

## **ENGINEERING EXHIBIT**

**FLINT LICENSE SUBSIDIARY CORPORATION  
TELEVISION STATION WJRT, FACILITY ID 21735  
APPLICATION FOR POST-TRANSITION DTV CONSTRUCTION PERMIT  
CHANNEL 12 – 18.2 KW (DTV AVERAGE) – 286 METERS HAAT**

**FLINT, MICHIGAN**

### **TABLE OF CONTENTS**

#### **Engineering Statement**

<b>Exhibit 1</b>	<b>Distances to DTV Noise-Limited Contours Appendix B and Proposed NTSC Antenna Distance to 36 dBu in 10 Degree Increments</b>
<b>Exhibit 2</b>	<b>Distances to DTV Noise-Limited Contours Appendix B and Proposed NTSC Antenna Distance to 36 dBu in 8 Cardinal Directions</b>
<b>Exhibit 3</b>	<b>Map Showing Principal Community Coverage 43 dBu F(50:90) Contour and 36 dBu F(50:90) Noise Limited Contour</b>
<b>Exhibit 4</b>	<b>Interference Study Results in TV_Process Output Format</b>

## **ENGINEERING EXHIBIT**

### **FLINT LICENSE SUBSIDIARY CORPORATION, TELEVISION STATION WJRT, FACILITY ID 21735 APPLICATION FOR DTV POST-TRANSITION CONSTRUCTION PERMIT CHANNEL 12 – 18.2 KW (DTV AVERAGE) – 286 METERS HAAT**

**FLINT, MICHIGAN**

## **ENGINEERING STATEMENT**

### **Introduction**

Flint License Subsidiary Corporation (WJRT) is the licensee of WJRT, Flint, Michigan. WJRT is licensed to operate NTSC analog facilities on channel 12 with an effective radiated power of 316 KW at a height above average terrain of 285.5 meters. FCC File Number BLCT-868 describes the WJRT analog channel 12 facilities. This license describes the facilities that were used as the basis for DTV replication facilities. The parameters specified in the instant application differ slightly from licensed parameters, primarily because of changes attributable to the tower registration process.

In the Seventh Report and Order, WJRT was designated a DTV Allotment on Channel 12 of 13.7 KW at 287 meters HAAT with a directional antenna which bears Antenna ID 74521.

WJRT began operation in October, 1958 and has been serving Flint, Michigan since that time. WJRT-DT was first licensed in April, 2002 and has been continuously broadcasting Digital Television on channel 36 since that time. The DTV Construction Permit, FCC File Number BPCDT-19991101ACO, and the subsequent license file number BLCDDT-20020429AAZ describe the presently licensed DTV transmission system which operates on channel 36.

The directional pattern associated with the WJRT-DT post-transition channel 12 DTV facilities in Appendix B of the Seventh Report and Order is derived from the difference between the NTSC channel 12 F(50:50) curves when compared to the channel 12 F(50:90) curves. The post-transition pattern associated with VHF DTV post-transition operation on channel 12 was designed to replicate the WJRT channel 12 Grade B contour. Coverage equivalent to the Grade B contour is protected through the transition per the Note to Paragraph (e)(2) found in Section 73.622. The initial allotment assigned to WJRT-DT specified 1000 KW on channel 36. The channel 12 post-transition pattern is found in Appendix B and bears FCC Antenna ID Number 74521.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 2 of 13**

Through this application, WJRT seeks to obtain a Construction Permit to operate post transition DTV facilities on channel 12, and use the presently licensed NTSC channel 12 non-directional antenna, which is a Dielectric TW-12B12-R(S). This antenna is horizontally polarized. The Dielectric antenna replaced an RCA Super-Turnstile TF-12AH antenna, which was the antenna that formed the basis for the channel 36 initial allotment replication pattern.

WJRT respectfully requests processing in accordance with the criteria outlined in the Filing Freeze Waiver Policy in Paragraph 151 of the Report and Order in the Third Periodic Review. The facilities described in this application for Construction Permit meet each of the criteria that are shown on Paragraph 151, and will prevent the loss of service which would occur if WJRT-DT were forced to use an antenna other than its presently licensed channel 12 antenna for post-transition service.

