

**Radiofrequency Field Strength Measurements
Performed for WDAC Radio Company
December 26, 2006**

BACKGROUND:

FM Broadcast Station WDAC, Lancaster, PA, transmits on Channel 233B (94.5 MHz) from a common studio and transmitter site at 683 Lancaster Pike, PA Route 272, in Providence Township, Lancaster County, PA. WDAC's licensed main antenna is pole-mounted at 145 meters above ground level (AGL) on a guyed tower (referenced in this report as "Tower #3") about 85 meters east of the studio/transmitter building, and is authorized to operate with an effective radiated power (ERP) of 19.0 kW in both the horizontal and vertical polarizations. A 59 meter tower ("Tower #2") and an 89 meter tower ("Tower #4") are also on the WDAC property. These support several cellular and PCS base station antennas, which operate at relatively low power. A fourth tower, formerly on the property (which was known as "Tower #1"), supported WDAC's former auxiliary antenna and was dismantled on December 21, 2006. Other than WDAC, there are no broadcast facilities presently operating within three kilometers of this site.

A Construction Permit, file number BXPB-20061018ACE, was granted by the FCC on October 23, 2006, authorizing installation of a replacement auxiliary antenna at 49 meters above ground level on Tower #2, which stands about 36 meters east of the WDAC building. The specified ERP of this auxiliary antenna is 13.5 kW in both horizontal and vertical polarizations. Construction was completed on December 20 and equipment tests were conducted on December 26, 2006.

Special Operating Condition 2 on the Construction Permit reads as follows:

The permittee/licensee shall, upon completion of construction and during the equipment test period, make proper radiofrequency electromagnetic (RF) field strength measurements throughout the transmitter site area to determine if there are any areas that exceed the FCC guidelines for human exposure to RF fields. If necessary, a fence must be erected at such distances and in such a manner as to prevent the exposure of humans to RF fields in excess of the FCC Guidelines (OET Bulletin No. 65, Edition 97-01, August 1997). The fence must be a type which will preclude casual or inadvertent access, and must include warning signs at appropriate intervals which describe the nature of the hazard. Any areas within the fence found to exceed the recommended guidelines must be clearly marked with appropriate visual warning signs.

The procedure and results of these measurements are discussed below.

MEASUREMENT PROCEDURE:

The required field strength measurements were taken with a Narda model 8718B meter kit (serial number 01514, factory-calibrated June 27, 2006) and a Narda model 8761D isotropic probe (serial number 06007, factory-calibrated October 11, 2006) having a full scale power density rating of 20 mW/cm². Prior to use, these instruments were self-tested and zeroed according to the manufacturer's instructions, and a correction factor of 1.11 was entered to account for the factory-specified frequency response variation of the probe at 94.5 MHz.

As shown in Figure 1, several "survey points" were selected near the public entrances to site and the studio/transmitter building, and at the bases and guy anchor points of each tower on the site. Measurements were taken at each of these points by sweeping the hand-held probe from ground level to at least 2 meters above ground level and testing for possible RF emission or re-radiation from metallic objects, such as transmission lines and guy cables. The 8718B meter was operated in its "peak hold" mode, so that it would register the highest measured power density in the vicinity of each point. Unless noted, these peak readings are the power density values tabulated in Figure 2. The average power density around each point was usually substantially less.

Upon departure from each survey point, the memory was cleared before proceeding to the next point. While walking between points, the probe was held vertically at approximately 2 meters above ground level and the meter readout was monitored. Any peak reading exceeding 0.050 mW/cm² was investigated in greater detail and the results tabulated in Figure 2.

A calculation of predicted RF power density at two meters AGL within 250 horizontal meters of each tower base was made with the FCC/EPA "FM Model" software program, and results plotted in the graphs submitted below as Figures 3 and 4. Although all predicted RF levels were well below the FCC threshold, this information was helpful in showing the zones where hazardous conditions could be most closely approached.

A full set of measurements were taken and logged between 2:30 and 3:45 PM EST with the WDAC main antenna in operation at licensed power, then the main facility was shut off. Operation continued on the auxiliary antenna between 3:45 and 4:58 PM, during which period another full set of measurements were made before resuming operating on the main facility.

RESULTS AND DISCUSSION:

The applicable FCC threshold for General Population/Uncontrolled Exposure at WDAC's frequency of 94.5 MHz is 0.2 mW/cm².

