Exhibit F

Interference Analysis Report

An Assessment of the Impact of Radiolocation Systems Operating in 3.1-3.7 GHz Band on Fixed Satellite Services Earth Station Receiver

Prepared for

Intelsat License, LLC

TRANSMIT-RECEIVE EARTH STATION (15.2 METER)

FCC CALL SIGN: KA262

Site Name: Hagerstown, Maryland

Prepared By

COMSEARCH

January 7, 2011

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1.0 Introduction

Interference calculations were performed to determine the potential for in-band and out-of-band interference from Radiolocation Systems operating in the 3.1 to 3.7 GHz band[1]. The geographical positions and operating parameters of these systems was derived from NTIA Document TR-99-361[2].

2.0 Radiolocation Systems in the 3.1 – 3.7 GHz Band

High powered mobile and fixed radar systems operated by the Federal Government operate in the 3.1 – 3.7 GHz band. These radars are used to search for and track near-surface and high-altitude airborne projectiles, sea surveillance, and airborne objects. The NTIA report referenced above has identified the locations for two types of systems: land-based and shipboard based. Also included in the report are the operating characteristics of these radars. There are two prevalent types of shipboard radars, denoted as type A and Type B, and one type of ground-based radar. An Airborne System radar is also specified. This analysis will concern itself with interference from the ground based and shipboard based radars based upon the relative operating positions and parameters specified in the NTIA report.

A summary of the operating parameters for the shipboard and ground based radar systems is shown below:

Table 1 – Technical Characteristics of 3.1-3.7 GHz Radiolocation Systems

Characteristic	Shipboard System A	Shipboard System B	Ground Based System
Modulation	P0N	Q7N	P0N
Tuning Range (GHz)	3.5-3.7	3.1-3.5	3.1-3.4
Peak transmit Power (MW)	1	4	0.12
Pulse Width (μsec.)	1.0	3.5-51.2	10.75
Pulse Repetition Rate (kHz)	1.125	0.152-6.0	2793.3-5050.51
Duty Cycle (%)	0.001	0.8-2.0	0.041
Transmit 3-dB Bandwidth (MHz)	4,16.6	4	1,10
Antenna Type	Reflector	Phased Array	Phase Scan Array
Antenna Mainbeam Gain (dBi)	32	42	36
Antenna Centerline (m)	46	20	46

[1] This report is being provided as required under Footnote US 245.

[2] National Telecommunications and Information Administration, U.S. DEPARTMENT OF COMMERCE, NTIA Report TR 99-361, *TECHNICAL CHARACTERISTICS OF RADIOLOCATION SYSTEMS OPERATING IN THE 3.1-3.7 GHz BAND AND PROCEDURES FOR ASSESSING EMC WITH FIXED EARTH STATION RECEIVERS*, (December 1999).

3.0 Earth Station System Parameters

The Fixed Satellite Service Earth Station's operational parameters are shown in the Tables 2 and 3 below:

TABLE 2 - SATELLITE EARTH STATION PARAMETERS AND COORDINATION DATA

Administrative Information					
Status		ENGINEER PROPOSAL			
Call Sign		KA262			
Licensee Code		INTNOA			
Licensee Name		Intelsat License LLC			
Site Information		**HAGERSTOWN, MARYLAND**			
Venue Name					
Latitude (NAD 83)		39° 35' 57.0" N			
Longitude (NAD 83)		77° 45' 23.0" W			
Climate Zone		A			
Rain Zone		2			
Ground Elevation (AMSL)		165.51 m / 543.0 ft			
Link Information					
Satellite Type		Geostationary			
Mode		TR - Transmit-Receive			
Modulation		Analog and Digital			
Satellite Arc		18° W to 143° West Longitude			
Azimuth Range		110.4° to 253.6°			
Corresponding Elevation Angles		14.4° / 10.3°			
Antenna Centerline (AGL)		8.84 m / 29.0 ft			
Antenna Information		**Receive**		**Transmit**	
Manufacturer		Vertex		Vertex	
Model		15.2 KPC		15.2 KPC	
Gain / Diameter		55.0 dBi / 15.2 m		58.4 dBi / 15.2 m	
3-dB / 15-dB Beamwidth		0.34° / 0.70°		0.22° / 0.44°	
Max Available RF Power	(dBW/4 kHz)			SEE ATTACHMENT 1	
	(dBW/MHz)			SEE ATTACHMENT 1	
Maximum EIRP	(dBW/4 kHz)			SEE ATTACHMENT 1	
	(dBW/MHz)			SEE ATTACHMENT 1	
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	
	0.0025%				
Frequency Information		**Receive 4.0 GHz**		**Transmit 6.1 GHz**	
Emission / Frequency Range (MHz)		SEE ATTACHMENT 1		SEE ATTACHMENT 1	
Max Great Circle Coordination Distance		442.1 km / 274.7 mi		268.0 km / 166.5 mi	
Precipitation Scatter Contour Radius		538.7 km / 334.7 mi		181.3 km / 112.6 mi	