Processing under the Paragraph 151 criteria will enable WJRT-DT to use the presently licensed channel 12 antenna – a non-directional VHF antenna with electrical beam tilt - without loss of service to those viewers who receive WJRT off-the-air presently and have an expectation of being able to receive WJRT-DT off-the-air in the post-transition era.

Because the facilities requested herein satisfy the Paragraph 151 criteria, this application may be processed immediately and is entitled to “cut-off” interference protection.

**Licensed Facility**

The WJRT license bears FCC File Number BMLCT-20020422AAV and specifies an ERP of 316 KW at 285.5 meters HAAT. This facility utilizes the maximum ERP allowed an NTSC facility on channel 12 with an HAAT of 285.5 meters in Television Zone I.

Through this application WJRT-DT seeks a construction permit to return to its NTSC channel to operate post-transition DTV facilities on channel 12 with a non-directional antenna and an ERP of 18.2 KW. This ERP satisfies the height vs. ERP requirements of Section 73.622(f)(7)(ii) for DTV operation in Television Zone I.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 3 of 13**

The presently licensed antenna is supported by a tower which bears Antenna Structure Registration Number 1002510. The main channel 12 antenna is a Dielectric TW-12B12-R(S). The Dielectric TW-12B12-R(S) is a horizontally polarized, non-directional antenna.

**The WJRT Main License Expiration Date**

The WJRT Main License bears an expiration date of October 1, 2005. A timely application for renewal of the WJRT license was filed with the Commission and bears FCC File number BRCT-20050601CKU and was accepted for filing on June 8, 2005. The instant application is acceptable for filing pending a final determination by the Commission on the outstanding application for renewal of the WJRT-TV/DT main license.

**Interference Calculation Methodology**

The results of interference calculations that are contained in this engineering statement were obtained by Longley-Rice methods that are described in OET Bulletin 69, July 1997, as implemented in the Commission's TV Process software with 2 KM cell size. The post-transition data that were used for these calculations were obtained from the post-transition database that was bundled with Check\_AppB Fortran source code and released by the FCC on Tuesday, February 26, 2008. The population census data were obtained from the Year 2000 Census. This methodology and the associated Longley-Rice parameters and cell size are described in the Report and Order in the Third Periodic Review in Paragraph 155.

**Protection to Post-Transition DTV Authorized Facilities and Allotments**

Television channel 12 was tentatively designated for WJRT-DT post-transition operation during the channel election process. Channel 12 is shown in the DTV Table of Allotments of Section 73.622 of the Rules, and in Appendix B for use by WJRT-DT, Facility ID number 21735. The facilities associated with this allotment are also shown in Appendix B of the Seventh Report and Order, which was released August 6, 2007. The interference studies conducted and the results of those calculations that are shown in this statement are based on the facilities contained in Appendix B, and the post-transition database that is described above.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 4 of 13**

The designated facilities described in Appendix B that are associated with post-transition operation of WJRT-DT contain a directional antenna pattern and a maximum of 13.7 KW ERP. The directional pattern, Antenna ID 74521 is referenced in Appendix B and is a product of the channel election process.

A study was conducted to determine what effective radiated power would satisfy the requirements outlined in Paragraph 151 of the Report and Order in the Third Periodic Review, i.e., whether the proposed facilities:

1. Would allow the station to use its analog antenna or another antenna to avoid a significant reduction in post-transition service;
2. Would be no more than 5 miles larger in any direction than the authorized service area as defined in Appendix B; and
3. Would not cause impermissible interference, i.e., would not cause more than 0.5 percent new interference to other stations.

The study results as obtained through use of the Commission's TV Process software indicate that 18.2 KW ERP and the presently licensed NTSC channel 12 antenna will satisfy each of the criteria contained in Paragraph 151.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 5 of 13**

Operation with the antenna that is described in Appendix B with an ERP of 13.7 KW DA-Max and the 74521 antenna pattern provides coverage to 2,103,172 persons, according to the results that were obtained from a calculation of Appendix B coverage. This calculation to check the population served by the WJRT-DT post-transition Appendix B facility is in close agreement with the Commission's result of 2,103,000. This lends confidence that the calculations are being performed with reasonable accuracy and that the input data for Appendix B facilities is in close agreement with the Commission's input data.

