK
Latitude (DMS) (NAD83)	52 56 24.0 N
Longitude (DMS) (NAD83)	168 51 32.0 W
Ground Elevation AMSL (Ft/m)	46.00 / 14.02
Antenna Centerline AGL (Ft/m)	10.00 / 3.05
Receive Antenna Type:	SCIENTIFIC-ATLANTA 8345
4.0 GHz Gain (dBi) / Diameter (m)	43.3 / 4.5
3 dB / 15 dB Half Beamwidth	1.0 / 2.0
Transmit Antenna Type:	SCIENTIFIC-ATLANTA 8345
6.0 GHz Gain (dBi) / Diameter (m)	47.0 / 4.5
3 dB / 15 dB Half Beamwidth	0.5 / 1.0
Operating Mode	TRANSMIT AND RECEIVE
Modulation	DIGITAL
Emission / Receive Band (MHz)	89K6G7W / 3700.00 - 4200.00
Emission / Transmit Band (MHz)	89K6G7W / 5925.00 - 6425.00
Max. Available RF Power (dBW)/4 kHz	-14.30
(dBW)/MHz	9.70
Max. EIRP (dBW)/4 kHz	32.70
(dBW)/MHz	56.70
Max. Permissible Interference Power	
4.0 GHz, 20% (dBW/1 MHz)	-156.0
4.0 GHz, 0.0100% (dBW/1 MHz)	-146.0
6.0 GHz, 20% (dBW/4 kHz)	-154.0
6.0 GHz, 0.0025% (dBW/4 kHz)	-131.0
Range of Satellite Arc (Geostationary)	
Degrees Longitude	103.8 W / 194.0 W
Azimuth Range (Min/Max)	110.4 / 210.5
Corresponding Elevation Angles	6.1 / 25.2
Radio Climate	B
Rain Zone	2
Max. Great Circle Coordination Distance (Mi/Km)	
4.0 GHz	325.7 / 524.2
6.0 GHz	132.0 / 212.4
Precipitation Scatter Contour Radius (Mi/Km)	
4.0 GHz	371.3 / 597.6
6.0 GHz	62.1 / 100.0

TABLE 5.1-2

Earth Station Azimuth and Elevation Table

Earth Station Name	NIKOLSKI, AK
Owner	FEDERAL AVIATION ADMINISTRATION
Latitude (DMS) (NAD83)	52 56 24.0 N
Longitude (DMS) (NAD83)	168 51 32.0 W
Ground Elevation (Ft/m)	46.00 / 14.02 AMSL
Antenna Centerline (Ft/m)	10.00 / 3.05 AGL
Satellite Arc Range	103.8 N / 194.0 W

Satellite Longitude	Azimuth (Degrees)	Elevation (Degrees)	Satellite Name
103.8	110.4	6.1	
104.8	111.2	6.6	
105.0	111.4	6.8	AMC 18
105.8	112.1	7.2	
106.8	112.9	7.8	
107.3	113.4	8.1	ANIK F1
107.3	113.4	8.1	ANIK F1R
107.8	113.8	8.3	
108.8	114.7	8.9	
109.0	114.9	9.0	WILDBLUE 1
109.8	115.6	9.5	
110.8	116.5	10.0	
111.1	116.7	10.2	ANIK F2
111.8	117.3	10.6	
112.8	118.2	11.1	
113.0	118.4	11.2	SATMEX 6
113.8	119.1	11.7	
114.8	120.1	12.2	
114.9	120.1	12.3	SOLIDARIDAD
115.0	120.2	12.3	XM 4
115.8	121.0	12.8	
116.8	121.9	13.3	SATMEX 5
117.8	122.8	13.8	
118.8	123.8	14.3	
119.8	124.7	14.9	
120.8	125.6	15.4	
121.0	125.8	15.5	GALAXY 23
121.0	125.8	15.5	ECHOSTAR 9
121.8	126.6	15.9	
122.8	127.6	16.4	
123.0	127.8	16.5	GALAXY 10R
123.8	128.5	16.9	
124.8	129.5	17.4	
125.0	129.7	17.5	GALAXY 14
125.8	130.5	17.8	
126.8	131.5	18.3	
127.0	131.7	18.4	GALAXY 13
127.0	131.7	18.4	HORIZONS 1
127.8	132.5	18.8	
128.8	133.5	19.3	
129.0	133.7	19.4	GALAXY 27
129.8	134.5	19.7	
130.8	135.5	20.2	
131.0	135.8	20.3	AMC 11