Vertex Communications:
Model: 15.2 KPC

4 GHz Gain: 55.0 dBi
6 GHz Gain: 58.4 dBi

Satellite Arc: 18.0 to 143.0 West Longitude

Receive Band: 3700.0 to 4200.0 MHz

Emissions

800KFXD
60M0G1D
81K9G7W – 72M0G7W

Satellite Arc: 18.5 to 65.0 West Longitude

Transmit Band: 6172.0 – 6178.0 MHz

Emission	RF Power Density (dBW/4 kHz)	EIRP Density (dBW/ 4 kHz)
800KFXD	0.6	59.0

Satellite Arc: 18.0 to 143.0 West Longitude

Transmit Band: 5925.0 – 6425.0 MHz

Emission	RF Power Density (dBW/4 kHz)	EIRP Density (dBW/ 4 kHz)
60M0G1D	-14.2	44.2
81K9G7W to 72M0G7W	-14.2 to -14.2	44.2 to 44.2

TABLE 3 - TABLE OF EARTH STATION COORDINATION VALUES

Coordination Values	**HAGERSTOWN, MD**			
Licensee Name	Intelsat License LLC			
Latitude (NAD 83)	39° 35' 57.0" N			
Longitude (NAD 83)	77° 45' 23.0" W			
Ground Elevation (AMSL)	165.51 m / 543.0 ft			
Antenna Centerline (AGL)	8.84 m / 29.0 ft			
Antenna Model	Vertex 15.2 KPC			
Antenna Mode	Receive 4.0 GHz		Transmit 6.1 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%
Max Available RF Power			0.6 (dBW/4 kHz)	

			Receive 4.0 GHz		Transmit 6.1 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.26	106.13	-10.00	277.35	-10.00	176.72
5	0.25	104.91	-10.00	279.50	-10.00	178.57
10	0.21	100.07	-10.00	283.98	-10.00	182.36
15	0.27	95.23	-10.00	276.37	-10.00	175.86
20	0.22	90.38	-10.00	283.25	-10.00	181.74
25	0.22	85.53	-10.00	283.24	-10.00	181.74
30	0.22	80.69	-10.00	283.24	-10.00	181.74
35	0.00	75.86	-10.00	285.28	-10.00	183.45
40	0.00	71.03	-10.00	285.28	-10.00	183.45
45	0.00	66.21	-10.00	285.28	-10.00	183.45
50	0.00	61.41	-10.00	285.28	-10.00	183.45
55	0.00	56.62	-10.00	285.28	-10.00	183.45
60	0.00	51.87	-10.00	285.28	-10.00	183.45
65	0.00	47.14	-9.84	286.33	-9.84	184.08
70	0.00	42.47	-8.70	293.68	-8.70	188.45
75	0.00	37.85	-7.45	302.00	-7.45	193.24
80	0.00	33.34	-6.07	311.49	-6.07	198.53
85	0.00	28.96	-4.54	322.93	-4.54	204.35
90	0.00	24.79	-2.86	335.17	-2.86	209.23
95	0.00	20.96	-1.04	348.72	-1.04	216.61
100	0.00	17.70	0.80	362.76	0.80	224.46
105	0.00	15.37	2.33	374.79	2.33	231.34
110	0.00	14.42	3.03	380.30	3.03	234.53
115	0.00	15.12	2.51	376.20	2.51	232.15
120	0.00	17.27	1.07	364.86	1.07	225.65
125	0.00	20.41	-0.75	350.91	-0.75	217.82
130	0.00	23.83	-2.43	338.33	-2.43	210.94
135	0.00	27.11	-3.83	328.09	-3.83	205.45
140	0.00	30.23	-5.01	319.61	-5.01	202.58
145	0.00	33.14	-6.01	311.94	-6.01	198.77
150	0.00	35.82	-6.85	306.10	-6.85	195.55
155	0.00	38.20	-7.55	301.33	-7.55	192.86
160	0.00	40.26	-8.12	297.51	-8.12	190.68
165	0.00	41.93	-8.56	294.59	-8.56	188.99
170	0.00	43.16	-8.88	292.52	-8.88	187.77
175	0.00	43.92	-9.07	291.29	-9.07	187.05
180	0.00	44.18	-9.13	290.88	-9.13	186.80