If WJRT-DT were restricted to the use of its presently licensed Dielectric TW-12B12-R(S) non-directional antenna without exceeding the Noise Limited contour that is predicted by the WJRT-DT Appendix B facility, the ERP would be limited to approximately 12.3 KW. The coverage obtained from these parameters is 2,084,315 persons. The difference between the Appendix B facility and the smaller 12.3 KW facility with the presently licensed NTSC non-directional antenna would cause a loss of post-transition DTV coverage to 18,857 persons.

Operation with 18.2 KW ERP and the presently licensed NTSC channel 12 antenna which is non-directional produces coverage of 2,234,437 persons after consideration of losses to terrain and interference from post-transition DTV facilities as found in Appendix B, according to results from TV\_Process calculations.

Calculations made using the presently licensed NTSC analog antenna with 18.2 KW ERP shows no new interference is created to any affected station that exceeds 0.5 percent. This satisfies the first of the three criteria in Paragraph 151.

Distances to predicted 36 dBu F(50:90) noise limited contours for the proposed 18.2 KW non-directional operation and the directional antenna that is described in Appendix B are shown in Exhibit 1 and Exhibit 2. The greatest excursion of the predicted noise-limited contour for the proposed 18.2 KW when used with the presently licensed WJRT analog non-directional NTSC channel 12 antenna is 1.81 miles at 180 degrees true. The distances to contours in Exhibit 1 and Exhibit 2 are shown in kilometers; 1.81 miles is equal to 2.91 kilometers.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 6 of 13**

The distances to the predicted contours are contained in Exhibit 1 and Exhibit 2. The Exhibits contain the results of distance calculations in kilometers as produced by FCC Curves. A distance of 5 miles is slightly greater than 8 kilometers. This satisfies the second of the three criteria in Paragraph 151.

The third criterion in Paragraph 151 is satisfied in that WJRT will be returning to channel 12 for post-transition operation from channel 36, the initial allotment DTV channel and the proposed use of its presently licensed channel 12 NTSC antenna will satisfy each of the criteria contained in Paragraph 151.

**Interference Calculations**

The TV\_Process calculations of new interference to other stations caused by the use of 18.2 KW ERP with the presently licensed non-directional NTSC antenna in place of the Appendix B facilities for WJRT identified nine affected stations and show the following results:

12 WBBM-TV, Chicago, IL	0.0% Additional Interference
11 WGVU-TV, Grand Rapids, MI	0.0% Additional Interference
11 WBKB-TV, Alpina, MI	Proposal Causes No Interference
11 WTOL, Toledo, OH	Proposal Causes No Interference
12 WINM, Angola, IN	0.5000% Additional Interference
12 WMFD, Mansfield, OH	0.0% Additional Interference
12 WICU-TV Erie, PA	Proposal Causes No Interference
13 WTVG, Toledo, OH	Proposal Causes No Interference
13 WZZM, Grand Rapids, MI	Proposal Causes No Interference

The entry 0.0% Additional Interference above indicates that TV Process returned a numerical result, but no additional interference was caused to any person.

The calculations show that the proposed WJRT channel 12 DTV post-transition operation with the presently licensed NTSC antenna when operating with 18.2 KW ERP causes no additional interference beyond that which is allowed by the Rules for post-transition DTV operation. The results which are shown in the interference study satisfy the last of the three criteria in Paragraph 151.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 7 of 13**

**Protection to Class A Stations**

There is no Class A station that requires study.

**Protection to Nearby AM Stations**

There is no AM station within 3.2 kilometers of the WJRT-DT site.

**Protection to FCC Monitoring Stations and Radio Astronomy Installations**

Section 73.1030 defines criteria by which FCC Monitoring Stations and other protected receiving facilities are protected from changes to their radio receiving environment.

The nearest FCC Monitoring Station is located in Allegan, Michigan. It is located approximately 169.7 KM from the WJRT transmission system. The greatest study distance for transmission systems that operate in the 204 to 210 MHz range is 80 kilometers, per Section 73.1030(c)(3), and the distance to the monitoring station alone satisfies the requirements of Section 73.1030 to protect FCC Monitoring Stations.

