

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATION Enter a description of this application to identify it on the main menu:  
STA Request for Ka-band IOT of SES-15 at 137 W.L. Using Antenna E160022 Nov 2017

1. Applicant

<b>Name:</b>	SES Americom, Inc.	<b>Phone Number:</b>	202-478-7143
<b>DBA Name:</b>		<b>Fax Number:</b>	202-478-7111
<b>Street:</b>	1129 20th Street NW Suite 1000	<b>E-Mail:</b>	petra.vorwig@ses.com
<b>City:</b>	Washington	<b>State:</b>	DC
<b>Country:</b>	USA	<b>Zipcode:</b>	20036
<b>Attention:</b>	Ms Petra A Vorwig		-




File # SES-STA-20171103-01235  
E160022  
Call Sign E160022 Grant Date 11-8-17  
(or other identifier)  
From: 11-19-17 Term Dates To: 12-19-17  
Approved: [Signature]

Applicant: SES Americom, Inc.  
File No.: SES-STA-20171103-01235  
Call Sign: E160022  
Special Temporary Authority

SES Americom, Inc. is granted a special temporary authority for 30 days, commencing November 19, 2017, to use its 9.2 meter earth station antenna (E160022) located at 34° 19" 31.9'N / 118° 59" 41.4' W, in South Mountain, California, to communicate with SES-15 satellite (S2951) at 137° W.L., in order to perform in-orbit testing ("IOT") of the satellite's Ka-band payload, using the following frequency bands: 27.50-28.35 GHz, 28.35-28.60 GHz and 29.25-30.00 GHz (Earth-to-space) and 18.30-18.80 GHz and 19.70-20.20 GHz (space-to-Earth), under the following conditions:

1. Currently the 24x7 contact information for the SES-15 satellite (S2951) operation is as follows: (805) 386-2712 - Request to speak with David Coyle.
2. All operations under this grant of special temporary authority must be on an unprotected and non-harmful interference basis, *i.e.*, SES Americom, Inc. must not cause harmful interference to, and shall not claim protection from interference caused to it by, any other lawfully operating station.
3. In the event of any harmful interference under this grant of special temporary authority, SES Americom, Inc. must cease operations immediately upon notification of such interference, and must inform the Commission, in writing, immediately of such an event.
4. The 17.8 - 20.2 GHz band is shared with U.S. Government space stations and associated earth stations in the fixed Satellite Services. Services within the United States over the satellite network of which this is a cooperating earth station are subject to coordination under US334 and operation of the earth station(s) authorized herein will be subject to any technical constraints resulting from this coordination. See 47 C.F.R. Section 2.106, Footnote US334.
5. Any action taken or expense incurred as a result of operations pursuant to this special temporary authority is solely at SES Americom, Inc.'s own risk.
6. This action is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective immediately.

 <b>GRANTED</b> International Bureau	File # <u>SES-STA-20171103-01235</u>
	Call Sign <u>E160022</u>
	Grant Date <u>11-8-17</u>
	Term Dates From: <u>11-19-17</u> To: <u>12-19-17</u>
	Approved: <u>Paul E. Blakes</u>

<b>2. Contact</b>	
<b>Name:</b> Karis Hastings	<b>Phone Number:</b> 202-599-0975
<b>Company:</b> SatCom Law LLC	<b>Fax Number:</b>
<b>Street:</b> 1317 F St, NW Suite 400	<b>E-Mail:</b> karis@satcomlaw.com
<b>City:</b> Washington	<b>State:</b> DC
<b>Country:</b> USA	<b>Zipcode:</b> 20004 -
<b>Attention:</b>	<b>Relationship:</b> Legal Counsel
(If your application is related to an application filed with the Commission, enter either the file number or the IB Submission ID of the related application. Please enter only one.)	
3. Reference File Number or Submission ID	
4a. Is a fee submitted with this application?	
<input checked="" type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114). <input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee <input type="radio"/> Other (please explain):	
4b. Fee Classification CGX – Fixed Satellite Transmit/Receive Earth Station	
5. Type Request	
<input type="radio"/> Use Prior to Grant <input type="radio"/> Change Station Location <input checked="" type="radio"/> Other	
6. Requested Use Prior Date	
7. City/Somis	
8. Latitude (dd mm ss.s h) 34 19 31.9 N	

9. State CA	10. Longitude (dd mm ss.s h) 118 59 41.4 W
11. Please supply any need attachments. Attachment 1: STA Narr and Annexes Attachment 2: Attachment 3:	
12. Description. (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) SES Americom, Inc. requests Special Temporary Authority for 30 days beginning on November 19 to perform in-orbit testing of the Ka-band payload on SES-15 (S2951) at 137 W.L. using the antenna designated under call sign E160022. See attached narrative.	
13. 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"; party to the application; for these purposes. Yes <input checked="" type="radio"/> No <input type="radio"/>	
14. Name of Person Signing Petra A. Vorwig	15. Title of Person Signing Senior Legal & Regulatory Counsel
WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).	

**FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT**

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**THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.**

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

In the Matter of	)	
	)	
SES Americom, Inc.	)	SES-STA-_____ - _____
	)	Call sign E160022
Request for Special Temporary Authority to	)	
Conduct In-Orbit Testing of SES-15 at 137° W.L.	)	

**REQUEST FOR SPECIAL TEMPORARY AUTHORITY**

SES Americom, Inc. (“SES”) respectfully requests Special Temporary Authority (“STA”) to use its E160022 earth station located in its South Mountain, California teleport<sup>1</sup> to communicate with SES-15 at 137° W.L. in order to perform in-orbit testing (“IOT”) of the satellite’s Ka-band payload. Authority is sought for a period of up to 30 days, commencing on or around November 19, 2017. SES requests authority for the earth station to communicate with the Gibraltar-licensed SES-15 satellite to test the Ka-band payload.

SES Satellites (Gibraltar) Limited received market access to provide service into the United States from 129.15° W.L. using the Ku- and Ka-bands as well as to operate the WAAS payload in the L- and conventional and extended C-bands.<sup>2</sup> SES-15 was launched on May 18, 2017 and is currently en route to its test orbital location at 137° W.L. SES-15 will be located at 137° W.L. +/-0.1 degrees during IOT. The proposed stationkeeping volume will not

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<sup>1</sup> SES Americom, Inc., Call Sign E160022, File No. SES-MOD-20170601-00617, granted September 13, 2017.

<sup>2</sup> SES Satellites (Gibraltar) Limited, (Call Sign S2951), File No. SAT-MPL-20160718-00063, granted Dec. 14, 2016; modifying File No. SAT-PPL-20160126-00007, granted July 12, 2016 (“SES-15 Grant”).

overlap with any other satellite. SES seeks earth station STA to perform testing of the SES-15 Ka-band payload using the following frequency bands:

27.5-28.35 GHz	Uplink
28.35-28.6 GHz	Uplink
29.25-30.0 GHz	Uplink
18.3-18.8 GHz	Downlink
19.7-20.2 GHz	Downlink

As discussed below, performing IOT while SES-15 is at 137° W.L. rather than at 129.15° W.L. will permit testing to occur without disruption to existing customers at 129.15° W.L. and will not adversely affect the operation of any adjacent satellites.

***Grant of STA Will Serve the Public Interest.*** Grant of SES’s request to test the Ka-band payload on SES-15 at 137° W.L. is in the public interest. By testing SES-15 at this location, SES will minimize the risk of interference to other satellites operating at the nominal 129° W.L. orbital location. Testing will allow SES to ensure that the satellite’s communications payload is fully operational at the time it arrives at its final orbital location, thereby avoiding any interruption in service that otherwise might be associated with spacecraft testing.

***No Harmful Interference to Other Spacecraft.*** Testing the SES-15 Ka-band payload at 137° W.L. will not cause harmful interference to the operations of any other spacecraft due to orbital angular separation, frequency diversity and/or geographically diverse beam coverage. SES has also coordinated the proposed test operations with the Department of Defense, which operates Ka-band satellites near 137° W.L. Therefore, no harmful interference will be caused to nearby satellites.

*No Harmful Interference to Terrestrial Services.* Transmissions associated with IOT of SES-15 will not cause harmful interference to any terrestrial services in the 27.5-28.35 GHz band. The earth station was licensed to communicate with satellites located within an orbital arc of 97° W.L. to 135° W.L. based on a previously completed coordination notification. SES completed a supplemental coordination notification through Comsearch to extend the arc to 137° W.L. *See* Attachment 1.

Additionally, the earth station will not exceed the maximum output EIRP density specified in the license, except in the case of certain tests involving high-powered continuous wave (“CW”) for a short duration of time lasting from 30 minutes to several hours. A detailed description of the proposed IOT activities is provided in Attachment 2. SES will conduct all IOT operations on a non-harmful interference basis and will cease transmissions promptly in the event SES receives a complaint of harmful interference regarding its operations.

