Approved by OMB
3060–0678

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATIONEnter a description of this application to identify it on the main menu:
60–Day STA Request

1. Applicant

Name:	SpeedCast Communications Inc	**Phone Number:**	346–274–0629
DBA Name:		**Fax Number:**	
Street:	4400 S. Sam Houston Parkway Ea	**E–Mail:**	leanne.young@speedcast.com
City:	Houston	**State:**	TX
Country:	USA	**Zipcode:**	77048 –
Attention:	Ms. Leanne Young		

GRANTED
International Bureau

File # SES-STA-20190815-01100
E910609 Call Sign (or other identifier) Grant Date 9-5-19
Term Dates
From: 9-5-19 To: 11-4-19
Approved:

2. Contact

Name:	Richard Cameron	**Phone Number:**	2022304962
Company:	LMI Advisors	**Fax Number:**	
Street:	2550 M Street NW Suite 343	E–Mail:	rcameron@lmiadvisors.com
City:	Washington	**State:**	DC
Country:	USA	**Zipcode:**	20037 –
Attention:		**Relationship:**	Other

(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?
◉ 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 CGX – Fixed Satellite Transmit/Receive Earth Station

5. Type Request

◉ Use Prior to Grant ○ Change Station Location ○ Other

6. Requested Use Prior Date 08/19/2019	
7. City Various	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: Narrative Attachment 2: Rad Haz Attachment 3: Draft 312 Schedule B

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.)

Operate Ku-band VSAT remotes in Alaska and Hawaii.

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.

(●) Yes ( ) No

14. Name of Person Signing	15. Title of Person Signing
Leanne Young	Global Supplier Contracts Manager

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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File # SES-STA-20190815-01100
E910609 Grant Date 9-5-19
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(or other identifier)
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From: 9-5-19 To: 11-4-19
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GRANTED
International Bureau

Applicant: Speedcast Communications Inc.
Call Sign: E910609
File No.: SES-STA-20190815-01100
Special Temporary Authority ("STA")

Speedcast Communications Inc. ("Speedcast") is granted to operate its licensed very small aperture terminal ("VSAT") remotes under STA for 60 days with Intelsat IS-19 satellite (Call Sign S2850) in the CONUS, Alaska, and Hawaii regions. STA operations will be performed in the 14000-14500 MHz (Earth-to-space) and 11700-12200 MHz (space-to Earth) frequency bands to expand reliable broadband network to customers in the remote U.S. communities under the following conditions:

1. Operations will be using the proposed antenna models: V240M, V240MT, Cobham Sailor 900, and the currently authorized VSAT remotes. Operations will not exceed power pursuant to 47 C.F.R.§ 25.218(f) as authorized by current license and up to ten Cobham Sailor 900 antennas as specified in STA.

2. All operations shall be on an unprotected and non-harmful interference basis, Speedcast, E910609, shall not cause harmful interference to, and shall not claim protection from, interference caused to it by any other lawfully operating station and it shall cease transmission(s) immediately upon notice of such interference and must inform the Commission, in writing, immediately of such an event.

3. The licensee shall take all necessary measures to ensure that the antennas do 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 wherever such exposures might occur. 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. Compliance can be accomplished in most cases by appropriate restrictions, such as fencing. 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 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.

4. Grant of this STA is without prejudice to any determination that the Commission may make regarding any of Speedcast's pending application or future applications.

5. Any action taken or expense incurred as a result of operations pursuant to this STA is solely at Speedcast's risk.

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 upon release.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

Application of Speedcast Communications Inc. for 60-day Special Temporary Authorization ("STA")	)	Call Sign: E910609
	)	
	)	File No. SES-STA-_____

APPLICATION FOR SPECIAL TEMPORARY AUTHORIZATION

Pursuant to Section 25.120 of the rules of the Federal Communications Commission (the "FCC" or "Commission"),[1] Speedcast Communications Inc. ("Speedcast") respectfully seeks 60-day special temporary authorization ("STA"), commencing on Monday, August 19, 2019 or as soon as practicable thereafter, to operate its previously licensed very small aperture terminal ("VSAT") remotes,[2] as well as the VSAT remotes in its pending application to modify the *VSAT Blanket License*,[3] in Alaska and Hawaii with the Intelsat-19 ("IS-19") satellite in the 11.7-12.2 GHz (space-to-Earth) and 14.0-14.5 GHz (Earth-to-space) bands. Speedcast also seeks to operate up to ten (10) units of a new terminal type – the Cobham Sailor 900 – to communicate with IS-19 in the same Ku-band frequencies in Alaska and Hawaii.