TABLE 3 - TABLE OF EARTH STATION COORDINATION VALUES (continued)

Coordination Values	**HAGERSTOWN, MD**
Licensee Name	Intelsat License LLC
Latitude (NAD 83)	39° 35' 57.0" N
Longitude (NAD 83)	77° 45' 23.0" W
Ground Elevation (AMSL)	165.51 m / 543.0 ft
Antenna Centerline (AGL)	8.84 m / 29.0 ft
Antenna Model	Vertex 15.2 KPC

Antenna Mode	Receive 4.0 GHz		Transmit 6.1 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%
Max Available RF Power			0.6 (dBW/4 kHz)	

			Receive 4.0 GHz		Transmit 6.1 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
185	0.00	43.92	-9.07	291.29	-9.07	187.04
190	0.00	43.16	-8.88	292.52	-8.88	187.77
195	0.00	41.93	-8.56	294.59	-8.56	188.99
200	0.00	40.26	-8.12	297.51	-8.12	190.68
205	0.00	38.20	-7.55	301.33	-7.55	192.86
210	0.00	35.81	-6.85	306.10	-6.85	195.55
215	0.00	33.14	-6.01	311.94	-6.01	198.77
220	0.43	29.90	-4.89	290.47	-4.89	180.52
225	0.30	26.89	-3.74	315.37	-3.74	197.72
230	0.25	23.65	-2.35	332.41	-2.35	206.53
235	0.30	20.20	-0.63	338.09	-0.63	208.27
240	0.29	16.69	1.44	355.87	1.44	218.31
245	0.34	13.11	4.06	369.72	4.06	224.66
250	0.46	10.45	6.52	375.92	6.52	225.30
255	0.48	9.89	7.12	442.14	7.12	268.00
260	0.39	11.74	5.26	373.04	5.26	225.22
265	0.29	15.09	2.53	364.20	2.53	222.88
270	0.31	19.10	-0.03	341.86	-0.03	210.14
275	0.35	23.47	-2.26	320.26	-2.26	199.33
280	0.27	28.09	-4.21	316.67	-4.21	199.32
285	0.00	32.86	-5.92	313.22	-5.92	199.13
290	0.00	37.61	-7.38	302.48	-7.38	193.51
295	0.00	42.41	-8.69	293.77	-8.69	188.50
300	0.00	47.25	-9.86	286.17	-9.86	183.99
305	0.24	52.08	-10.00	280.04	-10.00	179.03
310	0.20	56.97	-10.00	285.26	-10.00	183.43
315	0.23	61.86	-10.00	281.61	-10.00	180.37
320	0.00	66.78	-10.00	285.28	-10.00	183.45
325	0.00	71.69	-10.00	285.28	-10.00	183.45
330	0.20	76.60	-10.00	284.87	-10.00	183.11
335	0.39	81.51	-10.00	262.15	-10.00	161.52
340	0.31	86.44	-10.00	271.16	-10.00	171.29
345	0.28	91.36	-10.00	275.26	-10.00	174.90
350	0.23	96.28	-10.00	281.53	-10.00	180.29
355	0.35	101.21	-10.00	267.30	-10.00	167.81

4.0 Interference Calculations

The interference was calculated into the earth station receive system for both in-band and out-of-band interference. The interference power level was calculated using the formula below:

$$P_r = P_t + G_t - FSL - OHLOSS + G_{es} - LL_t - LL_{es}$$

Where:

P_r: Interference power level received at victim earth station, in dBW
P_t: Transmitter power of Radiolocation system, in dBW
G_t: Gain of Radiolocation transmit system, in dBi
FSL: Free Space Loss between radiolocation system and earth station, in dB
OHLOSS: Over-the-Horizon losses between radiolocation system and earth station, in dB
G_{es}: Horizon gain of the earth station toward radiolocation transmitter, in dBi
LL_t: Line losses of the radiolocation system, in dB (assume 2dB per NTIA report)
LL_{es}: Line losses of the earth station system, in dB (assume 0 dB unless known)

