Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Application by	)	
	)	
SES AMERICOM, INC.	)	SES-STA-_____-_____
	)	Call Signs E110104 & _____
For Special Temporary Authority to Provide	)	
TT&C for SES-10 during IOT at 68.5° W.L.	)	
and During Drift to 66.9º W.L.	)	

REQUEST FOR SPECIAL TEMPORARY AUTHORITY

By this application, SES Americom, Inc. ("SES Americom" or "SES") respectfully requests earth station special temporary authority ("STA") for a period of 30 days, beginning 11 days following launch of SES-10, to permit SES to provide Tracking, Telemetry and Command ("TT&C") services to support in-orbit testing ("IOT") of the SES-10 satellite using two antennas – one in Manassas, Virginia (E110104) and a new antenna in Somis, California. The satellite is currently scheduled to launch in mid-February 2017 and will ultimately operate at 66.9° W.L.[1] Following the completion of in-orbit testing at 68.5° W.L., SES-10 will drift to its final orbital location at 66.9° W.L. SES Americom will separately seek authority to allow ongoing operation of the earth stations with SES-10 at 66.9° W.L.

[1] *See New Skies Satellites B.V. Market Access Application*, File No. SAT-PPL-20160117-00005 ("SES-10 Petition"), granted on June 23, 2016 ("SES-10 Grant"). The grant was based on SES-10 operating at 67.0° W.L., but NSS has filed a modification of its authority to operate the satellite at 66.9° W.L. pursuant to the Commission's expedited process set out in Section 25.117(h)(1). *New Skies Satellites B.V. Modification*, File No. SAT-MPL-20170108-00002, (Call Sign S2950), filed Jan. 8, 2017.

SES Americom's affiliate, New Skies Satellites B.V. ("NSS"), received authority to provide service into the United States using SES-10 at 67° W.L. on June 23, 2016.[2] NSS has requested that SES Americom assist with testing the satellite and provide TT&C during the tests at 68.5°W.L. and during the drift to the nominal 67° W.L. orbital location. The earth stations will operate as described in Attachments 1 and 2.

The proposed operations will be coordinated with all satellite operators that use the same frequency bands within six degrees of 68.5° W.L. and those within the drift path. All operators of potentially affected satellites will be provided with an emergency phone number where the licensee can be reached in the event harmful interference occurs.

Grant of STA Will Serve the Public Interest. Grant of this STA request is in the public interest. The requested authority to provide TT&C services while SES-10 is tested at 68.5° W.L. and drifts to its final orbital location will facilitate the safe operation of SES-10.

No Harmful Interference to Other Spacecraft. All operations with SES-10 while it is located at 68.5° W.L. will be on a non-harmful interference basis. Furthermore, TT&C transmissions during drift of SES-10 will be on a non-harmful interference basis. The drift of the spacecraft will be coordinated with other satellite operators consistent with industry practice.[3]

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[2] *Id*. SES Americom incorporates by reference the technical information submitted in the SES-10 Petition.

[3] The 24/7 point of contact for the proposed SES-10 operations is the SES Payload Management Operations Centre (PMOC) in Woodbine, MD, 1 800 772 2363 or 1 410 970 7570; e-mail: PMOC@ses.com.

Furthermore, as demonstrated in the analysis provided in Attachments 3[4] and 4, operations in 13.75-14.0 GHz from either location will not cause harmful interference to U.S. Navy radar stations or NASA TDRSS stations.

For the foregoing reasons, SES Americom respectfully requests special temporary authority for its earth stations to communicate with SES-10 to provide TT&C for a period of up to 30 days to test and drift of the satellite, as described herein. Grant of the requested authority will promote safe operation of the satellite during and after it is tested.

Respectfully submitted,

SES AMERICOM, INC.

By: */s/ Petra Vorwig*

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Dated: January 10, 2017

[4] For its antenna in Manassas, Virginia (call sign E110104), SES is submitting the analysis previously conducted in support of operations with the NSS 7 spacecraft operating at 20° W.L. *See* File No. SES-LIC-20110715-00830 (filed July 15, 2011). This STA application requests authority to operate with SES-10 at 68.5° W.L., which will result in operations at a higher elevation angle reducing the potential for interference into terrestrial systems; therefore, the attached analysis remains valid.

