

DAVID S. KEIR 202.416.6742 dkeir@lermansenter.com

February 6, 2009

Ms. Marlene H. Dortch Secretary Federal Communications Commission 445 12<sup>th</sup> Street, S.W. Washington, D.C. 20554

Re: Submission of Test Plan - Applications of Row 44, Inc. (Call Sign E080100; File Nos. SES-LIC-20080508-00570, SES-AMD-20080619-00826; SES-AMD-20080819-01074; SES-AMD-20080829-01117; SES-AMD-20090115-00041; and SES-STA-20080711-00928)

Dear Ms. Dortch:

Transmitted herewith on behalf of Row 44, Inc. ("Row 44") is its proposed Test Plan for in-flight technical trials under limited Special Temporary Authority ("STA"), which is requested in FCC File No. SES-STA-20080711-00928. *See* Attachment A (Test Plan). This plan of cooperation and data sharing has been agreed to by all of the satellite operators with capacity within six degrees adjacent to the three satellites that Row 44 proposes to use, AMC-9 at 83° W.L., AMC-2 at 101° W.L. and Horizons-1 at 127° W.L.

The Test Plan outlined here, which requires both Row 44 and the satellite operators to devote personnel and equipment to monitor and evaluate in-flight operations, will go into effect upon grant to Row 44 of the requested STA. Operations under the STA will take place for a period of up to 60 days. Once adequate data have been gathered to assess whether the system satisfies predicted non-interference performance, Row 44 will file a report with the Commission providing the data gathered during the course of the testing period. This report will be filed no later than 30 days after the expiration of the initial 60 day term of the STA.

In connection with its joint development of the Test Plan with the satellite operators, Row 44 solicited input from ViaSat, Inc. ("ViaSat"), which has participated in these proceedings. ViaSat declined to provide any specific input concerning methodology for in-flight antenna trials, maintaining its position that additional ground-based testing should be conducted, and reiterating its thoughts regarding such testing. *See* Letter from John P. Janka, Counsel to ViaSat, to David S.



Keir, Counsel to Row 44, at 1-2, dated February 3, 2009 ("Janka Letter," see Attachment B). As Row 44 has previously noted, however, such testing would simply repeat range trials that Row 44 and its antenna supplier, AeroSat Corporation, conducted during the first half of 2008. See Row 44 January 26, 2009 Ex Parte Notice at 1-2. ViaSat did recommend that, following ground testing, the antenna system be installed "on the specific type of aircraft in which it is intended to be used, in order to assess how the system works when fully integrated with the aircraft's power bus and internal navigation system, among other components." See Attachment B, Janka Letter at 2. This is precisely the type of real world technical trial that Row 44 and the satellite operators are proposing via the Test Plan, which Row 44 has advocated from the outset of the STA proceeding, and which ViaSat itself suggested was appropriate and necessary in its initial Petition, at 4 (filed June 27, 2008).

Row 44 notes that, in cooperation with its space segment capacity provider and Hub operator, HNS License Sub. LLC, limited market studies pursuant to Hughes existing experimental license (WE2XEW) are already planned, and that the Satellite Division has been informed of these planned trials. These trials are intended to validate system operating performance under representative usage conditions. As part of this testing, Row 44 will notify all users of its in-flight broadband capability that the service is being offered on a trial basis, and that final FCC approval to operate on a permanent basis has not yet been obtained.

Throughout these proceedings, Row 44 has consistently worked to respond quickly to all information and other requests from FCC staff. Members of the FCC staff have, in turn, acted quickly to address each of Row 44's responsive filings. The submission of the attached Test Plan, first suggested by FCC staff on January 23, 2009, represents what Row 44 believes should be the final step on the path to grant of the limited STA that Row 44 has been seeking since last Summer. By their approval of and cooperation with the Test Plan, the operators potentially affected by Row 44's spectrum use have each accepted in-flight testing as the logical means to obtain conclusive data concerning the performance of Row 44's antenna system, and ultimately to allow final action on its application. Accordingly, the International Bureau should expeditiously consider the Test Plan and grant the requested STA.

