

FCC IBFS - Electronic Filing**Submission_id :IB2018005089****Successfully filed on :Aug 24 2018 12:13:40:330PM**

The current authorization of Call Sign E010146 expires on Jul 26 2026 11:02:47:920AM. The filing of a modification application does not automatically extend the expiration date of an authorization. In addition, grant of a modification will not extend the expiration date unless that is the modification sought. In general, an application for renewal of the authorization must be filed separately in order to extend the expiration date.

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Approved by OMB
3060-0678

Date & Time Filed: Aug 24 2018 12:13:40:330PM
File Number: SES-MOD-INTR2018-05089

FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD - MAIN FORM	FCC Use Only
FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
WLKY - modification of E010146 with acquisition of new uplink truck

1-8. Legal Name of Applicant			
Name:	Hearst Properties Inc.	Phone Number:	919-839-0300
DBA Name:		Fax Number:	919-839-0304
Street:	P.O. Box 1800	E-Mail:	SHARTZELL@brookspierce.com
City:	Raleigh	State:	NC
Country:	USA	Zipcode:	27602 -
Attention:	Stephen Hartzell		

9-16. Name of Contact Representative			
Name:	Stephen Hartzell	Phone Number:	919-839-0300
Company:	Brooks, Pierce et al.	Fax Number:	919-839-0304
Street:	150 Fayetteville Street Suite 1700	E-Mail:	shartzell@brookspierce.com
City:	Raleigh	State:	NC
Country:	USA	Zipcode:	27601-
Attention:	Stephen Hartzell	Relationship:	Legal Counsel

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b. <input checked="" type="radio"/> a1. Earth Station <input type="radio"/> a2. Space Station	(N/A) b1. Application for License of New Station (N/A) b2. Application for Registration of New Domestic Receive-Only Station <input type="radio"/> b3. Amendment to a Pending Application <input checked="" type="radio"/> b4. Modification of License or Registration b5. Assignment of License or Registration b6. Transfer of Control of License or Registration <input type="radio"/> b7. Notification of Minor Modification (N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite (N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States (N/A) b10. Other (Please specify) (N/A) b11. Application for Earth Station to Access a Non-U.S.satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States.
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17c. Is a fee submitted with this application? <input checked="" type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114). <input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee <input type="radio"/> Other(please explain):

17d. Fee Classification CGX - Fixed Satellite Transmit/Receive Earth Station
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18. If this filing is in reference to an existing station, enter: (a) Call sign of station: E010146	19. If this filing is an amendment to a pending application enter both fields, if this filing is a modification please enter only the file number: (a) Date pending application was filed: (b) File number: SESRWL2011051900604
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TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:

- a. Fixed Satellite
 b. Mobile Satellite
 c. Radiodetermination Satellite
 d. Earth Exploration Satellite
 e. Direct to Home Fixed Satellite
 f. Digital Audio Radio Service
 g. Other (please specify)

21. STATUS: Choose the button next to the applicable status. Choose only one.

- Common Carrier Non-Common Carrier

22. If earth station applicant, check all that apply.

- Using U.S. licensed satellites
 Using Non-U.S. licensed satellites

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:

- Connected to a Public Switched Network Not connected to a Public Switched Network N/A

24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s).

- a. C-Band (4/6 GHz) b. Ku-Band (12/14 GHz)
 c. Other (Please specify upper and lower frequencies in MHz.)

Frequency Lower: Frequency Upper: (Please specify additional frequencies in an attachment)

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

- a. Fixed Earth Station
 b. Temporary-Fixed Earth Station
 c. 12/14 GHz VSAT Network
 d. Mobile Earth Station
 e. Geostationary Space Station
 f. Non-Geostationary Space Station
 g. Other (please specify)

26. TYPE OF EARTH STATION FACILITY:

- Transmit/Receive Transmit-Only Receive-Only N/A

"For Space Station applications, select N/A."

