**January 2008**
**WTPT Channel 227C**
**Forest City, NC**
**NIER Analysis**

**Facilities Proposed**

The proposed operation will be on Channel 227C (93.3 MHz) with a maximum lobe effective radiated power of 100 kilowatts. Operation is proposed with a 6-element circularly-polarized directional antenna which will be side-mounted on a new tower to be located atop Hogback Mountain.

While the proposed WTPT coordinates and antenna height are identical to that of the proposed WSPA-FM operation at this site, the two stations will not share an antenna. The two antennas will be located in the same aperture on the tower, and construction of the two stations (which are commonly-owned) will be coordinated. The antenna pattern studies for WTPT will account for the presence of the WSPA-FM antenna in the aperture.

The FCC Antenna Structure Registration Number for the tower is 1256982.

**NIER Calculations**

Study of the area within 1000 meters of the proposed site reveals no likely sources of non-ionizing radiation other than this proposal, the proposal for WSPA-FM, WSPA-TV, and WSPA-DT.

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(mW/cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

*D* is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed WTPT antenna system assume a Type 6 element pattern, which is the element pattern for the Shively antenna proposed for use. The highest calculated ground level power density occurs at a distance of 24 meters from the base of the antenna support structure. At this point the power density is calculated to be 65.5 $\mu W/cm^2$, which is 6.6% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments at FM frequencies).

Calculations of the power density produced by the proposed WSPA-FM antenna system assume a Type 6 element pattern, which is the element pattern for the Shively antenna used by that station. The highest calculated ground level power density occurs at a distance of 24 meters from the base of the antenna support structure. At this point the power density is calculated to be 65.5 $\mu W/cm^2$, which is 6.6% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments at FM frequencies).

Power density levels produced by the WSPA-TV Channel 7 antenna were calculated for an elevation of 2 meters above ground level (126 meters below the antenna radiation center). The worst case power density levels occur at depression angles between 45° and 90° below the horizontal. The calculations in this report assume a worst case relative field value of 0.05 at these angles, based on review of the manufacturer's vertical plane pattern for the Dielectric TW-12B7-R antenna used by WSPA-TV. This relative field value yields a worst case adjusted effective radiated power (10% aural) of 331 Watts at depression angles between 45° and 90° below the

horizontal. Assuming this worst-case effective radiated power and the shortest distance between the antenna radiation center and 2 meters above ground level (i.e. straight down), the highest calculated power density from the proposed antenna alone occurs at the base of the antenna support structure. At this point the power density is calculated to be 7.3 μW/cm², which is 0.7% of 1000 μW/cm² (the FCC maximum for controlled environments at the Channel 7 visual carrier frequency).

Power density levels produced by the WSPA-DT Channel 53 antenna were calculated for an elevation of 2 meters above ground level (107 meters below the antenna radiation center). The worst case power density levels occur at depression angles between 45° and 90° below the horizontal. The calculations in this report assume a worst case relative field value of 0.05 at these angles, based on review of the manufacturer's vertical plane pattern for the Dielectric TFU-26GBH-R O6 antenna used by WSPA-DT. This relative field value yields a worst case adjusted effective radiated power of 2187.5 Watts at depression angles between 45° and 90° below the horizontal. Assuming this worst-case effective radiated power and the shortest distance between the antenna radiation center and 2 meters above ground level (i.e. straight down), the highest calculated power density from the proposed antenna alone occurs at the base of the antenna support structure. At this point the power density is calculated to be 6.4 μW/cm², which is 0.3% of 2357 μW/cm² (the FCC maximum for controlled environments at the Channel 53 frequency).

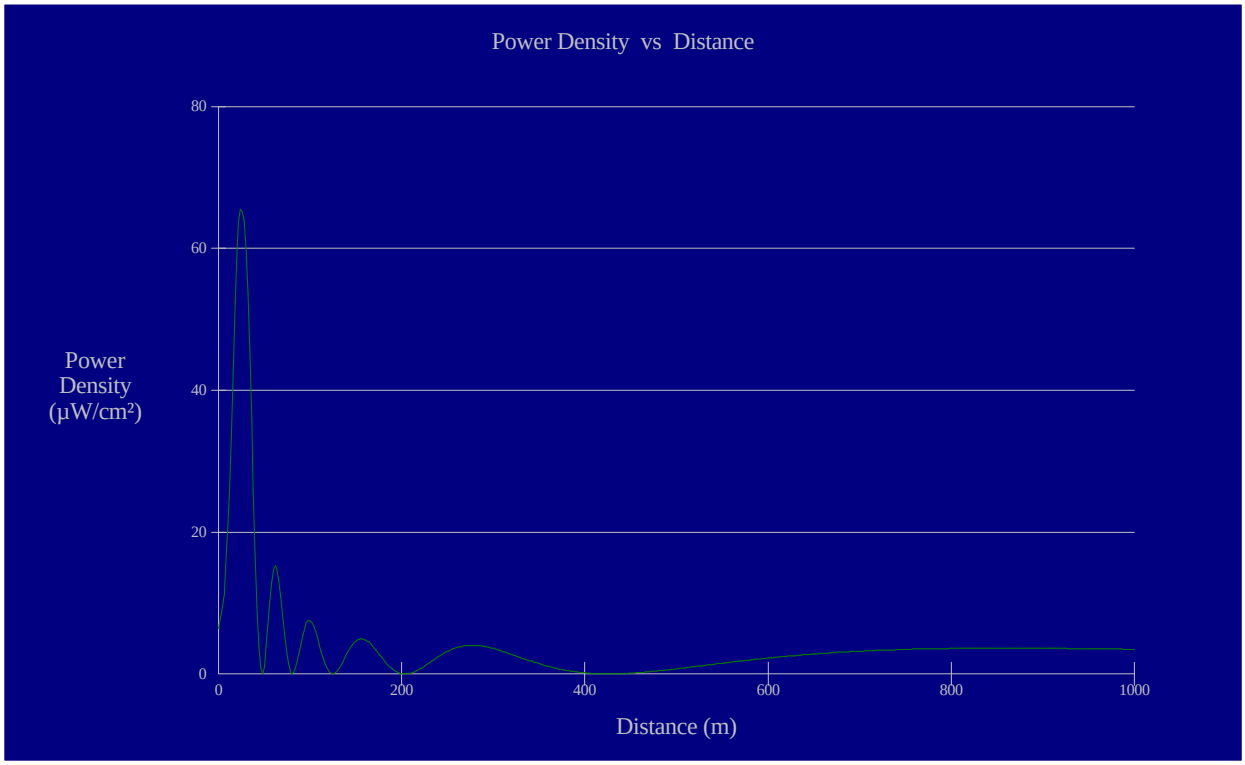
These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of WTPT , the proposed operation of WSPA-FM,