The nearest protected receiving location is Green Bank, West Virginia. The large distance to the protected receiving location is sufficient to satisfy the requirement to protect this facility. This agrees with TV Process results which report the instant proposal needs no further consideration of protection to the Green Bank receiving location.



**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 8 of 13**

**Principal Community Coverage**

Exhibit 3 is a map which depicts the 43 dBu F(50:90) contour and demonstrates that the entire city of Flint, Michigan is contained within this contour. This map also depicts the 36 dBu noise limited contour. This map clearly demonstrates compliance with the requirement to cover the city of license with a 43 dBu F(50:90) contour as outlined in Section 73.625(a)(1) of the Commission's Rules.

**Environmental Considerations**

**Introduction**

The WJRT Transmitter facility is located at 7401 West Burt Road, Chesaning, Michigan. The entrance to the facility is protected by a locked gate, and the Transmitter Building and the nearby tower which supports the main television and DTV antennas are surrounded by a chain-link fence. There is a sign posted on this perimeter fence to warn persons to keep out of the fenced area. The signs read, "Caution RF Fields" and "Danger High Voltage."

In May of 2004, WJRT authorized RF Safety Solutions, LLC, to perform a field survey and analysis of radiofrequency field levels at the WJRT Transmitter location. The results of this survey indicate that the power density levels anywhere on the ground or as much as two meters above the ground as measured meet the Commission's requirements for uncontrolled areas.

For purposes of this study, calculations were made to determine expected power density levels from ground level to 2 meters above the ground. The contributions from WJRT and WJRT-DT were calculated for several different distances from the base of the tower that supports the main antennas. In no case did the level of radio frequency energy contributed by either station exceed one percent of the limit in the Commission's Rules for the general population or uncontrolled areas. The limits used in these calculations were taken from Section 1.1310 of the Rules. The limit applicable for the DTV operation on channel 36 is a function of frequency and was calculated through use of the expression found in Section 1.1310 of the Rules.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 9 of 13**

The scope of the calculations included locations on the ground about the main tower only, and did not include any calculations to predict where workers may safely proceed while working aloft. The calculations described above were based on the elevation patterns of the antennas employed at WJRT. The channel 12 antenna is a Dielectric TW-12B12-R (S) with 0.75 degrees of electrical beam tilt. This antenna produces a maximum effective radiated power of 316 KW for the visual signal and 31.6 KW for the aural signal on VHF television channel 12. The channel 36 main antenna is a Dielectric TFU-26DSC-R 04 with 0.75 degrees of electrical beam tilt. This antenna produces an effective radiated power of 860 KW ERP. This ERP is expressed as DTV average power.

The proposed post-transition operation specifies a DTV average ERP of 18.2 KW from the presently licensed NTSC channel 12 antenna. This ERP is less than the present aural ERP, and as such, the proposed DTV post-transition facilities will produce far less field at ground level than the combined present NTSC operation and UHF DTV operation.

The analysis described in this Report was obtained through calculation and methods which are described in FCC OET Bulletin 65, Edition 97-01, August 1997, and in the Commission's Rules. The calculations were performed to determine the levels of exposure to radiofrequency energy at various locations about the WJRT tower, taking into consideration the operation of WJRT (TV) and WJRT-DT, as well as other possible nearby contributors.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 10 of 13**

In particular, potential contributions of WSMH (TV), channel 66, and WAQP (TV), channel 49 were considered. Calculations of contributions from WSMH-DT on channel 16 and WAQP, channel 48 were based on facilities described in the Commission's database. When consideration of the elevation patterns of the antennas are included in the calculations, the resulting power density that is predicted by these calculations does not exceed 0.2 percent of the limit for Uncontrolled Areas at ground level to two meters above ground level near the WJRT tower or anywhere on the WJRT transmitter site. The contribution of the WSMH-DT signal at aperture height, 295 meters above ground level reaches a maximum of 8.33 percent of the limit for Uncontrolled Areas on the WJRT tower. This is the largest contributor, being just over a kilometer distant from the WJRT tower. The second major contributor, DTV station WAQP-DT, channel 48, which is permitted to operate with the same 1000 KW ERP, and is located at the same distance, contributes less of a percentage toward the limit because of its higher operating frequency. The WAQP-DT contribution at the appropriate height on the WJRT Tower will be less than 8.3 percent of the limit for Uncontrolled Areas. Work on the WJRT tower is safe at any time and will meet the limits for general population/controlled areas found in the Commission's Rules, provided the WJRT (TV) and WJRT-DT transmitters are not operating. Potential contributors beyond 5 kilometers were not studied.