Should there be any further questions regarding this matter, please contact the undersigned counsel.

Respectfully submitted,

Counsel to Row 44. Inc.

cc: John Giusti Rod Porter

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Bob Nelson
Fern Jarmulnek
Stephen Spaeth
Karl Kensinger
Andrea Kelly
Scott Kotler
Stephen Duall
Kathryn Medley
Sophie Arrington
Frank Peace
Trang Nguyen
Jeanette Spriggs
John Janka, Counsel to ViaSat, Inc.

## ATTACHMENT A

February 6, 2009 Test Plan



February 6, 2009

Jose Albuquerque Senior Director, Spectrum Engineering Intelsat 3400 International Drive, NW Washington, DC 20008

David Bair Senior VP, Satellite & Space Programs Echostar Satellite Corporation 9601 S. Meridian Blvd. Englewood, CO 80112

Krish Jonnalagadda Satellite Marketing Development, Manager SES Americom, Inc. Four Research Way Princeton, NJ 08540-6684

Re: Test Plan for Row 44 Temporary Mobile Operations

#### Gentlemen:

This letter memorializes the commitment of Row 44, Inc. ("Row 44") to share data derived from the initial testing of its aeronautical mobile satellite service ("AMSS") remote units once they have been authorized pursuant to Federal Communications Commission ("FCC") special temporary authority under pending FCC File No. SES-

STA-20080711-00928 ("STA"). This letter sets forth the scope and purpose of the testing, the data to be shared, the entities with which such data will be shared, and the conditions on the sharing of this test data and information.

Purpose. The purpose of the testing to be conducted under the STA is to evaluate under real-world flight conditions both the technical performance and non-interference characteristics of the AMSS remote terminals to be deployed by Row 44. The basic soundness and interference capabilities of the antenna have already been established through ground testing using a motion table at AeroSat's facility in Amherst, New Hampshire, and operation on commercial aircraft is intended to affirm these capabilities under actual operational conditions with the system fully utilized by both airline passengers and crew.

Scope. Row 44's commitment to share data applies exclusively to those geostationary operators that operate space segment capacity within six degrees of the satellites to be used by Row 44 in offering AMSS, and to which this letter is addressed -- Intelsat, Echostar and SES Americom (hereafter, collectively, the "Operators," and each an "Operator").

Data to be Shared. The following information related to and arising from the flight testing of Row 44's AMSS remote terminals will be shared directly by Row 44 with each of the Operators, at their request and subject to the non-disclosure provisions below, once Row 44 is granted the requested STA by the FCC:

- The identity of all fixed locations and any mobile systems with an operational Row 44 remote terminal and associated software and hardware;
- Each satellite and associated transponder being used by Row 44, and the uplink and downlink frequencies employed;
- 3) The dates, approximate times and origination/destination airport of each flight by an aircraft identified under item 1;
- 4) Details of testing of satellite hand-off in Lombard, Illinois, including a description, photos, and other details of typical hand-off scenarios being performed as part of system integration;
- 5) Specific satellite hand-off criteria based on aircraft location for Horizons 1, AMC-9 and AMC-2;
- 6) Dates, times and other relevant details concerning the test schedule in order to allow Operators to monitor the testing;

