

**ENGINEERING EXHIBIT  
SECOND AMENDMENT TO  
APPLICATION FOR MODIFICATION OF  
DTV STATION CONSTRUCTION PERMIT  
(FCC FILE NUMBER BMPCDT-20020408AAK)**

**PREPARED FOR  
WTOV-TV HOLDINGS, INC.  
STATION WTOV-DT  
STEUBENVILLE, OHIO  
CH 57      1,000 KW (MAX-DA, BT)      261 METERS**

**INTRODUCTION**

This engineering exhibit was prepared for WTOV-TV Holdings, Inc. (hereinafter WTOV), permittee of station WTOV-DT, Steubenville, Ohio, in support of an amendment to a pending application (FCC File Number BMPCDT-20020408AAK) for modification of construction permit (FCC File Number BPCDT-19991029ABP). The instant amendment is responsive to a letter received by WTOV dated November 6, 2002, from Mr. Clay Pendarvis, Associate Division Chief, Video Division, Media Bureau, Federal Communications Commission (FCC) (FCC Reference Number 1800E3-MFC).

**DENNY & ASSOCIATES, P.C.**  
**CONSULTING ENGINEERS**  
**OXON HILL, MARYLAND**

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Engineering Exhibit  
Station WTOV-DT, Steubenville, Ohio

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This letter concludes that the pending application for modification of construction permit cannot be granted because it fails to adequately protect a co-channel digital television (DTV) allotment at London, Ontario. The WTOV-DT construction permit authorizes WTOV-DT to operate with facilities that do not exceed the allotment reference facilities for DTV channel 57 at Steubenville, Ohio. The pending application specifies a new site that will allow WTOV-DT to colocate with WTOV-TV and proposes operation with 1000 kilowatts (kW) maximum average effective radiated power (ERP) and 261 meters antenna radiation height above average terrain (HAAT). The instant amendment proposes the use of a directional antenna to protect the co-channel allotment at London, Ontario. This engineering exhibit demonstrates that the proposed WTOV-DT facilities do not exceed the allotment reference facilities in the direction of the pertinent Canadian allotment by showing that the calculated WTOV-DT interfering 19.5 dBμ F(50,10) contour for the facility proposed lies within the calculated 19.5 dBμ F(50,10) contour for the WTOV-DT allotment reference facilities in the direction of the pertinent Canadian allotment.

### FACILITIES

DTV channel 57 was allotted at Steubenville, Ohio, for use by WTOV-DT in the *Second Memorandum Opinion and Order on reconsideration of the Fifth and Sixth Report and Orders*, released December 18, 1998. This allotment is listed in Appendix A of the *Letter of Understanding (LOU) Between the Federal Communications Commission of the United States of America and Industry Canada Related to the Use of the 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-806 MHz Bands for the Digital Television Broadcasting Service Along the Common Border*, released September 29, 2000. WTOV-DT is allotted<sup>1</sup> channel 57 (728 to 734 megahertz (MHz)) for facilities with omnidirectional average ERP of 1000 kW and antenna radiation center height above average terrain (HAAT) of 268 meters from a reference site located at geographic coordinates 40° 19' 06" North Latitude, 80° 24' 07" West Longitude, referenced to 1927 North American Datum (NAD 27).

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<sup>1</sup> Page 14, Appendix A, of the LOU.

WKTV-DT is authorized (FCC File Number BPCDT-19991029ABP) to operate on channel 57 with maximum average ERP of 210 kW and antenna radiation center HAAT of 251 meters at the allotment site.

WTOV submitted an application (FCC File Number BMPCDT-20020408AAK) to modify the outstanding construction permit for WTOV-DT operation on channel 57 with increased average ERP of 1000 kW and antenna radiation center HAAT of 261 meters from site located at geographic coordinates 40° 20' 33" North Latitude, 80° 37' 14" West Longitude (NAD 27). Using the methodology for the computation of distance and azimuth in Annex III, *Agreement Concerning the Allotment and Assignment of Television Broadcasting Channels in Areas Adjacent to the Border of the United States and Canada, With Working Arrangement* (Analog TV Agreement), entered into force January 5, 1994, the BMPCDT-20020408AAK site is located 18.7 kilometers at an azimuth of 278.3 degrees True from the WTOV-DT allotment reference site.