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)

- a -- authorization to add new emission designator and related service
 b -- authorization to change emission designator and related service
 c -- authorization to increase EIRP and EIRP density
 d -- authorization to replace antenna
 e -- authorization to add antenna
 f -- authorization to relocate fixed station
 g -- authorization to change frequency(ies)
 h -- authorization to add frequency
 i -- authorization to add Points of Communication (satellites & countries)
 j -- authorization to change Points of Communication (satellites & countries)
 k -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
 l -- authorization to change orbit location
 m -- authorization to perform fleet management
 n -- authorization to extend milestones
 o -- Other (Please specify)

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. 1.1308 and 1.1311, as an exhibit to this application. A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.

Yes No

RF Hazard Analysis

ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government?	<input type="radio"/> Yes <input checked="" type="radio"/> No
30. Is the applicant an alien or the representative of an alien?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A
31. Is the applicant a corporation organized under the laws of any foreign government?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A
33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A
34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.	

BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	<input type="radio"/> Yes <input checked="" type="radio"/> No
36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explanation of circumstances.	<input type="radio"/> Yes <input checked="" type="radio"/> No
37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation of circumstances.	<input type="radio"/> Yes <input checked="" type="radio"/> No
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of circumstances	<input type="radio"/> Yes <input checked="" type="radio"/> No
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhibit, an explanation of the circumstances.	<input type="radio"/> Yes <input checked="" type="radio"/> No
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.	
41. 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. <i>See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.</i>	<input checked="" type="radio"/> Yes <input type="radio"/> No
42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43.	<input type="radio"/> Yes <input checked="" type="radio"/> No
42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?	

43. Description. (Summarize the nature of the application and the services to be provided). Applicant seeks to modify transportable earth station E010146 to change antenna and emissions.

43a. Geographic Service Rule Certification By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.	<input checked="" type="radio"/> A
By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.	<input type="radio"/> B
By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.	<input type="radio"/> C

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CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- Individual
 Unincorporated Association
 Partnership
 Corporation
 Governmental Entity
 Other (please specify)

45. Name of Person Signing

Jordan M. Wertlieb

46. Title of Person Signing

President

**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).**

**SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B:(Technical and Operational Description)**

FOR OFFICIAL USE ONLY

Location of Earth Station Site

E1: Site Identifier:	WLKY KU-Truck 2018	E5. Call Sign:	E010146
E2: Contact Name	Don Englehardt	E6. Phone Number:	502-894-4890
E3. Street:		E7. City:	Various
E4. State		E8. County:	Various
E10. Area of Operation:		E9. Zip Code	ALSAT
E11. Latitude:	0 ° 0 ' 0.0 "		
E12. Longitude:	0 ° 0 ' 0.0 "		
E13. Lat/Lon Coordinates are:		<input type="radio"/> NAD-27	<input type="radio"/> NAD-83 <input checked="" type="radio"/> N/A
E14. Site Elevation (AMSL):		0.0 meters	

E15. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurement? If NO, provide as a technical analysis showing compliance with two-degree spacing policy.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
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E16. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed Satellite Service (FSS) with non-geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a2) and (b) as demonstrated by the manufacturer's qualification measurements?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
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E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	<input type="radio"/> Yes	<input checked="" type="radio"/> No
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E18. Is frequency coordination required? If YES, attach a frequency coordination report as	<input type="radio"/> Yes	<input checked="" type="radio"/> No
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E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	<input type="radio"/> Yes	<input checked="" type="radio"/> No
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E20. FAA Notification - (See 47 CFR Part 17 and 47 CFR part 25.113(c)) Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and/or the FAA's study regarding the potential hazard of the structure to aviation?	<input type="radio"/> Yes	<input checked="" type="radio"/> No
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FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.

