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Approved by OMB
3060-0678

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATION Enter a description of this application to identify it on the main menu:
STA for AMC-21 October 2016

1. Applicant

Name:	AC BidCo LLC	Phone Number:	312-517-5566
DBA Name:		Fax Number:	
Street:	111 N Canal St., Suite 1500	E-Mail:	melias@gogoair.com
City:	Chicago	State:	IL
Country:	USA	Zipcode:	60606 -
Attention:	Marguerite Elias		

60 days

"With conditions"

File # SES-STA-20161019-00849

Call Sign E120106 Grant Date 10/26/2016
(or other identifier)

Term Dates
From 10/26/2016 To 12/24/2016

Approved: Paul E. Blain



The stamp is a red circular seal for the Federal Communications Commission (FCC) International Bureau. It features the FCC logo in the center and the word "GRANTED" in large, bold letters. Below "GRANTED" is the text "International Bureau". The stamp is partially enclosed by a red hand-drawn box.

Applicant: AC BidCo LLC
Call Sign: E120106
File No.: SES-STA-20161019-00849
Special Temporary Authority



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Approved: Karl E. Hays

AC BidCo LLC ("AC BidCo") is granted special temporary authority for a period of 60 days to operate up to 200 aeronautical terminals (0.24 meter AeroSat model HR6400 and 0.74 meter ThinKom model 2KuAntenna) to communicate with AMC-21 (Call Sign S2676) at the 125° W.L. orbital location using the 14.0-14.5 GHz (Earth-to-space) and 11.7-12.2 GHz (space-to-Earth) frequency bands. Operations must be in accordance with the technical specifications contained in AC BidCo LLC's application and are subject to the following conditions:

1. Operation under this grant of special temporary authority must be on an unprotected and non-harmful interference basis, *i.e.*, while operating under this temporary authority AC BidCo LLC must not cause harmful interference to, and must not claim protection from interference caused to it by, any other lawfully operating radiocommunication system. AC BidCo LLC must cease operations immediately upon notification of such interference and must immediately inform the Commission, in writing, of such an event.
2. Operation pursuant to this authorization must be in compliance with the terms of AC BidCo LLC's coordination agreements with the National Science Foundation and the National Aeronautics and Space Administration pertaining to operation of ESAA in the Ku-Band.
3. Operation pursuant to this authorization outside the United States in the 14.0-14.5 GHz band must be in compliance with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz band.
4. When operating in international airspace within line-of-sight of the territory of a foreign administration where Fixed Service networks have a primary allocation in the 14.0-14.5 GHz band, an aircraft earth station must not operate in a manner that would produce predicted ground-level power flux density (pfd) in such territory in excess of the following values unless the foreign administration has imposed other conditions for protecting its FS stations: $-132 + 0.5 \times \text{THETA}$ dB(W/(m² MHz)) for $\text{THETA} \leq 40^\circ$; -112 dB(W/(m² MHz)) for $40^\circ < \text{THETA} \leq 90^\circ$. Where: THETA is the angle of arrival of the radio-frequency wave in degrees above the horizontal, and the aforementioned limits relate to the pfd and angles of arrival that would be obtained under free space propagation conditions.
5. Operation pursuant to this authorization must conform to the terms of coordination agreements between the operator of AMC-21 and operators of other Ku-band geostationary satellites within six angular degrees of AMC-21. In the event that another GSO Fixed-Satellite Service (FSS) space station commences operation in the 14.0-14.5 GHz band at a location within six degrees of any of these space stations, ESAA operating pursuant to this temporary authority shall cease transmitting to that space station unless and until such operation has been coordinated with the new space station's operator or AC BidCo LLC demonstrates that such operation will not cause harmful interference to the new co-frequency space station.
6. AC BidCo must operate in accordance with the off-axis EIRP spectral densities supplied to SES Americom, Inc. Intelsat in obtaining the satellite operator certification for AMC-21. AC BidCo shall automatically cease emissions within 100 milliseconds if the ESAA transmitter exceeds the off-axis EIRP

spectral-densities supplied to the target satellite operator and transmission shall not resume until AC BidCo conforms to the off-axis EIRP spectral densities supplied to the target satellite operator.

7. AC BidCo LLC must take all necessary measures to ensure that the operation authorized does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR 1.1307(b) and 1.1310. Measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Requirements for restrictions can be determined by predictions based on calculations, modeling or by field measurements. The FCC's OET Bulletin 65 (available on-line at [ww.fcc.gov/oet/rfsafety](http://www.fcc.gov/oet/rfsafety)) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for workers.

