



ENGINEERING STATEMENT

In support of a request for

Special Transmission Authority

For Digital Channel 39

KSCE-DT El Paso, TX

50 kW ERP 557 m HAAT

PURPOSE

MARSAND, INC. has been retained by Channel 38 Christian Television (KSCE), permittee of KSCE-DT, CH39 of El Paso, TX, to prepare this engineering statement in support of a request for Special Transmission Authority (STA). The Federal Communications Commission (Commission) allotted Channel 39 as the paired digital television (DTV) channel for KSCE analog channel 38. A Construction Permit (CP) exists (BPEDT-20000426AAL) with an ERP of 50 kW and HAAT of 557m. A request for STA to operate at a reduced height and power at a new location was filed and granted in October of 2003 (BMDSTA-20031030AHG). This proposal seeks to establish full power digital service at this new location.

DISCUSSION

KSCE was granted an STA in October of 2003 in order to establish initial digital service to the community. The original allotment and subsequent CP were based upon building out digital service on a tower whose structure was later determined to be inadequate to support the proposed loading. The STA granted in October of 2003 moved the digital service less than 2 miles to an existing, multiple use tower (FCC ASRN 1202400). The facilities operating under the existing STA have produced insufficient coverage over portions of the principal community. The location of the antenna on the tower both in height and orientation are the cause. This application proposes remedy this by building out the digital service to full power at this site at a different location on the tower using a directional antenna.

The ERP and HAAT do not exceed those specified in the DTV Table of Allotments. The antenna pattern was chosen to match as closely as possible the pattern used when determining the allotted channel for KSCE. The calculated FCC(50,90) 48 dBu coverage contour would encompass the principal community, El Paso, TX, entirely as shown in **Figure 1.**

CONCLUSION

The proposed facility will not exceed the ERP or HAAT of the reference ERP and HAAT and will be within 3.1 miles of the reference site operating on the assigned DTV channel. An environmental statement accompanies this application and shows no significant environmental impact. The proposed coverage will provide a better service to the principal community. Notifications have been filed, and the antenna structure in use has been registered by the Commission. An application to modify the CP is being submitted concurrently with this request for STA. The proposed transmission facility is compliant with the Commission's specifications for a DTV STA. Therefore, it is respectfully requested that the Commission grant the STA for the proposed transmission facility as indicated in the TECH BOX.



MARSAND, INC.

Matthew A. Sanderford, Jr., P.E.