POINTS OF COMMUNICATION

Satellite Name: PERMITTED LIST | If you selected OTHER, please enter the following:

E21. Common Name:

E22. ITU Name:

E23. Orbit Location:

E24. Country:

POINTS OF COMMUNICATION (Destination Points)

E25. Site Identifier:

E26. Common Name:

E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size	E41/42. Antenna Gain Transmint and/or Recieve(____dBi at ____GHz)		
WLKY KU-Truck 2018	1	1	Sat-Lite	1411	1.45	44.8 dBi at 14.25		
E28. Antenna Id	E33/34. Diameter Minor/Major(meters)		E35. Above Ground Level(meters)	E36. Above Sea Level(meters)	E37. Building Height Above Ground Level(meters)	E38. Total Input Power at antenna flange(Watts)	E39. Maximum Antenna Height Above Rooftop(meters)	E40. Total EIRP for al carriers(dBW)
1	1.45/1.45		5.0	0.0	0.0	108.9	0.0	65.17

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands(MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V,L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier(dBW)	E49. Maximum EIRP Density per Carrier(dBW/4kHz)
1	11700 12200	R	Horizontal and Vertical	36M0G7W	0.0	0.0
E50. Modulation and Services Digital video, audio, data						
1	11700 12200	R	Horizontal and Vertical	3M50G7W	0.0	0.0
E50. Modulation and Services Digital video, audio, data						
1	14000 14500	T	Horizontal and Vertical	36M0G7W	62.15	22.6
E50. Modulation and Services Digital video, audio, data						
1	14000 14500	T	Horizontal and Vertical	3M50G7W	62.15	32.73
E50. Modulation and Services Digital video, audio, data						

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/Western Limit	E56. Earth Station Azimuth Angle Eastern Limit	E57. Antenna Elevation Angle Eastern Limit	E58. Earth Station Azimuth Angle Western Limit	E59. Antenna Elevation Angle Western Limit	E60. Maximum EIRP Density toward the Horizon(dBW/4kHz)
1	Geostationary	14000 14500	60.0/143.0	0.0	5.0	0.0	5.0	-4.03

REMOTE CONTROL POINT LOCATION

E61. Call Sign		E66. Phone Number	
NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.			
E62. Street Address			
E63. City	E68. County	E67/68. State/Country	E64. Zip Code

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and

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Remember - You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

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.

Radiofrequency Radiation Hazard Study
prepared for
Hearst Properties Inc.
Fixed Satellite Service - Temporary Earth Station

On behalf of *Hearst Properties Inc.*, this statement provides the results of a Radiofrequency Radiation Hazard Study regarding the proposed modification of E010146, a transportable earth station. The proposed modification is to change the antenna, associated equipment, and emissions. The transportable earth station will operate in the “Ku” band with a transmitter power output of 125 Watts and a Sat-Lite 1.45 meter diameter dish antenna.

In keeping with §1.1307(b) of the FCC’s rules, the proposed operation has been evaluated for human exposure to radiofrequency energy using the procedures outlined in FCC OET Bulletin No. 65 (“OET 65”). The 1.45 meter dish antenna will be mounted on the top of a commercial-grade truck such that the distance from the ground to the center of the antenna is approximately 4 meters.

The following data have been used with the OET 65 equations for predicting RF fields for a parabolic aperture antenna:

Proposed Earth Station Parameters

Center Frequency of Operation	14.250 GHz
Wavelength at Center Frequency	0.02105 meters
Transmitter Power Output (Average)	125 Watts
Power At Antenna Input	108.9 Watts
Antenna Diameter	1.45 meters
Antenna Gain	44.8 dBi
Antenna Aperture Efficiency	0.650

At the range of the uplink transmit frequencies (14.0 – 14.5 GHz), according to FCC rule section §1.1310 the maximum permissible exposure (“MPE”) limit for human exposure to RF electromagnetic field is 1.0 mW/cm² for general population / uncontrolled exposure and 5.0 mW/cm² for occupational / controlled exposure.

Radiofrequency Radiation Hazard Study Hearst Properties Inc.