The Power Density values for the Channel 12 NTSC operation were calculated using Equation 2 in Section 3 of Supplement A of OET Bulletin 65, Edition 97-01. The Power Density values for the Channel 36 DTV operation were calculated using Equation 9 of OET Bulletin 65. Each of these equations provides for calculation of Power Density values with consideration of increases due to reflections near the point under consideration.

WJRT (TV) presently operates on channel 12 in accordance with the terms of its license which bears FCC File Number BMLCT-20020422AAV. This license specifies a horizontally polarized traveling wave Dielectric antenna, model number TW-12B12-R(S) and produces an effective radiated power of 316 kilowatts.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 11 of 13**

WJRT-DT operates on channel 36 under the terms of its license, which bears FCC File Number BLC DT-20040429AAZ. This authorization specifies an effective radiated power of 860 kilowatts with a horizontally polarized antenna, Dielectric model number TFU-24DSC-R 04.

An analysis of the power density at two meters above the ground was calculated considering the contributions of WJRT (TV) and WJRT-DT. The maximum power density at two meters above ground level does not exceed 1.2 percent of the limit contained in Section 1.1310 of the Commission's Rules for the general population in Uncontrolled Areas. Therefore, human exposure to radiofrequency energy for persons on the ground is not expected to exceed the 1.2 percent value at any location on the WJRT transmitter site. The WJRT Transmitter site at ground level meets the requirements for Uncontrolled Areas as defined in Section 1.1310 of the Commission's Rules.

**Safety Practices**

For administrative and safety purposes, the entire WJRT tower is treated as a Controlled Area where only those who have been properly instructed with regard to RF Safety are allowed. The entire WJRT tower is treated as a Controlled Area for reasons of physical safety as well. Only those who have been trained in safe tower climbing techniques or who are employees of organizations that routinely work aloft are allowed access to the WJRT tower. The tower itself is the only controlled area at this location.

With both WJRT and WJRT-DT operating, workers or others should not climb the tower until calculations and/or measurements can be made to determine where the RF exposure limits for controlled environments are not exceeded.

With all contributors operating as authorized, calculations indicate that the maximum power density at two meters above ground level does not exceed 1.2 percent of the limit for the general population in Uncontrolled Areas. As a result, the ground level area of the WJRT Transmitter Site meets the requirements for an Uncontrolled Area. Survey measurements made in May of 2004 in and around the WJRT Transmitter Building indicate that the levels for Uncontrolled Areas are not exceeded in the Transmitter Building, confirming that RF energy is being properly confined by coaxial transmission lines, transmitter cabinetry and RF components.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 12 of 13**

The WJRT facilities as proposed and as presently authorized and operating, meet the Commission's requirements as described in Section 1.1310, and Section 1.1307(b) of the Rules.

Because the instant application requires no construction outside of the WJRT-DT transmitter room, there will be no physical effect to the environment at or near the WJRT Tower.

**Conclusion**

The proposed WJRT-DT post-transition DTV operation meets the requirements of the Commission's Rules with the exception that the noise-limited contour is not completely contained within the predicted noise limited contour produced by the Appendix B facilities. The extension of the noise limited contour is consistent with the standards described in Paragraph 151 of the Report and Order in the Third Periodic Review. Accordingly, WJRT-DT respectfully requests processing of this application consistent with Paragraph 151 so that it may use its presently licensed analog antenna and to continue to serve the 150,122 persons that would otherwise be lost.

**Engineering Statement  
Flint License Subsidiary Corporation  
Television Station WJRT  
Flint, Michigan  
June 2008, Page 13 of 13**

**Certification**

I certify that, on behalf of the Flint License Subsidiary Corporation, licensee of WJRT-TV and WJRT-DT, the information in this statement was prepared by me or under my supervision with the assistance of Zar B. Aung, EIT. On behalf of the Flint License Subsidiary Corporation, I have prepared or reviewed the information that is contained in this Statement, and that after such review and examination have found it to be accurate and true to the best of my knowledge and belief.