TABLE 5.1-2 (Cont)

Earth Station Azimuth and Elevation Table
06/27/2007

Earth Station Name	NIKOLSKI, AK
Owner	FEDERAL AVIATION ADMINISTRATION
Latitude (DMS) (NAD83)	52 56 24.0 N
Longitude (DMS) (NAD83)	168 51 32.0 W
Ground Elevation (Ft/m)	46.00 / 14.02 AMSL
Antenna Centerline (Ft/m)	10.00 / 3.05 AGL
Satellite Arc Range	103.8 N / 194.0 W

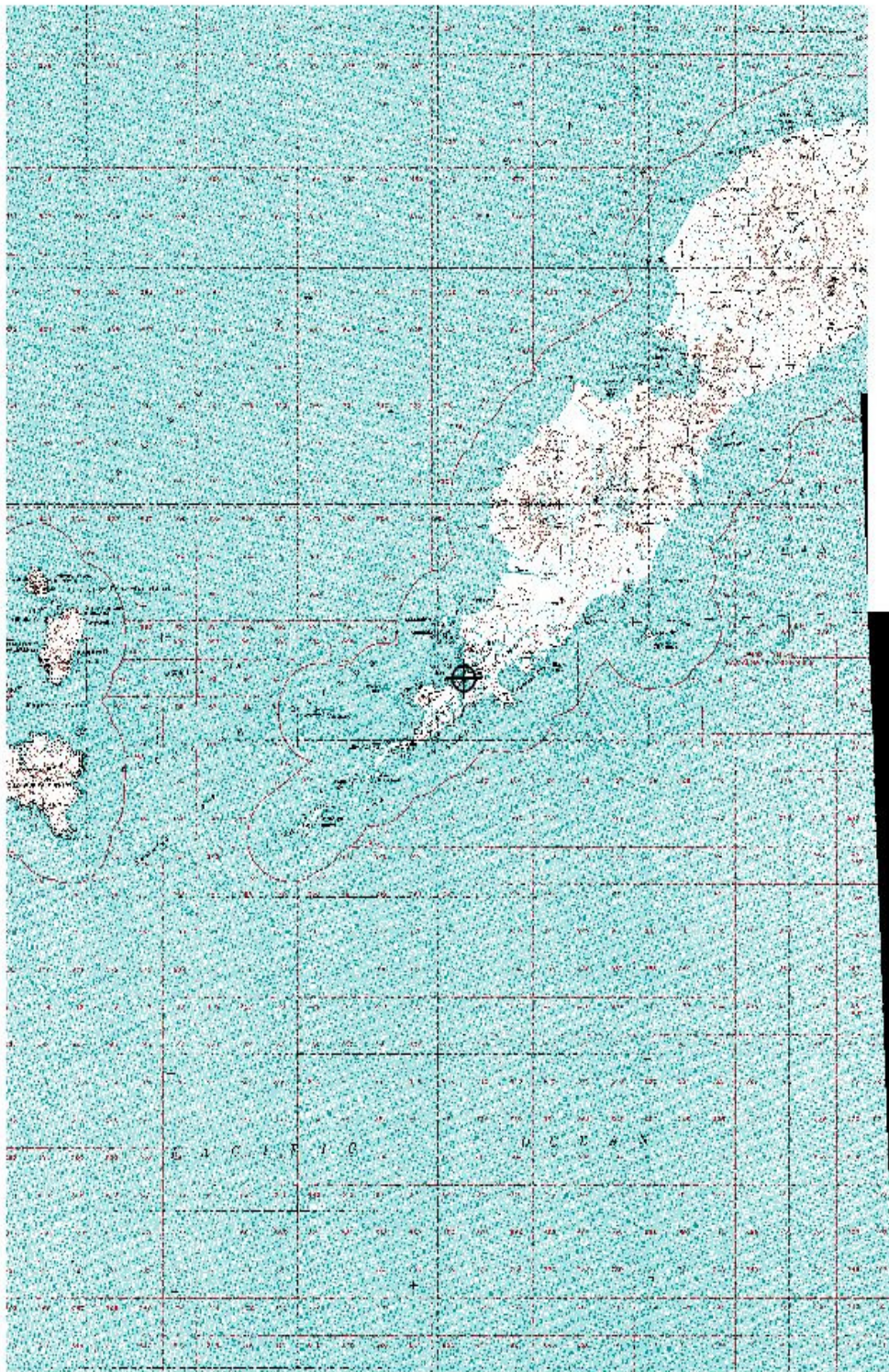
Satellite Longitude	Azimuth (Degrees)	Elevation (Degrees)	Satellite Name
131.8	136.6	20.6	
132.8	137.6	21.0	
133.0	137.8	21.1	GALAXY 15
133.8	138.7	21.5	
134.8	139.7	21.9	
135.0	139.9	22.0	AMC 10
135.8	140.8	22.3	
136.8	141.9	22.7	
137.0	142.1	22.8	AMC 7
137.8	143.0	23.1	
138.8	144.1	23.5	
139.0	144.3	23.5	AMC 8
139.8	145.2	23.8	
140.8	146.3	24.2	
141.8	147.4	24.6	
142.8	148.5	24.9	
143.8	149.6	25.2	
144.8	150.8	25.5	
145.8	151.9	25.9	
146.8	153.1	26.2	
147.8	154.2	26.4	
148.8	155.4	26.7	
149.8	156.6	27.0	
150.8	157.8	27.2	
151.8	159.0	27.5	
152.8	160.2	27.7	
153.8	161.4	27.9	
154.8	162.6	28.1	
155.8	163.8	28.3	
156.8	165.0	28.5	
157.8	166.2	28.6	
158.8	167.5	28.8	
159.8	168.7	28.9	
160.8	169.9	29.0	
161.8	171.2	29.1	
162.8	172.4	29.2	
163.8	173.7	29.3	
164.8	174.9	29.4	
165.8	176.2	29.4	
166.8	177.4	29.5	
167.8	178.7	29.5	
168.8	179.9	29.5	