Grant of this STA will serve the public interest because it will enable Speedcast to bring improved broadband connectivity to remote areas of the United States that are unable to rely on traditional terrestrial infrastructure to support communication needs, including the ability to

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[1] 47 C.F.R. § 25.120.

[2] *See* Speedcast Communications Inc., File No. SES-RWL-20110901-01016, Call Sign E910609 ("*VSAT Blanket License*").

[3] *See* Speedcast Communications Inc., File No. SES-MOD-20190225-00191, Call Sign E910609 ("*VSAT License Modification Application*"). In the *VSAT License Modification Application,* Speedcast seeks to add two terminal types – the Intellian V240M and V240MT – to operate in conventional Ku-band and Ka-band frequencies. No Ka-band operating authority is sought as part of this STA request.

deliver vital satellite backhaul support for a local terrestrial network. Speedcast plans to file an amendment to the pending *VSAT License Modification Application* in the very near-term to ensure appropriate regular authority for the operations proposed herein.

I. Discussion

In the *VSAT Blanket License*, Speedcast has authority to operate the previously licensed VSAT remotes with any U.S.-licensed or non-U.S. licensed satellite on the Commission's Ku-band Permitted Space Station List ("Permitted List") and seeks no changes to the authorized power levels for each remote. Thus, Speedcast already has *de facto* authority to operate its previously licensed VSAT remotes with the IS-19 satellite. However, Speedcast acknowledges that the authorized area of operations in the *VSAT Blanket License* is limited to the contiguous United States ("CONUS"), and thus seeks this STA to allow near-term operations in Alaska and Hawaii for its previously authorized VSAT remotes.

This STA request is also consistent with Speedcast's pending *VSAT License Modification Application,* which seeks authority to operate two (2) new terminal types in the CONUS with any satellite on the Permitted List using previously approved parameters.[4] Speedcast plans to file an amendment to the *VSAT License Modification Application* in the near-term to include a request to expand the area of operations to include Hawaii and Alaska, as well as add the Sailor 900 VSAT remote for permanent operations. To the extent applicable, Speedcast incorporates by reference the information submitted in support of the *VSAT License Modification Application* and provides the attached *pro forma* FCC Form 312 Schedule B for information relating to the proposed Sailor

[4] *See* Speedcast Communications Inc., File No. SES-MOD20151210-00928, Call Sign E09017. Speedcast will operate the V240M and V240MT using the identical previously authorized power levels in Call Sign E090176 and at all times in compliance with the relevant EIRP spectral density masks in Section 25.218(f) Commission's rules.

900 operations, as well as a radiation hazard analysis for the Sailor 900.[5] Operation of the previously *unlicensed* VSAT remotes – the V240M, V240MT and Sailor 900 – will be fully consistent with the Commission's spectrum management policies, including two-degree satellite spacing, and will not adversely affect the operations of other spectrum users. speed

II. STA Request & Public Interest Considerations

Section 25.120(a) provides that an STA request should be filed at least three business days prior to commence of proposed operations. Here, Speedcast has timely filed this 60-day STA request so that the Commission may permit operations by August 19, 2019. Moreover, Section 25.120(b)(2) states that the Commission may grant a temporary authorization for up to 60 days if the STA request has not been placed on public notice and the applicant plans to file a request for regular authority for the service. As noted, the *VSAT License Modification Application* is on file with the Commission and Speedcast plans to amend the application to permit long-term authority for the operations proposed hereunder. This STA request will ensure Speedcast has appropriate authority during the Commission's review of the *VSAT License Modification Application*, including the amendment.

Grant of this 60-day STA will strongly serve the public interest by allowing Speedcast to immediately begin supporting certain local terrestrial network services by leveraging Speedcast's satellite backhaul infrastructure. More generally, this STA will help to bridge the digital divide and improve access to resources, materials and opportunities made available by reliable broadband connectivity. Finally, grant of this STA request will allow Speedcast to further expand its network, create an additional competitive alternative for customers in these remote U.S. communities with little access to telecommunications connectivity.

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[5] The radiation hazard analysis is calculated using the maximum BUC power, in reality, Speedcast will operate below the maximum power at all times.