As shown in Figure 2, with the main antenna in operation, this limit was not exceeded near any of the survey points or within areas between them. The highest reading observed under this condition was near Point #6, the northwest outer guy anchor for Tower #3, while holding the probe 15 cm away from the uppermost guy cable. The peak reading did not exceed 75 percent of the 0.2 mW/cm² limit. The remaining survey points outside and inside the building measured well below this General Population/Uncontrolled Exposure limit.

With the auxiliary antenna in operation at authorized power, the power density measured at all survey points was also well below the 0.2 mW/cm² limit, except in the immediate vicinity of points 5 and 21, immediately adjacent to the two of the guy anchors for Tower #2, which supports the auxiliary antenna. The top two groups of guy cables, attached to the tower near the auxiliary antenna, are apparently acting as “open transmission lines”, intercepting some RF energy within the aperture of the antenna, then re-radiating the energy across the remaining span. Although these guy cables are bonded to ground rods at the anchors, the measured field strength exceeds the General Population / Uncontrolled Exposure standard within radii of 60 and 45 centimeters of the north and southwest anchors, respectively. No hazardous RF levels were observed at the base of Tower #2 or any intermediate points on the site.

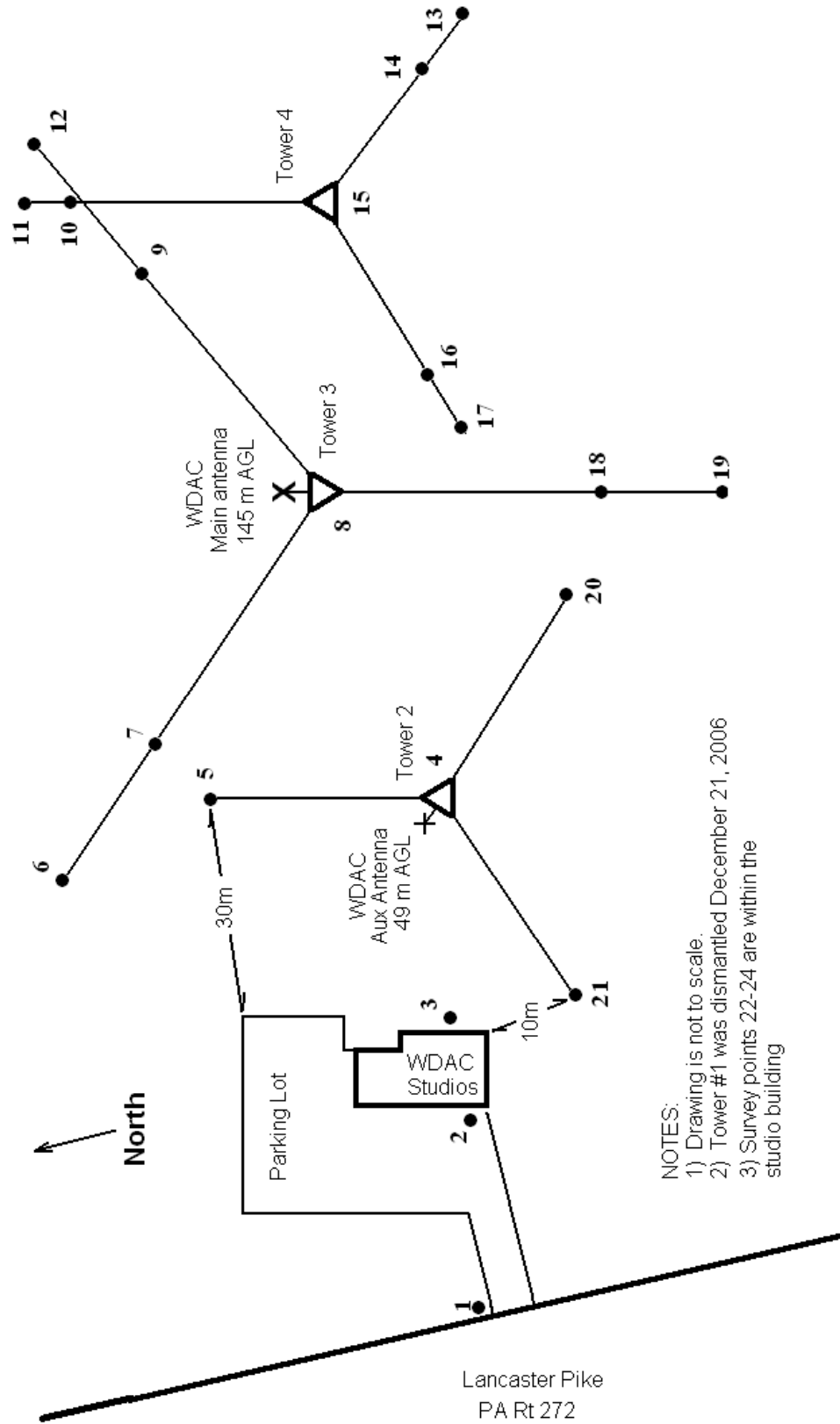
RECOMMENDATIONS AND CONCLUSION:

Although the WDAC auxiliary antenna will radiate only during periods of maintenance or repairs to the main antenna and/or transmitter, the FCC requires a physical barrier to prevent access to areas having RF levels in excess of 0.2 mW/cm². Therefore, fencing with locked gates should be installed at a radius of at least 60 cm around the north and southwest Tower #2 guy anchors, along with RF hazard warning signs. These fences would also discourage vandalism or tampering with the guy turnbuckles.

No hazardous RF levels were measured near the base of Tower #2, however a danger of excessive exposure would likely exist at elevations over 30 meters AGL with the auxiliary antenna in operation. Although the RF hazard warning sign currently posted at the base of this tower is sufficient to comply with FCC rules, a fence would increase WDAC's ability to control access, and reduce potential liability. It is noted that the bases of Tower 3 and Tower 4 are currently enclosed by fencing and most of the remaining guy anchors are also fenced.

Measurements were taken by Mark D. Humphrey, Technical Consultant to WDAC, and Ralph Haneman, Chief Operator of WDAC, with assistance from Doug Myer, General Manager, WDAC.

Figure 1 -- Survey Point Map



- NOTES:
- 1) Drawing is not to scale.
 - 2) Tower #1 was dismantled December 21, 2006
 - 3) Survey points 22-24 are within the studio building

**Figure 2 – Measurement Tabulation
December 26, 2006**

Survey Point	Description of Measurement Location	Measured Power Density (mW/cm ²) Main Antenna Radiating	Measured Power Density (mW/cm ²) Auxiliary Antenna Radiating	Notes
1	Corner of driveway and Rt 272	0.005	0.040	
2	Front door of WDAC studio building	0.003	0.041	
3	Rear door of WDAC studio building	0.041	0.070	0.069 highest observed anywhere in parking lot
4	Base of Tower #2 (below WDAC aux)	0.051	0.070	RF hazard warning sign posted at tower base
5	North guy anchor (g.a.) of Tower #2	0.016	0.200 at 0.6 m distance from anchor	OK with main antenna operating, exceeds limit with aux antenna operating – see text
6	Northwest outer g.a. of Tower #3	0.15 at 15 cm distance	0.028	Near limit with main antenna operating - see text
7	Northwest inner g.a. of Tower #3	0.011	0.052	
8	Base of Tower #3 (below WDAC main)	0.015	0.038	Warning sign posted at tower base. Base is fenced
9	Northeast inner g.a. of Tower #3	0.020	0.050	
10	North inner g.a. of Tower #4	0.022	0.034	
11	North outer g.a. of Tower #4	0.022	0.035	
12	Northeast outer g.a. of Tower #3	0.053	0.037	
13	Southeast outer g.a. of Tower #4	0.031	0.039	
14	Southeast inner g.a. of Tower #4	0.031	0.040	
15	Base of Tower #4 (below PCS ant)	0.040	0.045	Warning sign posted at tower base. Base is fenced
16	Southwest inner g.a. of Tower #4	0.039	0.041	
17	Southwest outer g.a. of Tower #4	0.046	0.038	
18	South inner g.a. of Tower #3	0.048	0.045	
19	South outer g.a. of Tower #3	0.050	0.043	
20	Southeast g.a. of Tower #2	0.047	Less than 0.200 at 0.3 m distance from anchor	OK with main antenna operating or with aux antenna operating – see text
21	Southwest g.a. of Tower #2	0.047	0.200 at 0.45 m distance from anchor	OK with main antenna operating, exceeds limit with aux antenna operating – see text
22	WDAC Aux & Main Transmitter Room	0.041	0.018	Max. reading, probe 10 cm from all sides of cabinet
23	Interior of WDAC studio bldg, first floor	0.036	0.044	Max. reading recorded during walk-around of floor
24	Interior of WDAC studio bldg, second floor	0.020	0.050	Max. reading recorded during walk-around of floor