TABLE 5.1-2 (Cont)

Earth Station Azimuth and Elevation Table
06/27/2007

Earth Station Name	NIKOLSKI, AK
Owner	FEDERAL AVIATION ADMINISTRATION
Latitude (DMS) (NAD83)	52 56 24.0 N
Longitude (DMS) (NAD83)	168 51 32.0 W
Ground Elevation (Ft/m)	46.00 / 14.02 AMSL
Antenna Centerline (Ft/m)	10.00 / 3.05 AGL
Satellite Arc Range	103.8 N / 194.0 W

Satellite Longitude	Azimuth (Degrees)	Elevation (Degrees)	Satellite Name
169.8	181.2	29.5	
170.8	182.4	29.5	
171.8	183.7	29.4	
172.8	184.9	29.4	
173.8	186.2	29.3	
174.8	187.4	29.2	
175.8	188.7	29.2	
176.8	189.9	29.0	
177.0	190.2	29.0	NSS 5
177.8	191.2	28.9	
178.8	192.4	28.8	
179.8	193.6	28.7	
180.0	193.9	28.6	INTELSAT 701
180.8	194.8	28.5	
181.8	196.1	28.3	
182.8	197.3	28.1	
183.8	198.5	27.9	
184.8	199.7	27.7	
185.8	200.9	27.5	
186.8	202.1	27.3	
187.8	203.3	27.0	
188.0	203.5	27.0	AMC 23
188.8	204.4	26.7	
189.8	205.6	26.5	
190.8	206.8	26.2	
191.0	207.0	26.1	INTELSAT 2
191.8	207.9	25.9	
192.8	209.1	25.6	
193.8	210.2	25.3	
194.0	210.5	25.2	INTELSAT 8



Nikolski, Alaska
Latitude (DMS): 52-56-24 N.
Longitude (DMS): 168-51-32 W.

Figure 5.1-1