Signed: \_\_\_\_\_  
Alfred E. Resnick, P. E.

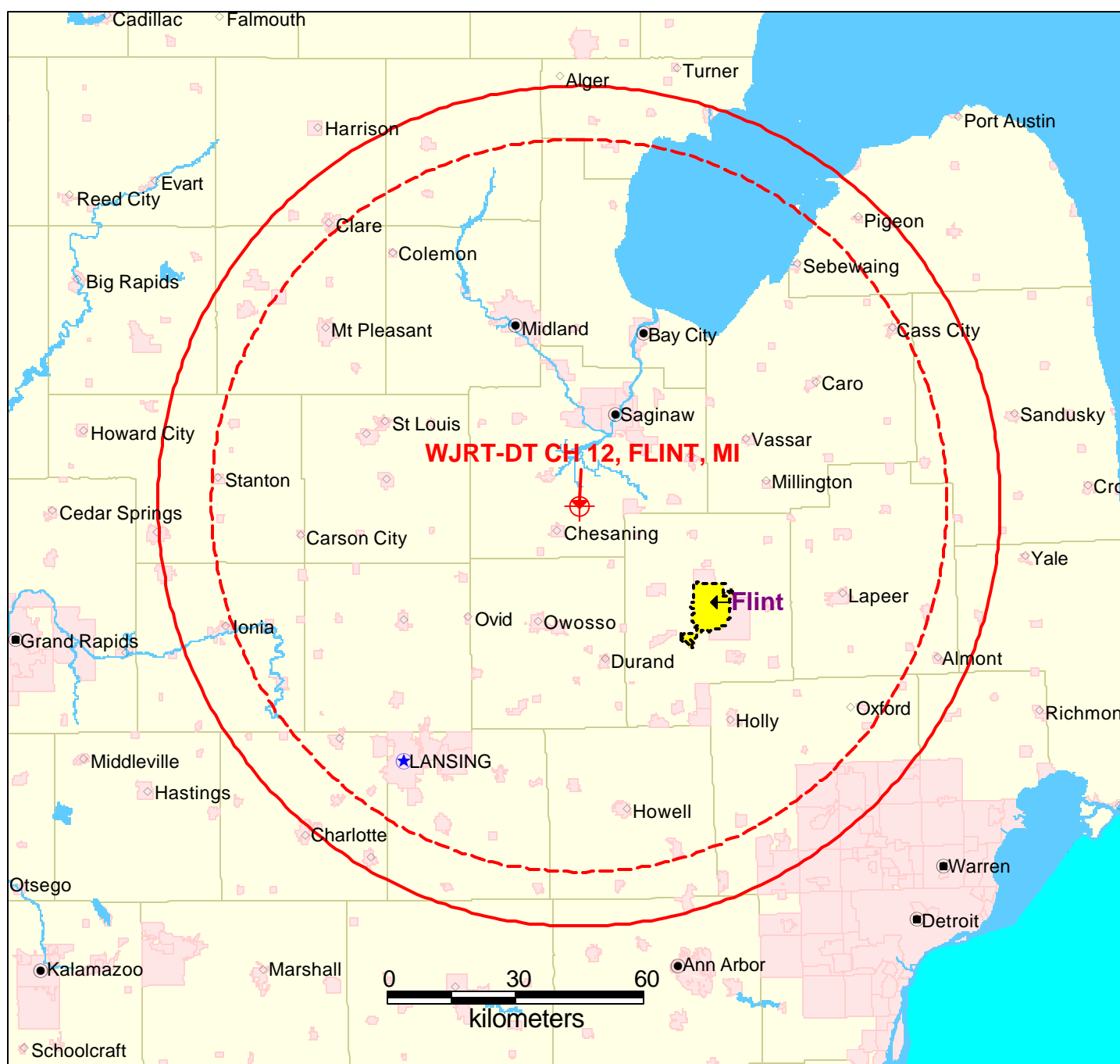
Dated: June 9, 2008

	<b>WJRT, FLINT, MI</b> <b>(DTV - Appendix B Facility)</b> <b>Latitude: 43 13 49 Longitude: 84 03 32</b> <b>CH. 12, 13.7 kW, 289 mHAAT,</b> <b>480.1 mRCAMSL, 74521 D-ANT</b> <b>PREDICTED 36 dBu, F(50,90)</b> <b>NOISE LIMITED CONTOUR</b>	<b>WJRT, FLINT, MI</b> <b>(DTV - Proposed Post Transition)</b> <b>Latitude: 43 13 49 Longitude: 84 03 32</b> <b>CH. 12, 18.2 kW, 286 mHAAT,</b> <b>477.5 mRCAMSL, NOND ANT</b> <b>PREDICTED 36 dBu, F(50,90)</b> <b>NOISE LIMITED CONTOUR</b>
Radial	Distance (km)	Distance (km)
0	94.98	97.00
10	94.96	96.99
20	94.89	96.96
30	94.77	96.84
40	94.77	96.86
50	94.72	96.85
60	94.56	96.73
70	94.53	96.76
80	94.33	96.61
90	94.09	96.44
100	93.89	96.32
110	93.73	96.24
120	93.51	96.11
130	93.39	96.06
140	93.17	95.90
150	93.02	95.80
160	92.96	95.78
170	92.86	95.73
180	92.76	95.67
190	92.86	95.74
200	92.97	95.81
210	93.16	95.95
220	93.24	95.98
230	93.27	95.95
240	93.46	96.06
250	93.71	96.21
260	93.91	96.33
270	94.15	96.47
280	94.38	96.63
290	94.47	96.68
300	94.61	96.75
310	94.74	96.85
320	94.86	96.93
330	94.9	96.94
340	94.96	97.00
350	94.96	97.00

## Exhibit 2

	<b>WJRT, FLINT, MI</b> <b>(DTV - Appendix B Facility)</b> <b>Latitude: 43 13 49 Longitude: 84 03 32</b> <b>CH. 12, 13.7 kW, 289 mHAAT,</b> <b>480.1 mRCAMSL, 74521 D-ANT</b> <b>PREDICTED 36 dBu, F(50,90)</b> <b>NOISE