- 7) Test data collected under the following scenarios:
  - a. Controlled system testing using the Row 44 test aircraft where real-time tests are performed to collect logs for antenna mispointing and misorientation with an antenna mispoint\_of  $\pm 0.2$  degrees and to:
    - i. Measure, in cooperation with the potentially affected operators, any adjacent satellite interference where an aircraft is flown under normal conditions;
    - ii. Measure, in cooperation with the potentially affected operators, any adjacent satellite interference where an aircraft is put through maneuvers intentionally to cause excessive antenna misorientation relative to the target satellite and trigger the associated Clarke Belt alarm;
    - iii. Verify in the Antenna Control Unit logs that the transmissions have been muted during the alarm conditions;
    - iv. Coordinate with the adjacent satellite providers to evaluate whether Row 44's operations have any interference effect on co-frequency transponders;
  - b. Commercial aircraft Antenna Control Unit logs will be collected that demonstrate:
    - i. Aircraft maneuvers that cause an associated Clarke Belt alarm and associated mute of the transmission
    - ii. Occurrences of antenna mispoint and associated mute of transmission
  - c. In the event that the real-time testing outlined above to establish an antenna mispoint of  $\pm 0.2$  degrees is not successful, then Row 44 will conduct additional laboratory-based testing to confirm the same and share the results with the Operators.
- 8) Such other data or data summaries, as reasonably agreed upon by Row 44 and the Operators, which may be necessary to evaluate antenna performance.

All of the foregoing information is considered Confidential Information for purposes of this letter; provided, however, the term "Confidential Information" shall not mean or include: (a) information which is in the public domain at the time of its disclosure by Row 44 to the Operator or which subsequently comes into the public domain without violation of an obligation of confidence assumed hereunder; (b) information received from a third party without violation of an obligation of confidence to Row 44; (c) information which the Operator can show to have been in its possession at the time of

disclosure by Row 44 to the Operator; or (d) information which the Operator can show to have been independently developed without access to Confidential Information. Row 44 shall clearly mark all documented information proprietary or confidential at the time of its disclosure in order for such documented information to be deemed Confidential Information. This data will be shared by Row 44 on an approximately bi-weekly basis for the duration of its mobile STA operation, and for up to 120 days following grant of a system license.

Non-Disclosure. Except with the prior written consent of Row 44, or as otherwise provided in this letter, for a period of five (5) years from the date of this letter, no Confidential Information provided by Row 44 pursuant to this letter, regardless of the form or format, may be disclosed by any Operator to any person other than the other Operators that are parties to this letter or, as appropriate, to the FCC and its staff, provided that it is understood and agreed that Row 44 will be primarily responsible for furnishing the FCC and its staff with Confidential Information required or requested by the FCC from time to time, if any.

The foregoing notwithstanding, each Operator may disclose Confidential Information obtained under the terms of this letter, under non-disclosure agreements to consultants or advisors retained for the purpose of evaluating the Confidential Information provided. In addition, an Operator may disclose Confidential Information obtained under the terms of this letter to its affiliates and outside counsel for the purpose of evaluating the Confidential Information provided, provided that the Operator shall be responsible for compliance by its affiliates and outside counsel with the non-disclosure obligations set forth in this letter.

Violation of this non-disclosure provision by any Operator shall terminate the sharing of any further data or information with the applicable Operator in breach of these provisions.

Reporting to FCC. To the extent required by the FCC, Row 44 will submit results of the testing program to the FCC on the record and subject to confidential treatment as outlined herein. At a minimum, Row 44 will submit a test report to the FCC no later than thirty (30) days following the end of the initial 60-day STA period. Any Confidential Information submitted to the FCC will be submitted directly by Row 44. An Operator shall not be liable for disclosure of Confidential Information if such disclosure of Confidential Information is required pursuant to judicial action or decree, or pursuant to any requirement of any government, or any agency or department thereof, having jurisdiction over the Operator, provided that in the opinion of counsel for such Operator such disclosure is required, and provided further that such Operator to the extent reasonably practicable shall have given Row 44 prior written notice of such disclosure requirement to enable Row 44 to seek a protection of the Confidential Information from public disclosure. If an Operator is so compelled to disclose any Confidential Information Information, the Operator shall furnish only that portion of the Confidential Information

that it is legally required to disclose, and shall exercise reasonable efforts to obtain reliable assurances that the Confidential Information it is disclosing will receive confidential treatment.