This interference power level was then compared to in-band and out-of-band interference criteria. The in-band criteria was developed using ITU and FCC recommendations[3]. The out-of-band interference criteria was developed using the following:

The earth station's low –noise amplifier front-end overload criteria of was determined using the following calculations:

$$T = C - G$$

Where:

T = input threshold at which front-end overload occurs, dBW
C = output 1 dB gain compression point of the LNA, typical -20 dBW
G = Gain of the LNA, dB

For the purposes of this report it was assumed that the low-noise amplifier would not provide any out-of-band frequency rejection, thus no Frequency Dependent Rejection values based upon any RF selectivity, such as pre-LNA filtering or inherent LNA filtering, have been assumed. The maximum level of interference includes the input saturation threshold value minus a 10 dB output backoff value to consider in operation levels

The maximum interference power receive, P_r, allowable then becomes:

$$\text{Max } P_r \geq T - IPBO$$

For a 65 dB gain LNA this value is -95 dBW. In the absence of manufacturer LNA/LNB specifications the following typical values have been used:

T = -95 dBW
C = -20 dBW
G = 65 dB

The propagation model to determine the over-the-horizon loss is the NSMA OH-Loss model[4]. When the propagation link is very lengthy, over 250 miles, an estimated OH-loss using a rounded earth modeling value has been used.

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[3] FCC Rules 47CFR25.251 by reference ITU Radio Regulations Appendix S7.
[4] National Spectrum Managers Association has developed an industry accepted version which incorporates NBS Tech Note 101.

5.0 Summary of Results

The summary calculations are shown for all shipboard based and land based systems in Tables 4 through 8 below. Whenever Radar A and B are possibly in use, the interference calculations have assumed the higher powered systems (Radar B). The antenna elevation for the Ground Based systems was assumed to be 46 m even though it was not specified in the NTIA report.

Table 4 Shipboard Radar A Land-Based Test and Training Sites

Radar Location		Lat (N)	Lon (w)	Bearing (deg.)	Distance (mi)	Profile (Is path under 250 miles?)	FSL (dB)	Estimated OH-Loss (dB)	Profiled OH-Loss (dB)	Total Path Loss (dB)	Interfering Power Level (dBW/MHz)	In-Band Interference?	Out-of Band Overload?
Pensacola,	FL	302128	0871626	225.8	834.6	NO	-166.2	-82.3	N/A	-248.6	-198.6	NO	NO
Pascagoula,	MS	302200	0882900	229.5	882.5	NO	-166.7	-83.3	N/A	-250.0	-200.0	NO	NO
St.Inigoes,	MD	381000	0762300	146.2	86.9	YES	-146.6	-53.5	-53.5	-200.1	-150.1	YES	NO

Table 5 Shipboard Radar B Land-Based Test and Training Sites

Radar Location		Lat (N)	Lon (w)	Bearing (deg.)	Distance (mi)	Profile (Is path under 250 miles?)	FSL (dB)	Estimated OH-Loss (dB)	Profiled OH-Loss (dB)	Total Path Loss (dB)	Interfering Power Level (dBW/MHz)	In-Band Interference?	Out-of Band Overload?
Moorestown,	NJ	395849	0745630	66.3	135.0	YES	-150.4	-67.6	-67.6	-218.0	-152.0	YES	NO
Wallops Island,	VA	375600	0752800	131.6	131.9	YES	-150.2	-63.5	-63.5	-213.7	-147.7	YES	NO

