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September 9, 2019

VIA ECFS

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Re: Satellite Usage Submission of SES Pursuant to Protective Order

Dear Ms. Dortch:

On May 28, 2019, SES Americom, Inc., SES Satellites (Gibraltar) Limited, New Skies Satellites B.V., and SES DTH do Brasil Ltda (collectively “SES”) submitted information to the Commission in response to an April 11, 2019 Public Notice¹ seeking earth station and satellite usage data. In conjunction with that filing, SES requested confidential treatment for, and accordingly redacted, commercially sensitive and confidential information that was exempt from disclosure under FOIA Exemption 4.

On August 26, 2019, the Commission adopted the *Protective Order* in these proceedings,² which sets forth procedures regarding the treatment of “Confidential Information” and “Highly Confidential Information.” Out of an abundance of caution, SES hereby resubmits the information it provided to the Commission on May 28, 2019, and identifies and redacts Highly Confidential Information consistent with the *Protective Order*.

Among other things, the information marked as “Highly Confidential” relates to satellite end of life estimates, specific satellite replacement plans, details about the SES’s contractual obligations and transponder utilization, all of which is commercially sensitive and would not normally be available to the public. All of this information consists of detailed plans related to “technology implementation or deployment plans and strategies,” “future costs,” and “network facilities and operations, including engineering information,” as set forth in paragraphs 2, 4, and 7 of Appendix A of the *Protective Order*. Accordingly, SES requests “Highly Confidential” treatment for the information it has already withheld from public disclosure under FOIA Exemption 4.

¹ *Deadline for Submission of Information on Earth Station and Satellite Use of the 3.7-4.2 GHz Band*, Public Notice, 34 FCC Rcd 2287 (2019).

² *Expanding Flexible Use of the 3.7 to 4.2 GHz Band et al.*, Protective Order, GN Docket No. 18-122 *et al.*, DA 19-822 (rel. Aug. 26, 2019) (“*Protective Order*”).

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As specified in the *Protective Order*, one unredacted, Highly Confidential copy of this filing is being filed with the Secretary's Office. Two unredacted, Highly Confidential copies of this filing are being hand delivered to Matthew Pearl of the Wireless Telecommunications Bureau. Finally, one copy of the redacted version of this filing is being filed electronically through the Commission's Electronic Comment Filing System.

Please contact me with any questions about this filing.

Respectfully submitted,

/s/ Michele C. Farquhar

Michele C. Farquhar
Counsel to SES

cc: Matthew Pearl

Enclosure



1129 20th Street, NW
Washington, DC 20036

May 28, 2019

VIA ELECTRONIC FILING

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

**Re: Consolidated Response to Public Notice DA 19-278 – Submission of C-band
Satellite Usage Data**

Dear Ms. Dortch:

SES Americom, Inc. (“SES”), New Skies Satellites B.V., SES Satellites (Gibraltar) Ltd. and SES DTH do Brasil Ltda, each an independent indirect wholly-owned subsidiary of SES S.A. (collectively, “the SES Group”), provide the below information and associated attachments in response to the public notice requesting specific contract and utilization data for each entity’s C-band satellites authorized to provide service to the United States.¹

The SES Group has been providing C-band service to the United States for over 40 years and was instrumental in developing the resilient and cost-effective television and audio distribution ecosystem that relies on C-band satellite service today. SES is also a member of the C-Band Alliance (“CBA”), which has proposed a novel and efficient method for repacking existing C-band customers into 300 MHz of spectrum (3900-4200 MHz) in order to clear and reallocate 200 MHz, including a 20 MHz guard band, for terrestrial mobile 5G operations.

The Public Notice requests a substantial amount of information about daily utilization rates for “each transponder on each satellite operating in the 3.7-4.2 GHz range that is operational and legally authorized to serve customers in the United States.”² Some of the information requested is confidential and is being submitted under a request for confidential treatment. The remainder is being filed publicly.

¹ *Deadline for Submission of Information on Earth Station and Satellite Use of the 3.7-4.2 GHz Band*, Public Notice, DA 19-278, GN Docket No. 18-122 (Apr. 11, 2019) (“Public Notice”).

² *Id.* at 3.

Satellite Overview

The table provided in Appendix 1 summarizes the satellites that the SES Group operates under Commission authority to provide service to the United States using the 3.7-4.2 GHz band. These satellites are authorized through a U.S. license or through a U.S. market access authorization.