Attachment 1

Call Sign: E110104
Site Details

Contact Information:
Gary Cruickshank
703-367-7311

Address:
8000 Gainsford Ct.
Bristow, VA
20136

Geographic Coordinates:
Latitude: 38° 47’ 0.6" N

Longitude: 77° 34’ 25.4" W

Site Elevation:
86.0 meters

Antenna Details

Antenna ID:	NMW-13
Manufacture/Model:	Viasat 8016A
Antenna Size:	11.3 meters
Antenna Gain Transmit:	62.8 dBi at 14 GHz
Antenna Gain Receive:	61.7 dBi at 12 GHz
Height Above Ground Level:	13.27 meters
Height Above Sea Level:	99.27 meters
Total Input Power at the Flange:	1859.0 watts
Total EIRP for all Carriers:	95.49 dBW

Operational Details

Frequency (MHz)	**Transmit/ Receive**	**Polarization**	**Emissions Designator**	**Max EIRP per Carrier (dBW)**	**Max EIRP Density per Carrier (dBW/4kHz)**
13750-14000	T	Horizontal and Vertical	500KG7W	69.8	48.8
13750-14000	T	Horizontal and Vertical	1M0G7W	71.0	47
13750-14000	T	Horizontal and Vertical	54M0G7W	80.6	39.3
14000-14500	T	Horizontal and Vertical	100KG7W	62.78	48.8
13750-14000	T	Horizontal and Vertical	665KG7W	71.0	48.8
13750-14000	T	Horizontal and Vertical	54M0G7W	84.99	43.69
14000-14500	T	Horizontal and Vertical	100KG7W	62.78	48.8
14000-14500	T	Horizontal and Vertical	54M0G7W	89.79	48.49

14000-14500	T	Horizontal and Vertical	N0N	48.8	48.8
10950-11200	R	Horizontal and Vertical	100KG7W		
10950-11200	R	Horizontal and Vertical	54KG7W		
11450-11700	R	Horizontal and Vertical	100KG7W		
11450-11700	R	Horizontal and Vertical	54KG7W		
11700-12200	R	Horizontal and Vertical	100KG7W		
11700-12200	R	Horizontal and Vertical	54M0G7W		

Attachment 2

Call Sign: New earth station

Site Details

Contact Information:
David Coyle
805-386-2712

Address:
5990 Solano Verde Dr.
Somis, California
93066

Geographic Coordinates:
Latitude: 34° 19’ 31.2" N

Longitude: 118° 59’ 43.6"W

Site Elevation:
308.0 meters

Antenna Details

Antenna ID:	SMK-5
Manufacture/Model:	GD Satcom/Vertex
Antenna Size:	9m
Antenna Gain Transmit:	60.1 dBi at 14.125 GHz
Antenna Gain Receive:	58.5 dBi at 11.725 GHz
Height Above Ground Level:	9.7 meters
Height Above Sea Level:	317.7 meters
Total Input Power at the Flange:	750 watts
Total EIRP for all Carriers:	88.85 dBW

Operational Details

Frequency (MHz)	Transmit/ Receive	Polarization	Emissions Designator	Max EIRP per Carrier (dBW)	Max EIRP Density per Carrier (dBW/4kHz)
13750-14000	T	Horizontal and Vertical	2M83G7W	68	39.5
13750-14000	T	Horizontal and Vertical	54M0G7W	80.8	39.5
14000-14500	T	Horizontal and Vertical	100KG7W	60.08	46.1
14000-14500	T	Horizontal and Vertical	54M0G7W	87.1	45.8
14000-14500	T	Horizontal and Vertical	N0N	46.1	46.1
10950-11200	R	Horizontal and Vertical	100KG7W		
10950-11200	R	Horizontal	54KG7W		

		and Vertical			
11450-11700	R	Horizontal and Vertical	100KG7W		
11450-11700	R	Horizontal and Vertical	54KG7W		
11700-12200	R	Horizontal and Vertical	100KG7W		
11700-12200	R	Horizontal and Vertical	54M0G7W		

Attachment 3

Compliance with FCC Report & Order (FCC 96-377) for the 13.75-14.0 GHz Band

Analysis and Calculations for E110104

Exhibit For
SES Americom, LLC
Bristow, Virginia
ViaSat 11.3 Meter Earth Station

Compliance with FCC Report & Order (FCC96-377) for the 13.75 - 14.0 GHz Band
Analysis and Calculations

1. Background

This Exhibit is presented to demonstrate the extent to which the SES Americom, LLC satellite earth station in Bristow, Virginia is in compliance with FCC REPORT & ORDER 96-377. The potential interference from the earth station to US Navy shipboard radiolocation operations (RADAR) and the NASA space research activities in the 13.75 - 14.0 GHz Band is addressed in this exhibit. The parameters for the earth station are:

