

ENVIRONMENTAL ASSESSMENT
RE FCC FORM 312EZ
MAIN FORM - SCHEDULE B
NEW TEMPORARY-FIXED EARTH STATION
ON BEHALF OF
MISSION BROADCASTING, INC.
KOLR(TV) SPRINGFIELD, MISSOURI

APRIL 2008

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

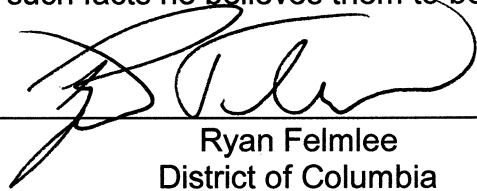
City of Washington)
) ss
District of Columbia)

Ryan Felmlee, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer of the Pennsylvania State University, has successfully completed the Engineer-In-Training examination ("EIT") in the State of Virginia, and is a staff engineer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

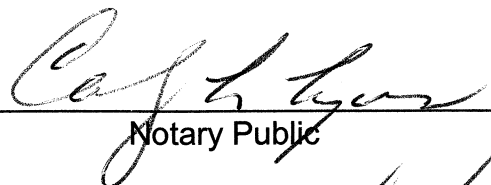
That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.



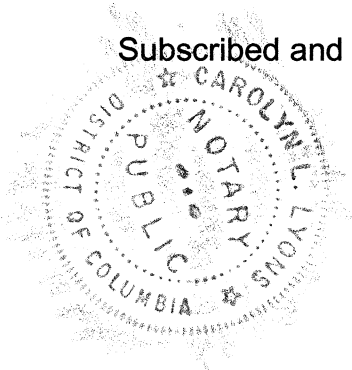
Ryan Felmlee
District of Columbia

Subscribed and sworn to before me this 9th day of April, 2008.



Notary Public

My Commission Expires: 2/28/2013



Introduction

This environmental assessment has been prepared on behalf of Mission Broadcasting, Inc., (“Mission”), licensee of TV station, KOLR(TV), Springfield, Missouri, to accompany its FCC Form 312EZ application to construct a transportable temporary-fixed Ku-band satellite truck for its TV and DTV operations. Mission proposes to operate the transportable earth station by transmitting on the 14.0 - 14.5 GHz frequency band using U.S. licensed satellites.

FCC Form 312EZ Technical Information

Station Class:	Temporary-Fixed Earth Station
Facility Type:	Transmit/Receive
Antenna:	AvL Technologies 1200K 1.2 meter reflector
Antenna Gain:	43.5 dBi at 14.25 GHz 42.0 dBi at 11.95 GHz
Frequency:	14.0-14.5 GHz (Transmit), 11.7-12.2 GHz (Receive)
Total EIRP for all Carriers:	64.5 dBW
Antenna Polarization:	Horizontal and Vertical
Emission Designator:	36M0G7W
Modulation:	QPSK
Maximum EIRP Density	
Per Carrier:	24.93 dBW/4 kHz
Services:	Digital Carrier for Voice and Data

Environmental Assessment

Based on the off-axis radiation characteristics of the 1.2 meter truck-mounted AvL Technologies reflector antenna, the proposed operation complies with Section 1.1307 of the FCC Rules as it meets the provisions of the uncontrolled limits adopted by the Commission for Maximum

Permissible Exposure (MPE)¹ for areas located greater than 2.1° off-axis and one diameter removed of the main beam of the antenna.

For an antenna input power of 125 Watts, the off-axis radio frequency power density outside one diameter removed from the main beam of the antenna will be less than 0.287 mW/cm². In addition, the technical documentation provided by the antenna manufacturer specifies that the 1.2 meter reflector antenna meets the sidelobe performance standards required in Section 25.209 of the FCC Rules.

The reflector antenna is attached atop a satellite news gathering van. The center of radiation for the top-mounted antenna will be located 3 meters (9.84 feet) above ground level. The bottom edge of the reflector antenna will be approximately 2.4 meters above ground. The radio frequency power density levels behind the antenna system, and at 2 meters above ground level around the van, will be less than 4.421 mW/cm² and in compliance with the MPE limit for a controlled/occupational environment. The applicant will ensure the general public will not have access to within ½ diameter of the transmitting antenna. The transmitting system will be placed in the non-operative mode when authorized personnel are working on the top of the van.

Mission will ensure that its transportable/temporary fixed uplink system will be operated in such a way as to contribute less than the allowable 5% maximum permissible exposure limit to site areas containing non-categorically excluded stations. In order to obtain proper illumination of the satellite, the proposed uplink will be operated such that the major on-axis 1.2 meter projected cylinder will be located away from buildings or towers. The minimum vertical operating angle to any domestic satellite will be greater than 5° above the horizon in accordance with Section 25.209 of the FCC Rules.