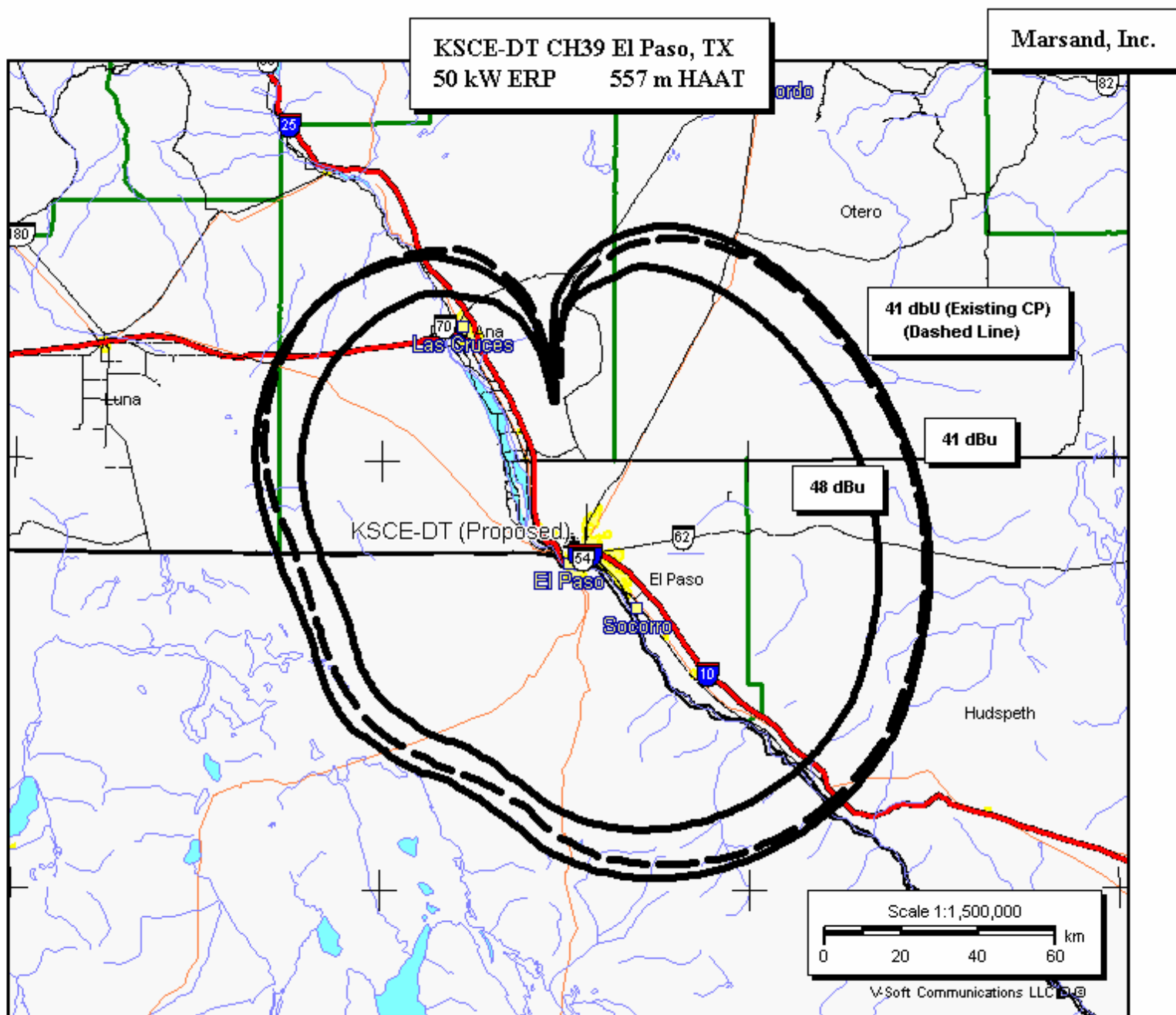


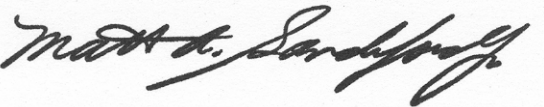
Figure 1

DECLARATION

Matthew A. Sanderford, Jr., P.E., declares and states that he is a graduate Electrical Engineer with a Bachelor of Science Degree in Electrical Engineering from the University of Texas at El Paso, a Licensed Professional Engineer in the State of Texas, and his qualifications are known to the Federal Communications Commission, and that he is President of MARSAND, INC., a Registered Professional Engineering firm in the State of Texas, and that firm has been retained by Channel 38 Christian Television, to perform the engineering support as contained in this report.

All facts contained herein are true of his own knowledge except where stated to be on information or belief provided by Channel 38 Christian Television, and as to those facts, he believes them to be true.

I declare under penalty of perjury that the foregoing is true and correct.



Matthew A. Sanderford, Jr., P.E.
President - MARSAND, INC.

Executed this 29th day of June, 2006
State of Texas

**ENVIRONMENTAL STATEMENT**

The proposed facility complies in full with the requirements of FCC RR Section 1.1307 and will have no significant environmental impact. Population is very scattered and sparse near the immediate location of the proposed site, which is also in an antenna farm. The proposed site does not involve any of the conditions specified in Section 1.1307(a)(1)-(6) of the Rules.

The proposed change in the facility has been studied in accordance with the procedures set forth in the FCC OET Bulletin No. 65 "Evaluating Compliance With FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 97-01, and has been found to be in full compliance. This determination has been based upon calculations with the total radiated power from all TV & FM co-located broadcast emitters. The total exposure as defined by the ANSI standard computations for occupational/controlled area is **15.05** % of the maximum. The total exposure as defined by the ANSI standard computations for general population/uncontrolled area is **74.78** % of the maximum. The proposed facility is in compliance with the Commission's guidelines.