Table 6 Shipboard Radars A and B Home Ports

Radar Location		Lat (N)	Lon (w)	Bearing (deg.)	Distance (mi)	Profile (Is path under 250 miles?)	FSL (dB)	Estimated OH-Loss (dB)	Profiled OH-Loss (dB)	Total Path Loss (dB)	Interfering Power Level (dBW/MHz)	In-Band Interference?	Out-of Band Overload?
Bath,	ME	435425	0694848	47.6	504.1	NO	-161.9	-73.5	N/A	-235.4	-169.4	NO	NO
Bremerton,	WA	473324	1223811	299.7	2355.6	NO	-175.3	-100.3	N/A	-275.6	-209.6	NO	NO
Everett,	WA	475858	1221354	300.5	2335.6	NO	-175.2	-100.2	N/A	-275.4	-209.3	NO	NO
Mayport,	FL	302334	0812427	202.3	652.2	NO	-164.1	-78.0	N/A	-242.1	-176.1	NO	NO
Norfolk,	VA	365200	0762100	162.5	169.7	YES	-152.4	-65.1	-65.1	-217.5	-151.5	YES	NO
Pascagoula,	MS	302253	0882933	229.5	882.1	NO	-166.7	-83.3	N/A	-250.0	-184.0	NO	NO
Pearl Harbor,	HI	212000	1580000	276.0	4981.4	NO	-181.8	-113.3	N/A	-295.1	-229.1	NO	NO
Portland,	ME	434100	0701800	47.3	475.4	NO	-161.4	-72.5	N/A	-233.9	-167.9	NO	NO
San Diego	CA	324105	1170800	270.3	2279.7	NO	-175.0	-99.8	N/A	-274.7	-208.7	NO	NO

Table 7 Naval At-Sea Operational Areas

Operational Area	Lat (N)	Lon (w)	Bearing (deg.)	Distance (mi)	Profile (Is path under 250 miles?)	FSL (dB)	Estimated OH-Loss (dB)	Profiled OH-Loss (dB)	Total Path Loss (dB)	Interfering Power Level (dBW/MHz)	In-Band Interference?	Out-of Band Overload?
AFWTF												
(North Range)	183000	0670000	153.9	1556.7	NO	-171.7	-93.1	N/A	-264.8	-198.8	NO	NO
	200000	0670000	152.4	1460.8	NO	-171.1	-92.0	N/A	-263.1	-197.1	NO	NO
	221000	0654800	146.9	1358.6	NO	-170.5	-90.8	N/A	-261.3	-195.2	NO	NO
	221000	0652000	145.8	1372.8	NO	-170.6	-91.0	N/A	-261.5	-195.5	NO	NO
	185000	0620000	142.9	1680.8	NO	-172.3	-94.5	N/A	-266.8	-200.8	NO	NO
	185000	0620000	142.9	1680.8	NO	-172.3	-94.5	N/A	-266.8	-200.8	NO	NO
	182500	0643000	148.5	1628.5	NO	-172.1	-93.9	N/A	-266.0	-200.0	NO	NO
	183000	0644500	149.0	1616.1	NO	-172.0	-93.8	N/A	-265.8	-199.8	NO	NO
	183000	0663800	153.1	1565.7	NO	-171.7	-93.2	N/A	-264.9	-198.9	NO	NO
AFWTF												
(South Range)	180500	0675500	156.4	1562.4	NO	-171.7	-93.2	N/A	-264.9	-198.9	NO	NO
	180500	0652700	150.9	1622.9	NO	-172.0	-93.9	N/A	-265.9	-199.9	NO	NO
	181500	0651000	150.1	1620.1	NO	-172.0	-93.8	N/A	-265.8	-199.8	NO	NO
	181500	0641000	148.0	1648.5	NO	-172.2	-94.1	N/A	-266.3	-200.3	NO	NO
	170000	0641000	149.3	1726.5	NO	-172.6	-94.9	N/A	-267.5	-201.5	NO	NO
	165800	0642800	149.9	1720.1	NO	-172.5	-94.9	N/A	-267.4	-201.4	NO	NO
	153300	0660600	154.6	1768.3	NO	-172.8	-95.3	N/A	-268.1	-202.1	NO	NO
	153900	0662300	155.1	1755.1	NO	-172.7	-95.2	N/A	-267.9	-201.9	NO	NO
	163000	0662300	154.4	1700.2	NO	-172.4	-94.7	N/A	-267.1	-201.1	NO	NO
	163000	0675500	157.7	1665.7	NO	-172.3	-94.3	N/A	-266.6	-200.5	NO	NO

Table 7 Naval At-Sea Operational Areas (continued)

