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ENGINEERING EXHIBIT
APPLICATION FOR AUXILIARY ANTENNA CONSTRUCTION PERMIT
WTAE HEARST TELEVISION INC.
STATION WTAE-TV, PITTSBURGH, PENNSYLVANIA
CHANNEL 51 207 KW (MAX-DA) 250 METERS

The instant Engineering Exhibit has been prepared on behalf of WTAE Hearst Television Inc. (hereafter, WTAE Hearst) and is in support of a construction permit application for an auxiliary antenna for digital television station WTAE-TV, Pittsburgh, Pennsylvania Specifically, WTAE Hearst seeks to obtain a construction permit, and then, a license, for an antenna that was used previously for Station WTAE-TV pursuant to File No. BLCDT-19990520KH.

The antenna was used to facilitate the transition from analog to digital for WTAE-TV. The antenna is side-mounted on the same tower as is specified for the Channel 51 main antenna operation for which a license application has been issued in File No. BLCDT-20041014AEY. The proposed maximum effective radiated power for the auxiliary antenna is 207 kW, and the antenna radiation center height above average terrain is 250 meters. The formerly licensed operation in BLCDT-19990520KH, employed the same antenna as is now proposed for auxiliary use, but specified a maximum effective radiated power of 145 kW. The antenna radiation center height of 250 meters above average terrain remains unchanged.. Figure 1 demonstrates that the 41 dBu contour service range for the proposed auxiliary operation does not exceed the 41 dBu contour service range for the main antenna in any direction.

The proposed auxiliary antenna is a Dielectric, model TLP-16I(C). The antenna is directional and has a maximum power gain of 28.8 along bearings of 10° and 210° True at the proposed 1.0° electrical beam tilt angle. Figure 2 is the azimuth relative field radiation pattern for the antenna. Relative field data for the pattern of Figure 2 are

provided in the Tech Box of FCC Form 301. Figure 3, Sheets 1 and 2, are the elevation patterns for the proposed auxiliary antenna.

The proposed auxiliary antenna is mounted with the radiation center 265 meters above ground level; 565 meters above mean sea level. No change in the overall structure height results. The ASRN for the structure is 1025144. The NAD '27 site geographic coordinates are: 40° 16' 49" N. Lat.; 79° 48' 11" W. Long. Other details concerning the proposed operation are furnished in the Tech Box responses on FCC Form 301

Environmental impact considerations for the proposed auxiliary antenna operation have been taken into account. Since the proposed site is already employed for broadcasting purposes, only the aspect relating to human exposure to radiofrequency radiation (rfr) from among the list of environmentally sensitive concerns of Section 1.1307 of the Rules is germane. Consideration of exposure to the public (uncontrolled locations) and exposure to workers (controlled locations) are addressed herein.

In order to determine if compliance with the maximum permitted exposure (MPE) to the public would be achieved, a test calculation of prospective power density, using OET Bulletin 65, Edition 97-01 procedures, has been made. Conservative assumptions that are designed to yield excessive power density levels have been employed. The test calculation was from the bottom of the proposed antenna to a point located two meters above ground level at the tower base. Thus, all the energy was assumed to be radiating from the bottom of the antenna. The two meter above ground level target represents the approximate height of a standing person's head. The location at the tower base is the shortest possible distance to the tower that a person could be located.

From the vertical plane patterns of Sheets 1 and 2 of Figure 3, it is seen that the relative field throughout the depression angle range from 6.5° to 90° below the horizontal plane does not exceed 0.18. A ray from the bottom of the antenna at a depression angle of 6.5° below the horizontal plane would impinge on a target that is located 2 meters above ground level at a horizontal distance of 2,273 meters from the tower, based on an assumption of flat earth.

Using the relative field value of 0.18 to determine the radiation toward the target at the tower base, together with a recommended ground reflection coefficient of 1.6, yields a power density level of 0.0033 mW/cm^2. The MPE at Channel 51 is 0.46 mW/cm^2, so the maximum expected power density exposure level that could occur anywhere within a radius of 2,273 meters is only 0.7 % of the MPE.

At a distance of 2,273 meters and beyond, with an assumption of maximum radiation of 207 kW, the power density level will not exceed 0.0013 mW/cm^2, or 0.3 % of the MPE. The contribution of the proposed operation to the ambient power density level anywhere is well below the 5% level that triggers the need for cooperative involvement in ameliorating excessive levels of radiation at uncontrolled locations when there are other contributors. The proposed operation will not cause excessive rfr exposure to persons at uncontrolled locations.