8. AC BidCo LLC must maintain a U.S. point of contact available 24 hours per day, seven days per week, with the authority and ability to terminate operations authorized herein. AC BidCo LLC must submit a letter to be included in its license file with the name and telephone number of the point of contact prior to commencing operation.

9. ESAA authorized herein must employ a tracking algorithm that is resistant to capturing and tracking adjacent satellite signals, and each station must be capable of inhibiting its own transmission in the event it detects unintended satellite tracking.

10. ESAA authorized herein must be monitored and controlled by a ground-based network control and monitoring center. Such stations must be able to receive "enable transmission" and "disable transmission" commands from the network control center and must cease transmission immediately after receiving a "parameter change" command until receiving an "enable transmission" command from the network control center. The network control center must monitor operation of each aircraft earth station to determine if it is malfunctioning, and each aircraft earth station must self-monitor and automatically cease transmission on detecting an operational fault that could cause harmful interference to a fixed satellite service network.

11. Stations authorized herein must not be used to provide air traffic control communications.

12. For each ESAA transmitter AC BidCo LLC shall maintain records of the following data for each operating ESAA, a record of the aircraft location (i.e., latitude/longitude/altitude), transmit frequency, channel bandwidth and satellite used shall be time annotated and maintained for a period of not less than one year. Records shall be recorded at time intervals no greater than one (1) minute while the AES is transmitting. The ESAA operator shall make this data available, in the form of a comma delimited electronic spreadsheet, within 24 hours of a request from the Commission, NTIA, or a frequency coordinator for purposes of resolving harmful interference events. A description of the units (i.e., degrees, minutes, MHz . . .) in which the records values are recorded will be supplied along with the records.

13. Antenna elevation for all operations must be at least 5 degrees above the geographic horizon while the aircraft is on the ground.

14. AC BidCo LLC shall comply with any pertinent limits established by the International Telecommunication Union to protect other services allocated internationally.

15. In connection with the provision of service in any particular country, AC BidCo LLC is obliged to comply with the applicable laws, regulations, rules, and licensing procedures of that

country.

16. Grant of this authorization is without prejudice to any determination that the Commission may make regarding pending applications. *E.g.* IBFS File Nos. SES-MFS-20160824-00738.

17. Any action taken or expense incurred as a result of operations pursuant to this special temporary authority is solely at AC BidCo LLC's risk.

18. 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. Petitions for reconsideration under Section 1.106 or applications for review under Sections 1.115 of the Commission's rules, 47 C.F.R. §§ 1.106, 1.115, may be filed within thirty days of the date of the public notice indicating that this action was taken.

60 days "with conditions"

File # SES-STA-20161019-00849

Call Sign E120106 Grant Date 10/26/2016
(or other identifier)

Term Dates
From 10/26/2016 To 12/24/2016

Approved: Paul E. Glavin



REQUEST FOR SPECIAL TEMPORARY AUTHORITY

AC BidCo LLC (“AC BidCo”), which holds a license to operate an earth station aboard aircraft (“ESAA”) network,¹ hereby requests special temporary authority (“STA”) for a period of 60 days commencing as soon as possible but no later than October 26, 2016, to permit up to 200 ESAA terminals to communicate in the conventional Ku-band with the Gibraltar-licensed AMC-21 satellite located at 124.9° W.L. The Commission placed AMC-21 on the Permitted Space Station List for operations at this location in the conventional Ku-band,² and complete technical information regarding the satellite is therefore already on file with the Commission. Grant of the requested STA will serve the public interest by allowing AC BidCo to respond to urgent customer demand for additional capacity on flights in U.S. airspace. AC BidCo seeks STA pending Commission action on AC BidCo’s application to modify its ESAA license, which includes a request to add AMC-21 as an authorized point of communication.³

Background: AC BidCo is currently authorized to operate two types of Ku-band terminals with specified satellites for ESAA service in U.S. airspace, foreign airspace, and the airspace over international waters. AC BidCo’s license was issued based on demonstration that the proposed network would enhance competition in the provision of in-flight broadband service to air travelers and airline crew members and that the planned operations were fully consistent with technical standards designed to ensure protection of other authorized communications networks. In order to enhance and expand its ESAA operations, AC BidCo is seeking to modify the AC BidCo ESAA License to add seven new satellites as points of communication for the AC BidCo network and to update certain technical parameters.

