

EXHIBIT 8

ENGINEERING STATEMENT

1. This application is filed pursuant to, and in compliance with, the terms of 47 CFR §73.1690(c) which allows for the modifications specified herein without prior authorization or construction permit.

2. The instant application is filed to modify the WRTQ license. The modifications reflected herein are related to the re-installation of the licensed WRTQ antenna on a replacement antenna tower at the presently-licensed location. Due to structural deficiencies with the previous tower, a new tower with increased capacity was erected immediately adjacent to the old tower. Both the original and replacement structures are owned by Wintersrun Communications, and managed by Tower Economics, Inc.. The existing WRTQ antenna was relocated from the old tower to the replacement tower and in accordance with the manufacturer's specifications.

3. The WRTQ antenna is comprised of two vertical polarization radiating elements and one horizontal radiating element with common center of radiation. Power is distributed to the radiating elements via an asymmetrical power divider to yield the correct effective radiated power in the vertical and horizontal polarization planes.

4. WRTQ operates as a directional class B1 FM facility on channel 217, 91.3 MHz. No change in the operating frequency, station class, licensed directional antenna pattern, antenna height, effective radiated power in either vertical or horizontal planes, or antenna coordinates has been made to WRTQ, nor are any such changes specified in the instant application.

5. The replacement tower was designed and constructed to mimic the geometry of the previous tower such that the WRTQ antenna was able to be re-used on the new tower. The face

size and rotation of the replacement tower is the same as the original tower. Electronics Research Inc. (ERI), the antenna manufacturer, was commissioned to re-perform the pattern study of the WRTQ antenna on the new tower structure to ensure that the requisite directional characteristics of the antenna would be maintained. A copy of the results of ERI's analysis are contained in Exhibit 24, and as can be seen, the measured directional antenna pattern of the WRTQ antenna on the new tower does not exceed the licensed directional antenna pattern at any azimuth in either polarization in compliance with 47 CFR §73.1690(c)(2)(i).

6. Note that the horizontal polarization maximum ERP has been reduced from 1.3 kW to 1.06 kW in order to avoid exceeding the licensed horizontal plane pattern as specified as a Special Condition in the current license (BLED-19940907KB); however, the licensed envelope in the vertical polarization plane continues to fully encompass that of the horizontal plane and thus remains the unchanged licensed envelope.

7. The directional antenna continues to yield more than 85% RMS of the licensed directional antenna pattern in compliance with 47 CFR §73.1690(c)(2)(ii). The RMS of the licensed envelope is 0.761, and the RMS of the measured pattern is 0.676, or 88.8% fill.

8. The test methods and procedures used by the manufacturer to verify the directional antenna pattern are included in compliance with 47 CFR §73.1690(c)(2)(iii).

9. A licensed surveyor from Metz Engineers was on-site for the installation and orientation of the antenna elements. A certification that the antenna has been properly oriented is included in Exhibit 26 as required by 47 CFR §73.1690(c)(2)(iv).

10. A qualified engineer, Jeff DePolo, whose certification and qualifications are included in Exhibit 26, oversaw the installation of the antenna system such that it was performed pursuant to the manufacturer's instructions in accordance with 47 CFR §73.1690(c)(2)(v).

11. WRTQ continues to meet the principal coverage requirements of 47 CFR §73.315(a) as referenced in 47 CFR §73.1690(c)(2) continue to be met based on the measured directional antenna pattern as demonstrated in the contour map included in this exhibit. Note that the community of license, Ocean City, New Jersey, is the small island annotated on the contour map.

12. WRTQ continues to operate with a Broadcast Electronics model FM-5B transmitter. This transmitter is type-accepted for Part 73 use at the 3.7 kW transmitter power output level required to achieve the authorized effective radiated power. The slight reduction in transmitter power output from 3.9 kW to 3.7 kW is due to the change in antenna input power required to achieve authorized ERP per the antenna manufacturer's specifications detailed in the included report.

13. The replacement tower was constructed only 6 meters from the original tower. The replacement antenna tower is the same overall height as the previous structure (152 meters). The ground elevation of both the previous and replacement towers is identical. The WRTQ antenna is mounted at the same licensed height of 122 meters above ground level.

