
Norfolk, VA - WNOR(FM) (License Modification)

Compliance with Radiofrequency Radiation Guidelines

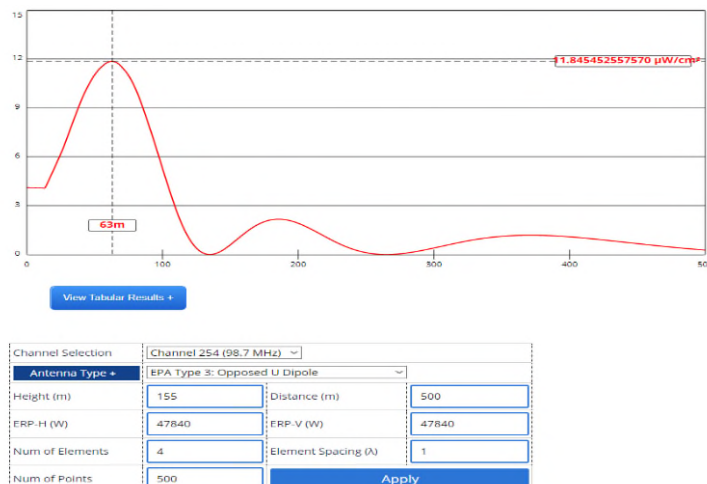
1

Explanation of Study The proposed 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 guidelines for 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 of mixed aural origin.

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, 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 environments.

Concerning AM contributions, FCC supplied MININEC interpolated graphs were used to determine the individual contribution of each AM station. MININEC AM Model Figure(s) 1-4 have been taken directly from, and employ the standards of, OET Bulletin No. 65 (Edition 97-01). The relevant MININEC AM Model Figure has been shown in graphical form at the end of this report with the predicted electrical field (V/m) and magnetic field (A/m) notations. For each AM contribution, the maximum contribution has been assumed using the maximum power regardless of mode of operation or directional tower power distribution. The AM contribution(s) have been interpolated at the measured fencing distance.

Summary of Stations The licensed WNOR(FM) - Norfolk, VA analog FM Station (Facility ID: 67080), operates on CH254B(98.7 MHz) with 46.0 kW ERP circular polarization (H&V). This facility operates with an antenna COR mounted 155 meters above ground level (AGL). The facility employs a four bay, ERI model SHPX-4AC 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. WNOR(FM) operates with HD/IBOC facilities of -14 dBc power (1.84 kW ERP) circular polarization (H&V) (or $\text{Log}[0.04]*10 = -14 \text{ dBc}$) from the main antenna mounted 155 meters AGL. Therefore, a combined power of 47.84 kW (H&V) has been assumed for this contribution.

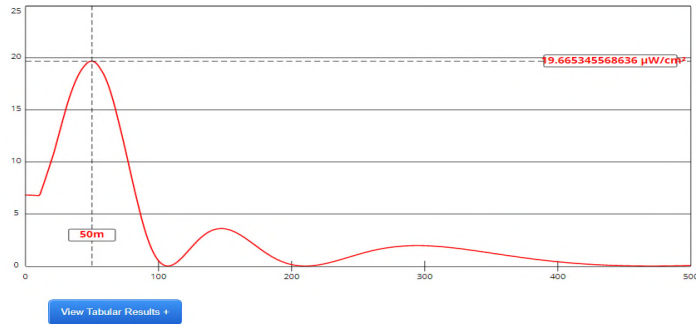


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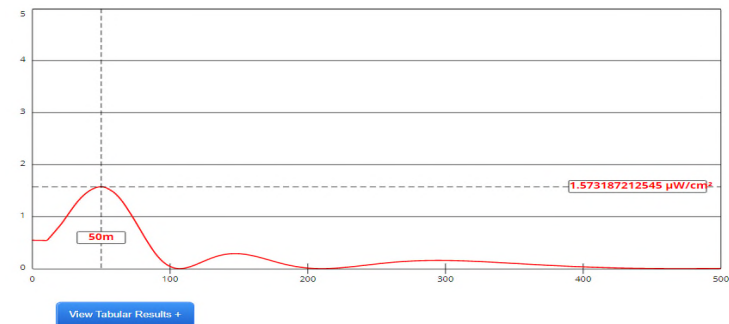
2