Multiple Use FM/TV Tower					
Location:	KSCE-DT CH39DTV El Paso, TX				6/28/2006
Channel Frequency Type	Service	ERP (W)	Ant Center of Radiation AG (m)	% of ANSI/FCC Limit (6min)	% of ANSI/FCC Limit (30 min)
65NTSC	TV UHF#1	2,900,700	58.00	0.93	4.18
16DTV	TV UHF#2	1,000,000	114.00	1.59	7.71
38-NTSC	TV UHF#3	5,500,000	95.50	4.47	21.39
39DTV	TV UHF#4	50,000	95.50	0.09	0.42
17DTV	TV UHF#5	955,000	84.00	2.76	13.07
51DTV	TV UHF#6	70,000	58.00	0.30	1.34
9NTSC	TV VHF#1	347,600	100.00	2.11	10.15
7NTSC	TV VHF#2	347,600	102.00	2.03	9.77
99.9MHz	FM #1	200,000	93.26	0.77	3.67
Total			%	15.05	71.71
IN COMPLIANCE					

The Applicant agrees to maintain full compliance with the safety precautions to workers on the tower (controlled) and the general public (uncontrolled) by reducing or removing radiated power during the time of construction or maintenance on or near the antenna. The Applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from Radiofrequency Electromagnetic exposure in excess of FCC guidelines

This application would be considered a minor change, with no impact to the surrounding terrain, wildlife, or human environment.

The Applicant is believed to be in full compliance with the Environmental Impact and Commission Rules.

RF RADIATION TO HUMAN EXPOSURE CALCULATIONS UHF#1

Call letters **KTFN** Date: **6/28/2006**
Lic City: **El Paso, TX** **(UHF 300-1500 MHz)**
Channel: **65NTSC**

ANSI/IEEE C95.1-1992 & FCC OST/OET Bulletin Number 65

Peak Visual ERP: H+V **2,637,000 W**
Aural ERP: H+V **263,700 W**
DTV Average Pwr H+V **0 W**
Worst Case downward radiation: **0.20**
Typical relative field factor in the downward direction: **0.04**
(from -60 to -90 degrees elevation)
Distance from ground to antenna center of radiation: **58.0 m**

A. Occupational/Controlled Exposure

Highest power density: **24.21 $\mu\text{W}/\text{cm}^2$** Actual
Power Density at ground level: **0.0242 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **777.25 MHz**
Required minimum ANSI standard: **2.5908 mW/cm^2**
Percentage of ANSI requirement: **0.93 %**

B. General Population/Uncontrolled Exposure

Dist. of Person from ant/twr vert Plumb: **20 m**
Dist. of Person from ant/twr Direct: **61.4 m**
Highest power density: **21.64 $\mu\text{W}/\text{cm}^2$** Actual
Power Density at ground level: **0.0216 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **777.25 MHz**
Required minimum ANSI standard: **0.5182 mW/cm^2**
Percentage of ANSI requirement: **4.18 %**

RF RADIATION TO HUMAN EXPOSURE CALCULATIONS UHF#2Call letters **KTSM-DT**Date: **6/28/2006**Lic City: **El Paso, TX****(UHF 300-1500 MHz)**Channel: **16DTV****ANSI/IEEE C95.1-1992 & FCC OST/OET Bulletin Number 65****Peak Visual ERP:** H+V **0 W****Aural ERP:** H+V **0 W****DTV Average Pwr** H+V **1,000,000 W****Worst Case** downward radiation: **0.20****Typical relative field factor** in the downward direction: **0.10**

(from -60 to -90 degrees elevation)

Distance from ground to antenna center of radiation: **114.0 m****A. Occupational/Controlled Exposure**

Actual

Highest power density: **25.71 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0257 mW/cm^2** **ANSI Maximum Radiation Limit for this Channel -**Frequency of Visual Carrier: **485 MHz**Required minimum ANSI standard: **1.6167 mW/cm^2** Percentage of ANSI requirement: **1.59 %****B. General Population/Uncontrolled Exposure**Dist. of Person from ant/twr vert Plumb: **20 m**Dist. of Person from ant/twr Direct: **115.7 m**

Actual

Highest power density: **24.94 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0249 mW/cm^2** **ANSI Maximum Radiation Limit for this Channel -**Frequency of Visual Carrier: **485 MHz**Required minimum ANSI standard: **0.3233 mW/cm^2** Percentage of ANSI requirement: **7.71 %**

RF RADIATION TO HUMAN EXPOSURE CALCULATIONS UHF#3Call letters **KSCE**Date: **6/28/2006**Lic City: **El Paso, TX****(UHF 300-1500 MHz)**Channel: **38-NTSC****ANSI/IEEE C95.1-1992 & FCC OST/OET Bulletin Number 65****Peak Visual ERP:** H+V **5,000,000 W****Aural ERP:** H+V **500,000 W****DTV Average Pwr** H+V **0 W****Worst Case** downward radiation: **0.13****Typical relative field factor** in the downward direction: **0.10**