As to worker exposure concerns, the tower that will support the antenna is fenced and access within the fenced area is available only to authorized personnel. A radiation hazard warning sign is posted on the climbing ladder for the tower. Persons whose activities require climbing of the tower are instructed in rfr overexposure avoidance procedures which must be followed. These procedures include termination of excitation

to an otherwise energized antenna when the work activity is in the proximity of the antenna, or the reduction of power into the antenna to an extent sufficient to assure exposure that is less than the MPE at the assigned work position. Thus, the fenced area where the tower is located is a controlled location for rfr exposure consideration purposes.

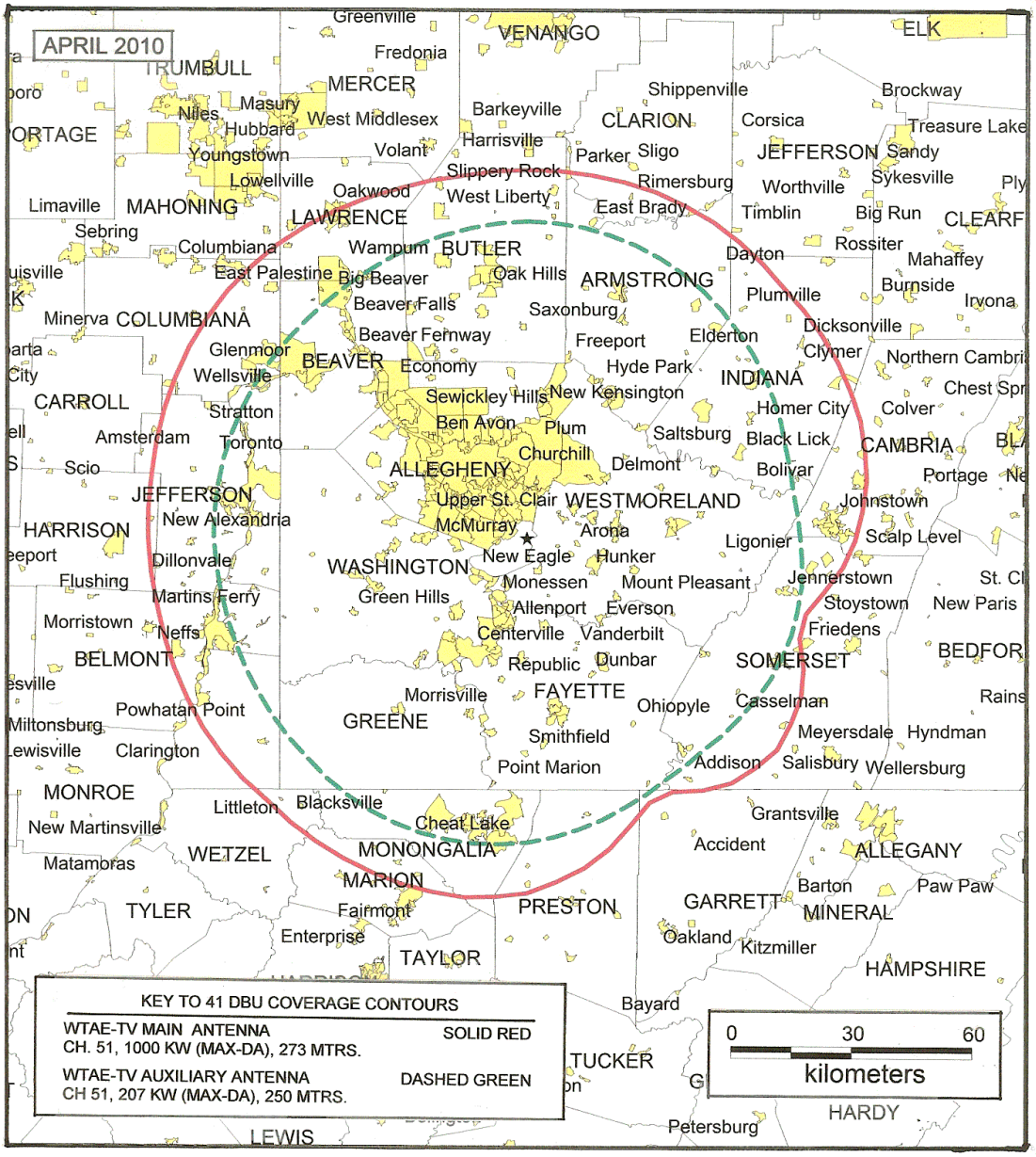
The foregoing demonstrates that the proposed operation will comply with FCC criteria for the avoidance of excessive rfr exposure at uncontrolled and controlled locations according to the adopted standard. An environmental assessment is not required for the proposed operation.

I declare under penalty of perjury that the foregoing is true and correct. Executed on April 21, 2010.

Bernard R. Segal, P.E.