Figure 3 – Predicted RF Power Density at 2 m AGL for WDAC Main Antenna
Power Density vs Distance

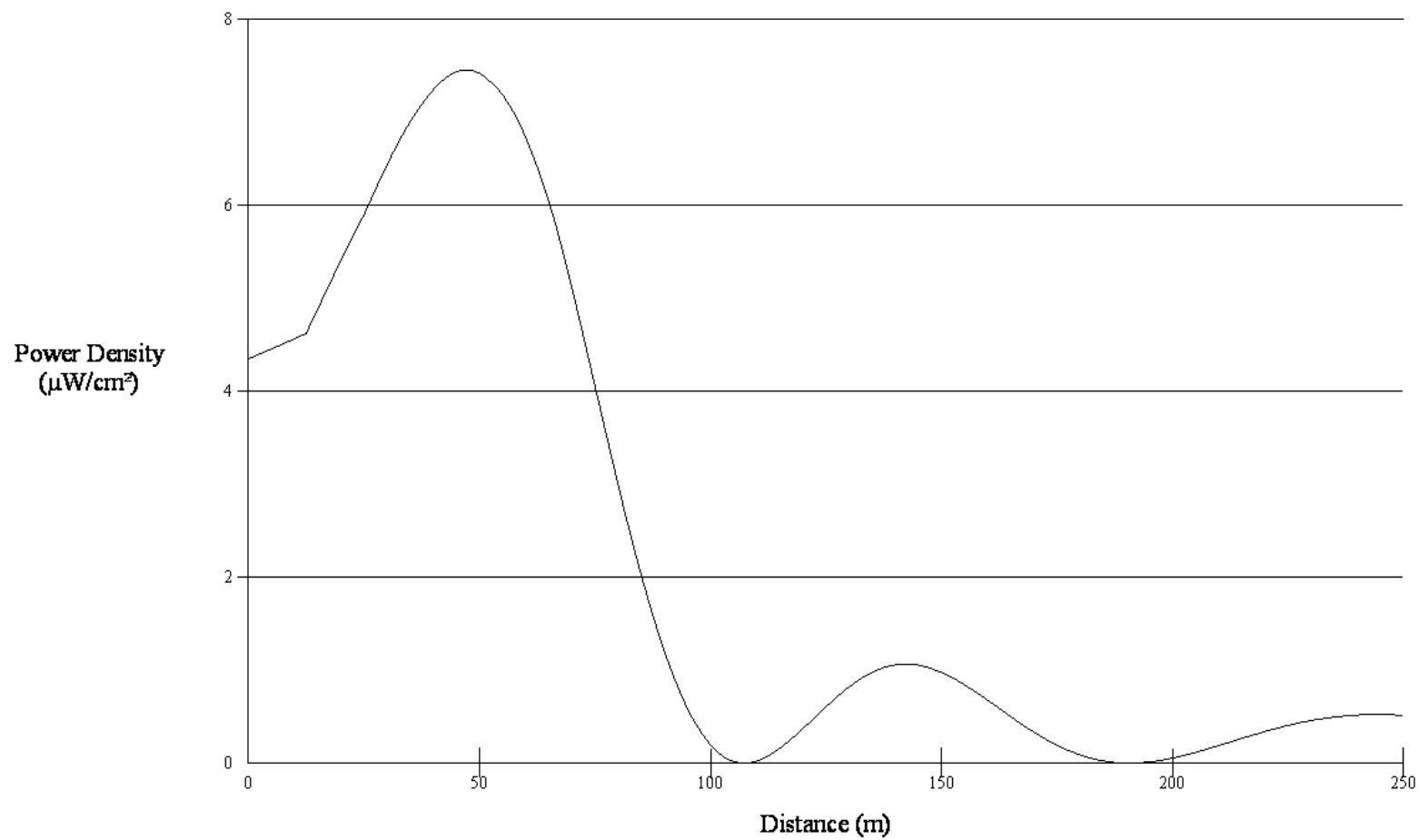


Figure 4 – Predicted RF Power Density at 2 m AGL for WDAC Auxiliary Antenna

