

## **Environmental Exhibit**

Channel 11, 10 kW H, DA Shenandoah Valley

Educational TV Corporation October, 2010

The proposed antenna will be located at the Elliott Knob transmitter site. This is an isolated Forestry controlled antenna site having high elevation, overlooking a wide expanse of terrain with a rapid fall off of elevation in the direction of the proposed major lobe.

The site is at the top of a long winding 4-5 mile steep road up the mountain. There is a gate under lock and key at the start of this road with warning signs posted. Consequently, the site is off limits to the public and can be considered "controlled."

The applicant's DTV and analog TV are located atop the mountain. There is an LPTV and an FM station also at the site.

Based on the formulas expressed in the OET Bulletin, No. 65, August 1997 as amended, Evaluating Compliance with FCC guidelines for Human Exposure to Radio Frequency Electronic Magnetic Fields", published by the Federal Communications Commission's Office of Science and Engineering, the proposed 10 kW facility, centered at 201 MHz, with its antenna radiation center 10 meters above ground level, is predicted to produce a maximum power density at a position 2 meters above the tower base (head level) of 208.8 microwatts per square centimeter, which is 20.9 percent of the 1000 microwatt per square centimeter maximum. (Relative Field = 0.2) The proposed antenna has a depression angle of 30.3 degrees to the location of the steep drop-off which is located 13.7 meters in the front of the antenna. Based on the manufacturer's vertical elevation field, this location is within the first null. (See attachment A.) The RF density at head height at this null of relative field 0.025 is 3.39 microwatts per square centimeter. This is only 0.34 percent of the maximum. At a distance of 6.85 meters from the antenna base, or half-way between the antenna base and the drop-off, the depression angle becomes 50.9 degrees. Though the manufacturer's relative field graph ends at a depression angle of 30 degrees, if we use the OET 69 referenced high gain antenna relative field of 0.2, we get the same value as is found directly beneath the antenna. Consequently, the focus of the channel 11 beam is well off the mountain top at an area that cannot be reached by site engineers. Even so, the applicant has placed warning signs directly in front of the antenna. The power off the back of the antenna is 0.32 kW (see the proposed azimuth pattern in attachment B.) This produces 0.668 microwatts per square centimeter, assuming a relative field of 0.2. This is only 0.067 percent of the maximum.

WHSV-TV operates a DTS station from this site using the old WVPT channel 51 antenna. This antenna is a unique "billboard" antenna design which now operates at an ERP of 0.5 kW. This antenna also has its center at 10 meters above the ground.

Considering the manufacturer's vertical elevation field graph of 0.02 (see attachment C,) the field of this antenna is also at a null at a depression angle of approximately 28.5 degrees, at the drop off position which is some 13.7 meters from the base of the antenna. The RF density at this point is 0.0023 microwatts per square centimeter which is a negligible percent of the maximum. As is the case for the WVPT- DT antenna, the field will get higher as the observer gets closer to the antenna itself. At a position half the distance from the antenna, 6.85 meters from the antenna base, using a relative field of 0.1, the antenna produces 0.112 microwatts per square centimeter which is 0.005 percent of the maximum. Again, the focus of this antenna is in the same direction as the WVPT-DT antenna which the drop-off. This area has been posted with a warning sign for workers to stay outside of the area where the power density is at its highest. The area Cannot be fenced off under instructions from the Forest Service which prohibit fencing at the site.

The FM station, WTON-FM, operates with an ERI type 3 antenna having an ERP of 0.34 kW from an antenna 11 meters above ground. This station has a calculated power density, at head height, of 8.4 microwatts per square centimeter, which is 0.84 percent of the maximum.

W31CE also transmits from the site with an ERP of 27 kW from an antenna 10 meters above the ground. This station produces 141.9 microwatts per square centimeter at head height, which is 7.4 percent of the maximum.



The licensee of W41DT transmits from this site using a power of 15 kW at 28 meters above ground. At head height this station produces 8.7 microwatts per square centimeter which is 0.411 percent of the maximum.

Consequently, the applicant will fully comply with the FCC's maximum RF power density standards. Since this area is posted with warning signs the applicant is confident it is and will be in compliance with the Commission's human exposure to radiofrequency electromagnetic fields rules.

The applicant has an agreement with the other stations at the site to protect workers by either reducing R.F. emissions or terminating operations when workers are on the site or on towers where excessive exposure to electromagnetic radiation can be received.

