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:
Request for Special Temporary Authority for VSAT Network E090007

1. Applicant

Name:	HOOSIER ENERGY REC INC.	**Phone Number:**	812–876–2021
DBA Name:		**Fax Number:**	812–876–0314
Street:	7398 N. STATE RD. 37	**E–Mail:**	
	PO Box 908		
City:	BLOOMINGTON	**State:**	IN
Country:	USA	**Zipcode:**	47402 –
Attention:			

60 days "with conditions"

GRANTED
International Bureau

File # SES-STA-20140318-00148
Call Sign E090007 Grant Date 03/24/2014
(or other identifier)
Term Dates
From 03/27/2014 To: 05/26/2014
Approved:

Applicant: HOOSIER ENERGY REC INC.
Call Sign: E090007
File Number: SES-STA-20140318-00148
Special Temporary Authority (STA)

HOOSIER ENERGY REC INC. (HOOSIER ENERGY REC) is granted STA with the following operation conditions:

1. Operation of station located in Spencer, Indiana at coordinates 39 deg 16 min 46.3 sec N.L./086 deg 43 min 26.3 sec W.L. to Transmit/Receive in the 14.0-14.5 GHz frequencies as uplink and 11.7-12.2 GHz frequencies as downlink to communicate with ALSAT as the point of communication using 1.2 meter antenna model Prodelin 1123 with antenna gain of 43.20 dBi at 14.250 MHz and 41.7 dBi at 11.950 MHz.

2. A digital emission designator of 184KG1D with Maximum Effective Isotropic Radiated Power (eirp) density will be 29.2 dBW/4kHz as listed in the pending application SES-MOD-20140318-00147.

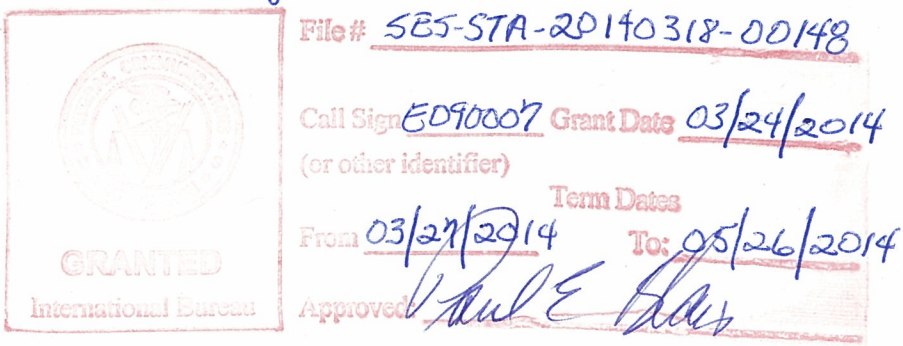
3. Operations, shall not cause harmful interference to, and shall not claim protection from, interference caused to it by any other lawfully operating station and it shall cease transmission(s) immediately upon notice of such interference.

4. Any action taken or expense incurred as a result of operations pursuant to this STA is solely at HOOSIER ENERGY REC's risk.

5. Grant of this STA is without prejudice to any determination that the Commission may make regarding pending application SES-MOD-20140318-00147.

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.

"60 days" "With conditions"



2. Contact

Name:	HOOSIER ENERGY REC INC.	**Phone Number:**	812-876-2021
Company:		**Fax Number:**	812-876-0314
Street:	7398 N. STATE RD. 37	E-Mail:	
	PO Box 908		
City:	BLOOMINGTON	**State:**	IN
Country:	USA	**Zipcode:**	47402 –
Attention:		**Relationship:**	

(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 IB2014000485

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 CGV – Fixed Satellite VSAT System

5. Type Request

◉ Use Prior to Grant ○ Change Station Location ○ Other

6. Requested Use Prior Date 03/27/2014	
7. CitySpencer	8. Latitude (dd mm ss.s h) 39 16 46.3 N

9. State IN	10. Longitude (dd mm ss.s h) 86 43 26.3 W

11. Please supply any need attachments.

Attachment 1: Exhibit A Attachment 2: Exhibit B 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.)

SEE Exhibit B

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 Lance Simpson	15. Title of Person Signing Communications Engineer

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).

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 reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD–PERM, Paperwork Reduction Project (3060–0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

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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.