and the present operations of WSPA-TV and WSPA-DT (were their maxima to coincide, which they do not) is 14.2% of the FCC standard for controlled environments.

According to information provided by the WTPT licensee (which is also the licensee of WSPA-FM at this transmitter site), Hogback Mountain is a controlled access site, on a remote mountaintop with no public access permitted. On the access road there are multiple locked fences and locked gates which are posted with RFR warning signs.

Public access to the site is restricted by a locked gate and the antenna tower is posted with warning signs. Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.



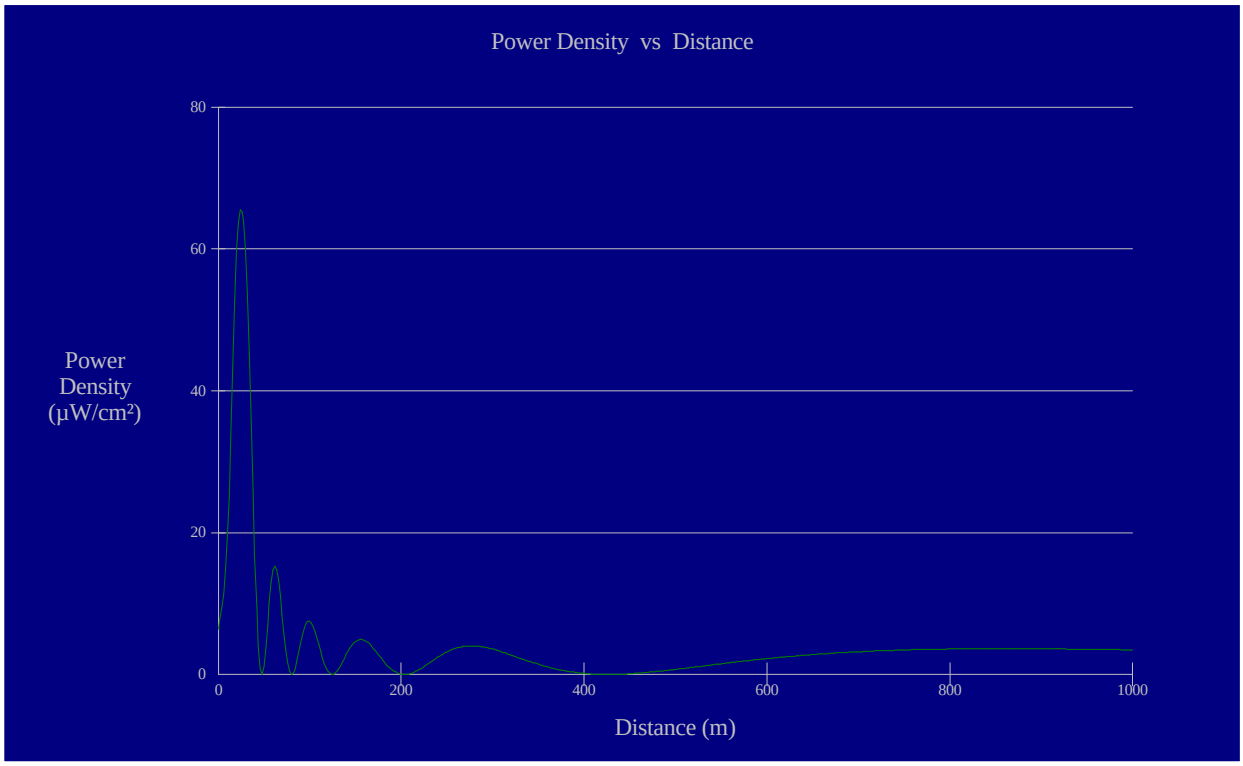

**Ground-Level NIER** **OET FMModel**

WTPT 227C Forest City
Antenna Type: Shively 6810-6R-DA
No. of Elements: 6
Element Spacing: 1.0 wavelength

Distance: 1000 meters
Horizontal ERP: 100 kW
Vertical ERP: 100 kW

Antenna Height: 74 meters AGL

Maximum Power Density is 65.5 µW/cm$^2$ at 24 meters from the antenna structure.




**Ground-Level NIER** **OET FMModel**

WSPA-FM 255C Spartanburg
Antenna Type: Shively 6810-6R
No. of Elements: 6
Element Spacing: 1.0 wavelength

Distance: 1000 meters
Horizontal ERP: 100 kW
Vertical ERP: 100 kW

Antenna Height: 74 meters AGL

Maximum Power Density is 65.5 µW/cm$^2$ at 24 meters from the antenna structure.