LIMITED CONTOUR</b>	<b>WJRT, FLINT, MI</b> <b>(DTV - Proposed Post Transition)</b> <b>Latitude: 43 13 49 Longitude: 84 03 32</b> <b>CH. 12, 18.2 kW, 286 mHAAT,</b> <b>477.5 mRCAMSL, NOND ANT</b> <b>PREDICTED 36 dBu, F(50,90)</b> <b>NOISE LIMITED CONTOUR</b>
Radial	Distance (km)	Distance (km)
0	94.98	97.00
45	94.74	96.85
90	94.09	96.44
135	93.29	95.99
180	92.76	95.67
225	93.21	95.93
270	94.15	96.47
315	94.88	96.96





### PREDICTED COVERAGE CONTOURS

WJRT-DT Ch 12, FLINT, MI  
 18.2kW, 286 mHAAT  
 477.5 mRCMSL, NOND ANT

Predicted Noise Limited Coverage Contour  
 F(50,90), 36 dBu

Predicted Principal Community Coverage Contour  
 F(50,90), 43 dBu

JUNE 2008

**CARL T. JONES**  
 CORPORATION

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 06-06-2008 Time: 13:05:42

Record Selected for Analysis

WJRT-TV BDTV -0008 FLINT MI US  
Channel 12 ERP 18.2 kW HAAT 286.0 m RCAMSL 477.5 m  
Latitude 043-13-49 Longitude 0084-03-32  
Status CP Zone 1 Border  
Dir Antenna Make Model Beam tilt N Ref Azimuth 0.0  
Last update Cutoff date Docket  
Comments  
Applicant

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Facility meets maximum height/power limits

Azimuth (Deg)	ERP (kW)	HAAT (m)	36.0 dBu F(50,90) (km)
0.0	18.200	298.5	96.9
45.0	18.200	295.8	96.7
90.0	18.200	286.6	96.3
135.0	18.200	273.4	95.8
180.0	18.200	266.1	95.6
225.0	18.200	272.8	95.8
270.0	18.200	287.7	96.4
315.0	18.200	297.1	96.8