Table 1. Earth Station Characteristics

• Coordinates (NAD83):	38° 47' 0.6" N, 77° 34' 25.4" W
• Satellite Location for Earth Station:	NSS 7 (20.0° W)
• Frequency Band:	13.75-14.0 GHz for uplink
• Polarizations:	Linear
• Emissions:	500KG7W, 1M00G7W, 36M0G7W, and 77M0G7W
• Modulation:	Digital
• Maximum Aggregate Uplink EIRP:	69.8 dBW for the 500 kHz Carriers 70.99 dBW for the 1 MHz Carriers 78.77 dBW for the 36 MHz Carriers 82.07 dBW for the 77 MHz Carriers
• Transmit Antenna Characteristics	
Antenna Size:	11.3 meters in Diameter
Antenna Type/Model:	ViaSat
Gain:	62.8 dBi
• RF power into Antenna Flange:	500 kHz 7.0 dBW or -14.0 dBW/4 kHz (Maximum)

- RF power into Antenna Flange (Continued)

  1.0 MHz
  8.2 dBW or 0.0 dBW/ MHz
  or -15.8 dBW/4 kHz (Maximum)

  36 MHz
  16.0 dBW or 15.5 dBW/ MHz
  or -23.5 dBW/4 kHz (Maximum

  77 MHz
  19.3 dBW or 18.8 dBW/ MHz
  or -23.5 dBW/4 kHz (Maximum

- Minimum Elevation Angle: Bristow. 16.4° @ 111.7° Az. (NSS 7) at 20.0° W

- Side Lobe Antenna Gain: 32 - 25*log(θ)

Because the above uplink spectrum is shared with the Federal Government, coordination in this band requires resolution data pertaining to potential interference between the earth station and both Navy Department and NASA systems. Potential interference from the earth station could impact with the Navy and/or NASA systems in two areas. These areas are noted in FCC Report and Order 96-377 dated September 1996, and consist of (1) Radiolocation and radio navigation, (2) Data Relay Satellites.

Summary of Coordination Issues:

1) Potential Impact to Government Radiolocation (Shipboard Radar)
2) Potential Impact to NASA Data Relay Satellite Systems (TDRSS)

2. Potential Impact to Government Radiolocation (Shipboard Radar)

Radiolocation operations (RADAR) may occur anywhere in the 13.4 - 14 GHz frequency band aboard ocean going United States Navy ships. The Federal Communication Commission (FCC) order 96-377 allocates the top 250 MHz of this 600 MHz band to the Fixed Satellite Service (FSS) on a co-primary basis with the radiolocation operations and provides for an interference protection level of -167 dBW/m^2/4 kHz.

The closest distance to the shoreline from the Bristow earth station is approximately 97.5 km East toward the Chesapeake Bay. The calculation of the power spectral density at this distance is given by:

		500 kHz	1.0 MHz	36 MHz	77.0 MHz
1.	Clear Sky EIRP:	69.8 dBW	71.0 dBW	78.8 dBW	82.1 dBW
2.	Carrier Bandwidth:	500 kHz	1.0 MHz	36.0 MHz	77.0 MHz
3.	PD at antenna Input: (dBW/4 kHz)	-14.0	-15.8	-23.5	-23.5
4.	Transmit Antenna Gain:	62.8 dBi			
5.	Antenna Gain Horizon:	FCC Reference Pattern			
6.	Antenna Elevation Angles:	43.3°			

The proposed earth station will radiate interference toward the Bay according to its off-axis side-lobe performance. A conservative analysis, using FCC standard reference pattern, results in off-axis antenna gains of 1.3 dBi toward the Chesapeake Bay.

The signal density at the shoreline, through free space is:

500 kHz Carriers
PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss (dBw-m^2).