Operational Area	Lat (N)	Lon (w)	Bearing (deg.)	Distance (mi)	Profile (Is path under 250 miles?)	FSL (dB)	Estimated OH-Loss (dB)	Profiled OH-Loss (dB)	Total Path Loss (dB)	Interfering Power Level (dBW/MHz)	In-Band Interference?	Out-of Band Overload?
AUTEC												
	252000	0780500	183.1	957.8	NO	-167.4	-84.7	N/A	-252.1	-186.1	NO	NO
	252000	0774500	181.8	957.1	NO	-167.4	-84.7	N/A	-252.1	-186.1	NO	NO
	232500	0762000	176.8	1090.0	NO	-168.6	-86.9	N/A	-255.5	-189.5	NO	NO
	232500	0771500	179.9	1088.6	NO	-168.6	-86.9	N/A	-255.5	-189.5	NO	NO
FORACS, Hawaii												
	212530	1581100	276.2	4988.3	NO	-181.8	-113.4	N/A	-295.1	-229.1	NO	NO
	212100	1581500	276.2	4995.2	NO	-181.8	-113.4	N/A	-295.2	-229.2	NO	NO
	211500	1580800	276.0	4992.5	NO	-181.8	-113.4	N/A	-295.2	-229.1	NO	NO
	211500	1580700	276.0	4991.6	NO	-181.8	-113.4	N/A	-295.2	-229.1	NO	NO
Gulf of Mexico OPAREA												
	293601	0800130	194.1	681.3	NO	-164.5	-78.8	N/A	-243.3	-177.2	NO	NO
	292521	0864800	221.6	867.7	NO	-166.6	-83.0	N/A	-249.6	-183.5	NO	NO
	284101	0864800	219.7	909.2	NO	-167.0	-83.8	N/A	-250.8	-184.8	NO	NO
	285231	0874400	223.0	931.9	NO	-167.2	-84.2	N/A	-251.4	-185.4	NO	NO
Pacific Missile Range Facility (PMRF)												
	220000	1594500	277.4	5055.7	NO	-181.9	-113.6	N/A	-295.5	-229.5	NO	NO
	220800	1620000	278.5	5180.6	NO	-182.1	-114.0	N/A	-296.1	-230.1	NO	NO
	224500	1614000	279.0	5136.2	NO	-182.0	-113.9	N/A	-295.9	-229.9	NO	NO
	260000	1581500	280.9	4810.2	NO	-181.5	-112.7	N/A	-294.2	-228.2	NO	NO
Pearl Harbor South OPAREA												
	190800	1591500	274.4	5144.6	NO	-182.0	-113.9	N/A	-295.9	-229.9	NO	NO
	210000	1580800	275.8	5002.7	NO	-181.8	-113.4	N/A	-295.2	-229.2	NO	NO
	210000	1573600	275.5	4971.8	NO	-181.7	-113.3	N/A	-295.1	-229.0	NO	NO
	191800	1562000	273.3	4968.2	NO	-181.7	-113.3	N/A	-295.0	-229.0	NO	NO

	184900	1574500	273.4	5070.5	NO	-181.9	-113.6	N/A	-295.6	-229.5	NO	NO

Table 7 Naval At-Sea Operational Areas (continued)

Operational Area	Lat (N)	Lon (w)	Bearing (deg.)	Distance (mi)	Profile (Is path under 250 miles?)	FSL (dB)	Estimated OH-Loss (dB)	Profiled OH-Loss (dB)	Total Path Loss (dB)	Interfering Power Level (dBW/MHz)	In-Band Interference?	Out-of Band Overload?
Southern California (SOCAL)												
	385200	1255200	284.8	2614.4	NO	-176.2	-102.1	N/A	-278.3	-212.3	NO	NO
	390000	1240000	284.4	2511.6	NO	-175.8	-101.4	N/A	-277.3	-211.2	NO	NO
	311500	1163000	267.4	2285.9	NO	-175.0	-99.8	N/A	-274.8	-208.8	NO	NO
	300000	1203000	267.8	2544.4	NO	-175.9	-101.7	N/A	-277.6	-211.6	NO	NO
Virginia Capes OPAREA												
	384500	0750000	104.1	126.4	YES	-149.9	-62.7	-62.7	-212.6	-146.5	YES	NO
	384500	0743000	101.3	152.6	YES	-151.5	-65.3	-65.3	-216.8	-150.8	YES	NO
	374500	0724000	110.6	269.4	NO	-156.4	-62.7	N/A	-219.1	-153.1	YES	NO
	350600	0724000	136.8	381.0	NO	-159.4	-68.7	N/A	-228.1	-162.1	NO	NO
	320000	0771200	179.5	497.6	NO	-161.8	-73.3	N/A	-235.1	-169.1	NO	NO
	342400	0773000	182.3	332.4	NO	-158.3	-66.3	N/A	-224.6	-158.5	NO	NO
	354000	0752500	156.8	265.2	NO	-156.3	-62.4	N/A	-218.7	-152.7	YES	NO
	370000	0755000	152.4	171.8	YES	-152.5	-64.9	-64.9	-217.4	-151.4	YES	NO

