

Environmental Effects (MPE Certification)—W282BF, WYCY (FM), WDNH-FM

This environmental assessment is provided to demonstrate compliance with the Commission's rules found in Section 1.1305 and Section 1.1307(b) which address allowable radio frequency radiation levels. (Maximum Permissible Exposure or MPE)

The area that is approximately within one-kilometer of this site is lightly populated (approximately ten dwellings) and is mostly used for agricultural purposes. There are no high voltage electric utility lines near this site.

Two FM broadcast stations are co-located at this site. These two stations are WDNH-FM, WYCY (FM) and W282BF. There are no other broadcast stations (FM, AM, or TV) within 1 km of this antenna site.

All significant sources of radio frequency emissions co-located with the WDNH-FM/WYCY (FM)/W282BF broadcast antennas have been included with this Environmental Assessment. Worst-case conditions have been used for all calculations as follows:

Co-located RF Contributors:

1. WYCY (FM)

This is a full-time commercial FM broadcast station transmitting on 105.3 MHz. Its antenna is located 55 meters above ground level. Because a two-story building is located at the base of the antenna tower, a 10-meter reduction in antenna height has been applied to the calculation used to predict the RF field power density contributed by this source. The ERP of the station is 2900 Watts, circularly polarized. Included, (Subpart A) is a printout/graph from the FCC's OET Power-Density-Computer Program (Ver. 2.1). The values entered in the program (ERP, Number of elements, one-wavelength spacing between elements) are those currently in use at the transmitting site. (Antenna Type: Shively Model 6810 was selected for performing the software modeling. According to Shively Labs, this is a suitable model/representation for the Shively Model 6813-2 antenna in use by WYCY (FM). The results of the printout in Subpart A of this exhibit shows a predicted "worst case" maximum power density value at 12 meters above ground level of $13.7 \mu\text{W}/\text{cm}^2$ at 28 meters (horizontal) from the antenna tower. The power density limit for Uncontrolled/General Population Exposure at 105.3 MHz is $0.2 \text{ mW}/\text{cm}^2$, ($200 \mu\text{W}/\text{cm}^2$). $13.7 \mu\text{W}/\text{cm}^2$ constitutes 6.9% of the $200 \mu\text{W}/\text{cm}^2$ limit for "Uncontrolled Environments".

2. WDNH-FM

This is a full-time commercial FM broadcast station transmitting on 95.3 MHz. Its antenna is located 48 meters above ground level. Because a two-story building is located at the base of the antenna tower, a 10-meter reduction in antenna height has been applied to the calculation used to predict the RF field power density contributed by this source. The ERP of the station is 1650 Watts, circularly polarized. Included, (Subpart B) is a printout/graph from the FCC's OET Power-Density-Computer

Program (Ver. 2.1). The values entered in the program (ERP, Number of elements, one-wavelength spacing between elements) are those currently in use at the transmitting site. (Antenna Type: Shively Model 6810 was selected for performing the software modeling. According to Shively Labs, this is a suitable model/representation for the Shively Model 6813-2 antenna in use by WDNH-FM.) The results of the printout in Subpart B of this exhibit shows a predicted “worst case” maximum power density value at 12 meters above ground level of 11.2 $\mu\text{W}/\text{cm}^2$ at 24 meters (horizontal) from the antenna tower. The power density limit for Uncontrolled/General Population Exposure at 95.3 MHz is 0.2 mW/cm^2 , (200 $\mu\text{W}/\text{cm}^2$). 11.2 $\mu\text{W}/\text{cm}^2$ constitutes 5.6% of the 200 $\mu\text{W}/\text{cm}^2$ limit for “Uncontrolled Environments”.

3. Schuylkill Mobile Fone

A commercial paging station operated by Schuylkill Mobile Fone (Call Sign: KGA589) is co-located with WDNH-FM and WYCY (FM) at 48 meters above ground level. This station transmits on 152.18 MHz with an ERP of 1600 Watts (Vertical). Because a two-story building is located at the base of the antenna tower, a 10-meter reduction in antenna height has been applied to the calculation[†] used to predict RF field power density contributed by this source. The predicted power density is 41.2 $\mu\text{W}/\text{cm}^2$ at 12 meters above ground level at the base of the antenna. The power density limit for Uncontrolled/General Population Exposure at 152.18 MHz is 0.2 mW/cm^2 , (200 $\mu\text{W}/\text{cm}^2$). 41.2 $\mu\text{W}/\text{cm}^2$ constitutes 20.6% of the 200 $\mu\text{W}/\text{cm}^2$ limit for “Uncontrolled Environments”.