= -14.0 dBw/4 kHz + 1.3 dBi – 10*log[4Π*(97500m)^2]
= -123.5 dBW/m^2/4 kHz + Additional Path Losses (~64.3 dB)
= -187.8 dBW/m^2/4 kHz

1 MHz Carriers
PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss (dBw-m^2).

= -15.8 dBw/4 kHz + 1.3 dBi – 10*log[4Π*(97500m)^2]
= -125.3 dBW/m^2/4 kHz + Additional Path Losses (~64.3 dB)
= -189.6 dBW/m^2/4 kHz

36 MHz Carriers
PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss (dBw-m^2).

= -23.5 dBw/4 kHz + 1.3 dBi – 10*log[4Π*(97500m)^2]
= -133.0 dBW/m^2/4 kHz + Additional Path Losses (~64.3 dB)
= -197.3 dBW/m^2/4 kHz

77 MHz Carriers
PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss ($dBw\text{-}m^2$).

= -23.5 dBw/4 kHz + 1.3 dBi – 10*log[4Π*$(97500m)^2$]
= -133.0 dBW/m^2/4 kHz + Additional Path Losses (~64.3 dB)
= -197.3 dBW/m^2/4 kHz

Our calculations show additional path loss of approximately 64.3 dB including absorption loss and earth diffraction loss for the actual path profiles from the proposed earth station to the nearest shoreline.

The worst case calculated PFD including additional path losses to the closest shoreline location is –187.8 dBW/m^2/4 kHz. This is 20.8 dB below the –167 dBW/ m^2/4 kHz interference criteria of R&O 96-377. Therefore, there should be no interference to the US Navy RADAR from the Bristow earth station due to the distance and the terrain blockage between the site and the shore.

3. Potential Impact to NASA's Data Relay Satellite System (TDRSS)

The geographic location of the SES Americom earth station in Bristow, Virginia is outside the 390 km radius coordination contour surrounding NASA's White Sands, New Mexico ground station complex. Therefore, the TDRSS space-to-earth link will not be impacted by the SES Americom earth station in Bristow, Virginia.

The TDRSS space-to-space link in the 13.770 to 13.780 GHz band is assumed to be protected if an earth station produces an EIRP less than 71 dBW/6 MHz in this band. The 11.3 meter earth station antenna will have an EIRP less than 71 dBW/6 MHz for the 500 kHz carriers in this band. In addition, the total EIRP for the 1 MHz, 36 MHz, and 77 MHz carriers is 70.99 dBW, 78.99 dBW and 82.07 dBW, respectively. The equivalent EIRP per 6 MHz segment will remain at 69.8 dBW/6 MHz and 70.99 dBW/6 MHz for the 500 kHz and 1 MHz carriers. For the 36 MHz and 77 MHz carriers the calculated dBW/6 MHz are 70.99 dBW/6 MHz for both sets of carriers. Therefore, there should not be interference to the TDRSS space-to-space link for the 500 kHz or 1 MHz, 36 MHz, or 77 MHz carriers.

At the above power levels, transmit operations from 13750 to 14000 MHz will be permitted.

Further, SES Americom also plans to operate the 1.0 MHz, 36 MHz, and 77 MHz carriers, with total EIRPs of 72.8 dBW (1 MHz), 88.3 dBW (36 MHz) and 89.8 dBW (77 MHz). These total EIRPs will equate to an EIRP per 6 MHz level of 72.8 dBW/6 MHz, 80.5 dBW/6 MHz, and 78.7 dBW/6 MHz, respectively. Since these levels are above the 71.0 dBW/6 MHz threshold, and there will be interference to the TDRSS space-to-space link, SES Americom will avoid operations between 13770 - 13780 MHz and limit their operations in this spectrum from 13780 to 14000 MHz.

For these higher power levels, transmit operations will not be permitted between 13770 and 13780 MHz. Operations at these levels for the 1 MHz, 36 MHz, and 77 MHz carriers will be limited to that portion of the spectrum from 13780 to 14000 MHz.

4. Coordination Issue Result Summary and Conclusions

The results of the analysis and calculations performed in this exhibit indicate that compatible operation between the earth station at the Bristow facility and the US Navy and NASA systems space-to-earth link are possible for the 500 kHz, 1 MHz, 36 MHz, and 77 MHz carriers. Operations in NASA systems space-to-space link (13772.0 to 13778.0 MHz) will also be permitted, at the lower EIRP levels noted on Page 1 of this report (Table 1).

When SES Americom utilizes higher EIRP levels noted above for the 1 MHz, 36 MHz, and 77 MHz carriers, the results of the analysis and calculations performed in this exhibit indicate that compatible operation between the earth station at the Bristow facility and the US Navy and NASA systems space-to-earth link are possible. However, operations in NASA systems space-to-space link (13770.0 to 13780.0 MHz) will not be permitted. In this instance, operations in the spectrum will be restricted to frequencies 13780 to 14000 MHz for the 1 MHz, 36 MHz, and 77 MHz carriers.

