

Auxiliary RF Compliance Study

WLZX(FM) – Northampton, MA

The potential for human exposure to non-ionizing radiofrequency radiation at the proposed transmitter site has been evaluated. In addition to the proposed WLZX(FM) auxiliary operation for Northampton, MA, the transmitter site will also two (2) other FM facilities located within 315 meters of the shared site. The applicant would like to note that WLZX(FM) also operates with its 5.8 kW licensed operation from this site location as well. However, as this auxiliary facility will only operate during periods of time when the licensed facility is not functioning, the WLZX(FM) licensed contribution has not been included in this RF compliance study. There are no other known broadcast facilities within 315 meters of the transmitter site

The proposed WLZX(FM) auxiliary facility will operate on 99.3 MHz with a maximum effective radiated power (ERP) of 5.8 kW circular polarization. The facility will operate with an antenna COR mounted 30 meters above ground level (AGL). The auxiliary antenna will employ a three bay Shively 6832-3 “Crossed - V” type antenna employing EPA Type 2 elements as defined by FM Model Version 2.10 Beta issued March 22, 1995¹.

WEIB(FM) – Northampton, MA is licensed to operate on CH292A, 106.3 MHz with a maximum effective radiated power (ERP) of 3.0 kW circular polarization. The facility is licensed to operate with a three bay Shively 6813-3 antenna mounted 64 meters above ground level (AGL). The spacing for the three elements is listed as 0.5 λ (wavelengths). The WEIB(FM) antenna operates with EPA type 6 elements as defined by FCC program FM Model Version 2.10b¹.

W245BK – Amherst, MA is licensed to operate on CH245D, 96.9 MHz with a maximum effective radiated power (ERP) of 0.088 kW circular polarization. The facility is licensed to operate with a Scala HDCA-5CP-3 composite one bay directional antenna mounted 59 meters above ground level (AGL). The spacing for the single bay composite element is 1.0 λ (wavelength). The W245BK antenna is identified as an EPA type 1 element as defined by FCC program FM Model Version 2.10b¹.

The results of the evaluations for all stations are shown at the end of this report. The tabulation lists the portion of the tabular output for each station showing the region of maximum radiofrequency radiation.

To evaluate the total exposure to non-ionizing radio-frequency radiation it is necessary to sum the individual contributions as a decimal fraction of the maximum permissible limit. If the resulting sum is less than or equal to 100%, the exposure is concluded to be within the guidelines as set forth in the Rules. To simplify the calculations and produce a “worst case” study, the maximum exposure level produced by each station has been selected without regard to the location of that exposure. The following table is based on the uncontrolled limits set forth in the Rules¹.

<u>Contributing Station</u>	<u>Maximum Contribution</u>	<u>Uncontrolled Limit</u>	<u>% of Limit</u>
WLZX(FM) Auxiliary (proposed)	76.8021 μW/cm ²	200 μW/cm ²	38.40%
WEIB(FM) Licensed	2.1559 μW/cm ²	200 μW/cm ²	1.08%
W245BK Licensed	1.0889 μW/cm ²	200 μW/cm ²	<u>0.54%</u>
		Total % of Limit	40.02%

In addition to the protection afforded by the proposed antenna heights above ground, the facility is properly marked with signs, and entry to the facility is restricted by means of fencing with locked doors and/or gates. Any other means that may be required to protect employees and the general public will be employed.

In the event work is required in proximity to the antenna(s) such that the person or persons working in the area will be potentially exposed to fields in excess of the current guidelines, an agreement signed by all broadcast parties at the site will be in effect for the offending transmitter(s) to reduce power, or cease operation during the critical period.

¹ Software packages were used to determine the individual contribution of each station evaluating compliance with the FCC guidelines concerning human exposure to radiofrequency radiation as detailed in OET Bulletin No. 65 (Edition 97-01). FM radiofrequency radiation levels were predicted using both the array pattern, the calculations of which are based on the number of bays in the antenna and wavelength spacing between the bays, and the element pattern. The element pattern is determined by using measured element data prepared by the EPA. and published in “An Engineering Assessment of the Potential Impact of Federal Radiation Protection Guidance on the AM, FM and TV Services,” by Paul C. Gailey and Richard Tell - April 1985, U.S. Environmental Protection Agency, Las Vegas, NV.