*Waiver Request.* SES seeks any necessary waiver of Section 25.210(j) of the Commission’s rules in order to permit communications with SES-15 at 137° W.L. with an east-west stationkeeping tolerance of +/- 0.1 degree during the IOT operations. Grant of this waiver is consistent with Commission policy:

The Commission may waive a rule for good cause shown. Waiver is appropriate if special circumstances warrant a deviation from the general rule and such deviation would better serve the public interest than would strict adherence to the general rule. Generally, the Commission may grant a waiver of its rules in a particular case if the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest.<sup>3</sup>

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<sup>3</sup> *PanAmSat Licensee Corp.*, 17 FCC Rcd 10483, 10492 (Sat. Div. 2002) (footnotes omitted).



Section 25.210(j) specifies that geostationary space stations “must be maintained within 0.05° of their assigned orbital location in the east/west direction, unless specifically authorized by the Commission to operate with a different longitudinal tolerance.”<sup>4</sup> Here, SES is seeking authority to communicate with SES-15 while the satellite is maintained with a +/- 0.1 degree stationkeeping tolerance during the limited period of IOT operations. The relaxed stationkeeping tolerance will minimize interruptions to the payload testing operations due to stationkeeping maneuvers, which would delay the satellite’s on-station start of operations. It will also conserve fuel for future satellite operations. Furthermore, the SES-15 stationkeeping volume will not overlap with that of other satellites near 137° W.L. and therefore there will be no adverse effect on the operations of other spacecraft.

*Protective Conditions.* SES will coordinate its test operations with all potentially affected operating satellite networks. All testing will be conducted on an unprotected, non-harmful interference basis, and SES operations will cease immediately upon notification of harmful interference.<sup>5</sup>

SES hereby certifies that no party to this application is subject to a denial of benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. § 862.

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<sup>4</sup> 47 C.F.R. § 25.210(j).

<sup>5</sup> The 24/7 point of contact for SES during IOT is Payload Management Operations Center Level 1, +1 410 970 7570; +1 800 772 2363; pmocl1@ses.com.

For the foregoing reasons, SES respectfully requests special temporary authority to operate its E160022 earth station to test the Ka-band payload on SES-15 at 137° W.L. for a period of up to 30 days commencing on or around November 19, 2017. Grant of the requested authority will permit testing of the spacecraft without affecting services to customers and will permit a seamless transition of services.

Respectfully submitted,  
SES Americom, Inc.

By: /s/ Petra A. Vorwig

Of Counsel  
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Washington, D.C. 20004  
Tel: (202) 599-0975

Petra A. Vorwig  
Senior Legal & Regulatory Counsel  
SES Americom, Inc.  
1129 20th Street N.W., Suite 1000  
Washington, D.C. 20036

Dated: November 3, 2017

Attachment 1  
Supplemental Coordination Notification Report

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**SES Americom, Inc.**  
**SOUTH MTN, CA**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
October 30, 2017

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## 1. CONCLUSIONS

An interference study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the proposed earth station demonstrates that this site will operate satisfactorily with the common carrier microwave environment. Further, there will be no restrictions of its operation due to interference considerations.

## **2. SUMMARY OF RESULTS**

A number of great circle interference cases were identified during the interference study of the proposed earth station. Each of the cases, which exceeded the interference objective on a line-of-sight basis, was profiled and the propagation losses estimated using NBS TN101 (Revised) techniques. The losses were found to be sufficient to reduce the signal levels to acceptable magnitudes in every case.

### 3. SUPPLEMENTAL SHOWING

Pursuant to Part 25.203(c) of the FCC Rules and Regulations, the satellite earth station proposed in this application was coordinated by Comsearch using computer techniques and in accordance with Part 25 of the FCC Rules and Regulations.

Coordination data for this earth station was sent to the below listed carriers with a letter dated 09/20/2017.

Company

ABC Holding Company Inc.  
AT&T Corp.  
AT&T Mobility Spectrum LLC - Southern CA  
Aera Energy LLC  
Aerioconnect Inc  
Aerioconnect, Inc.  
Aerionet, Inc.  
Antelecom, Inc.  
Antelope Valley College  
BP West Coast Products LLC  
Bel Air Internet, LLC  
Beverly Hills, City of  
British American Communications Inc  
Burbank, City of  
CBS Broadcasting Inc  
CBS Communications Services Inc  
CBS Radio Inc. of Los Angeles  
California Internet, L.P.  
California Resources Corporation  
California, State of  
Castaic Lake Water Agency  
City of Culver City  
City of Downey  
City of Los Angeles Dept Water & Power  
City of Montebello  
City of Pasadena, California  
City of San Buenaventura Police Dept  
City of Santa Barbara Fire Department  
City of Torrance  
City of Whittier  
Clearwire Spectrum Holdings III, LLC  
Communication Services  
Communication Services, Inc.  
Community Memorial Health System  
El Monte Police Department  
Embee Technologies  
Federal Communication Commission  
Fireline Network Solutions Inc.  
Foothill Transit  
Fox Television Stations, LLC