4. CellularOne of N. E. PA

A Cell site, operated by South Canaan Cellular Communications Company Limited Partnership d/b/a CellularOne (Call Sign: KNKN800) is co-located with WDNH-FM and WYCY. Three sectors of two RFS APL869012 Panels (Vertically Polarized) are installed at 45.7 meters above ground level. This 800 MHz cell site operates two 250 watt ERP channels per panel using Code Division Multiple Access (CDMA) technology. The total number of Carriers is equal to 6. Because a two-story building is located at the base of the antenna tower, a 10-meter reduction in antenna height has been applied to the calculation[‡] used to predict RF field power density contributed by this source. The predicted power density is 39.23 $\mu\text{W}/\text{cm}^2$ at 12 meters above ground level at the base of the antenna. The power density limit for Uncontrolled/General Population Exposure at 800 MHz is 533 $\mu\text{W}/\text{cm}^2$. 44.1 $\mu\text{W}/\text{cm}^2$ constitutes 8.3% of the

$$^{\dagger} S = \frac{33.4 * ERP}{R^2}$$

S = Power Density in $\mu\text{W}/\text{cm}^2$; ERP = Power in Watts; R = Distance in meters

$$^{\ddagger} S = \frac{33.4 * ERP * NC}{R^2}$$

S = Power Density in $\mu\text{W}/\text{cm}^2$; ERP = Power in Watts; R = Distance in meters; NC = Number of Carriers

limit for “Uncontrolled Environments”.

5. **W282BF**

This is a full-time commercial FM broadcast translator transmitting on 104.3 MHz. Its antenna is located 34 meters above ground level. Because a two-story building is located at the base of the antenna tower, a 10-meter reduction in antenna height has been applied to the calculation used to predict the RF field power density contributed by this source. The ERP of the station is 110 Watts, circularly polarized. Included, (Subpart C) is a printout/graph from the FCC’s OET Power-Density-Computer Program (Ver. 2.1). The values entered in the program (ERP, Number of elements, one-half-wavelength spacing between elements) are those currently in use at the transmitting site. (Antenna Type: Shively Model 6810 was selected for performing the software modeling. According to Shively Labs, this is a suitable model/representation for the Shively Model 6812-2 ½ wave spaced antenna in use by W282BF.) The results of the printout in Subpart B of this exhibit shows a predicted “worst case” maximum power density value at 12 meters above ground level of 1.72 $\mu\text{W}/\text{cm}^2$ at 35 meters (horizontal) from the antenna tower. The power density limit for Uncontrolled/General Population Exposure at 104.3 MHz is 0.2 mW/cm^2 , (200 $\mu\text{W}/\text{cm}^2$). 1.3 $\mu\text{W}/\text{cm}^2$ constitutes 0.7% of the 200 $\mu\text{W}/\text{cm}^2$ limit for “Uncontrolled Environments”.

The only other significant source of Radio Frequency energy is located ≥ 539 meters away from the WDNH-FM / WYCY (FM) / W282BF antenna site; a 99 Watt ERP (Vertical) station (KWG479) operated by Pennsylvania Power Light (PPL) on 37.46 MHz. The power density contribution of KWG479 to the WYCY / WDNH-FM transmission site is calculated to be $< 0.016 \mu\text{W}/\text{cm}^2$. Radio Station KWG479 is therefore deemed to be an insignificant contributor to the total RF Power Density at the WDNH-FM / WYCY (FM) antenna site.

Conclusion:

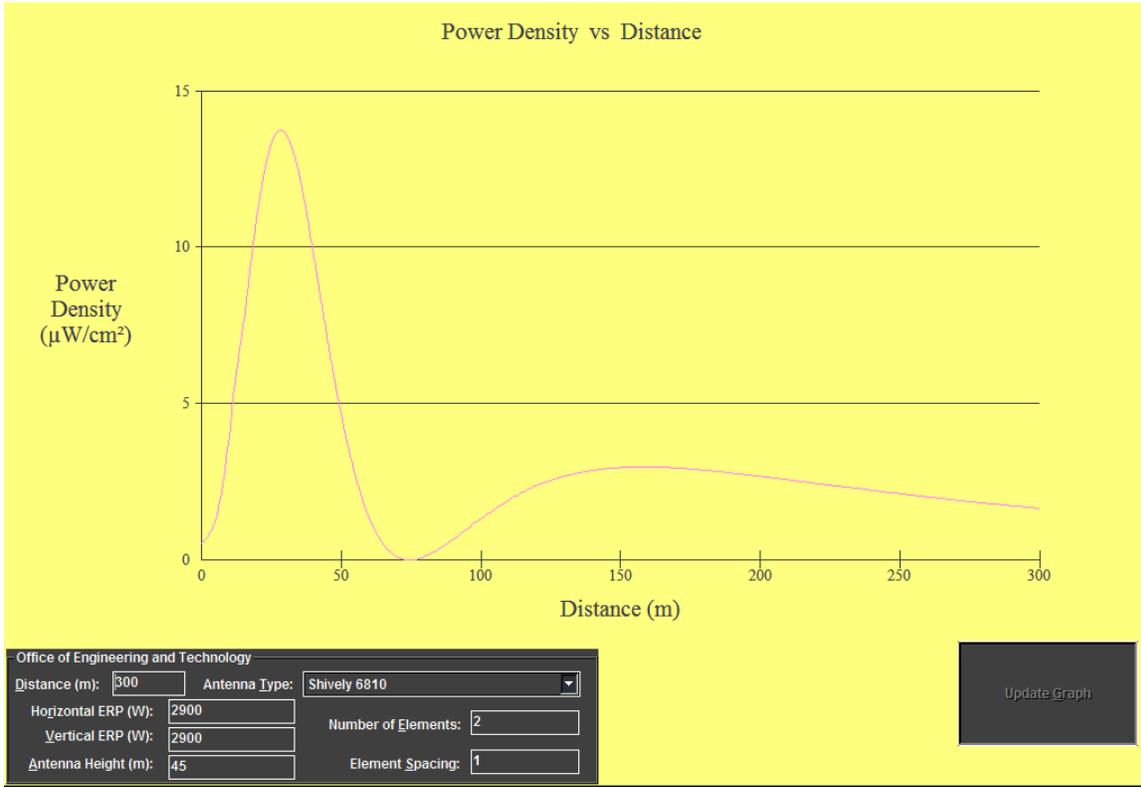
Contributor	Percentage of “General Public/Uncontrolled Environment” Limit
WYCY (FM)	6.9
WDNH-FM	5.6
Schuylkill Mobile Fone	20.6
Cellular One	8.3
W282BF	0.7
Total	42.1

The sum total of predicted-percentages for all contributors at the WYCY/WDNH-FM/W282BF site is 42.1% of the MPE (Maximum Permissible Exposure) Limit for Uncontrolled Areas. This value demonstrates compliance with the FCC maximum permissible uncontrolled/general population RF exposure limits.

In addition to showing that the common WDNH-FM / WYCY (FM) / W282BF transmission site meets the OET Bulletin No. 65 guidelines for a *Safe Center Of Radiation*, it should be noted that access to the transmitting site is restricted and appropriately marked with warning signs. When it becomes necessary for workers to ascend the tower, appropriate measures, such as reduction of power or shutdown of power shall be taken to ensure that the human exposure to radio frequency electromagnetic fields will not exceed the FCC guidelines.

All of this information thus proves conclusively that this renewal application conforms to the FCC guidelines with respect to OET Bulletin No. 65 (Edition 97-01, August 1997) “**Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields**”.

Sub-Part A
WYCY (FM)



Maximum: $13.73 \mu\text{W}/\text{cm}^2$ @ 28.2m horizontal distance from tower (12 m above ground level)

Sub-Part B
WDNH-FM



Maximum: $11.15 \mu\text{W}/\text{cm}^2$ @ 24m horizontal distance from tower (12m above ground level)

Sub-Part C
W282BF



Maximum: 1.3 $\mu\text{W}/\text{cm}^2$ @ 40m horizontal distance from tower (12m above ground level)

The foregoing MPE assessment for radio stations W282BF, WYCY and WDNH-FM has been prepared by Craig R. Seelig, NCE, PG025682 (FCC Lifetime); Chief Engineer and Chief Operator of radio stations WPSN (AM), WYCY (FM), WDNH-FM and WDNB (FM). The information contained herein is true and complete to the best of my knowledge and belief.



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