Fixed Satellite Service - Temporary Earth Station
(page 2 of 3)



The following RF power density results were calculated using OET 65 procedures (see Appendix 1):

Maximum RF Power Density		
Region	Calculated Power Density (mW/cm ²)	Conclusion
Far Field On-axis (begins at 59.9 m)	7.29	Exceeds Uncontrolled MPE Exceeds Controlled MPE
Transition Region On-Axis (25.0 to 59.9 m)	17.0	Exceeds Uncontrolled MPE Exceeds Controlled MPE
Near Field On-axis (ends at 25.0 m)	17.0	Exceeds Uncontrolled MPE Exceeds Controlled MPE
Off-axis Near Field (at one antenna diameter)	0.17	Satisfies Both MPE
Off-axis Far Field (59.9 m at 7° off axis)	0.073	Satisfies Both MPE

On-axis (in the main beam of the antenna, oriented towards the sky), the maximum near field power density is calculated to be 17 mW/cm². This exceeds the occupational / controlled and the general population / uncontrolled MPE limits. Such on-axis locations will be well elevated above ground and are not accessible by the general public. Off-axis, the maximum power density is 0.17 mW/cm² which does not exceed the general population / uncontrolled MPE.

The applicant proposes to comply with the FCC's MPE as described in the following. This antenna will be located on a vehicle rooftop and conditions will vary from operating site to operating site. Because of this, the licensee will establish procedures for the operational personnel to verify that the antenna is not pointing in the direction of populated areas, and that access to any hazardous areas are restricted while the unit is in operation.

The only access to the roof of the truck is a ladder that is not accessible by the general public. The distance from the ground to the center of the antenna is approximately 4 meters. Operational personnel shall choose transmitting locations such that no buildings, other obstacles, or human access will be situated in the areas that exceed the MPE limits. The earth station

**Radiofrequency Radiation Hazard Study
Hearst Properties Inc.**

Fixed Satellite Service - Temporary Earth Station
(page 3 of 3)



personnel will be trained to ensure that the antenna path is clear at all times while the transmitter is in operation.

The earth station's operational personnel will not ordinarily require access to the areas that exceed the MPE levels while the earth station is in operation. If access to the vehicle rooftop is necessary, personnel can easily limit their access to a distance of at least one antenna diameter away from the antenna and the main beam while the dish is in operation, as these areas comply with the general population / uncontrolled MPE limit. Authorized and trained personnel individuals that are covered by the occupational / controlled MPE limit may approach the antenna to a minimum distance of 0.35 meters from any part of the antenna, provided that they do not enter the area in front of the antenna's main reflector. To assure the compliance with safety limits, all emissions shall cease whenever personnel must access the area in front of the antenna or any areas within 0.35 meters of the antenna as those locations may exceed the occupational / controlled MPE limit. The mobile unit will be marked with warning signs to advise personnel to avoid the area around and in front of the reflector when the transmitter is operating.

Chesapeake RF Consultants, LLC
207 Old Dominion Road Yorktown, VA 23692

August 20, 2018
703-650-9600

Radiofrequency Radiation Hazard Study
Hearst Properties Inc.
Fixed Satellite Service - Temporary Earth Station

APPENDIX 1
RF POWER DENSITY CALCULATIONS

NEAR FIELD REGION

Within the near-field region of a parabolic reflector antenna, the maximum value of RF power density occurs on-axis at a distance of R_{nf} (Extent of Near Field) as expressed by:

$$R_{nf} = D^2 / 4\lambda$$

where: R_{nf} = distance to beginning of near-field
 D = antenna diameter
 λ = wavelength

For this analysis, it is assumed that the maximum value of the RF power density exists throughout the entire length of the near-field region. For the proposed Ku-band satellite uplink earth station, the near field extends to a distance of:

$$R_{nf} = 24.97 \text{ meters}$$

The maximum value of on-axis RF power density that is possible within the near field region of the proposed Ku-band satellite earth station antenna can be expressed by the following equation:

$$S_{nf} = (16 \eta P) / (\pi D^2)$$

where: S_{nf} = Maximum near-field power density
 η = Aperture efficiency
 P = Power fed to the antenna