(from -60 to -90 degrees elevation)

Distance from ground to antenna center of radiation: **95.5 m****A. Occupational/Controlled Exposure**

Actual

Highest power density: **91.58 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0916 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **615.24 MHz**Required minimum ANSI standard: **2.0508 mW/cm^2** Percentage of ANSI requirement: **4.47 %****B. General Population/Uncontrolled Exposure**Dist. of Person from ant/twr vert Plumb: **20 m**Dist. of Person from ant/twr Direct: **97.6 m**

Actual

Highest power density: **87.73 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0877 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **615.24 MHz**Required minimum ANSI standard: **0.4102 mW/cm^2** Percentage of ANSI requirement: **21.39 %**

RF RADIATION TO HUMAN EXPOSURE CALCULATIONS UHF#4Call letters **KSCE-DT**Date: **6/28/2006**Lic City: **El Paso, TX****(UHF 300-1500 MHz)**Channel: **39DTV****ANSI/IEEE C95.1-1992 & FCC OST/OET Bulletin Number 65****Peak Visual ERP:** H+V **0 W****Aural ERP:** H+V **0 W****DTV Average Pwr** H+V **50,000 W****Worst Case** downward radiation: **0.13****Typical relative field factor** in the downward direction: **0.10**

(from -60 to -90 degrees elevation)

Distance from ground to antenna center of radiation: **95.5 m****A. Occupational/Controlled Exposure**

Actual

Highest power density: **1.83 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0018 mW/cm^2** **ANSI Maximum Radiation Limit for this Channel -**Frequency of Visual Carrier: **623 MHz**Required minimum ANSI standard: **2.0767 mW/cm^2** Percentage of ANSI requirement: **0.09 %****B. General Population/Uncontrolled Exposure**Dist. of Person from ant/twr vert Plumb: **20 m**Dist. of Person from ant/twr Direct: **97.6 m**

Actual

Highest power density: **1.75 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0018 mW/cm^2** **ANSI Maximum Radiation Limit for this Channel -**Frequency of Visual Carrier: **623 MHz**Required minimum ANSI standard: **0.4153 mW/cm^2** Percentage of ANSI requirement: **0.42 %**

RF RADIATION TO HUMAN EXPOSURE CALCULATIONS UHF#5Call letters **KVIA-DT**Date: **6/28/2006**Lic City: **El Paso, TX****(UHF 300-1500 MHz)**Channel: **17DTV****ANSI/IEEE C95.1-1992 & FCC OST/OET Bulletin Number 65**Peak Visual ERP: H+V **0 W**Aural ERP: H+V **0 W**DTV Average Pwr H+V **955,000 W****Worst Case** downward radiation: **0.20****Typical relative field factor** in the downward direction: **0.10**

(from -60 to -90 degrees elevation)

Distance from ground to antenna center of radiation: **84.0 m****A. Occupational/Controlled Exposure**

Actual

Highest power density: **45.22 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0452 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **491 MHz**Required minimum ANSI standard: **1.6367 mW/cm^2** Percentage of ANSI requirement: **2.76 %****B. General Population/Uncontrolled Exposure**Dist. of Person from ant/twr vert Plumb: **20 m**Dist. of Person from ant/twr Direct: **86.3 m**

Actual

Highest power density: **42.79 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0428 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **491 MHz**Required minimum ANSI standard: **0.3273 mW/cm^2** Percentage of ANSI requirement: **13.07 %**

RF RADIATION TO HUMAN EXPOSURE CALCULATIONS UHF#6Call letters **KTFN-DT**Date: **6/28/2006**Lic City: **El Paso, TX****(UHF 300-1500 MHz)**Channel: **51DTV****ANSI/IEEE C95.1-1992 & FCC OST/OET Bulletin Number 65**Peak Visual ERP: H+V **0 W**Aural ERP: H+V **0 W**DTV Average Pwr H+V **70,000 W****Worst Case** downward radiation: **0.20****Typical relative field factor** in the downward direction: **0.10**

(from -60 to -90 degrees elevation)

Distance from ground to antenna center of radiation: **58.0 m****A. Occupational/Controlled Exposure**