The WNOR(FM).P - Norfolk, VA analog FM Auxiliary Station (Facility ID: 67080) will operate on CH254B (98.7 MHz) with 50.0 kW ERP circular polarization (H&V). The proposed auxiliary antenna COR is mounted 123.4 meters above ground level (AGL). The facility will employ a four bay, ERI model SHPX-4AC 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.



| | | | |
|-------------------|------------------------------|-------------------------------|-------|
| Channel Selection | Channel 254 (98.7 MHz) | | |
| Antenna Type + | EPA Type 3: Opposed U Dipole | | |
| Height (m) | 123.4 | Distance (m) | 500 |
| ERP-H (W) | 50000 | ERP-V (W) | 50000 |
| Num of Elements | 4 | Element Spacing (λ) | 1 |
| Num of Points | 500 | Apply | |

The WAFX(FM).P - Suffolk, VA analog FM Auxiliary Station (Facility ID: 67082) will operate on CH295C (106.9 MHz) with 4.0 kW ERP circular polarization (H&V). The proposed auxiliary antenna COR is mounted 123.4 meters above ground level (AGL). The facility will employ a four bay, ERI model SHPX-4AC 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.

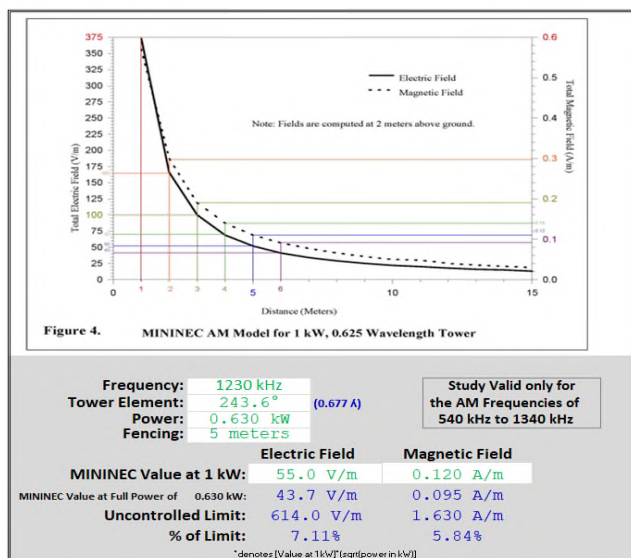


| | | | |
|-------------------|------------------------------|-------------------------------|------|
| Channel Selection | Channel 295 (106.9 MHz) | | |
| Antenna Type + | EPA Type 3: Opposed U Dipole | | |
| Height (m) | 123.4 | Distance (m) | 500 |
| ERP-H (W) | 4000 | ERP-V (W) | 4000 |
| Num of Elements | 4 | Element Spacing (λ) | 1 |
| Num of Points | 500 | Apply | |

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The licensed WJOI(AM).L - Norfolk, VA, analog AM facility operates on a frequency of 1230 kHz into a common daytime/nighttime non-directional tower. The daytime power is 0.630 kW. The nighttime power is 0.630 kW. The common daytime/nighttime tower employs a vertical radiator of 243.6° or 0.677 λ (wavelengths) for operation on the AM frequency. Existing fencing is no less than 5.0 meters from the tower in any direction.



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 is 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 by the general public. As stated before, protection of the uncontrolled environment implies protection of the controlled environment. There are no other broadcast sources of radiofrequency non-ionizing radiation present at this site.

| Contributing Station | Individual Contribution | Individual Uncontrolled Limit | Percent of Uncontrolled Limit |
|-------------------------------------|----------------------------------|-------------------------------|-------------------------------|
| WNOR(FM).L(Analog & Digital) | 11.845 $\mu\text{W}/\text{cm}^2$ | 200 $\mu\text{W}/\text{cm}^2$ | 5.9% |
| WNOR(FM).P Auxiliary(Analog) | 19.665 $\mu\text{W}/\text{cm}^2$ | 200 $\mu\text{W}/\text{cm}^2$ | 9.8% |
| WAFX(FM).P Auxiliary(Analog) | 1.573 $\mu\text{W}/\text{cm}^2$ | 200 $\mu\text{W}/\text{cm}^2$ | 0.8% |
| WJOI(AM) (analog) | 43.7 V/m | 614.0 V/m | 7.1% |
| Total of Uncontrolled Limit: | | | 23.7% |

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.