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RECEIVED
DEC 18 2007
Satellite Division
International Bureau

December 13, 2007

FILED/ACCEPTED
DEC 19 2007
Federal Communications Commission
Office of the Secretary

Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

RE: <u>Certification of Completion of Construction</u>
E-070130, Montgomery, Texas (Woodlands #1)
File No. SES-LIC-20070703-00884
E-070131, Montgomery, Texas (Woodlands #2)
File No. SES-LIC-20070703-00885
E-070132, Montgomery, Texas (Woodlands #3)
File No. SES-LIC-20070703-00886

Dear Ms. Dortch:

This letter is submitted on behalf of Fox Television Stations, Inc. ("FTS") to advise the Commission that the acts necessary to complete construction for certain antennas at the above-referenced facilities have been completed. Specifically, construction has been competed for the antennas identified as 1A, 2A, 2B, 3A, 4A, and 4B in the above-referenced licenses.

As required by the conditions set forth in the licenses issued September 5, 2007, FTS certifies that the facilities have been constructed as authorized and that each antenna has been tested and is within 2 dB of the pattern specified in Section 25.209 of the Commission's rules. Attached hereto please find an excerpt from a Field Test Report prepared by VertexRSI, the manufacturer of the antennas, confirming that the facilities are operating in compliance with the Commission's rules. Also attached is a copy of a report confirming that the facilities comply with the Commission's rules with respect to radiation exposure.

In addition, please accept this letter as notification that FTS will commence operation of the facilities described herein on December 14, 2007. The facilities will remain operational during the license period unless FTS submits the licenses to the Commission for cancellation.

Should you have any questions concerning this matter, kindly contact the undersigned.

Respectfully submitted,

Jared S. Sher
Counsel to FTS

Enclosures

GENERAL DYNAMICS
C4 Systems

FIELD TEST REPORT

VERTEXRSI JOB #	**40480F**
FT REPORT #	**7070**
TEST DATE:	**November 2007**

ANTENNA SIZE:	**VertexRSI 9.0m**
ANTENNA TYPE:	**Cassegrain**
ANTENNA UTILIZATION:	**4 Port RX/TX**
FREQUENCY BAND:	**C-Band**
POLARIZATION:	**Linear**
LOCATION:	**The Woodlands, TX**
CUSTOMER:	**FOX Networks**
RF SPECIFICATION:	**975-1717C**
FEED MODEL NUMBER:	**C90KP1FRCN**

PREPARED BY: LUIS BUSTAMANTE
VERTEXRSI
2600 LONGVIEW STREET
KILGORE, TEXAS 75662
(903) 984-0555

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1.0 INTRODUCTION

The purpose of this document is to present the results of the transmit, receive and control system site acceptance tests. The tests present in this report were conducted using the VertexRSI corresponding test procedures. The tests were required after the recent installation of the antennas. The antennas, located in FOX Networks Earth Station in The Woodlands, Texas are 6 each 9.0 meter King Post mounted Cassegrain antenna systems with four ports, C-Band, linear polarized (LP) frequency reuse feed sub-system.

2.0 SUMMARY

The RF test results contained in this report show the antenna performance for gain, G/T, sidelobe envelope and cross polarization isolation for the receive and transmit frequency bands. The antenna's gains were calculated by the 3db/10db beam width and integration methods. G/T values were derived from the specified antenna and system noise temperatures and the antennas measured gains. Co-polarization patterns were recorded and plotted under the 29-25*log(θ) curve. Cross-polarization patterns were recorded and plotted under the corresponding co-polarization patterns.

The gain measurement results for all 6 antennas meet the specifications well within measurement error, according to EIA-411-A Standard, Chapter 6. The (6) 9.0m antennas show good sidelobe suppression at transmit frequencies and comply with the regulatory requirements described in Title 47, Part 25.209C of the FCC.