It is important to note that the orbital locations are not fungible, and certain orbital locations are better suited for certain services versus other. Specifically, the SES Group has developed a robust broadcast and cable video distribution neighborhood using the 101° W.L., 103° W.L., and 105° W.L. orbital locations. These orbital locations offer 50 state coverage and the earth station antennas that receive the content carried on satellites operating at these orbital location are already pointed to the neighborhood. The satellites that do not offer 50 state coverage are better suited for inter-continental content and data transfers. These orbital locations include 20° W.L. to 47.5° W.L., which are unable to provide service to the western portion of the United States but offer coverage between the east coast of the United States and Europe. Additionally, AMC-18 is fully dedicated to Alaska and NSS-9 is unable to provide service to the eastern portion of the United States but offers connectivity between the west coast and Asia.

Future C-band Satellites

As described in several submissions in the record and further discussed in Appendix 3, under the CBA proposal SES and Intelsat have determined that each company will need to launch additional satellites to replenish current C-band orbital locations in order to absorb services that will need to be removed from the lower 200 MHz of the C-band Downlink spectrum into the remaining 300 MHz. If the CBA proposal is adopted, SES expects to manufacture four new C-band satellites within 30 months of a final FCC Order.

Satellite Utilization

The Public Notice requested C-band satellite operators to provide “[f]or each transponder on each satellite operating in the 3.7-4.2 GHz ranges” the following information:

- The frequency range of the transponder and the transponder number;
- The total capacity (megahertz) and in terms of the number of megahertz on each transponder that are currently contract (also provide this data for one month in 2016);
- For each day in March 2019, the average percentage of each transponder’s capacity (megahertz) utilized and the maximum percentage of capacity utilized on that day. Parties may supplement this required daily data for March 2019 with historical trend data over recent months up to three years (provide the date range at which the data was collected to show utilization variances; and
- For all data reported regarding capacity under contract and capacity utilization, specify the percentage (if any) only for customers outside of the United States.³

³ *Id.* at 3.

The SES Group provides the available information that responds to these requests in Appendix 5.

Appendix 5, rows 2 and 3 of each spreadsheet, provides the amount of capacity contracted on each satellite transponder as of March 1, 2019 and March 1, 2016.⁴ If a customer has purchased the right to use an amount of spectrum as described in Appendix 5, that capacity is not available to be resold or otherwise reused even if the customer chooses not to use the capacity for a period of time. The contracted utilization can be analogized to a hotel room. The SES Group leases access to the defined spectrum. At the start of the contract, the SES Group hands over the keys and the customer can come and go as it pleases until the contract is terminated. Customers pay the SES Group to know that they have a mechanism to distribute their content. As demonstrated in Appendix 5, the vast majority of the time, the portion of capacity contracted for a particular transponder is used 24 hours 7 days a week, but there may be instances that a customer needs to bring a signal down for a few hours or a few days. It must be able to bring the signal back up according to its schedule to meet the demands of its audience without having to worry about whether another terrestrial service has taken up residence in the spectrum, even on a temporary basis.

Satellite Capacity Daily Utilization

In order to assess the requested utilization rate for each satellite transponder, the SES Group collected information gathered from its Radio Frequency Monitoring systems. The SES Group uses these systems to monitor its satellite transponders to ensure correct and safe use of the satellite payload and to provide customer service support and assurance. The systems conduct periodic sampling of a transponder over the course of the day and collect power levels associated with discrete portions of the spectrum. The power levels can be analyzed to determine an estimated utilization percentage. Rows 5 through 66 of the chart provided in Appendix 5 provides the average and peak utilization based on the sampling conducted on each day of March 2019. As noted above, the SES Group does not control how a customer uses the capacity it has purchased under contract, and the SES Group has no authority to repurpose spectrum if it is not being used by a customer at any given time.

Generally, each transponder described in Appendix 5 is capable of downlinking in two polarizations across the full spectrum band assigned to that transponder. The satellites operating at the 72° W.L. to 139° W.L. orbital locations were designed along the traditional 36 MHz transponder design with each transponder operating on both polarizations. In addition to frequency re-use across both polarizations, the remaining satellites also take advantage of beam switching allowing the use of the same frequencies in separate beams. As a result, more than

⁴ Footnote 10 of the Public Notice states that “[f]or purposes of this information collection, ‘transponder number’ refers to a standard 36 megahertz wide transponder and that transponder numbering (1-24) is based on the former center-frequency requirement for C-band space stations.” *Id.* at n.10. Several of the SES Group satellites are configured with transponders that deviate from the historic 36 MHz transponder plan. To accurately reflect the frequency associated with each transponder and the percentage contracted and utilized, the SES Group has reflected each transponder according to the satellite’s design.

one transponder column in Appendix 5 may list the same frequency range with different amounts contracted in the month of March. The satellites are also highly configurable; therefore, the transponders identified in Appendix 5 represent the configuration as of March 1, 2019.