Analysis of Non-Ionizing Radiation for a 1.2-Meter Earth Station System

This report analyzes the non-ionizing radiation levels for a 1.2-meter earth station system. The analysis and calculations performed in this report comply with the methods described in the FCC Office of Engineering and Technology Bulletin, No. 65 first published in 1985 and revised in 1997 in Edition 97-01. The radiation safety limits used in the analysis are in conformance with the FCC R&O 96-326. Bulletin No. 65 and the FCC R&O specifies that there are two separate tiers of exposure limits that are dependant on the situation in which the exposure takes place and/or the status of the individuals who are subject to the exposure. The Maximum Permissible Exposure (MPE) limits for persons in a General Population/Uncontrolled environment are shown in Table 1. The General Population/Uncontrolled MPE is a function of transmit frequency and is for an exposure period of thirty minutes or less. The MPE limits for persons in an Occupational/Controlled environment are shown in Table 2. The Occupational MPE is a function of transmit frequency and is for an exposure period of six minutes or less. The purpose of the analysis described in this report is to determine the power flux density levels of the earth station in the far-field, near-field, transition region, between the subreflector or feed and main reflector surface, at the main reflector surface, and between the antenna edge and the ground and to compare these levels to the specified MPEs.

Table 1. Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Power Density (mW/cm^2)
30-300	0.2
300-1500	Frequency (MHz)*(0.8/1200)
1500-100,000	1.0

Table 2. Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Power Density (mW/cm^2)
30-300	1.0
300-1500	Frequency (MHz)*(4.0/1200)
1500-100,000	5.0

Table 3. Formulas and Parameters Used for Determining Power Flux Densities

Parameter	Symbol	Formula	Value	Units
Antenna Diameter	D	Input	1.2	m
Antenna Surface Area	$A_{surface}$	$\pi D^2 / 4$	1.13	m^2
Feed Flange Diameter	D_{fa}	Input	4.7	cm
Area of Feed Flange	A_{fa}	$\pi D_{fa}{}^2/4$	17.35	cm^2
Frequency	F	Input	14250	MHz
Wavelength	λ	300 / F	0.021053	m
Transmit Power	P	Input	2.00	W
Antenna Gain (dBi)	G_{es}	Input	43.2	dBi
Antenna Gain (factor)	G	$10^{Ges/10}$	20893.0	n/a
Pi	π	Constant	3.1415927	n/a
Antenna Efficiency	η	$G\lambda^2/(\pi^2D^2)$	0.65	n/a

1. Far Field Distance Calculation

The distance to the beginning of the far field can be determined from the following equation:

Distance to the Far Field Region

$$R_{ff} = 0.60\ D^2 / \lambda \quad (1)$$
$$= 41.0\ m$$

The maximum main beam power density in the far field can be determined from the following equation:

On-Axis Power Density in the Far Field

$$S_{ff} = G\ P / (4\ \pi\ R_{ff}^2) \quad (2)$$
$$= 1.974\ W/m^2$$
$$= 0.197\ mW/cm^2$$

2. Near Field Calculation

Power flux density is considered to be at a maximum value throughout the entire length of the defined Near Field region. The region is contained within a cylindrical volume having the same diameter as the antenna. Past the boundary of the Near Field region, the power density from the antenna decreases linearly with respect to increasing distance.

The distance to the end of the Near Field can be determined from the following equation:

Extent of the Near Field

$$R_{nf} = D^2 / (4\ \lambda) \quad (3)$$
$$= 17.1\ m$$

The maximum power density in the Near Field can be determined from the following equation:

Near Field Power Density

$$S_{nf} = 16.0\ \eta\ P / (\pi\ D^2) \quad (4)$$
$$= 4.609\ W/m^2$$
$$= 0.461\ mW/cm^2$$

3. Transition Region Calculation

The Transition region is located between the Near and Far Field regions. The power density begins to decrease linearly with increasing distance in the Transition region. While the power density decreases inversely with distance in the Transition region, the power density decreases inversely with the square of the distance in the Far Field region. The maximum power density in the Transition region will not exceed that calculated for the Near Field region. The power density calculated in Section 1 is the highest power density the antenna can produce in any of the regions away from the antenna. The power density at a distance R_t can be determined from the following equation:

Transition Region Power Density

$$S_t = S_{nf}\ R_{nf} / R_t \quad (5)$$
$$= 0.461\ mW/cm^2$$

4. Region between the Feed Assembly and the Antenna Reflector

Transmissions from the feed assembly are directed toward the antenna reflector surface, and are confined within a conical shape defined by the type of feed assembly. The most common feed assemblies are waveguide flanges, horns or subreflectors. The energy between the feed assembly and reflector surface can be calculated by determining the power density at the feed assembly surface. This can be determined from the following equation:

Power Density at the Feed Flange

$$S_{fa} = 4000\ P / A_{fa} \quad (6)$$
$$= 461.110\ mW/cm^2$$

5. Main Reflector Region

The power density in the main reflector is determined in the same manner as the power density at the feed assembly. The area is now the area of the reflector aperture and can be determined from the following equation:

Power Density at the Reflector Surface

$$S_{surface} = 4\ P / A_{surface} \quad (7)$$
$$= 7.074\ W/m^2$$
$$= 0.707\ mW/cm^2$$

6. Region between the Reflector and the Ground

Assuming uniform illumination of the reflector surface, the power density between the antenna and the ground can be determined from the following equation:

Power Density between Reflector and Ground

$$S_g = P / A_{surface} \quad (8)$$
$$= 1.768\ W/m^2$$
$$= 0.177\ mW/cm^2$$

7. Summary of Calculations

Table 4. Summary of Expected Radiation levels for Uncontrolled Environment

Region		Calculated Maximum Radiation Power Density Level (mW/cm^2)	Hazard Assessment
1. Far Field (R_{ff} = 41.0 m)	S_{ff}	0.197	Satisfies FCC MPE
2. Near Field (R_{nf} = 17.1 m)	S_{nf}	0.461	Satisfies FCC MPE
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	0.461	Satisfies FCC MPE
4. Between Feed Assembly and Antenna Reflector	S_{fa}	461.110	Potential Hazard
5. Main Reflector	$S_{surface}$	0.707	Satisfies FCC MPE
6. Between Reflector and Ground	S_g	0.177	Satisfies FCC MPE

Table 5. Summary of Expected Radiation levels for Controlled Environment

Region		Calculated Maximum Radiation Power Density Level (mW/cm^2)	Hazard Assessment
1. Far Field (R_{ff} = 41.0 m)	S_{ff}	0.197	Satisfies FCC MPE
2. Near Field (R_{nf} = 17.1 m)	S_{nf}	0.461	Satisfies FCC MPE
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	0.461	Satisfies FCC MPE
4. Between Feed Assembly and Antenna Reflector	S_{fa}	461.110	Potential Hazard
5. Main Reflector	$S_{surface}$	0.707	Satisfies FCC MPE
6. Between Reflector and Ground	S_g	0.177	Satisfies FCC MPE

It is the applicant's responsibility to ensure that the public and operational personnel are not exposed to harmful levels of radiation.

8. Conclusions

Based on the above analysis it is concluded that harmful levels of radiation will not exist in regions normally occupied by the public or the earth station's operating personnel. The transmitter will be turned off during antenna maintenance so that the FCC MPE of 5.0 mW/cm2 will be complied with for those regions with close proximity to the reflector that exceed acceptable levels.

ITEM 12, DESCRIPTION
REQUEST FOR SPECIAL TEMPORARY AUTHORITY
File No. SES-MOD-IB2014000485

Pursuant to Section 25.120 (47 C.F.R. 25.120) of the rules of the Federal Communications Commission ("Commission" or "FCC"), Hoosier Energy REC, Inc. hereby respectfully requests a Special Temporary Authority ("STA") to operate their VSAT Hub1 earth station as requested in its license modification - File No. SES-MOD-IB2014000485.

Hoosier Energy REC, Inc. has filed an application with the FCC for a license modification of it's VSAT Network license (E090007) (SES-MOD-IB2014000485) relating to the re-location of the Hub 1 antenna. The Hub 1 antenna will continue to operate using the same operating parameters on the license. The STA is sought because of new construction set to begin on a building adjacent to the present Hub 1 antenna. Notice of this construction to the current facility was sudden in its scheduling and very strict in its commencement, which will begin on March 28, 2014. When construction is initiated the satellite equipment must be powered down. This equipment is responsible for maintaining critical communications from Hoosier Energy's control center to certain substation and generation facilities. For that reason Hoosier Energy REC, Inc. filed to modify their VSAT license to re-locate their Hub 1 antenna.

Therefore, for the reasons noted above, Hoosier Energy REC, Inc. requests a Special Temporary Authority to permit them to operate, while their VSAT license modification application is being processed.