Frontier California Inc.  
Gilcomm LLC  
Glaser, Mike  
Glendale City California  
Global Telecom & Technology Americas  
Iberdrola Renewables, LLC  
KAZN-TV Licensee LLC  
KTLA, LLC  
Kern Ed Telecom Consortium  
Kern, County of  
LT-WR, LLC  
Las Virgenes Unified School District  
Long Beach, City of (WCD)  
Los Angeles City Info Technology Agency  
Los Angeles County Dept of Public Works  
Los Angeles County FCC Licensing Section  
Los Angeles County Metro Transit Auth  
Los Angeles Regional Interoperable Comm  
Los Angeles SMSA Ltd. Partnership  
Los Angeles, City of  
Metropolitan Water Dist of So California  
Mobile Relay Associates Inc.  
Monrovia, City of  
NBC Telemundo License LLC  
New Cingular Wireless PCS - Los Angeles  
Nextel of California Inc.  
Nextlink Wireless, LLC  
Nextweb Inc  
Olympic Wireless, LLC  
Pacific Bell Tel Com dba AT&T California  
Pueblo Radiology  
Redondo Beach Police Department  
Regents of the University of California  
Santa Barbara Cellular Systems, Ltd.  
Santa Barbara, County of  
Skyriver Communications  
SmartSky Networks, LLC  
South Bay Regional Public Comm Authority  
Southern California Gas Company  
Spectrum Link, Inc.  
Sprint Spectrum L.P.  
Sprint Telephony PCS, L.P.  
T-Mobile License LLC  
THUMS Long Beach Company  
Tejon Ranch Co  
Tesoro Companies, Inc  
Towerstream Corp.  
Turn Wireless, LLC  
Union Pacific Railroad Company  
Vectus, Inc  
Ventura County Office of Education  
Ventura, County of  
Verizon Wireless (VAW) LLC (Southern CA)  
Verizon Wireless (VAW) LLC-N CA/NV  
Wiline Spectrum Holdings LLC  
XO Communications, LLC



## **4. EARTH STATION COORDINATION DATA**

This section presents the data pertinent to frequency coordination of the proposed earth station that was circulated to all carriers within its coordination contours.

# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
(703)726-5500 <http://www.comsearch.com>

Date: 10/30/2017  
Job Number: 170920COMSGE02

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### Administrative Information

Status TEMPORARY (Operation from 11/20/2017 to 12/22/2017)  
Call Sign E160022  
License Code P3210  
Licensee Name SES Americom, Inc.

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### Site Information

#### SOUTH MTN, CA

Venue Name  
Latitude (NAD 83) 34° 19' 31.9" N  
Longitude (NAD 83) 118° 59' 41.4" W  
Climate Zone A  
Rain Zone 4  
Ground Elevation (AMSL) 312.12 m / 1024.0 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 97° W to 137° West Longitude  
Azimuth Range 144.4° to 210.0°  
Corresponding Elevation Angles 43.7° / 45.7°  
Antenna Centerline (AGL) 5.49 m / 18.0 ft

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### Antenna Information

#### Receive - FCC32

#### Transmit - FCC32

Manufacturer	SES	SES	
Model	9.2 meter	9.2 meter	
Gain / Diameter	62.2 dBi / 9.2 m	65.5 dBi / 9.2 m	
3-dB / 15-dB Beamwidth	0.13° / 0.26°	0.10° / 0.20°	
Max Available RF Power (dBW/4 kHz)		-25.0	
(dBW/MHz)		-1.0	
Maximum EIRP (dBW/4 kHz)		40.5	
(dBW/MHz)		64.5	
Interference Objectives:	Long Term	-156.0 dBW/MHz 20%	-151.0 dBW/4 kHz 20%
	Short Term	-146.0 dBW/MHz 0.01%	-128.0 dBW/4 kHz 0.0025%