For the Ku-band satellite earth station antenna, the maximum RF power density in the near field is calculated to not to exceed:

$$S_{nf} = 17.02 \text{ mW/cm}^2$$

OET 65 states that the “power density at that point (*one antenna diameter removed from the center of the main beam*) would be at least a factor of 100 (20 dB) less than the value

APPENDIX 1
RF POWER DENSITY CALCULATIONS

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calculated for the equivalent distance in the main beam.” Accordingly, estimates of the off-axis RF power density in the near field region were made with this conservative presumption. For the proposed Ku-band satellite earth station, the General Population/Uncontrolled Exposure at a distance of at least 1.45 meters from the main beam, the near field maximum off-axis power density is no greater than:

$$S_{\text{nf(oa)}} = 0.17 \text{ mW/cm}^2$$

TRANSITION REGION

The RF power density in the transition region between the near field and the far field of a parabolic reflector antenna decreases inversely with distance from the antenna. The far field region (farthest extent of the transition region) can be approximated by the following equation:

$$R_{\text{ff}} = 0.6 D^2 / \lambda$$

where: R_{ff} = distance to beginning of far-field

The beginning of the far field is calculated to be:

$$R_{\text{ff}} = 59.9 \text{ meters}$$

The maximum value of on-axis RF power density level in the transition region can be determined by the following relationship:

$$S_t = S_{\text{nf}} R_{\text{nf}} / R$$

where: S_t = Maximum power density for transition region
 R = distance to point of interest

Assuming the point of interest is $R=R_{\text{nf}} = 24.97$ meters where the maximum (upper bound) of the power density exists, the RF power density in the transition region is:

$$S_{\text{nf}} = 17.02 \text{ mW/cm}^2 \text{ (Maximum predicted density in the transition region)}$$

APPENDIX 1
RF POWER DENSITY CALCULATIONS

(page 3 of 4)

The General Uncontrolled/Exposure area will be at least one antenna diameter distant from the Ku-band satellite earth station antenna and, according to OET 65, the off-axis power density can be conservatively assumed to be at least 20 dB below the maximum level from the center line axis of the antenna. Within the transition region, the maximum off-axis RF power density is less than the maximum value of:

$$S_{t(oa)} = 0.17 \text{ mW/cm}^2$$

FAR FIELD REGION

For the proposed Ku-band satellite earth station, the maximum possible value of on-axis RF power density in the far field region can be determined as follows:

$$S_{ff} = (P G) / (4 \pi R^2)$$

where: S_{ff} = Power density (on axis)
 G = Power gain relative to an isotropic radiator

For the Ku-band satellite earth station, the maximum RF power density at the end of the transition between the near field and the far field ($R = 59.9 \text{ m}$) was calculated to not exceed:

$$S_{ff} = 7.29 \text{ mW/cm}^2$$

In compliance with the antenna meeting or exceeding performance specifications under §25.209(a)(2) of the FCC rules, the off-axis gain of the proposed antenna is 8 dBi (a power gain of 6.31) or less in any direction 7 degrees or more from the main lobe. The off-axis RF power density for the Ku-band satellite earth station can be conservatively calculated using the far field power, gain, and distance relationship as:

$$S_{ff(oa)} = (P G) / (4 \pi R^2)$$

APPENDIX 1
RF POWER DENSITY CALCULATIONS

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Assuming a distance of 59.9 meters from the antenna (the far-field location nearest the antenna), the off-axis RF power density is calculated to be:

$$S_{ff(oa)} = 0.0015 \text{ mW/cm}^2$$

OFF-AXIS POWER DENSITY

The minimum distance required for authorized and trained personnel to approach the antenna from locations not in the main beam can be determined as follows:

$$S = (P G) / (4 \pi R^2)$$

Solve for R (distance), where

P = 125 Watts

G = unity

S = 5 mW/cm² (Occupational Limit)

R = 0.35 meters

Authorized and trained personnel individuals that are covered by the occupational / controlled MPE limit may approach the antenna to a minimum distance of 0.35 meters from any part of the antenna, provided that they do not enter the area in front of the antenna's main reflector.



