LERMAN SENTER PLLC

WASHINGTON, DC

DAVID S. KEIR
202.416.6742
DKEIR@LERMANSENTER.COM

December 23, 2013

FILED VIA IBFS

Mr. Jose Albuquerque
Chief, Satellite Division
International Bureau
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: Row 44, Inc. – File Nos. SES-MOD-20121023-00963 and SES-AFS-20130920-00833 (Call Sign E080100) -- Supplemental Showing and Response to Comments

Dear Mr. Albuquerque:

This letter is submitted on behalf of Row 44, Inc. ("Row 44") as a supplement to the information contained in its above-referenced application to modify its Ku-band Earth Stations Aboard Aircraft ("ESAA") network license to add new points of communication, including the Intelsat 19 satellite at 166° E.L. ("IS-19"). As part of this implementation of service on IS-19, Row 44 requests use of space segment in the extended Ku-band downlink at 12.25-12.75 GHz, a non-conforming use under the International Telecommunication Union ("ITU") Region 2 FSS spectrum plan covering the Americas.[1]

This additional space segment capacity will provide Pacific Region downlink coverage in the 12.25-12.75 GHz band within the satellite's footprint, which includes substantial territory in ITU Region 3 ("Region 3") as well as portions of the western U.S. and other parts of ITU Region 2 ("Region 2"). Within Region 2, this spectrum is allocated on a primary basis for the Broadcast Satellite Service ("BSS") and terrestrial fixed services. Row 44 has requested a

[1] *See* Row 44 License Modification Application, File No. SES-MOD-20121023-00963, Attachment at 4 (October 2012).

waiver of the U.S. Table of Allocations, consistent with prior grants of authority to other ESAA operators,[2] to permit its remote service terminals to receive downlinks from IS-19 in this band.

This submission also responds to Comments filed December 13, 2013 by EchoStar Satellite Operating Corporation ("EchoStar") requesting that the Commission require Row 44 to provide a technical interference analysis demonstrating that its operations using the IS-19 downlink would not cause unacceptable interference to adjacent satellites operating in accordance with the Commission's two-degree spacing policy.[3] EchoStar and DirecTV previously made a similar request in connection with a prior grant of authority for comparable use of IS-19.[4]

Just prior to the filing of the EchoStar Comments, Row 44 proactively provided EchoStar with an analysis prepared by Intelsat that addresses EchoStar's request for a demonstration that Row 44's operations will not cause interference to the BSS. Further technical discussions between the parties resulted in minor clarifications of that analysis, a revised version of which is provided as Attachment A hereto.[5] Intelsat's calculations demonstrate that the maximum EIRP density of the IS-19 digital carriers that Row 44 will use is below the level that would trigger required coordination under the ITU Radio Regulations. This demonstration is further supported by well over a year of successful operation of IS-19 for provision of service using the 12.25-12.75 GHz downlink band.[6] Indeed, Intelsat 8 ("IS-8"), which operated at 166° E.L. prior to the launch of IS-19, was also authorized to provide Fixed Satellite Service ("FSS") in the 12.25-

---

[2] *See* Gogo LLC ESAA License, File No. SES-LIC-20120619-00574, at 2 & 4 (condition 90056) (granted May 1, 2013) (authorizing Intelsat 19 (Call Sign S2850) at 166.0 degrees E.L. as a point of communication).

[3] *See* EchoStar Comments, File Nos. SES-MOD-20121023-00963 & SES-AFS-20130920-00833 at 2 (filed December 13, 2013).

[4] *See* Gogo LLC Response to Comments, File Nos. SES-LIC-20120619-00574, SES-AMD-20120731-00709 and SES-AFS-20121008-00902 *et al.*, Attachment A (filed November 27, 2013).

[5] In the IS-19 application, Intelsat sought and obtained a waiver to permit use of the 12.25-12.75 GHz band for Region 2 downlinks. Intelsat explained that these operations would not harm BSS networks because there is sufficient orbital separation between IS-19 and both the nearest Region 2 BSS plan assignment (175.2° W.L.) and the nearest operational BSS satellite (129° W.L.).

[6] *See* Intelsat 19 Authorizations, Call Sign S2850 and File Nos. SAT-RPL-20111222-00245, SAT-MOD-20120628-00107, SAT-STA-20120621-00102 and SAT-STA-20120613-00097 *et al*. (authorizing Intelsat to operate IS-19 in the 12.25-12.75 GHz downlink band with temporary authority commencing in August 2012).

12.75 GHz downlink frequency band in Region 2 pursuant to a waiver.[7] There have been no reported incidences of harmful interference to BSS networks resulting from these operations on IS-19 and IS-8, use which dates back, in the aggregate, more than seven years.

Row 44 notes, in addition, that it is seeking only to receive downlink signals from IS-19 in the 12.25-12.75 GHz band, and therefore these operations will have no interference impact upon BSS networks. Moreover, Row 44 does not seek interference protection for its ESAA downlinks with respect to existing or future BSS operations, and the waiver sought is geographically limited, including only the portion of Region 2 that is visible from IS-19. Finally, in the unlikely event that any interference is caused by Row 44's operations to existing primary service users in the requested bands, Row 44 will cease the interfering operations.