**S I R A**  
Sistemi Radio

ANTENNA TYPE 3VTV-02/4 (2x2)

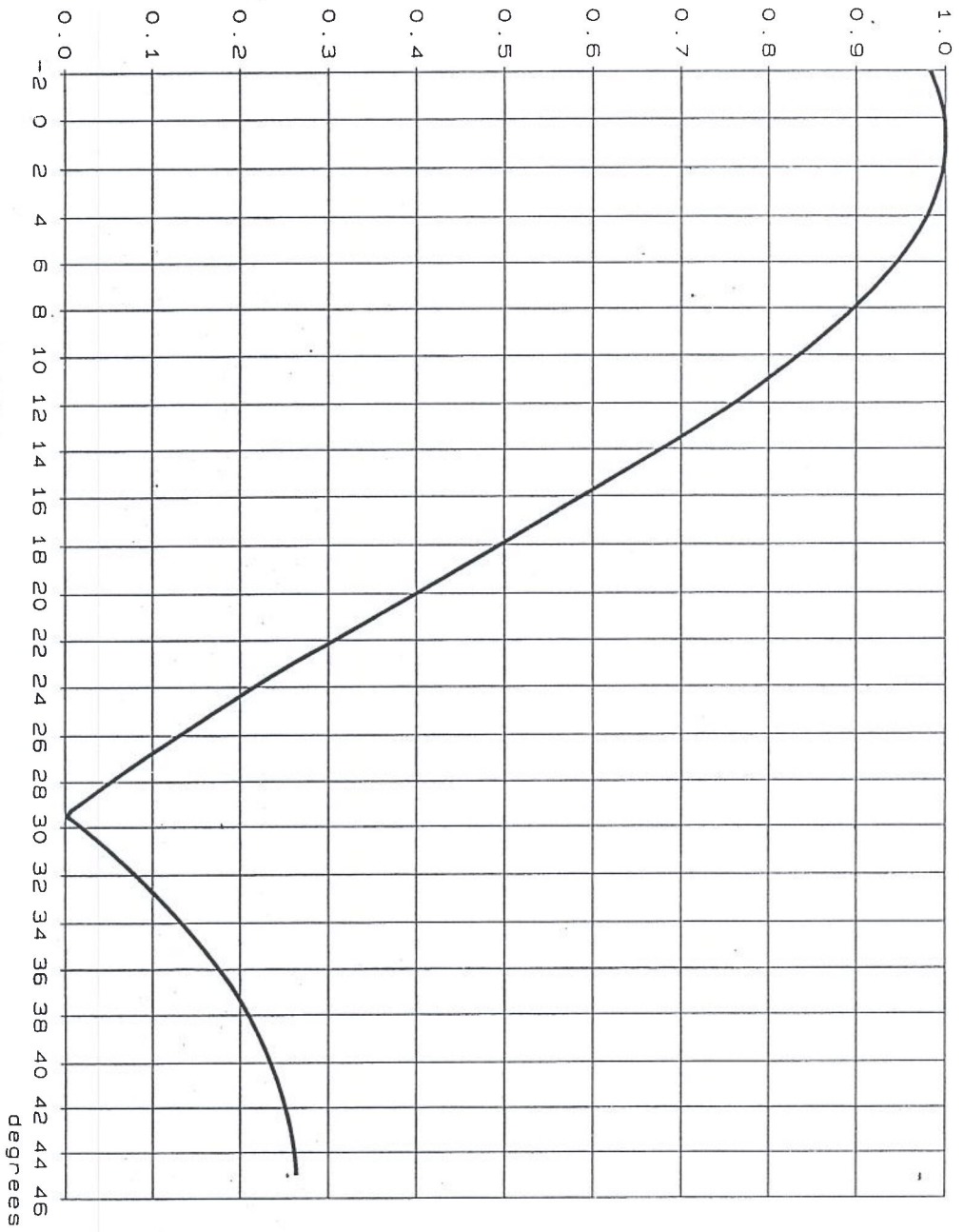
Date : 28/06/2001  
Oper.: M.I.  
Appr.:   
Graph No.: 

## THEORETICAL VERTICAL PATTERN

(Linear scale)