Telemetry, Tracking and Control Stations

SES Engineering (US), Inc., a subsidiary of SES, and its affiliate, MX1 Inc. operate the earth stations that are licensed to provide TT&C for the above referenced satellites and receive telemetry signals in the 3.7-4.2 GHz band. SES also contracts with third party earth station operators to provide antenna services. All these stations are listed in Appendix 2.

Respectfully submitted,

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APPENDIX 1

Overview of SES Group C-band Satellites

The bulk of the information provided in the below table was included in the public submission. Only the information provided in the column titled “Expected End of Life” is included in the SES Group’s request for confidential treatment.

Nominal Orbital Location	Satellite Name	Call Sign	Number of Txp in 3.7-4.2 GHz	Expected End of Life¹	TT&C Downlink Frequencies	TT&C Bandwidth
20° W.L.	NSS-7	S2463	2 x 72 MHz 14 x 54 MHz		11451 MHz 11454 MHz 4199.5 MHz	400 kHz
22° W.L.	SES-4	S2828	9 x 36 MHz 8 x 54 MHz 2 x 72 MHz		11451 MHz 11454 MHz 12500.5 MHz 12502 MHz 4199.75 MHz	400 kHz
37.5° W.L.	AMC-12	S2415	72 x 36 MHz		3703.0 MHz 4199.5 MHz	400 kHz
40.5° W.L.	SES-6	S2870	2 x 41 MHz 2 x 34 MHz 20 x 36 MHz		11701 MHz 11700.5 MHz 12199.5 MHz 3947.5 MHz 4500.1 MHz	400 kHz
47.5° W.L.	SES-14	S2974	12 x 36 MHz 2 x 72 MHz 2 x 79 MHz 2 x 74 MHz		12198 MHz 10953 MHz 4198.0 MHz 20199 MHz	400 kHz
72° W.L.	AMC-3	S2162	24 x 36 MHz		3700.5 MHz 4199.5 MHz 12198 MHz	400 kHz
83° W.L.	AMC-6	S2347	24 x 36 MHz		3700.5 MHz 4199.5 MHz 11702 MHz 12198 MHz	400 kHz
85° W.L.	AMC-2	S2134	24 x 36 MHz		3700.5 MHz 4199.5 MHz 12198 MHz	400 kHz

¹ See Appendix 4 for a summary of how SES estimates the propellant life of its satellites in orbit.

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Nominal Orbital Location	Satellite Name	Call Sign	Number of Txp in 3.7-4.2 GHz	Expected End of Life¹	TT&C Downlink Frequencies	TT&C Bandwidth
87° W.L.	SES-2	S2826	24 x 36 MHz		3700.5 MHz 4199.5 MHz 11701 MHz 12199 MHz	400 kHz
101° W.L.	SES-1	S2807	24 x 36 MHz		3700.5 MHz 4199.5 MHz 11701 MHz 12199 MHz	400 kHz
103° W.L.	SES-3	S2892	24 x 36 MHz		3700.5 MHz 4199.5 MHz 11701 MHz 12198.5 MHz	400 kHz
105° W.L.	SES-11	S2964	24 x 36 MHz		3701.5 MHz 4199.5 MHz 11703 MHz 12198 MHz	400 kHz
131° W.L.	AMC-1	S2445	24 x 36 MHz		3700.5 MHz, 4199.5 MHz 12198 MHz	400 kHz
131° W.L.	AMC-11	S2433	24 x 36 MHz		3700.5 MHz 4199.5 MHz	400 kHz
135° W.L.	AMC-4	S2135	24 x 36 MHz		3700.5 MHz 4199.5 MHz 11702 MHz 12198 MHz	400 kHz
135° W.L.	AMC-7	S2155	24 x 36 MHz		3700.5 MHz 4199.5 MHz	400 kHz
139° W.L.	AMC-8	S2379	24 x 36 MHz ²		3700.5 MHz 4199.5 MHz	400 kHz
139° W.L.	AMC-18	S2713	24 x 36 MHz		3700.5 MHz, 4199.5 MHz	400 kHz