14. In the course for applying for Federal Aviation Administration clearance and subsequent Antenna Structure Registration with the Commission for the replacement tower, the site was re-surveyed. It was found that the site coordinates on the existing WRTQ license were in error by a small amount. The revised coordinates reflect a difference from the currently-licensed coordinates of 1.0 second of latitude and 0.6 seconds of longitude. As such, the instant application corrects this minor discrepancy as allowed by 47 CFR §73.1690(c)(11). The corrected coordinates match the Antenna Structure Registration for the tower, ASR #1250875.

As there is no way to enter the corrected coordinates in the Commission's electronic filing system for form 302-FM, the corrected coordinates are as follows:

Latitude N 39° 19' 14.0"
Longitude W 74° 46' 17.6"
Datum NAD27

ENVIRONMENTAL STATEMENT

15. WRTQ has been analyzed with respect to OET Bulletin 65 Edition 97-01 regarding non-ionizing radiation. WRTQ and class B commercial FM broadcast station WIXM operate from the same antenna tower. The concurrent operation of both stations was considered in the analyses that follow. There are several other tenants on the tower structure including two wireless cellular/PCS carriers (Verizon Wireless and Nextel), and two UHF two-way/SMR radio transmitters with antenna heights in excess of 50 meters above ground, none of which contributes an appreciable level of energy at ground level.

16. Plots of the predicted power density for WRTQ and WIXM was produced using the FM Model for Windows software provided by the Office of Engineering and Technology and are included in this exhibit.

17. WIXM operates with a 6-bay half-wave-spaced Dielectric DCRM series antenna with a radiation center 144 meters above ground level at 50 kW ERP in both the vertical and horizontal planes. The parameters used for this model are as follows:

WIXM

Antenna Type: Dielectric DCRM
Horizontal ERP: 50,000 watts
Vertical ERP: 50,000 watts
Antenna Height: 144 meters
Number of Elements: 6
Element Spacing: 0.5

The model predicts a maximum power density of $1.862 \mu\text{W}/\text{cm}^2$ at 840 meters from the tower. At locations in proximity to the tower base the power density is much less; $1.862 \mu\text{W}/\text{cm}^2$ is a worst-case value.

18. The WRTQ antenna is comprised of two vertical dipole bays and one horizontal “ring” bay with a common center of radiation at 122 meters above ground level. As there is no antenna selection in the software that adequately depicts the radiation characteristics of this custom antenna, a worst-case analysis was performed which assumes an effective radiated power of 11.56 kW (10.5 kW vertical, 1.06 kW horizontal) radiated equally at all elevation and azimuth angles. Using equation (9) in OET Bulletin 65 Edition 97-01:

$$S = 33.4 \times \text{ERP} / R^2$$

where:

S = power density in $\mu\text{W}/\text{cm}^2$
ERP = power in watts
R = distance in meters

$$S = (33.4 \times 11,560) / (120 \times 120)$$
$$S = 26.81 \mu\text{W}/\text{cm}^2$$

19. As such, the combined power density at 2 meters above ground level (approximate height of a person’s head) is $26.81 \mu\text{W}/\text{cm}^2$. This is truly a worst-case scenario as it assumes that the WRTQ antenna produces full field strength toward the ground, when in reality, this simplification yields a gross over-estimate. Even so, the combined power density equates to only 14.3% of the maximum permissible level of $200 \mu\text{W}/\text{cm}^2$ for uncontrolled (public) access areas.

As such, at all locations, non-ionizing radiation levels are well below all exposure limits at ground level.

20. The tower and transmitter building are closed by a chain-link fence with locking gate. The roadway leading up to the transmitter site is gated and locked. The antenna site is posted with appropriate signage warning that non-ionizing radiation in excess of the aforementioned limits may be experienced at some locations on the tower. The WRTQ transmitter, as well as other tenants' transmitters, will be reduced in power or turned off completely when workers are on the tower to avoid exposure to non-ionizing radiation in excess of the prescribed limits.

21. Based on the analyses above, it is concluded that the proposed facility is in full compliance with non-ionizing radiation exposure limits.

22. There are no other changes at the tower site aside from the replacement of the tower proper with one of identical height, and as such, there has been no other negative environmental impact.