¹See Appendix A of OET Bulletin No. 65, Edition 97-01, August 1997.

Radiation Hazard Study

Antenna Diameter (D) =	1.2 meters
Antenna Surface Area (A_R) =	1.131 m ²
Wavelength at 14.25 GHz (λ) =	0.021 meters
Power at Flange =	125 Watts (20.97 dBW)
Antenna Gain at 14.25 GHz =	2.239X10 ⁴ (43.5 dBi)
Antenna Aperture Efficiency (η) =	0.65
ANSI Safe Power Density (W_{ANSI}) =	5.0 mW/cm ²

For a 2.4 meter diameter parabolic antenna at 14.25 GHz, an antenna input power of 209.59 watts (53.2 dBm) and antenna gain of 48.8 dBi, the results of the seven equations follows:

1.	<u>Extent of Near Field</u>	<u>(Equation)</u>	<u>Page</u>
	$R(nf) = D^2 / 4 \text{ Lambda}$ = 7.14 m (56.2 feet)	(12)	27
2.	<u>Maximum Near Field On-Axis Power Density</u>		
	$S(nf) = 16\eta P / \text{Pi } D^2$ = 28.7 mW/cm ² , for $\eta = 0.65$	(13)	28
3.	<u>Distance to Beginning of Far Field Region</u>		
	$R(ff) = 0.6 D^2 / \text{Lambda}$ =41.1 m (134.8 feet)	(16)	29
4.	<u>Transition Region</u>		
	$S=[S(nf) R (nf)] / R$ =28.7 mW/cm ² @ 7.14 m to 11.97 mW/cm ² @ 41.1 m	(17)	29
5.	<u>Far Field</u>		
	$S = PG / 4 \text{ Pi } R^2$ = 13.18 mW/cm ²		
6.	<u>Reflector Surface Region</u>		
	$W_s = 4P/A_M$ = 44.21 mW/cm ²		

7. Between Reflector and Ground

$$W_G = P/A_M$$

$$= 4.421 \text{ mW/cm}^2$$

Calculation Summary

<u>Region</u>	<u>Distance</u> meters	<u>Radiation</u> <u>Level</u> mW/cm ²	<u>Hazard</u> <u>Assessment</u>
Far Field	41.1	13.18	Potential Hazard
Far Field off-axis	--	1.318	Complies with MPE
Transition Field (R_T)	$7.14 < (R_T) < 41.1$	< 28.7	Potential Hazard
Near Field	7.14	28.7	Potential Hazard
Near Field off-axis	--	0.287	Complies with MPE
Reflector Surface Region (W_S)	--	44.21	Potential Hazard
Area Around Dish (equal to one Diameter)	--	0.287	Complies with MPE

An environmental assessment (“EA”) is, therefore, categorically excluded under Section 1.1307 of the FCC Rules and Regulations since the applicant indicates:

- (a)(1) to (a)(8) The proposed operation is truck-mounted portable unit and not subject to these subsections.
- (b) Workers and the general public will not be subjected to RF radiation levels in excess of the FCC adopted limits for Maximum Permissible Exposure (MPE) as set forth in Table 1, Limits for MPE of Appendix A of OET Bulletin No. 65, Edition 97-01, August 1997. Authorized personnel will be alerted to areas of the truck where potential radiation levels are in excess of the MPE standard. The transmitting equipment will be placed in the non-operative mode when authorized personnel are on the truck bed. Workers will ensure that uplink operations will contribute less than 5% of the applicable RF exposure limit to the site areas of any non-categorically excluded facilities including AM and FM radio stations, TV stations, LPTV and TV translator stations, FM booster stations with ERP > 100 watts, ITFS, MDS, and MMDS stations with ERP > 200 watts, experimental stations, and other satellite earth stations.

Environmental Considerations

The facility will not be located in any officially designated wilderness area or wildlife preserve. The facility does not protect, shelter, or affect any threatened or endangered species nor will it result in the destruction or adverse modification of proposed or existing critical habitats. The facility will not affect districts, sites, buildings, structures or objects significant in American history, architecture, archaeology, engineering or culture.

The proposed operation will not cause exposure to workers or the general public to levels of radio frequency radiation in excess of Maximum Permissible Exposure limits when the proper operating guidelines are followed correctly.

The applicant anticipates that the facility will meet or exceed MPE objectives of the OET Bulletin No. 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, Edition 97-01, August 1997. Even so, during operation, all personnel will be restricted from areas where hazardous radiation will be encountered. Equipment shielding and warning signs will be employed as needed.