Bernard R,. Segal, P. E.
Maryland License # 25811

FIGURE 1



CALCULATED 41 DBU COVERAGE CONTOURS

WTAE HEARST TELEVISION INC.
STATION WTAE-TV, PITTSBURGH, PENNSYLVANIA

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FIGURE 2

AUXILIARY ANTENNA
AZIMUTH RELATIVE FIELD PATTERN

WTAE HEARST TELEVISION INC.
STATION WTAE-TV, PITTSBURGH, PENNSYLVANIA
CH. 51 207 KW (MAX-DA) 250 METERS

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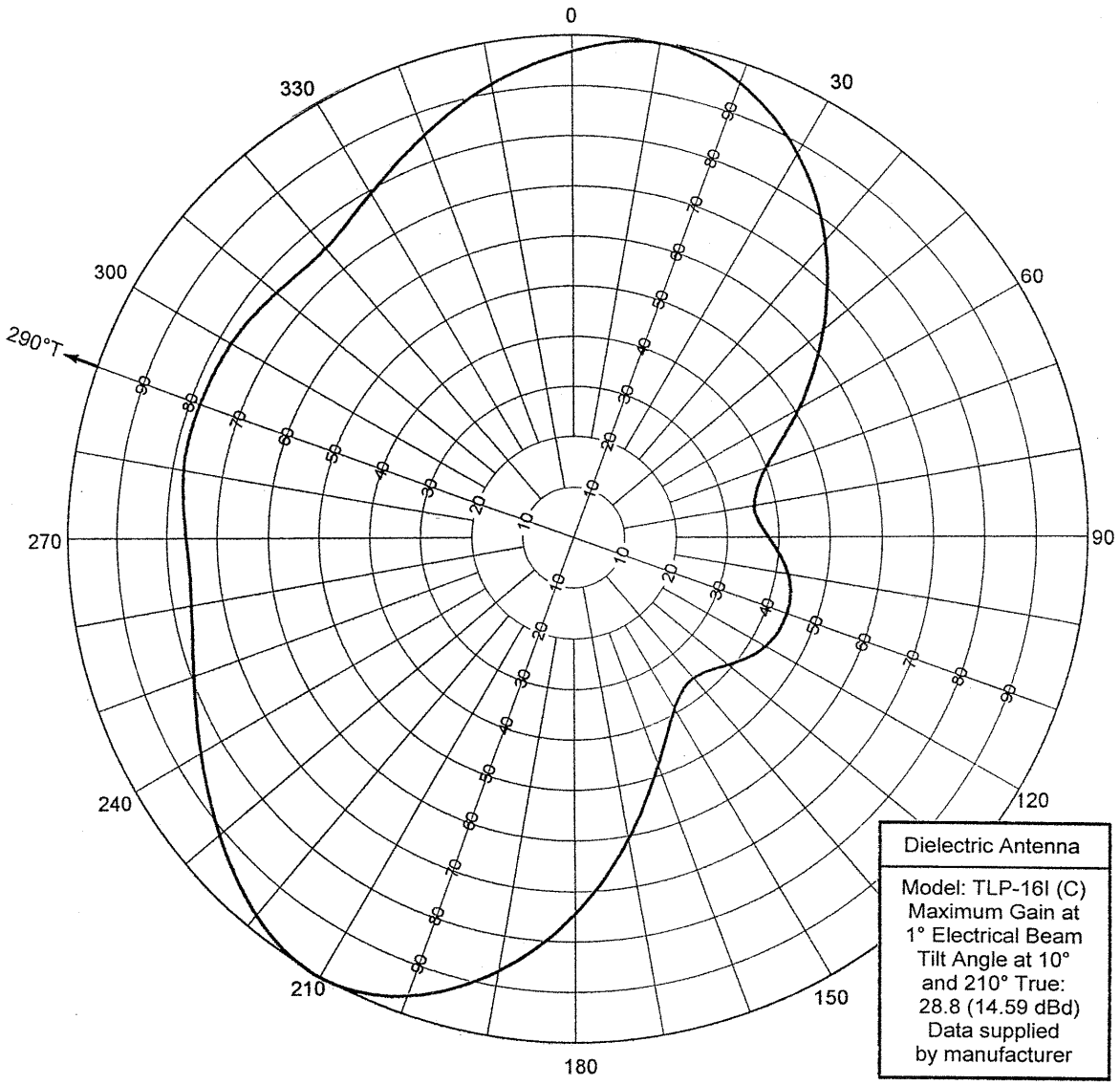

Dielectric Antenna
Model: TLP-16I (C) Maximum Gain at 1° Electrical Beam Tilt Angle at 10° and 210° True: 28.8 (14.59 dBd) Data supplied by manufacturer