It is Row 44's understanding, following discussions with EchoStar, that the attached showing fully addresses EchoStar's concerns and satisfies its request for an interference analysis demonstrating that Row 44's planned operations using IS-19 will not cause harmful interference to U.S. BSS networks, constrain future use of BSS spectrum, or otherwise impair access to the BSS downlink bands. Accordingly, grant of the requested modification will serve the public interest, and the Commission should proceed with processing and grant of its application on an expedited basis.

Respectfully submitted,

s/ David S. Keir
David S. Keir
Counsel to Row 44, Inc.

cc: Jennifer A. Manner, EchoStar

[7] *See PanAmSat Licensee Corp.*, 21 FCC Rcd 36, 36 & 39-40 (¶¶ 1 & 9-12) (IB 2006) (granting PanAmSat's request for waiver of the Table of Frequency Allocations to permit it to use the IS-8 downlink frequencies at 12.25-12.75 GHz for FSS in ITU Region 2).

Attachment A: Interference Analysis for Intelsat 19

The 12.2– 12.7 GHz band is allocated for use by BSS stations serving ITU Region 2, *i.e.*, North and South America. In the most current ITU database, the most westerly located Appendix 30 assignment is a U.S. assignment at 175.2° W.L. Pursuant to Annex 7 of Appendix 30 of the ITU Radio Regulations, no BSS satellite serving ITU Region 2 may be located further west than that 175.2° W.L. assignment.

Under Annex 4 of Appendix 30, an FSS space station operating in ITU Region 1 (*i.e.*, Europe, including Russia, and Africa) or in ITU Region 3 (Asia and Australia) will trigger coordination with an ITU Region 2 BSS satellite network if the power flux density over any portion of the service area exceeds the values listed in the table below.

-147 dBW/m^2/27MHz	$0° \leq \theta < 0.23°$
-135.7+[(17.74)Log(θ)] dBW/m^2/27MHz	$0.23° \leq \theta < 1.8°$
-134+[0.89 θ^2] dBW/m^2/27MHz	$1.8° \leq \theta < 5°$
-129.2+[(25)Log(θ)] dBW/m^2/27MHz	$5° \leq \theta < 10.57°$
-103.6 dBW/m^2/27MHz	$10.57° \leq \theta$
"θ" is the minimum geocentric separation in degrees between the wanted and interfering space station, taking into account the respective East-West station-keeping accuracies.	

The minimum geocentric separation between Intelsat 19 (166° E.L.) and the ITU Region 2 BSS assignment at 175.2° W.L., taking into account a +/- 0.05 degree East-West station keeping tolerance for Intelsat 19 and a +/- 0.1 degree East-West station keeping tolerance for the BSS cluster, is:

[180-166] + [180-175.2] - [0.05 + 0.1] = 18.65 degrees

With this orbital separation, the downlink EIRP density of an Intelsat 19 carrier would trigger coordination if it exceeds:

-103.6 + 162.1 - [10Log(27000000 Hz)] = -15.8 dBW/Hz.

None of the digital carriers to be used by Row 44 exceeds this downlink EIRP density. As described in the Intelsat 19 license application,[1] four Intelsat 19 downlink beams in the 12.2-12.7 GHz band cover a portion of ITU Region 2. It is also stated in the Intelsat 19 license application that the maximum EIRP density of beams operating in the 12.25 – 12.75 GHz band would not exceed -20 dBW/Hz. The table below identifies the EIRP characteristics of the digital carriers that Row 44 is planning to operate in each beam of Intelsat 19.

Beam Name	**Maximum EIRP**	**Maximum EIRP Density**
North West Pacific	51.1 dBW	-23.7 dBW/Hz
North East Pacific	48.5 dBW	-26.3 dBW/Hz
South West Pacific	48.6 dBW	-26.2 dBW/Hz
Australia	52.4 dBW	-22.4 dBW/Hz

In no case does the maximum EIRP density of the Intelsat 19 digital carriers exceed the values as set forth in the ITU radio regulations Annex 4 of Appendix 30. Therefore, Row 44's digital carriers planned to operate on Intelsat 19 are not expected to affect any Region 2 BSS Plan assignments.

Intelsat recognizes that the operations will be in the BSS 12.2 – 12.7 GHz portion of the band on a non-conforming, non-interference basis and consequently Row 44 will accept any interference from other primary users of this band. Row 44 will cease operation in the unlikely event that its operations cause any interference to existing primary service users in the requested bands.

[1] *See* Intelsat License LLC, Call Sign S2850, File No. SAT-RPL-20111222-00245, Engineering Statement at Exhibits 5.12-5.18 (grant-stamped May 25, 2012).

Engineering Declaration

I, Roya Shambayati, hereby certify under penalty of perjury that I am the technically qualified person responsible for preparation of the information regarding the Intelsat 19 spacecraft contained in the foregoing Attachment A; that I am familiar with the technical requirements of Part 25; and that I either prepared or reviewed Attachment A and that it is complete and accurate to the best of my knowledge, information and belief.

Roya Shambayati

Roya Shambayati
Director, Spectrum Strategy
Intelsat

Dated: December 20, 2013