III. Conclusion

Based on the foregoing, the public interest would be served by a grant of Commission authority to Speedcast to operate various VSAT remotes with IS-19 in the Ku-band to support customers in Alaska and Hawaii by Monday August 19, 2019.

Radiation Hazard Study

Sailor 900B

This study analyzes the potential Radio Frequency (RF) human exposure levels caused by the Electro Magnetic (EM) fields of the above-captioned antenna. The mathematical analysis performed below complies with the methods described in the Federal Communications Commission Office of Engineering and Technology Bulletin No. 65 (1985 rev. 1997) R&O 96-326.

Maximum Permisible Exposure

There are two separate levels of exposure limits. The first applies to persons in the general population who are in an uncontrolled environment. The second applies to trained personnel in a controlled environment. According to 47 C.F.R. § 1.1310, the Maximum Permissible Exposure (MPE) limits for frequencies above 1.5 GHz are as follows:

- General Population / Uncontrolled Exposure 1.0 mW/cm2
- Occupational / Controlled Exposure 5.0 mW/cm2

The purpose of this study is to determine the power flux density levels for the earth station under study as compared with the MPE limits. This comparison is done in each of the following regions:

1. Far-field region
2. Near-field region
3. Transition region
4. The region between the feed and the antenna surface
5. The main reflector region
6. The region between the antenna edge and the ground

Input Parameters

The following input parameters were used in the calculations:

Parameter	Value	Unit	Symbol
Atenna Diameter:	1.03	m	D
Antenna Transmit Gain:	41.60	dBi	G
Trasmit Frequency:	14250	MHz	f
Feed Flange Diameter:	5.30	cm	d
Power Input to the Antenna:	8.00	W	P

Calculated Parameters

The following values were calculated using the above input parameters and the corresponding formulas.

Parameter	Value	Unit	Symbol	Formula
Anenna Surface Area:	0.83	m^2	A	$\pi D^2/4$
Area of Feed Flange:	22.06	cm^2	a	$\pi d^2/4$
Antenna Efficiency:	0.58		η	$G\lambda^2/(\pi^2 D^2)$
Gain Factor:	13803.84		g	$10^{G/10}$
Wavelength:	0.0211	m	λ	$300/f$

Behavior of EM Fields as a Function of Distance

The behavior of the characteristics of EM fields varies depending on the distance from the radiating antenna. These characteristics are analyzed in three primary regions: the near-field region, the far-field region and the transition region. Of interest also are the region between the antenna main reflector and the subreflector, the region of the main reflector area and the region between the main reflector and ground.

