
RF Appendix 1

Compliance with Radiofrequency Radiation Guidelines

1

Explanation of Study The studied facility complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments as set forth under §1.1310 of the Commission's rules and the RF radiation protection guidelines as set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01). The site is intended to house multiple transmitters. All facilities within 315 meters of the proposed site have been considered for this study.

Concerning FM contributions, the potential for human exposure to non-ionizing radiofrequency radiation has been evaluated with regard to §1.1310 utilizing the Commission's own *FM Model* web-based software application. The use and implementation of this FCC sanctioned software is a matter of record before the Commission. To ensure complete protection, each maximum FM contribution has been assumed without regard to any restricted access fencing distance. The maximum permissible uncontrolled limit for FM stations is 200 $\mu\text{W}/\text{cm}^2$. The maximum permissible controlled limit is 1000 $\mu\text{W}/\text{cm}^2$. Therefore, sum contributions of $\leq 200 \mu\text{W}/\text{cm}^2$ remain within the tolerances as allowed by §1.1310 and its governing OET Bulletin No. 65 (Edition 97-01) for the more restrictive of either two protections.

Results of Study The sum of each individual contribution as a percentage of its each maximum permissible uncontrolled limit has been provided below. As the resulting contribution(s) as a whole are less than 100%, the combined exposure has been calculated to be within the guidelines of OET Bulletin No. 65 (Edition 97-01) for the more restrictive uncontrolled environment as defined by locations accessible to the general public. As stated before, protection of the uncontrolled environment implies protection of the controlled environment.

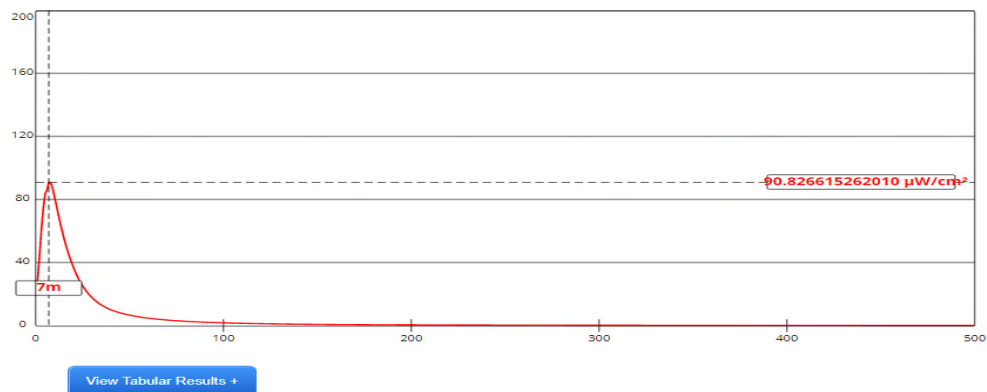
The facility is, or will be, properly marked with signs. Entry is, or will be, restricted by means of fencing with locked doors or gates. Furthermore, coordination with other users of the site will be secured to reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

Contributing Station	Individual Contribution	Individual Uncontrolled Limit	Percent of Uncontrolled Limit
CH291D.P (Analog)	90.827 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	45.41%
W283DD.L (Analog)	0.678 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	0.34%
WHYB(FM).L (Analog)	12.033 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	6.02%
Total of Uncontrolled Limit:			51.77%

RF Appendix 1

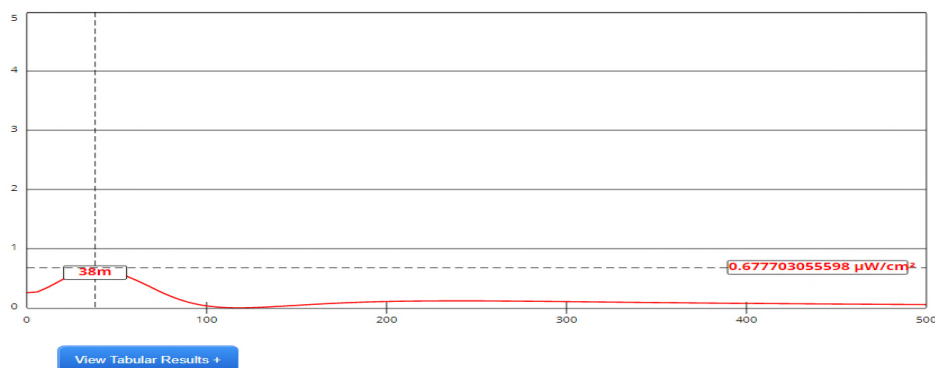
Compliance with Radiofrequency Radiation Guidelines 2