Attachment 4

Compliance with FCC Report & Order (FCC 96-377) for the 13.75-14.0 GHz Band

Analysis and Calculations for 9 Meter Antenna at Somis, CA

Exhibit For
SES Americom, LLC
South Mountain (Somis), California
Vertex Corporation 9 Meter Earth Station

Compliance with FCC Report & Order (FCC96-377) for the 13.75 - 14.0 GHz Band
Analysis and Calculations

1. Background

This Exhibit is presented to demonstrate the extent to which the SES Americom, LLC satellite earth station in South Mountain (Somis), California is in compliance with FCC REPORT & ORDER 96-377. The potential interference from the earth station to US Navy shipboard radiolocation operations (RADAR) and the NASA space research activities in the 13.75 - 14.0 GHz Band is addressed in this exhibit. The parameters for the earth station are:

Table 1. Earth Station Characteristics

- Coordinates (NAD83): 34° 19' 31.77" N, 118° 59' 43.8" W
- Satellite Location for Earth Station: SES 10 (68.5° W)
- Frequency Band: 13.75-14.0 GHz for uplink
- Polarizations: Linear
- Emissions: N0N, 100KG7W, 1M00G7W, 36M0G7W and 54M0G7W
- Modulation: No Modulation and Digital
- Maximum Aggregate Uplink EIRP: 39.5 dBW for the N0N Carrier
  53.5 dBW for the 100 kHz Carriers
  63.5 dBW for the 1 MHz Carriers
  79.0 dBW for the 36 MHz Carriers
  80.8 dBW for the 54 MHz Carriers
- Transmit Antenna Characteristics
  Antenna Size: 9.0 meters in Diameter
  Antenna Type/Model: Vertex Corporation
  Gain: 60.1 dBi
- RF power into Antenna Flange: No Modulation (N0N)
  -20.6 dBW
  or -20.6 dBW/4 kHz (Maximum)

- RF power into Antenna Flange (Continued)

  100 kHz
  -6.6 dBW
  or -20.6 dBW/4 kHz

  1 MHz
  3.4 dBW
  or -20.6 dBW/4 kHz (Maximum)

  36 MHz
  18.9 dBW
  or –20.6 dBW/4 kHz (Maximum)

  54 MHz
  20.7 dBW
  or –20.6 dBW/4 kHz (Maximum)

- Minimum Elevation Angle:
  Somis, CA — 23.7° @ 114.9° Az. (SES 10) at 68.5° W

- Side Lobe Antenna Gain: 32 - 25*log(θ)

Because the above uplink spectrum is shared with the Federal Government, coordination in this band requires resolution data pertaining to potential interference between the earth station and both Navy Department and NASA systems. Potential interference from the earth station could impact with the Navy and/or NASA systems in two areas. These areas are noted in FCC Report and Order 96-377 dated September 1996, and consist of (1) Radiolocation and radio navigation, (2) Data Relay Satellites.

Summary of Coordination Issues:

1) Potential Impact to Government Radiolocation (Shipboard Radar)
2) Potential Impact to NASA Data Relay Satellite Systems (TDRSS)

2. Potential Impact to Government Radiolocation (Shipboard Radar)

Radiolocation operations (RADAR) may occur anywhere in the 13.4 – 14.0 GHz frequency band aboard ocean going United States Navy ships. The Federal Communication Commission (FCC) order 96-377 allocates the top 250 MHz of this 600 MHz band to the Fixed Satellite Service (FSS) on a co-primary basis with the radiolocation operations and provides for an interference protection level of -167 dBW/m^2/4 kHz.

The closest distance to the shoreline from the South Mountain earth station is approximately 28.77 km Southwest toward the Pacific Ocean. The calculation of the power spectral density at this distance is given by:

		N0N	100 kHz	1.0 MHz	36.0 MHz	54 MHz
1.	Clear Sky EIRP (dBW):	39.5	53.5	63.5	79.0	80.8
2.	Carrier Bandwidth:	CW Signal	100 kHz	1 MHz	36 MHz	54 MHz
3.	PD at antenna Input: (dBW/4 kHz)	-20.6	-20.6	-20.6	-20.6	-20.6
4.	Transmit Antenna Gain:	60.1 dBi				
5.	Antenna Gain Horizon:	FCC Reference Pattern				
6.	Antenna Elevation Angle:	23.7°				

The proposed earth station will radiate interference toward the Pacific Ocean according to its off-axis side-lobe performance. A conservative analysis, using FCC standard reference pattern, results in off-axis antenna gains of -4.8 dBi toward the Pacific Ocean.