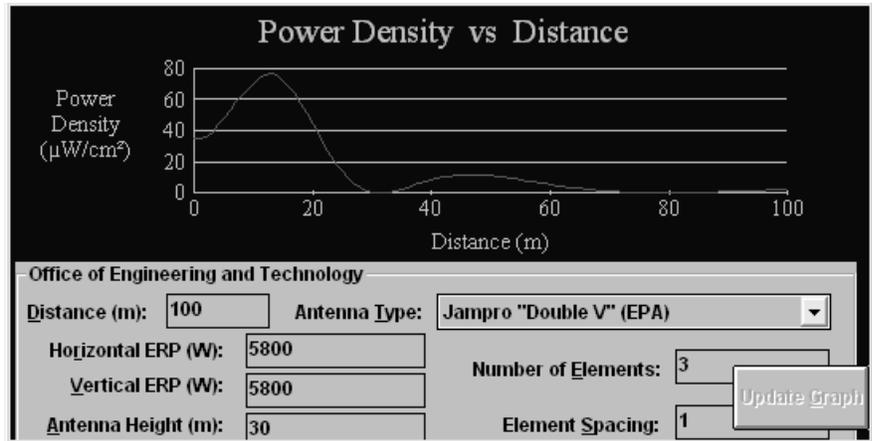
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WLZX(FM) – Northampton, MA

PLOT OF TOTAL POWER DENSITY

Proposed WLZX(FM) Auxiliary
Northampton, MA
Using a 3-Bay EPA Type 2
Antenna Mounted 30 meters AGL

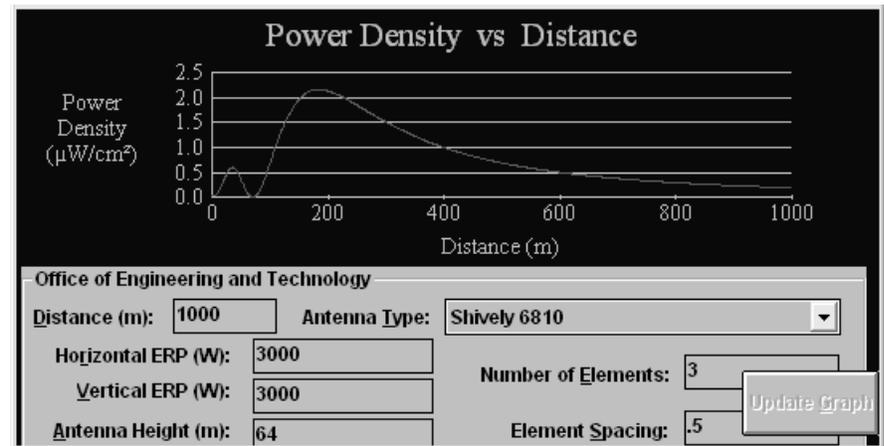
The Max Power Density was found to be
76.8021324886169 $\mu\text{W}/\text{cm}^2$ at 13 meters.
Note: Graph resolution is 100 points.



PLOT OF TOTAL POWER DENSITY

Licensed WEIB(FM) Primary
Northampton, MA
Using a 3-Bay EPA Type 6 ($\frac{1}{2} \lambda$)
Antenna Mounted 64 meters AGL

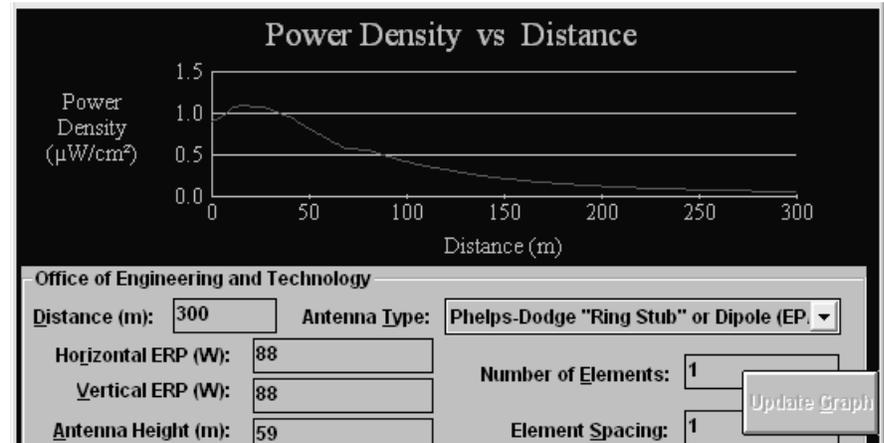
The Max Power Density was found to be
2.15591056541132 $\mu\text{W}/\text{cm}^2$ at 181 meters.
Note: Graph resolution is 100 points.



PLOT OF TOTAL POWER DENSITY

Licensed W245BK Translator
Amherst, MA
Using a 1-Bay EPA Type 1
Antenna Mounted 59 meters AGL

The Max Power Density was found to be
1.08887760188771 $\mu\text{W}/\text{cm}^2$ at 16 meters.
Note: Graph resolution is 100 points.



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