Job No.: 40480		**FT No: 7070**		**Test Engineer:** Rodolfo Robles	
Luis Bustamante	12/05/07			Alan B. Pollard	12/05/07
[signature]	12/05/07			Alan Pollard	12/5/07
Originator	**Date**	**Approval**	**Date**	**Approval**	**Date**

Analysis of Non-Ionizing Radiation for a 9.0-Meter Earth Station System

This report analyzes the non-ionizing radiation levels for a 9.0-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	9.0	m
Antenna Surface Area	$A_{surface}$	$\pi D^2 / 4$	63.62	m^2
Subreflector Diameter	D_{sr}	Input	116.8	cm
Area of Subreflector	A_{sr}	$\pi D_{sr}^2/4$	10714.59	cm^2
Frequency	F	Input	6175	MHz
Wavelength	λ	300 / F	0.048583	m
Transmit Power	P	Input	468.00	W
Antenna Gain (dBi)	G_{es}	Input	53.5	dBi
Antenna Gain (factor)	G	$10^{Ges/10}$	223872.1	n/a
Pi	π	Constant	3.1415927	n/a
Antenna Efficiency	η	$G\lambda^2/(\pi^2D^2)$	0.66	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 $R_{ff} = 0.60\ D^2 / \lambda$ (1)
$= 1000.4$ 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 $S_{ff} = G\ P / (4\ \pi\ R_{ff}^2)$ (2)
$= 8.332\ W/m^2$
$= 0.833\ mW/cm^2$

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 $R_{nf} = D^2 / (4\ \lambda)$ (3)
$= 416.8$ m

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

Near Field Power Density $S_{nf} = 16.0\ \eta\ P / (\pi\ D^2)$ (4)
$= 19.450\ W/m^2$
$= 1.945\ mW/cm^2$

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 $S_t = S_{nf}\ R_{nf} / R_t$ (5)
$= 1.945\ mW/cm^2$

4. Region between the Main Reflector and the Subreflector

Transmissions from the feed assembly are directed toward the subreflector surface, and are reflected back toward the main reflector. The most common feed assemblies are waveguide flanges, horns or subreflectors. The energy between the subreflector and the reflector surfaces can be calculated by determining the power density at the subreflector surface. This can be determined from the following equation:

Power Density at the Subreflector $S_{sr} = 4000\ P / A_{sr}$ (6)
$= 174.715\ mW/cm^2$

5. Main Reflector Region

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

Power Density at the Main Reflector Surface $S_{surface} = 4\ P / A_{surface}$ (7)
$= 29.426\ W/m^2$
$= 2.943\ mW/cm^2$

6. Region between the Main 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 $S_g = P / A_{surface}$ (8)
$= 7.356\ W/m^2$
$= 0.736\ mW/cm^2$

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} = 1000.4 m)	S_{ff}	0.833	Satisfies FCC MPE
2. Near Field (R_{nf} = 416.8 m)	S_{nf}	1.945	Potential Hazard
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	1.945	Potential Hazard
4. Between Main Reflector and Subreflector	S_{sr}	174.715	Potential Hazard
5. Main Reflector	$S_{surface}$	2.943	Potential Hazard
6. Between Main Reflector and Ground	S_g	0.736	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} = 1000.4 m)	S_{ff}	0.833	Satisfies FCC MPE
2. Near Field (R_{nf} = 416.8 m)	S_{nf}	1.945	Satisfies FCC MPE
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	1.945	Satisfies FCC MPE
4. Between Main Reflector and Subreflector	S_{sr}	174.715	Potential Hazard
5. Main Reflector	$S_{surface}$	2.943	Satisfies FCC MPE
6. Between Main Reflector and Ground	S_g	0.736	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 the FCC MPE guidelines have been exceeded (or met) in the regions of Table 4 and 5. The applicant proposes to comply with the MPE limits by one or more of the following methods.

Means of Compliance Uncontrolled Areas

This antenna will be located in a fenced area. The area will be sufficient to prohibit access to the areas that exceed the MPE limited. The general public will not have access to areas within ½ diameter removed from the edge of the antenna.

Since one diameter removed from the main beam of the antenna or ½ diameter removed from the edge of the antenna the RF levels are reduced by a factor of 100 or 20 dB. None of the areas exceeding the MPE levels will be accessible by the general public.

Radiation hazard signs will be posted while this earth station is in operation.

The applicant will ensure that no buildings or other obstacles will be in the areas that exceed the MPE levels.

Means of Compliance Controlled Areas

The earth stations operational will not have access to the areas that exceed the MPE levels while the earth station is in operation.

The transmitters will be turned off during antenna maintenance.