

ENGINEERING STATEMENT
RE DTV BROADCAST ENGINEERING DATA
ON BEHALF OF
WEST VIRGINIA MEDIA HOLDINGS
WOWK-DT, HUNTINGTON, WEST VIRGINIA
CHANNEL 47 895 KW ERP (MAX) 396 METERS HAAT

JUNE 2002

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

This engineering statement has been prepared on behalf of West Virginia Media Holdings, L.L.C., licensee of WOWK-TV, Channel 13, Huntington, West Virginia. The purpose of this engineering statement is to accompany its request to construct digital television (“DTV”) facilities on Channel 47 as authorized by Docket No. 01-56 (BPRM-20000828ACQ) to provide those data required in FCC Form 301, Section III-D and amends the application for Channel 54 on file (FCC File No. BPCDT-19991029ABZ). Thus, File No. BPCDT-19991029ABZ is amended to replace Section III-D.

WOWK-TV is licensed to operate on NTSC Television Channel 13 with a maximum visual effective radiated power (ERP) of 141 kW (horizontal polarization) and height above average terrain (HAAT) of 430.9 meters (1270 feet). WOWK-TV has an application on file with the FCC to change effective radiated power (ERP) and height and it bears FCC File No. BPCT-20020516AAC. WOWK-DT had been allocated DTV Channel 54 with facilities of 387 kW and an HAAT of 387 meters in the revised DTV Table of Allotments.¹ WOWK-DT proposes to construct Channel 47 DTV facilities as authorized by the Docket No. 01-56. The facilities of 895 kW directional (horizontal polarization) at a HAAT of 396 meters are requested.

The DTV antenna is top-mounted in a stack arrangement on the new tower on Barkers Ridge Road, Huntington, West Virginia. The new tower has an overall structure height above ground of 353.3 meters (1159 feet). Exhibit E-1 shows a vertical sketch and the arrangement of the antennas on

¹“In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service”, MM Docket No. 87-286, Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order (FCC 98-24), 2/12/98, DTV Table of Allotments.

the tower. An FAA airspace approval has been obtained. The FAA study number is 00-AEA-0363-OE. The tower registration number is 1234025.

The geographic coordinates of the site remain unchanged and they are:

North Latitude: 38° 30' 20.8"

West Longitude: 82° 12' 32.8"

NAD-27

Equipment Data

Antenna: Dielectric, Type TUE-05-12/60H-B (or equivalent) horizontally polarized antenna with 0.90° electrical beam tilt. The vertical plane pattern and other exhibits required by Section 73.625(c) are herein included. See Exhibits E-2a, E-2b, E-2c, E-2d, and E-2e.

Power Data

Transmitter output	51.2 kW	17.07 dBk
Transmission line efficiency loss Dielectric, 7-3/16" 75 ohm digiTline Or equivalent, length: 280.4 meters (1070 feet)	76 %	1.177 dB
Input power to the antenna	38.9 kW	15.9 dBk
Antenna power gain, Main lobe	23.00	13.62 dB
Effective Radiated Power, Maximum	895 kW	29.5 dBk

Elevation Data

Vertical dimension of Channel 47 antenna	14.2 meters
top section of top-mounted stack	46.6 feet
including appurtenances	
Overall height above ground of new	353.3 meters
antenna structure (including appurtenances)	1159 feet
Center of radiation of Channel 47	325.4 meters
antenna above ground	1067.5 feet
Elevation of site above mean sea level	296.5 meters
	972.0 feet
Center of radiation of Channel 47	621.6 meters
antenna above mean sea level	2039.5 feet
Overall height above mean sea level	649.5 meters
of new tower (including beacon)	2131 feet
Antenna height above average terrain	396.0 meters

Coverage

The average elevation data for 3 to 16 km along the standard eight radials has been determined from the NGDC 3-second database. The F(50,90) NTSC coverage contours have been computed from reference to the propagation data for Channel 47, as published by the FCC in Figure 10b and 10c, Section 73.699 of the FCC Rules and Regulations. Utilizing the formula in Section 73.625(b)(2) of the rules for the effective heights, it is found that the depression angle, A_{η} , varies from 0.52 to 0.56 degrees. Since the relative vertical field is greater than 90% of the maximum at these depression angles, the maximum power was used in determining the distance to the DTV contour.

Table 1 lists along every 10 degrees the average elevation 3 to 16 km, the antenna height above average terrain, the effective radiated power, and the predicted distance to the 48 and 41 dBu F(50,90) coverage contours. The map in Exhibit E-3 shows the proposed WOWK-DT 48 dBu and 41 dBu F(50,90) coverage contours. The legal boundaries of Huntington, West Virginia are highlighted on the map.

Interference Analysis

A study of predicted interference caused by the proposed WOWK-DT operation has been performed using a version of the Longley-Rice program as described in OET Bulletin No. 69 (July 2, 1997) and the Public Notice, "Additional Application Processing Guidelines for Digital Television (DTV)" (August 1998) and submitted in the rule making (MM Docket No. 01-56; RM-10033) that was adopted May 3, 2002. There is no essential change in this requested facility from that authorized in the rule making.

Other Licensed and Broadcast Facilities

There are no AM stations located within 3.2 km of the existing WOWK-TV site. NTSC station WOWK-TV, Channel 13, will also use the replacement tower. WAMX(FM), 292B1, 106.3 MHz has a CP for facilities on the proposed new tower with a center of radiation approximately 265 meters above ground. No adverse technical effect is anticipated by the proposed DTV operation to any other FCC licensed facility. If required, the licensee of WOWK-DT will install filters or take other measures as necessary to resolve any problem.

Radio Astronomy

The WOWK-TV site is outside the Greenbank, West Virginia, Radio Astronomy Notification Zone [Section 1030(a)(1)] defined as a rectangle (NAD-27) with the northwest corner at 39° 15' 00" North Latitude, 80° 30' 00" West Longitude and southeast corner at 37° 30' 00" North Latitude, 78° 30' 00" West Longitude.