² The AMC-8 satellite is jointly licensed to SES Americom, Inc. and Alascom. See GE American Communications, Inc., DA 00-2096, released Sept. 13, 2000. The Order authorized Alascom, jointly along with GE Americom Communications, Inc. ("GE"), SES's predecessor-in-interest, to launch and operate GE-8/Aurora III, a C-band replacement satellite for Satcom C-5/Aurora II at the 139° W.L. orbit location. Control of GE's interest in this satellite was transferred to SES Global, S.A. pursuant to authority granted in an Order and Authorization, DA 01-2100, released October 2, 2001.

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Nominal Orbital Location	Satellite Name	Call Sign	Number of Txp in 3.7-4.2 GHz	Expected End of Life¹	TT&C Downlink Frequencies	TT&C Bandwidth
177° W.L.	NSS-9	S2756	6 x 72 MHz 10 x 36 MHz 2 x 41 MHz		3951.5 MHz 3952.0 MHz 3944.75 MHz 3952.5 MHz	400 kHz

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APPENDIX 2

Telemetry, Tracking and Control Stations

The information provided below was included in the public submission. The SES Group is not requesting confidential treatment for this information.

Earth Stations Operated by SES Engineering (US), Inc. and MX1 Inc. for TT&C

Call Sign	Geographic Coordinates ³
E000152	38° 47' 0.7" N; 77° 34' 24.3" W
E000275	39° 22' 33.0" N; 77° 4' 50.9" W
E000289	34° 19' 30.5" N; 118° 59' 46.1" W
E000313	21° 40' 12.9" N; 158° 1' 55.9" W
E000696	38° 47' 2.8" N; 77° 34' 22.2" W
E020287	21° 40' 16.5" N; 158° 1' 54.2" W
E070181	39° 22' 35.9" N; 77° 4' 48.3" W
E070182	39° 22' 38.9" N; 77° 4' 48.5" W
E070183	39° 22' 36.0" N; 77° 4' 47.3" W
E090060	21° 40' 14.0" N; 158° 1' 56.0" W
E090134	21° 40' 14.8" N; 158° 1' 55.0" W
E120055	39° 22' 37.0" N; 77° 4' 46.0" W
E140095	39° 22' 39.5" N; 77° 4' 51.5" W
E170201	34° 19' 31.1" N; 118° 59' 46.2" W
E170221	39° 22' 36.7" N; 77° 4' 50.8" W
E2037	39° 22' 33.0" N; 77° 4' 54.0" W
E7169	39° 22' 33.0" N; 77° 4' 49.0" W
E930289	34° 19' 31.3" N; 118° 59' 41.7" W

³ Pursuant to guidance from the Commission's International Bureau, SES Engineering (US), Inc. and MX1 Inc. reflect the geographic coordinates of their earth stations in WGS84 format. *See International Bureau Addresses Accuracy of Earth Station Location Information in IBFS and Provides Guidance to Earth Station Licensees and Applicants*, Public Notice, 32 FCC Rcd 9512 (2017). Therefore, the coordinates provide in the table are provided in WGS84 format rather than in NAD83 format.

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E940156	34° 19' 30.5" N; 118° 59' 47.0" W
E990136	39° 22' 36.0" N; 77° 4' 52.0" W
KA272	34° 19' 30.2" N; 118° 59' 41.5" W
KB27	34° 19' 31.5" N; 118° 59' 42.5" W
E170080	41° 27' 49.8" N; 75° 7' 51.3" W ⁴

Third-Party Earth Stations Used by SES for TT&C

Call Sign	Geographic Coordinates
E950302	32° 34' 40.4" N; 96° 58' 52.4" W
WB81	41° 12' 6.3" N; 74° 31' 34.6" W
KA294	48° 8' 50.5" N; 119° 41' 33.2" W

⁴ This antenna is the subject of a pending modification application. *See* MX1 Inc., File No. SES-MOD-20181016-03786 (filed Oct. 16, 2018).

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APPENDIX 3

Planned Future C-Band Satellites Under the C-Band Alliance Proposal

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APPENDIX 4

SES Satellite Propellant Life Prediction Methods

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APPENDIX 5

Satellite Contract and Daily Utilization Data

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APPENDIX 6

Sample Overview of Customer Utilization

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APPENDIX 7

Background on Regrooming Efforts

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