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Dielectric

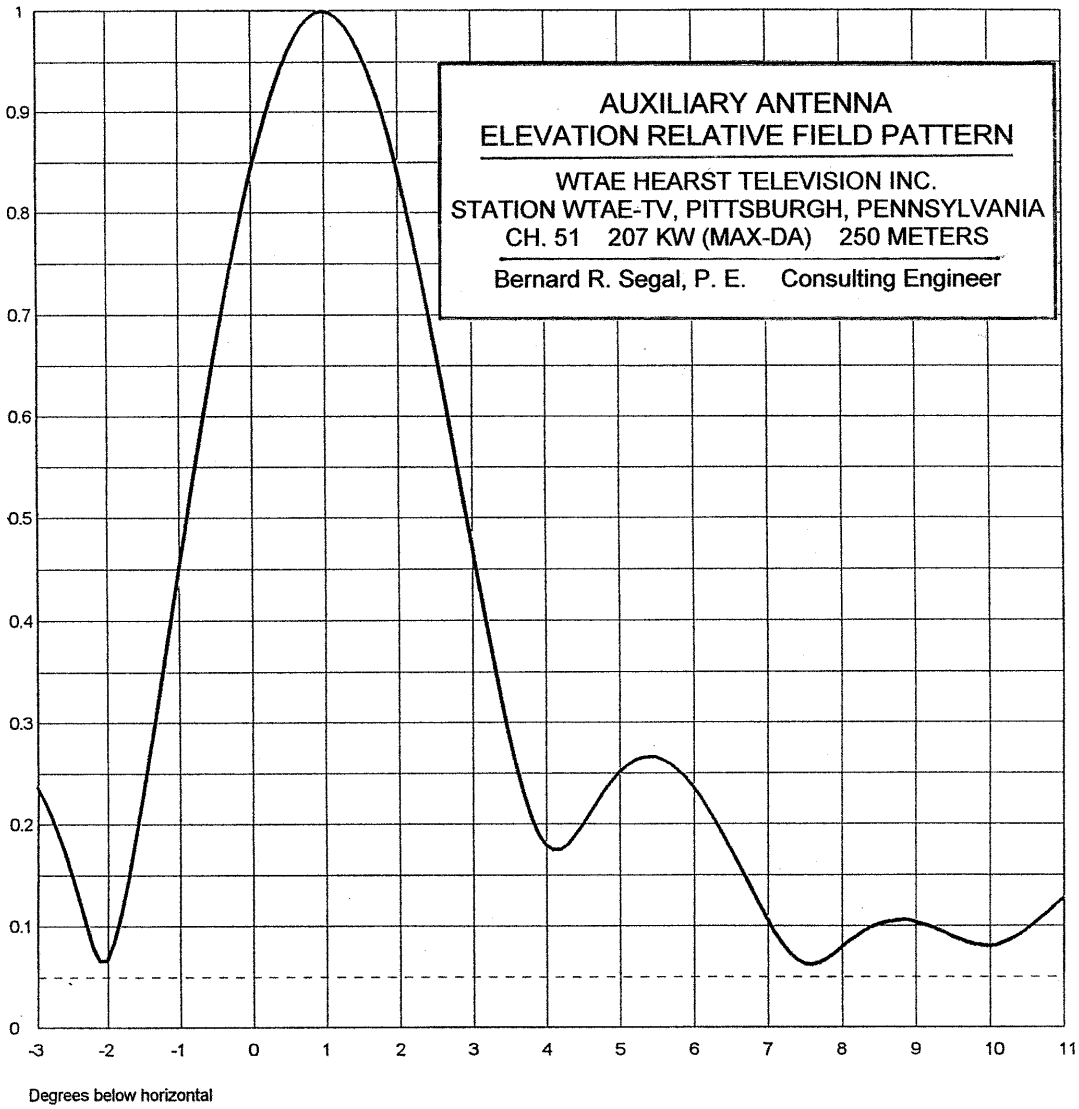
A Unit of General Signal

FIGURE 3
Sheet 1 of 2

Call Letters	WTAE-DT	Channel	51
Location	Pittsburgh, PA		
Customer			
Antenna Type	TLP-16 I (C)		

ELEVATION PATTERN

RMS Gain at Main Lobe	**16.0 (12.04 dB)**	Beam Tilt	**1.00 Degrees**
RMS Gain at Horizontal	**11.3 (10.53 dB)**	Frequency	**695.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**16L16010**



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Dielectric

A Unit of General Signal

FIGURE 3
SHEET 2 OF 2

Call Letters	WTAE-DT	Channel	51
Location	Pittsburgh, PA		
Customer			
Antenna Type	TLP-16 I (C)		

ELEVATION PATTERN

RMS Gain at Main Lobe	16.0 (12.04 dB)	Beam Tilt	1.00 Degrees
RMS Gain at Horizontal	11.3 (10.53 dB)	Frequency	695.00 MHz
Calculated / Measured	Calculated	Drawing #	16L16010-90