The channel 57 DTV allotment at London, Ontario, is listed on Page 41, Appendix B, of the LOU as a Canadian Class VU allotment with a

protected service radius of 82 kilometers from a site located at 42° 57' 15" North Latitude, 81° 15' 58" West Longitude (NAD 27).

### SEPARATION

Both WTOV-DT and the Canadian channel 57 DTV at London, Ontario, are in Zone I of their respective countries. Using the methodology for the computation of distance and azimuth in Annex III of the Analog TV Agreement, the separation between the WTOV-DT allotment site and the site notified for the channel 57 DTV allotment at London, Ontario, is 301 kilometers. WTOV-DT is a replacement allotment for WTOV-TV, Steubenville, Ohio, which is licensed for operation on channel 9; thus, WTOV-DT is classified as a Canadian Class VU allotment. The minimum distance separation for interfering co-channel channel 57 Canadian Class VU DTV stations to protected co-channel channel 57 Canadian Class VU DTV stations is 352 kilometers (Table 4.2.1 of the LOU). Thus, the WTOV-DT allotment site did not meet the requirements of the distance separation tables of Appendix D of the LOU but were deemed acceptable in the LOU.

Using the same methodology as above, the separation between the instant application site and the notified site for the channel 57 allotment at London, Ontario, is 295.0 kilometers. Thus, the allotment reference site is 51 kilometers short spaced to the cochannel Canadian allotment, and the WTOV-DT modification proposal seeks to increase the existing short spacing to 57 kilometers.

### PROPOSED INTERFERENCE CONTOURS

The minimum required field strength for the channel 57 UHF DTV allotment at London, Ontario, is 39 dB $\mu$ V/m (Appendix 2, Part 1 of the LOU). The D/U ratio for an interfering co-channel DTV station to a protected DTV station is +19.5 dB (Appendix 2, Part 2 of the LOU). Therefore, the pertinent interfering contour to demonstrate facility equivalence is the WTOV-DT 19.5 dB $\mu$ V F(50,10) contour.

Figure 1 of this engineering exhibit is a portion of the Northeastern States United States Geological Survey (USGS) 1:2,000,000 scale National Atlas series map upon which 82-kilometer protected coverage radius of the channel 57 allotment at Cornwall, Ontario, and the calculated interfering

19.5 dB $\mu$  F(50,10) contours for the channel 57 reference facilities and the proposed WTOV-DT facilities. Figure 2 of this engineering exhibit is a table in one degree increments of azimuth stating the ERP, antenna radiation center HAAT, and the calculated distance from the allotment reference coordinates and the proposed WTOV-DT site to the interfering 19.5 dB $\mu$  F(50,10) contours for the allotment reference facilities and the proposed WTOV-DT facilities. Figure 1 of this engineering exhibit shows that the calculated 19.5 dB $\mu$  F(50,10) contour for the proposed WTOV-DT facility is completely enclosed by the 19.5 dB $\mu$  F(50,10) contour for the DTV channel 57, Steubenville, reference facilities in the direction of the channel 57 DTV allotment at London, Ontario.

### CONCLUSION

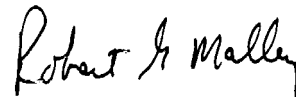
As shown earlier in this exhibit, the proposed WTOV-DT facilities do not exceed those specified in the LOU in the direction of the channel 57 DTV allotment at London, Ontario. Neither the allotted or proposed WTOV-DT sites meet the spacing requirements of Appendix 2 of the LOU with respect to the channel 57 DTV allotment at London, Ontario, during the transition period, as the WTOV-DT channel 57 allotment is in that portion of

the spectrum that is designated to be recovered for other uses in the United States.