Table 8 Land-Based Radar Test and Training Sites

Radar Location		Lat (N)	Lon (w)	Bearing (deg.)	Distance (mi)	Profile (Is path under 250 miles?)	FSL (dB)	Estimated OH-Loss (dB)	Profiled OH-Loss (dB)	Total Path Loss (dB)	Interfering Power Level (dBW/MHz)	In-Band Interference?	Out-of Band Overload?
Fort Lewis	WA	470525	1223510	298.8	2353.9	NO	-175.3	-100.3	N/A	-275.6	-209.6	NO	NO
Yakima Firing	WA	464018	1202135	297.9	2245.0	NO	-174.8	-99.5	N/A	-274.3	-208.3	NO	NO
Fort Carson	CO	383810	1044750	277.1	1483.8	NO	-171.2	-92.3	N/A	-263.5	-197.5	NO	NO
Fort Rliey	KS	385813	0965139	275.2	1053.3	NO	-168.3	-86.3	N/A	-254.6	-188.6	NO	NO
Fort Shafter	HI	211800	1574900	275.9	4972.2	NO	-181.7	-113.3	N/A	-295.1	-229.0	NO	NO
Hunter AAF	GA	320100	0810800	204.8	542.0	NO	-162.5	-74.8	N/A	-237.3	-171.3	NO	NO

Fort Gillem	GA	333600	0841900	227.5	551.6	NO	-162.7	-75.1	N/A	-237.8	-171.7	NO	NO
Fort Benning	GA	322130	0845815	224.7	640.9	NO	-164.0	-77.7	N/A	-241.7	-175.7	NO	NO
Fort Stewart	GA	315145	0813655	207.0	563.1	NO	-162.8	-75.5	N/A	-238.3	-172.3	NO	NO
Fort Rucker	AL	311947	0854255	223.7	723.6	NO	-165.0	-79.8	N/A	-244.8	-178.8	NO	NO
Yuma Proving	AZ	330114	1141855	269.3	2115.9	NO	-174.3	-98.5	N/A	-272.8	-206.8	NO	NO
Fort Hood	TX	310830	0974550	250.3	1286.6	NO	-170.0	-89.8	N/A	-259.8	-193.8	NO	NO
Fort Knox	KY	375350	0855655	261.7	478.8	NO	-161.4	-72.7	N/A	-234.1	-168.1	NO	NO
Fort Bragg	NC	350805	0790035	199.3	297.5	NO	-157.3	-64.4	N/A	-221.7	-155.6	YES	NO
Fort Campbell	KY	363950	0872820	255.6	584.4	NO	-163.2	-76.1	N/A	-239.3	-173.2	NO	NO
Fort Polk	LA	310343	0931226	242.7	1063.3	NO	-168.4	-86.5	N/A	-254.9	-188.8	NO	NO
Fort Leonard	MO	374430	0920737	267.4	811.9	NO	-166.0	-81.8	N/A	-247.8	-181.8	NO	NO
Fort Irwin	CA	351536	1164102	274.8	2190.2	NO	-174.6	-99.1	N/A	-273.7	-207.7	NO	NO
Fort Sill	OK	344024	0982352	261.3	1210.6	NO	-169.5	-88.8	N/A	-258.2	-192.2	NO	NO
Fort Bliss	TX	314850	1062533	261.2	1720.8	NO	-172.5	-94.9	N/A	-267.4	-201.4	NO	NO
Fort Leavenworth	KS	392115	0945500	276.2	946.1	NO	-167.3	-84.5	N/A	-251.8	-185.8	NO	NO
Fort Drum	NY	440115	0754844	12.4	340.0	NO	-158.4	-66.7	N/A	-225.2	-159.1	NO	NO
Fort Gordon	GA	332510	0820910	215.7	483.8	NO	-161.5	-72.8	N/A	-234.3	-168.3	NO	NO
Fort McCoy	WI	440636	0904127	300.4	772.3	NO	-165.6	-81.0	N/A	-246.5	-180.5	NO	NO
Fort Dix	NJ	400025	0743713	68.1	151.5	YES	-151.4	-71.6	-71.6	-223.0	-157.0	NO	NO
Parks Reserve	CA	374254	1214218	281.4	2411.9	NO	-175.5	-100.7	N/A	-276.2	-210.2	NO	NO
Aberdeen Proving	MD	392825	0760655	73.7	64.4	YES	-144.0	-62.8	-62.8	-206.8	-140.8	YES	NO
Fort Huachuca	AZ	313500	1102000	263.8	1939.1	NO	-173.6	-96.9	N/A	-270.5	-204.5	NO	NO
Fort Monmouth	NJ	401900	0740215	65.2	188.1	YES	-153.3	-76.2	-76.2	-229.5	-163.5	NO	NO
Picatinny Arsenal	NJ	405600	0743400	49.6	185.9	YES	-153.2	-167.3	-167.3	-320.5	-254.5	NO	NO