Frequency 199.25 MHz

Total antenna



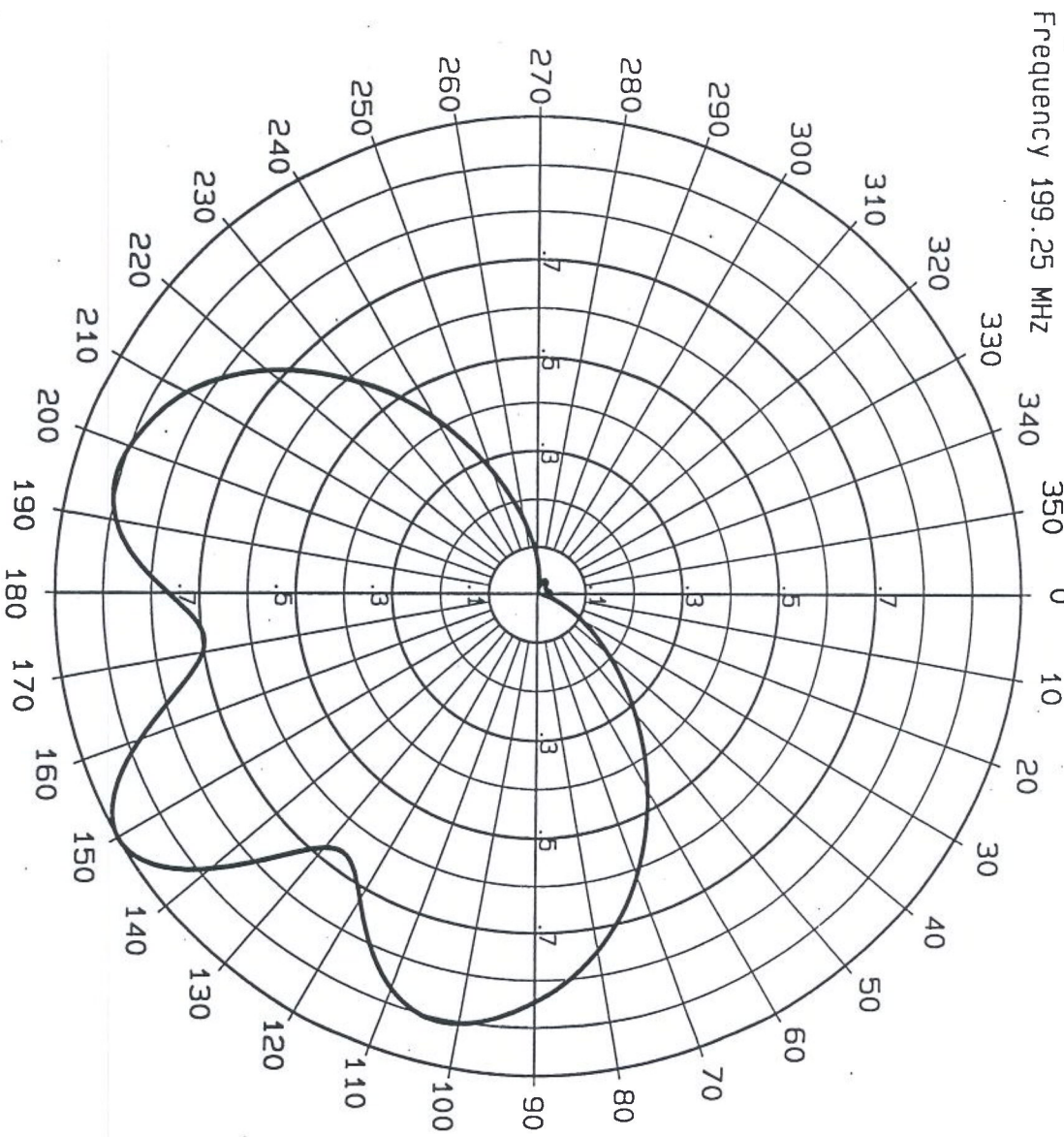
**S I R A**  
Sistemi Radio

ANTENNA TYPE 3VTV-02/4 (2x2)

Date : 18/07/2001  
Oper.: M.I.  
Appr.: *[Signature]*  
Graph N°.: 1

# THEORETICAL HORIZONTAL PATTERN

(Linear scale)





WVPT Billboard

Theoretical Elevation Pattern  
Relative Field AT 130 DEGREES  
VHF PANELS 1 BAY NARROW CARDIOID  
CH11 Null Fill 0% Beam Tilt 1.0 Deg

(5)