STA Request: Pending action on the AC BidCo Modification Application, AC BidCo seeks STA to commence communications with AMC-21. The AC BidCo Modification Application contains complete technical information regarding AC BidCo’s proposed operations with AMC-21, and AC BidCo incorporates that information by reference herein. As described in the modification, AC BidCo seeks to communicate with AMC-21 in the conventional Ku-band, with uplinks in the 14-14.5 GHz band and downlinks in the 11.7-12.2 GHz band.⁴ AC BidCo

¹ See Call Sign E120106, File No. SES-MFS-20151022-00735, granted June 30, 2016 (the “AC BidCo ESAA License”). The ESAA license was granted to Gogo LLC (“Gogo”), a commonly-owned affiliate of AC BidCo. A *pro forma* assignment of the ESAA license from Gogo to AC BidCo was approved by the Commission and consummated earlier this year. See File No. SES-ASG-20160714-00659, granted July 19, 2016.

² See *SES Satellites (Gibraltar) Limited*, Call Sign S2676, File Nos. SAT-ASG-20080609-00120 & SAT-PPL-20080929-00203, grant-stamped Aug. 6, 2008.

³ See Call Sign E120106, File No. SES-MFS-20160824-00738 (the “AC BidCo Modification Application”).

⁴ See AC BidCo Modification Application, Narrative at 5.

proposes to use AMC-21 for service to the United States.⁵ AC BidCo requires access to this capacity to ensure that it has sufficient bandwidth to meet near-term customer demand for in-flight connectivity.

AC BidCo emphasizes that the scope of this STA request is narrower than that of the pending AC BidCo Modification Application. Here, AC BidCo is only seeking authority to add AMC-21 as an authorized point of communication for a limited number of ESAA terminals. AC BidCo is otherwise prepared to operate consistently with the terms and conditions set forth in the existing AC BidCo ESAA License. In addition, AC BidCo is willing to operate pursuant to the STA on an unprotected, non-harmful interference basis.

Grant of the requested STA is consistent with Commission policy and will not adversely affect other authorized operations. AC BidCo has submitted a letter confirming that its proposed ESAA operations have been coordinated with operators of the satellites within six degrees on either side of AMC-21.⁶ AC BidCo's operations with this spacecraft will also conform to the terms of its agreements with the National Science Foundation and the National Aeronautics and Space Administration, as required by the AC BidCo ESAA License.⁷ In addition, AC BidCo will comply with power flux density limits to protect terrestrial services outside the U.S.

Grant of the proposed STA will allow AC BidCo to respond to urgent customer demand for increased capacity on important air transport routes over the U.S., promoting competition in the provision of aeronautical services and expanding the availability of in-flight broadband to air travelers and crew members.

AC BidCo understands that any Commission grant of this STA will be without prejudice to the ultimate determination the Commission will make regarding the AC BidCo Modification Application. In addition, AC BidCo acknowledges that any action taken pursuant to a grant of the requested STA will be at AC BidCo's own risk.

⁵ *Id.*

⁶ AC BidCo Modification Application, Annex 3.

⁷ *Id.*, Narrative at 6. *See also* AC BidCo ESAA License at 9, condition 90304.

2. Contact

Name:	Karis Hastings	Phone Number:	202-599-0975
Company:	SatCom Law LLC	Fax Number:	
Street:	1317 F Street, N.W. Suite 400	E-Mail:	karis@satcomlaw.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20004 -
Attention:		Relationship:	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 SESMFS2016082400738 or Submission ID

4a. Is a fee submitted with this application?

- If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).
- Governmental Entity Noncommercial educational licensee
- Other (please explain):

4b. Fee Classification CGB – Mobile Satellite Earth Stations

5. Type Request

- Use Prior to Grant Change Station Location Other

6. Requested Use Prior Date

10/26/2016

7. City/Mobile

8. Latitude

(dd mm ss.s h) 0 0 0.0

9. State	10. Longitude (dd mm ss.s h) 0 0 0.0
11. Please supply any need attachments. Attachment 1: STA Narrative 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.) <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> AC BidCo LLC (AC BidCo) respectfully requests special temporary authority to allow up to 200 ESAA terminals to communicate with the Gibraltar-licensed AMC-21 satellite for coverage of the U.S. STA is sought pending action on AC BidCo's modification application, File No. SES-MFS-20160824-00738, which includes a request to add AMC-21 as an </div>	
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" for these purposes. <input checked="" type="radio"/> Yes <input type="radio"/> No	
14. Name of Person Signing Marguerite Elias	15. Title of Person Signing Exec. Vice President and General 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).	

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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.

12. Description

AC BidCo LLC (AC BidCo) respectfully requests special temporary authority to allow up to 200 ESAA terminals to communicate with the Gibraltar-licensed AMC-21 satellite for coverage of the U.S. STA is sought pending action on AC BidCo's modification application, File No. SES-MFS-20160824-00738, which includes a request to add AMC-21 as an authorized point of communication under AC BidCo's existing ESAA license, call sign E120106. See attached narrative.