Summary of Stations: The proposed CH291D.P - Menominee, MI Analog FM Translator (Facility ID: 144593) will operate on CH291D (106.1 MHz) with 0.250 kW ERP circular polarization (H&V). This facility will operate with an antenna COR mounted 9.1 meters above ground level (AGL). The facility will broadcast into a one (1) bay, Nicom Model BKG77/1L antenna employing an EPA Type 2 "Opposed V Dipole" element as defined by the Commission's own FM Model - Appendix B (issued March 31, 2016). The antenna element is spaced 1.0 wavelength (λ) apart. This facility will not operate with HD/IBOC facilities at this time.



Channel Selection	Channel 291 (106.1 MHz)		
Antenna Type +	EPA Type 2: Opposed V Dipole		
Height (m)	9.1	Distance (m)	500
ERP-H (W)	250	ERP-V (W)	250
Num of Elements	1	Element Spacing (λ)	1
Num of Points	500	Apply	

Summary of Stations: The licensed W283DD.L - Marinette, WI Analog FM Translator (Facility ID: 200517) operates on CH283D (104.5 MHz) with 0.250 kW ERP circular polarization (H&V). This facility operates with an antenna COR mounted 70.0 meters above ground level (AGL). The facility broadcasts into a two (2) bay, SWR Model FMEC/2 antenna employing EPA Type 2 "Opposed V Dipole" elements as defined by the Commission's own FM Model - Appendix B (issued March 31, 2016). The antenna elements are spaced 1.0 wavelength (λ) apart. This facility will not operate with HD/IBOC facilities at this time.



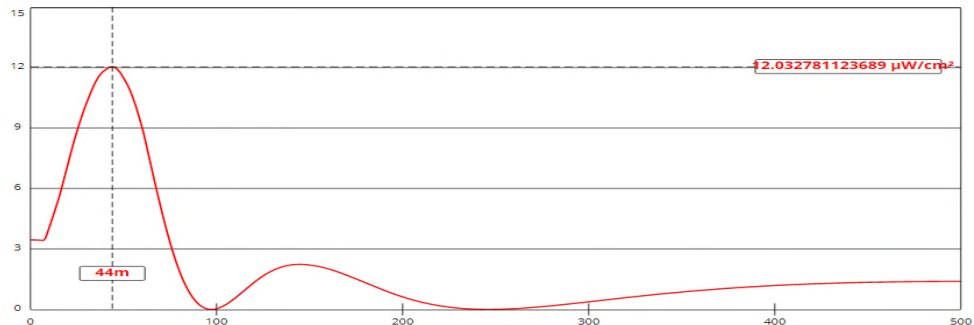
Channel Selection	Channel 283 (104.5 MHz)		
Antenna Type +	EPA Type 2: Opposed V Dipole		
Height (m)	70	Distance (m)	500
ERP-H (W)	250	ERP-V (W)	250
Num of Elements	2	Element Spacing (λ)	1
Num of Points	500	Apply	

RF Appendix 1

Compliance with Radiofrequency Radiation Guidelines

3

Summary of Stations: The licensed WHYB(FM).L - Menominee, MI Analog FM Station (Facility ID: 11609) operates on CH279C3 (103.7 MHz) with 13.0 kW ERP circular polarization (H&V). This facility operates with an antenna COR mounted 89.0 meters above ground level (AGL). The facility broadcasts into a three (3) bay, ERI Model G5CPM-3E antenna employing EPA Type 3 "Opposed U Dipole" elements as defined by the Commission's own FM Model - Appendix B (issued March 31, 2016). The antenna elements are spaced 1.0 wavelength (λ) apart. This facility will not operate with HD/IBOC facilities at this time.



[View Tabular Results +](#)

Channel Selection	Channel 279 (103.7 MHz) ▾		
Antenna Type +	EPA Type 3: Opposed U Dipole ▾		
Height (m)	<input type="text" value="89"/>	Distance (m)	<input type="text" value="500"/>
ERP-H (W)	<input type="text" value="13000"/>	ERP-V (W)	<input type="text" value="13000"/>
Num of Elements	<input type="text" value="3"/>	Element Spacing (λ)	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	<input type="button" value="Apply"/>	