Actual

Highest power density: **6.95 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0070 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **695 MHz**Required minimum ANSI standard: **2.3167 mW/cm^2** Percentage of ANSI requirement: **0.30 %****B. General Population/Uncontrolled Exposure**Dist. of Person from ant/twr vert Plumb: **20 m**Dist. of Person from ant/twr Direct: **61.4 m**

Actual

Highest power density: **6.21 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0062 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **695 MHz**Required minimum ANSI standard: **0.4633 mW/cm^2** Percentage of ANSI requirement: **1.34 %**

RF RADIATION TO HUMAN EXPOSURE CALCULATIONS #1Call letters **KTSM**Date: **6/28/2006**Lic City: **El Paso, TX****(VF 30-300 MHz)**Channel: **9NTSC****ANSI/IEEE C95.1-1992 & FCC OST/OET Bulletin Number 65****Total Peak Visual ERP:** H+V **316,000 W****Aural ERP:** H+V **31,600 W****DTV Average Power** H+V **0 W****Worst Case** downward radiation: **1.00****Typical relative field factor** in the downward direction: **0.20**

(from -60 to -90 degrees elevation)

Distance from ground to antenna center of radiation: **100.0 m****A. Occupational/Controlled Exposure**

Actual

Highest power density: **21.11 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0211 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **187.25 MHz**Required minimum ANSI standard: **1.0 mW/cm^2** Percentage of ANSI requirement: **2.11 %****B. General Population/Uncontrolled Exposure**Dist. of Person from ant/twr vert Plumb: **20 m**Dist. of Person from ant/twr Direct: **102.0 m**

Actual

Highest power density: **20.30 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0203 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **187.25 MHz**Required minimum ANSI standard: **0.2 mW/cm^2** Percentage of ANSI requirement: **10.15 %**

RF RADIATION TO HUMAN EXPOSURE CALCULATIONS #2Call letters **KVIA**Date: **6/28/2006**Lic City: **El Paso, TX****(VF 30-300 MHz)**Channel: **7NTSC****ANSI/IEEE C95.1-1992 & FCC OST/OET Bulletin Number 65****Total Peak Visual ERP:** H+V **316,000 W****Aural ERP:** H+V **31,600 W****DTV Average Power** H+V **0 W****Worst Case** downward radiation: **1.00****Typical relative field factor** in the downward direction: **0.20**

(from -60 to -90 degrees elevation)

Distance from ground to antenna center of radiation: **102.0 m****A. Occupational/Controlled Exposure**

Actual

Highest power density: **20.30 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0203 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **175.25 MHz**Required minimum ANSI standard: **1.0 mW/cm^2** Percentage of ANSI requirement: **2.03 %****B. General Population/Uncontrolled Exposure**Dist. of Person from ant/twr vert Plumb: **20 m**Dist. of Person from ant/twr Direct: **103.9 m**

Actual

Highest power density: **19.54 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0195 mW/cm^2**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **175.25 MHz**Required minimum ANSI standard: **0.2 mW/cm^2** Percentage of ANSI requirement: **9.77 %**

RF RADIATION TO HUMAN EXPOSURE CALCULATIONS FM #1Call letters **KTSM-FM**Date: **6/28/2006**Lic City: **El Paso, TX** (**FM 30-300 MHz**)Channel: **FM**Frequency **99.9MHz** MHz**ANSI/IEEE C95.1-1992 & FCC OST/OET Bulletin Number 65**Aural ERP: Horizontal **100,000 W**Aural ERP: Vertical **100,000 W****Worst Case** downward radiation: **0.30****Typical relative field factor** in the downward direction: **0.10**
(from -60 to -90 degrees elevation)Distance from ground to antenna center of radiation: **93.3 m****A. Occupational/Controlled Exposure**

Actual

Highest power density: **7.68 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0077 mW/cm²**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **99.9 MHz**Required minimum ANSI standard: **1.0 mW/cm²**Percentage of ANSI requirement: **0.77 %****B. General Population/Uncontrolled Exposure**Dist. of Person from ant/twr vert Plumb: **20 m**Dist. of Person from ant/twr Direct: **95.4 m**

Actual

Highest power density: **7.34 $\mu\text{W}/\text{cm}^2$** Power Density at ground level: **0.0073 mW/cm²**

ANSI Maximum Radiation Limit for this Channel -

Frequency of Visual Carrier: **99.9 MHz**Required minimum ANSI standard: **0.2 mW/cm²**Percentage of ANSI requirement: **3.67 %**