WTOV respectfully requests that this engineering exhibit be forwarded to Industry Canada as an appendix to the required notice called for in Item 2, Page 2, of the LOU.

**CERTIFICATION**

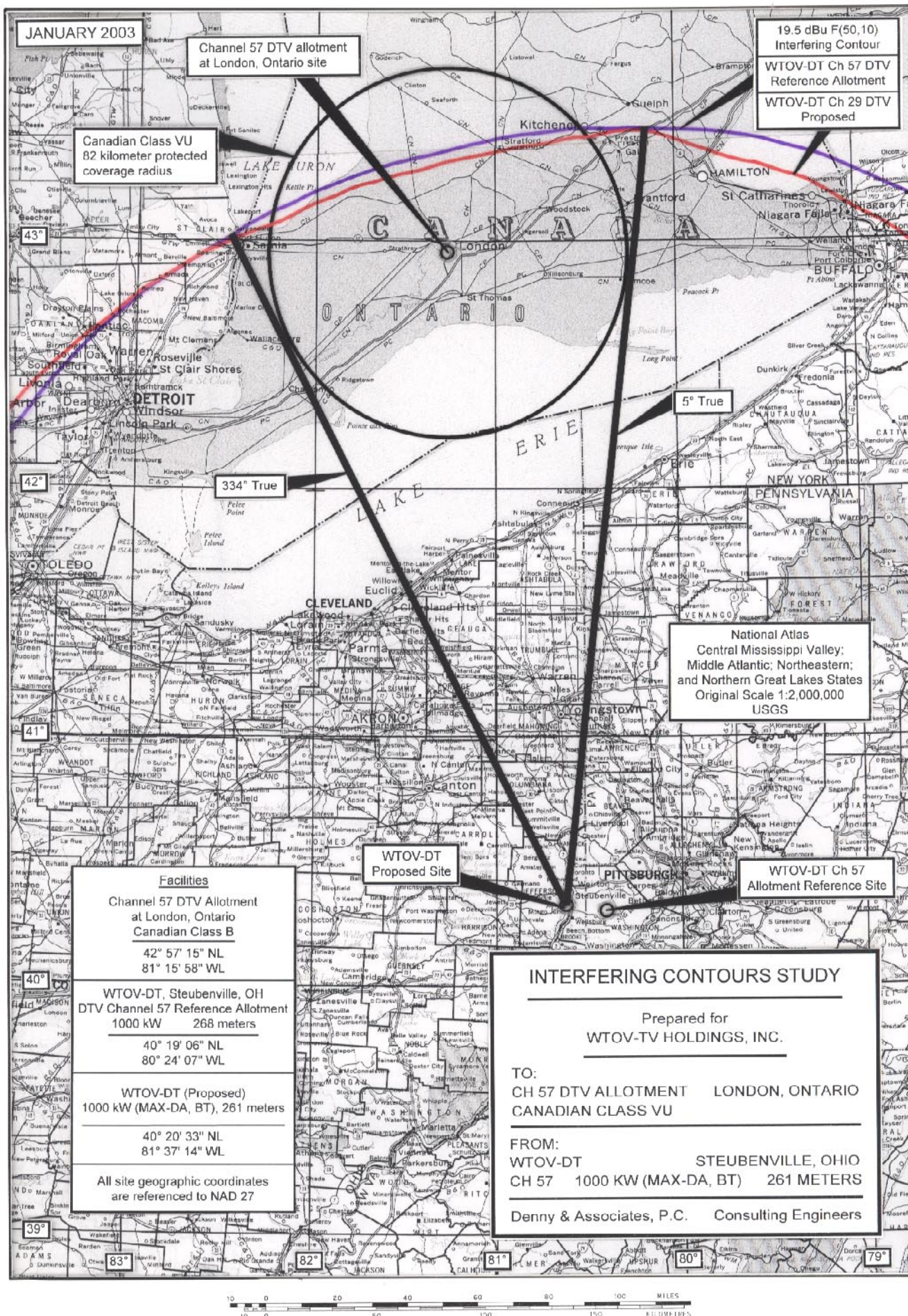
I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge. Executed on January 21, 2003.