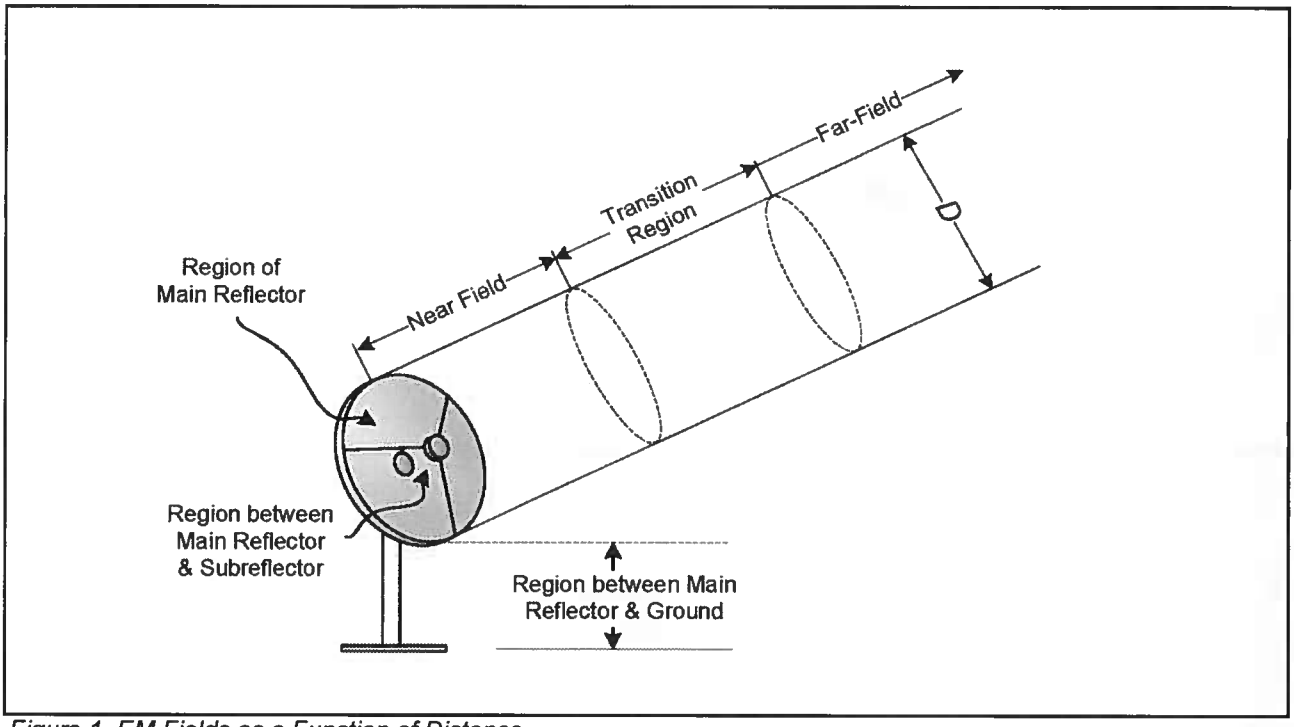

Figure 1. EM Fields as a Function of Distance

For parabolic aperture antennas with circular cross sections, such as the antenna under study, the near-field, far-field and transition region distances are calculated as follows:

Parameter	Value	Unit	Formula
Near Field Distance:	12.598	m	$R_{nf} = D^2/(4\lambda)$
Distance to Far Field:	30.236	m	Rff = 0.60D2/(λ)
Distance of Trasition Region	12.598	m	Rt = Rnf

The distance in the transition region is between the near and far fields. Thus, Rnf ≤ Rt ≤ Rff . However, the power density in the transition region will not exceed the power density in the near-field. Therefore, for purposes of the present analysis, the distance of the transition region can equate the distance to the near-field.

Power Flux Density Calculations

The power flux density is considered to be at a maximum through the entire length of the near-field. This region is contained within a cylindrical volume with a diameter, D, equal to the diameter of the antenna. In the transition region and the far-field, the power density decreases inversely with the square of the distance. The following equations are used to calculate power density in these regions.

Parameter	Value	Unit	Symbol	Formula
Power Density in the Near-Field	2.244	mW/cm^2	S_{nf}	$16.0\,\eta\,P/(\pi D^2)$
Power Density in the Far-Field	0.961	mW/cm^2	S_{ff}	$GP/(4\pi R_{ff}^2)$
Power Density in the Trans. Region	2.244	mW/cm^2	S_t	$S_{nf} R_{nf} / (R_t)$

The region between the main reflector and the subreflector is confined within a conical shape defined by the feed assembly. The most common feed assemblies are waveguide flanges. This energy is determined as follows:

Parameter	Value	Unit	Symbol	Formula
Power Density at the Feed Flange	1450.5	mW/cm^2	S_{fa}	$4P / a$

The power density in the main reflector is determined similarly to the power density at the feed flange; except that the area of the reflector is used.

Parameter	Value	Unit	Symbol	Formula
Power Density at Main Reflector	3.840	mW/cm^2	$S_{surface}$	$4P / A$

The power density between the reflector and ground, assuming uniform illumination of the reflector surface, is calculated as follows:

Parameter	Value	Unit	Symbol	Formula
Power Density between Reflector and Ground	0.960	mW/cm^2	S_g	P / A

Table 1 summarizes the calculated power flux density values for each region. In a controlled environment, the only regions that exceed FCC limitations are shown below. These regions are only accessible by trained technicians who, as a matter of procedure, turn off transmit power before performing any work in these areas.

Power Densities	**mW/cm2**	**Controlled Environment (5 mW/cm2)**
Far Field Calculation	0.961	Satisfies FCC Requirements
Near Field Calculation	2.244	Satisfies FCC Requirements
Transition Region	2.244	Satisfies FCC Requirements
Region between Main and Subreflector	1450.5	Exceeds Limitations
Main Reflector Region	3.840	Satisfies FCC Requirements
Region between Main Reflector and Ground	0.960	Satisfies FCC Requirements

Table 1. Power Flux Density for Each Region

In conclusion, the results show that the antenna, in a controlled environment, and under the proper mitigation procedures, meets the guidelines specified in 47 C.F.R. § 1.1310.