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AGENCY TRACKING ID:	PGC3136710
AUTHORIZATION NUMBER :	033153
AMOUNT PAID :	\$200.00

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Customer Service

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If you have any questions or concerns please contact your licensing system help desk.

Agency Tracking ID:PGC3136710 Authorization Number:033153

Successful Authorization -- Date Paid: 8/24/18 FILE COPY ONLY!!

READ INSTRUCTIONS CAREFULLY BEFORE PROCEEDING (1) LOCKBOX #979093	FEDERAL COMMUNICATIONS COMMISSION REMITTANCE ADVICE FORM 159 PAGE NO 1 OF 1	APPROVED BY OMB 3060-059 SPECIAL USE FCC USE ONLY
SECTION A - Payer Information		
(2) PAYER NAME (if paying by credit card, enter name exactly as it appears on your card) Hearst Television Inc.		(3) TOTAL AMOUNT PAID (dollars and cents) \$200.00
(4) STREET ADDRESS LINE NO. 1 300 West 57th Street		
(5) STREET ADDRESS LINE NO. 2		
(6) CITY New York	(7) STATE NY	(8) ZIP CODE 10019
(9) DAYTIME TELEPHONE NUMBER (INCLUDING AREA CODE) 919-8390300		(10) COUNTRY CODE (IF NOT IN U.S.A.) US
FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED		
(11) PAYER (FRN) 0001675974		(12) FCC USE ONLY
IF PAYER NAME AND THE APPLICANT NAME ARE DIFFERENT, COMPLETE SECTION B IF MORE THAN ONE APPLICANT, USE CONTINUATION SHEETS (FORM 159-C)		
(13) APPLICANT NAME Hearst Properties Inc.		
(14) STREET ADDRESS LINE NO. 1 P.O. Box 1800		
(15) STREET ADDRESS LINE NO. 2		
(16) CITY Raleigh	(17) STATE NC	(18) ZIP CODE 27602-
(19) DAYTIME TELEPHONE NUMBER (INCLUDING AREA CODE) 919-839-0300		(20) COUNTRY CODE (IF NOT IN U.S.A.) US
FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED		
(21) APPLICANT (FRN) 0002538445		(22) FCC USE ONLY
COMPLETE SECTION C FOR EACH SERVICE, IF MORE BOXES ARE NEEDED, USE CONTINUATION SHEET		
(23A) FCC Call Sign/Other ID	(24A) Payment Type Code(PTC) CGX	(25A) Quantity 1
(26A) Fee Due for (PTC) \$200.00	(27A) Total Fee \$200.00	FCC Use Only
(28A) FCC CODE 1	(29A) FCC CODE 2 IB2018005089	
(23B) FCC Call Sign/Other ID	(24B) Payment Type Code(PTC)	(25B) Quantity
(26B) Fee Due for (PTC)	(27B) Total Fee	FCC Use Only
(28B) FCC CODE 1	(29B) FCC CODE 2	

Carol Heynen

From: notification@pay.gov
Sent: Friday, August 24, 2018 12:17 PM
To: Carol Heynen
Subject: Pay.gov Payment Confirmation: Remittance Advice

Your payment has been submitted to Pay.gov and the details are below. If you have any questions or you wish to cancel this payment, please contact FCC Financial Operations Group Help Desk at ARINQUIRIES@fcc.gov at 877-480-3201 option 6.

Application Name: Remittance Advice
Pay.gov Tracking ID: 26BQC4UJ
Agency Tracking ID: PGC3136710
Transaction Type: Sale
Transaction Date: Aug 24, 2018 12:16:39 PM

Account Holder Name: Hearst Television Inc.
Transaction Amount: \$200.00
Card Type: Visa
Card Number: *****0939

THIS IS AN AUTOMATED MESSAGE. PLEASE DO NOT REPLY.