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### Frequency Information

#### Receive 18.0 GHz

#### Transmit 28.0 GHz

Emission / Frequency Range (MHz)	100KG7D - 250MG7D / 18300.0 - 18800.0	100KG7D - 250MG7D / 27500.0 - 28600.0
	100KG7N - 250MG7N / 19700.0 - 20200.0	100KG7N - 250MG7N / 29250.0 - 30000.0
	100KG7W - 250MG7W / 19700.0 - 20200.0	100KG7W - 250MG7W / 29250.0 - 30000.0

Max Great Circle Coordination Distance 136.4 km / 84.7 mi 100.0 km / 62.1 mi  
Precipitation Scatter Contour Radius 100.0 km / 62.1 mi 100.0 km / 62.1 mi

# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
(703)726-5500 <http://www.comsearch.com>

### Coordination Values

### SOUTH MTN, CA

Licensee Name	SES Americom, Inc.		
Latitude (NAD 83)	34° 19' 31.9" N		
Longitude (NAD 83)	118° 59' 41.4" W		
Ground Elevation (AMSL)	312.12 m / 1024.0 ft		
Antenna Centerline (AGL)	5.49 m / 18.0 ft		
Antenna Model	SES 9.2 meter		
Antenna Mode	Receive 18.0 GHz	Transmit 28.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz    20%	-151.0 dBW/4 kHz    20%	
Short Term	-146.0 dBW/MHz    0.01%	-128.0 dBW/4 kHz    0.0025%	
Max Available RF Power		-25.0 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	14.35	135.13	-10.00	100.00	-10.00	100.00
5	14.21	131.36	-10.00	100.00	-10.00	100.00
10	14.39	127.59	-10.00	100.00	-10.00	100.00
15	13.49	123.26	-10.00	100.00	-10.00	100.00
20	13.83	119.33	-10.00	100.00	-10.00	100.00
25	13.95	115.22	-10.00	100.00	-10.00	100.00
30	12.49	110.68	-10.00	100.00	-10.00	100.00
35	12.30	106.46	-10.00	100.00	-10.00	100.00
40	13.68	102.43	-10.00	100.00	-10.00	100.00
45	14.45	98.18	-10.00	100.00	-10.00	100.00
50	15.10	93.85	-10.00	100.00	-10.00	100.00
55	15.64	89.46	-10.00	100.00	-10.00	100.00
60	16.43	85.01	-10.00	100.00	-10.00	100.00
65	15.98	80.62	-10.00	100.00	-10.00	100.00
70	17.38	76.04	-10.00	100.00	-10.00	100.00
75	17.26	71.63	-10.00	100.00	-10.00	100.00
80	17.32	67.22	-10.00	100.00	-10.00	100.00
85	16.05	63.19	-10.00	100.00	-10.00	100.00
90	16.12	58.93	-10.00	100.00	-10.00	100.00
95	16.24	54.72	-10.00	100.00	-10.00	100.00
100	15.78	50.84	-10.00	100.00	-10.00	100.00
105	13.37	48.15	-10.00	100.00	-10.00	100.00
110	10.54	46.30	-9.64	100.00	-9.64	100.00
115	8.54	44.57	-9.23	100.00	-9.23	100.00
120	7.23	42.91	-8.81	100.00	-8.81	100.00
125	6.12	41.61	-8.48	100.00	-8.48	100.00
130	5.67	40.27	-8.12	100.00	-8.12	100.00
135	4.75	39.89	-8.02	100.00	-8.02	100.00
140	3.77	40.13	-8.09	100.00	-8.09	100.00
145	5.15	38.55	-7.65	100.00	-7.65	100.00
150	5.95	38.10	-7.52	100.00	-7.52	100.00
155	6.77	38.21	-7.56	100.00	-7.56	100.00
160	5.74	40.59	-8.21	100.00	-8.21	100.00
165	6.69	41.33	-8.41	100.00	-8.41	100.00
170	6.82	42.37	-8.68	100.00	-8.68	100.00
175	7.89	42.00	-8.58	100.00	-8.58	100.00
180	6.70	43.41	-8.94	100.00	-8.94	100.00
185	4.10	45.76	-9.51	100.00	-9.51	100.00

# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147

(703)726-5500 <http://www.comsearch.com>

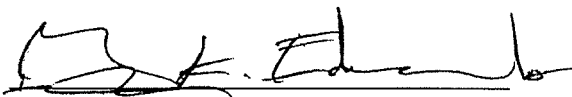
<b>Coordination Values</b>		<b>SOUTH MTN, CA</b>			
Licensee Name		SES Americom, Inc.			
Latitude (NAD 83)		34° 19' 31.9" N			
Longitude (NAD 83)		118° 59' 41.4" W			
Ground Elevation (AMSL)		312.12 m / 1024.0 ft			
Antenna Centerline (AGL)		5.49 m / 18.0 ft			
Antenna Model		SES 9.2 meter			
Antenna Mode		Receive 18.0 GHz		Transmit 28.0 GHz	
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power				-25.0 (dBW/4 kHz)	