Table 8 Land-Based Radar Test and Training Sites (continued)

Radar Location		Lat (N)	Lon (w)	Bearing (deg.)	Distance (mi)	Profile (Is path under 250 miles?)	FSL (dB)	Estimated OH-Loss (dB)	Profiled OH-Loss (dB)	Total Path Loss (dB)	Interfering Power Level (dBW/MHz)	In-Band Interference?	Out-of Band Overload?
Redstone Arsenal	AL	343630	0863610	241.2	606.7	NO	-163.5	-76.8	N/A	-240.2	-174.2	NO	NO
White Sands	NM	322246	1062813	262.5	1706.5	NO	-172.5	-94.7	N/A	-267.2	-201.2	NO	NO
Army Research	MD	390000	0765800	132.5	22.2	YES	-134.7	-99.7	-99.7	-234.4	-168.4	NO	NO
Fort Hunter	CA	355756	1211404	278.1	2423.1	NO	-175.5	-100.8	N/A	-276.3	-210.3	NO	NO
Kelly Support	PA	402357	0800925	298.9	173.9	YES	-152.6	-206.1	-206.1	-358.7	-292.7	NO	NO

Table Headings

Radar Location	:	The site name of the radar system
Lat (N)	:	Radar latitude
Lon (w)	:	Radar Longitude
Bearing (deg.)	:	Azimuth from earth station toward radar.
Distance (mi)	:	Distance from earth station to radar
Profile (Is path under 250 miles?)	:	If path is over 250 miles no OH-loss profile is generated
FSL (dB)	:	Free Space Loss
Estimated OH-Loss (dB)	:	Using a rounded-earth model an estimated OH-loss is calculated for long paths
Profiled OH-Loss (dB)	:	Using the NSMA Tropo Loss actual OH-loss calculcations are performed for shorter paths
Total Path Loss (dB)	:	Total of Free Space Loss plus Over-the-Horizon loss
Interfering Power Level (dBW/MHz)	:	Level of RF interference at the earth station's LNA input
In-Band Interference?	:	If the Radar is operating in-band is the max. permissible interference criteria being met?
Out-of Band Overload?	:	If the Radar is operating in out-of-band spectrum is the LNA overload threshold being met?

6.0 Conclusions

Calculations were performed to assess the electromagnetic compatibility (EMC) between the radars listed below and adjacent-band FSS earth station receiver at Hagerstown, Maryland. Interference assessment for Earth Stations Operating at 3625 - 3700 MHz at the Hagerstown, MD site identified 11 cases of In-band potential interference. The applicant is aware of this potential for interference and will work with the Government Users to mitigate the problem.

Results

Total Number of Paths 11 sites		Lat (N)	Lon (W)	Out-of-Band Overload?	In-Band Interference?
St.Inigoes,	MD	381000	0762300	No	Yes
Moorestown,	NJ	395849	0745630	No	Yes
Wallops Island,	VA	375600	0752800	No	Yes
Norfolk,	VA	365200	0762100	No	Yes
VC 1 OPEREA		384500	0750000	No	Yes
VC 2 OPEREA		384500	0743000	No	Yes
VC 8 OPEREA		370000	0755000	No	Yes
Fort Dix	NJ	400025	0743713	No	Yes
Aberdeen Proving	MD	392825	0760655	No	Yes
Army Research	MD	390000	0765800	No	Yes
Kelly Support	PA	402357	0800925	No	Yes