The signal density at the shoreline, through free space is:

N0N Carriers (CW Carrier)
PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss (dBw-m^2).

= -20.6 dBw/4 kHz + (-4.8) dBi – 10*log[4Π*(28770m)^2]
= -125.6 dBW/m^2/4 kHz + Additional Path Losses (~41.8 dB)
= -167.4 dBW/m^2/4 kHz

100 kHz Carriers
PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss (dBw-m^2).

= -20.6 dBw/4 kHz + (-4.8) dBi – 10*log[4Π*(28770m)^2]
= -125.6 dBW/m^2/4 kHz + Additional Path Losses (~41.8 dB)
= -167.4 dBW/m^2/4 kHz

1 MHz Carriers
PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss (dBw-m^2).

= -20.6 dBw/4 kHz + (-4.8) dBi – 10*log[4Π*(28770m)^2]
= -125.6 dBW/m^2/4 kHz + Additional Path Losses (~41.8 dB)
= -167.4 dBW/m^2/4 kHz

(Continued)

36 MHz Carriers
PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss ($dBw\text{-}m^2$).

= -20.6 dBw/4 kHz + (-4.8) dBi – 10*log[4Π*(28770m)^2]
= -125.6 dBW/m^2/4 kHz + Additional Path Losses (~41.8 dB)
= -167.4 dBW/m^2/4 kHz

54 MHz Carriers
PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss ($dBw\text{-}m^2$).

= -20.6 dBw/4 kHz + (-4.8) dBi – 10*log[4Π*(28770m)^2]
= -125.6 dBW/m^2/4 kHz + Additional Path Losses (~41.8 dB)
= -167.4 dBW/m^2/4 kHz

Our calculations identified additional path losses of approximately 41.8 dB including absorption loss and earth diffraction loss for the actual path profiles from the earth station to the nearest shoreline.

The worst case calculated PFD including additional path losses to the closest shoreline location is –167.4 dBW/m^2/4 kHz for the CW Carriers, 100 kHz, 1 MHz, 36 MHz and 54 MHz carriers. This is 0.4 dB below the –167 dBW/ m^2/4 kHz interference criteria of R&O 96-377. Therefore, there should be no interference to the US Navy RADAR from the South Mountain earth station due to the distance and the terrain blockage between the site and the shore.

3. Potential Impact to NASA's Data Relay Satellite System (TDRSS)

The geographic location of the SES Americom earth station in South Mountain (Somis), California is outside the 390 km radius coordination contour surrounding NASA's White Sands, New Mexico ground station complex. Therefore, the TDRSS space-to-earth link will not be impacted by the SES Americom earth station in South Mountain, California.

The TDRSS space-to-space link in the 13.772 to 13.778 GHz band is assumed to be protected if an earth station produces an EIRP less than 71 dBW/6 MHz in this band. The 9 meter earth station antenna will have an EIRP less than 71 dBW/6 MHz for both the CW carrier, 100 kHz and 1 MHz carriers in this band. The total EIRP for the CW Carrier is 39.5 dBW and the equivalent EIRP per 6 MHz segment will remain at 39.5 dBW/6 MHz. The total EIRP for the 100 kHz, carriers is 53.5 dBW. The equivalent EIRP per 6 MHz segment will remain at 53.5 dBW/6 MHz. The total EIRP for the 1 MHz, carriers is 63.5 dBW. The equivalent EIRP per 6 MHz segment will remain at 63.5 dBW/6 MHz. Therefore, there should not be interference to the TDRSS space-to-space link for the CW carriers or the 100 kHz and 1 MHz carriers. For the 36 MHz and 54 MHz carriers, the total EIRP of 79.0 dBW (36 MHz), and 80.8 dBW (54 MHz)

equate to an EIRP per 6 MHz of 73.0 dBW/6 MHz and 74.8 dBW/6 MHz, respectively. To avoid interference to the TDRSS space-to-space link the 36 MHz and 54 MHz carriers will not be used for the transmit spectrum of 13.772 to 13.778 GHz by this earth station.

4. Coordination Issue Result Summary and Conclusions

The results of the analysis and calculations performed in this exhibit indicate that compatible operation between the earth station at the South Mountain (Somis) facility and the US Navy and NASA systems space-to-earth link are possible for all of the proposed carriers. Operations in NASA systems space-to-space link (13772.0 to 13778.0 MHz) will also be permitted for all of the carriers with the exception of the 36 MHz and 54 MHz emissions.