Azimuth (°)	Receive 18.0 GHz			Transmit 28.0 GHz		
	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	1.86	47.14	-9.83	100.00	-9.83	100.00
195	0.00	47.56	-9.93	136.37	-9.93	100.00
200	1.29	45.28	-9.40	100.00	-9.40	100.00
205	2.18	43.74	-9.02	100.00	-9.02	100.00
210	1.95	43.74	-9.02	100.00	-9.02	100.00
215	2.49	43.44	-8.95	100.00	-8.95	100.00
220	2.85	43.78	-9.03	100.00	-9.03	100.00
225	2.32	45.42	-9.43	100.00	-9.43	100.00
230	0.46	48.58	-10.00	117.03	-10.00	100.00
235	1.89	49.17	-10.00	100.00	-10.00	100.00
240	3.10	50.41	-10.00	100.00	-10.00	100.00
245	4.45	52.01	-10.00	100.00	-10.00	100.00
250	3.95	55.17	-10.00	100.00	-10.00	100.00
255	4.59	57.83	-10.00	100.00	-10.00	100.00
260	5.91	60.43	-10.00	100.00	-10.00	100.00
265	5.27	64.14	-10.00	100.00	-10.00	100.00
270	6.36	67.28	-10.00	100.00	-10.00	100.00
275	8.17	70.45	-10.00	100.00	-10.00	100.00
280	9.55	74.00	-10.00	100.00	-10.00	100.00
285	9.89	77.92	-10.00	100.00	-10.00	100.00
290	11.20	81.81	-10.00	100.00	-10.00	100.00
295	11.13	85.92	-10.00	100.00	-10.00	100.00
300	11.98	90.04	-10.00	100.00	-10.00	100.00
305	11.46	94.17	-10.00	100.00	-10.00	100.00
310	11.47	98.29	-10.00	100.00	-10.00	100.00
315	12.16	102.50	-10.00	100.00	-10.00	100.00
320	13.46	106.85	-10.00	100.00	-10.00	100.00
325	14.47	111.22	-10.00	100.00	-10.00	100.00
330	14.49	115.36	-10.00	100.00	-10.00	100.00
335	13.75	119.16	-10.00	100.00	-10.00	100.00
340	14.26	123.29	-10.00	100.00	-10.00	100.00
345	15.66	127.78	-10.00	100.00	-10.00	100.00
350	16.71	132.11	-10.00	100.00	-10.00	100.00
355	14.43	134.47	-10.00	100.00	-10.00	100.00

## 5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: \_



Gary K. Edwards  
Senior Manager  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147

DATED: October 30, 2017

Attachment 2

**Call Sign:** E160022

**Site Details**

**Contact Information:**

David Coyle  
805-386-2712

**Address:**

5990 Solano Verde Dr.  
Somis, California 93066

**Geographic Coordinates:**

Latitude: 34° 19' 31.9" N

Longitude: 118° 59' 41.4" W

**Site Elevation:**

312.1 meters

**Antenna Details**

Antenna ID: 1  
Manufacture/Model: SES/9.2 Meter  
Antenna Size: 9.2 meters  
Antenna Gain Transmit: 65.5 dBi at 28.0 GHz  
69.1 dBi at 30.0 GHz  
Antenna Gain Receive: 62.2 dBi at 18.0 GHz  
Height Above Ground Level: 11.05 meters  
Height Above Sea Level: 323.15 meters  
Total Input Power at the Flange: 371.5 watts  
Total EIRP for the test Carrier: 91.19 dBW

**IOT Operational Details**

Frequency (MHz)	Transmit /Receive	Polarization	Emission Designator	Max EIRP per Carrier (dBW)	Max EIRP Density per Carrier (dBw/4kHz)
18.3-18.8	R	Right and Left Circular	N0N	0.0	0.0
19.7-20.2	R	Right and Left Circular	N0N	0.0	0.0
27.5-28.35	T	Right and Left Circular	N0N	87.5	87.5
28.35-28.6	T	Right and Left Circular	N0N	87.5	87.5
29.25-30.0	T	Right and Left Circular	N0N	87.5	87.5