Robert G. Mallery



Figure 1



**ENGINEERING EXHIBIT  
SECOND AMENDMENT TO  
APPLICATION FOR MODIFICATION OF  
DTV STATION CONSTRUCTION PERMIT  
(FCC FILE NUMBER BMPCDT-20020408AAK)**

**PREPARED FOR  
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**CH 57      1000 KW (MAX-DA, BT)      261 METERS**

**TABULATION OF DISTANCES TO WTOV-DT 19.5 dB<sub>μ</sub> F(50,10)  
INTERFERING CONTOUR IN THE DIRECTION OF  
CHANNEL 57 DTV ALLOTMENT AT LONDON, ONTARIO**

<u>DTV Channel 57</u>	<u>WTOV-DT Channel 57</u>
<u>Allotment Reference Facilities</u>	<u>Proposed DTV Facilities</u>
1000 kW      268 meters	1000 kW (Max-DA,BT)    261 meters

Reference Coordinates (NAD 27):	Site Coordinates (NAD 27):
40° 19' 06" North Latitude	40° 20' 33" North Latitude
80° 24' 07" West Longitude	80° 37' 14" West Longitude

<u>Azimuth</u>	<u>ERP</u>	<u>HAAT</u>	<u>Distance to</u>	<u>ERP</u>	<u>HAAT</u>	<u>Distance to</u>
(° True)	(kW)	(meters)	Contour (km)	(kW)	(meters)	Contour (km)
334	1000.0	264	347.0	687.3	250	333.1
335	1000.0	261	346.6	683.9	247	332.6
336	1000.0	258	346.3	679.0	240	331.8
337	1000.0	261	346.6	675.7	238	331.4
338	1000.0	262	346.7	672.4	242	331.6
339	1000.0	260	346.5	669.1	252	332.4
340	1000.0	260	346.5	667.5	257	332.8
341	1000.0	261	346.6	665.9	256	332.7
342	1000.0	260	346.5	664.2	258	332.8
343	1000.0	259	346.4	662.6	268	333.6
344	1000.0	258	346.3	662.6	269	333.8
345	1000.0	255	346.0	661.0	267	333.4
346	1000.0	253	345.8	662.6	267	333.6
347	1000.0	251	345.5	662.6	270	333.8
348	1000.0	252	345.6	664.2	266	333.6
349	1000.0	254	345.9	665.9	266	333.6
350	1000.0	257	346.2	667.5	273	334.3
351	1000.0	259	346.3	670.8	277	334.9
352	1000.0	262	346.7	672.4	278	335.1

Tabulation Of Distances To WTOV-DT 19.5 dBμ F(50,10)  
Interfering Contour In The Direction Of  
Channel 57 DTV Allotment At London, Ontario

Figure 2  
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<u>Azimuth</u> (° True)	<u>ERP</u> (kW)	<u>HAAT</u> (meters)	Distance to <u>Contour</u> (km)	<u>ERP</u> (kW)	<u>HAAT</u> (meters)	Distance to <u>Contour</u> (km)
353	1000.0	265	347.1	675.7	279	335.4
354	1000.0	267	347.2	679.0	281	335.7
355	1000.0	266	347.1	683.9	286	336.4
356	1000.0	267	347.3	687.3	292	337.1
357	1000.0	271	347.7	692.2	296	337.8
358	1000.0	274	348.1	695.6	298	338.1
359	1000.0	273	348.0	700.6	303	338.9
0	1000.0	271	347.8	703.9	314	340.2
1	1000.0	270	347.6	709.0	322	341.3
2	1000.0	274	348.1	712.3	322	341.5
3	1000.0	275	348.3	717.4	333	343.1
4	1000.0	278	348.5	720.8	346	344.7
5	1000.0	278	348.6	724.2	352	345.5