Limitation of Liability. In no event shall any Operator be liable to Row 44 for any indirect, consequential, punitive, special or other similar damages (whether in contract, tort (including negligence), strict liability or under any other theory of liability), including but not limited to loss of actual or anticipated revenues or profits, loss of business, customers or good will.

Counterparts. This letter and any acceptance of its terms may be executed in one or more counterparts, each of which will be deemed an original and all of which together will constitute one and the same instrument. Delivery of the executed counterpart signature pages to this letter by facsimile or other electronic transmission shall be effective as delivery of original signature pages.

This letter constitutes the entire agreement among the parties with respect to the subject matter contained herein.

Very truly yours,

John Guidon President & CEO

[Acceptance Signature Page Follows]

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Accepted:

Jose Albuquerque Intelsat

David Bair

Echostar Satellite Corporation

Krish Jonnalagadda

SES Americom, Inc.

## ATTACHMENT B

February 3, 2009 from Counsel to ViaSat, Inc.

### LATHAM & WATKINS LLP

February 3, 2009

Mr. David S. Keir Leventhal Senter pllc 2000 K Street, N.W. Suite 600 Washington, D.C. 20006

Re: Row 44 Testing

Dear David,

On behalf of ViaSat, Inc., we responding to your e-mail of January 29, 2009, in which you request ViaSat's input regarding Row 44's plan to test its proposed AMSS system. We appreciate the opportunity to provide ViaSat's views.

As I am sure you are aware, ViaSat has, on numerous occasions, developed and tested new mobile antenna technologies for its own purposes. ViaSat has carefully evaluated Row 44's request for testing input based on that experience, and ViaSat's own practices. ViaSat recommends the following approach as the most reliable way to evaluate the performance of the Row 44 system.

As an initial matter, a baseline test should be conducted to evaluate the performance of the Row 44 system in a controlled environment. Aircraft flight motion profiles are readily available, or could be gathered without the need for any FCC authority. Those profiles, which incorporate data such as heading, attitude, acceleration and velocity for different maneuvers and phases of flight, should be used as inputs to program the movements of a ground-based motion table in order to reproduce a dynamic aircraft operating environment. Then, the Aerosat antenna system should be attached to the motion table, along with an inertial navigation unit and a laser pointer attached to the antenna. A calibrated target should be placed in front of the laser pointer, to measure the degree of angular mispointing that occurs as the motion table operates in accordance with various motion profiles. While the motion table is operated based on the motion profiles, a video camera should be used to record the movement of the antenna system and the laser against the calibrated target. Once the video is captured, it can then be analyzed with software tools to determine the statistics of the pointing error and correlated with the motion profile to which the antenna was tested.

The reason for starting with this type of testing is that, in ViaSat's experience, it is difficult (if not impossible) to accurately measure pointing tolerances without using a stationary, calibrated target. After this initial phase of testing demonstrates that the antenna system should

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#### LATHAM & WATKINS LLP

work as intended (*i.e.*, achieve the specified peak pointing accuracy), ViaSat recommends installing the antenna system on the specific type of aircraft in which it is intended to be used, in order to assess how the system works when fully integrated with the aircraft's power bus and internal navigation system, among other components. ViaSat believes that this testing methodology is consistent with the "best practices" in the industry.

We understand that Row 44 should have data on hand from the airborne operations to date of its system. Evaluation of those data could assist in identifying any methodological issues with the testing program Row 44 is considering, and could facilitate the development of a mutually acceptable test program. Accordingly, we request that you consider having Row 44 provide those data so that ViaSat could provide additional input with respect to any testing program.

As you are aware, ViaSat has not yet had the opportunity to review any of Row 44's existing data or the airborne testing plan that it appears Row 44 is considering. ViaSat remains willing to review and comment on any such data or test plans once Row 44 makes them available. Please let us know if you have any questions.

Sincerely yours

John P. Janka Jarrett S. Taubman

Counsel for ViaSat, Inc.