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

SPACING VIOLATION FOUND BETWEEN STATION

WJRT-TV 12 FLINT MI BDTV 0008

and station

SHORT TO: WINM 12 ANGOLA IN BLCDT 20021025AAN  
041-27-15 0084-48-10  
Req. separation 244.6 Actual separation 206.6 Short 38.0 km

SHORT TO: WJRT-DT 12 FLINT MI DTVPLN DTVP0962  
043-13-48 0084-03-35  
Req. separation 244.6 Actual separation 0.1 Short 244.5 km

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quite zone

Proposed facility OK toward Table Mountain

Proposed facility is within the Canadian coordination distance  
Distance to border = 129.9km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

\*\*\*\*\*

### Stations Potentially Affected by Proposed Station

A decorative horizontal line composed of many small, identical geometric shapes (resembling stylized leaves or scales) arranged side-by-side.

Analysis of Interference to Affected Station 1

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
12	WBBM-TV	CHICAGO IL	BFRCT	-20050303AAG

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
11	WLFI-TV	LAFAYETTE IN	186.4	CP MOD	BMPCDT	-20030116ABG
11	WGVU-TV	GRAND RAPIDS MI	186.6	CP MOD	BMPEDT	-20031024AAN
11	WMSN-TV	MADISON WI	203.4	CP	BPCDT	-19991101AIM
12	WBIJ	CRANDON WI	422.6	LIC	BLCT	-20030812AAQ
12	WINM	ANGOLA IN	239.9	LIC	BLCDT	-20021025AAN
12	WKRC-TV	CINCINNATI OH	405.5	CP	BDTV	-0000
12	WJRT-TV	FLINT MI	329.1	CP	BDTV	-0008
12	WJRT-DT	FLINT MI	329.0	PLN	DTVPLN	-DTVP0962
12	KIIN	IOWA CITY IA	307.6	CP	BDTV	-0000
13	WZZM-TV	GRAND RAPIDS MI	212.5	CP	BDTV	-0000
13	WREXTV	ROCKFORD IL	140.3	LIC	BLCT	-1372

Total scenarios = 1

Result key: 1  
Scenario 1 Affected station 1  
Before Analysis

Results for: 12A IL CHICAGO BFRCT 20050303AAG CP  
HAAT 497.0 m, ATV ERP 3.2 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	9425338	29688.8
not affected by terrain losses	9416028	29600.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	48458	662.2
lost to ATV IX only	48458	662.2
lost to all IX	48458	662.2

Potential Interferring Stations Included in above Scenario 1

12A IN ANGOLA	BLC DT	20021025AAN	LIC
12A IA IOWA CITY	BDTV	0000	CP
13A IL ROCKFORD	BLCT	1372	LIC
12A MI FLINT	DTVPLN	DTVP0962	PLN

After Analysis

Results for: 12A IL CHICAGO BFRCT 20050303AAG CP  
HAAT 497.0 m, ATV ERP 3.2 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	9425338	29688.8
not affected by terrain losses	9416028	29600.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	48458	662.2
lost to ATV IX only	48458	662.2
lost to all IX	48458	662.2

Potential Interferring Stations Included in above Scenario 1

12A IN ANGOLA	BLC DT	20021025AAN	LIC
12A IA IOWA CITY	BDTV	0000	CP
13A IL ROCKFORD	BLCT	1372	LIC
12A MI FLINT	BDTV	0008	CP

#####

Analysis of Interference to Affected Station 2

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
11	WGVU-TV	GRAND RAPIDS MI	BMPEDT	-20031024AAN

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
10	WILX-TV	ONONDAGA MI	122.4	CP	BDTV	-0000
12	WBBM-TV	CHICAGO IL	186.6	CP	BFRCTT	-20050303AAG
11	WLFI-TV	LAFAYETTE IN	291.9	CP MOD	BMPCDT	-20030116ABG
11	WMSN-TV	MADISON WI	296.0	CP	BPCDT	-19991101AIM
11	WBKB-TV	ALPENA MI	271.5	CP	BPCDT	-19991101AHA
11	WTOL	TOLEDO OH	251.4	LIC	BLCDT	-20031103ABR
11	WLUK-TV	GREEN BAY WI	233.0	CP	BDTV	-0000
12	WINM	ANGOLA IN	190.0	LIC	BLCDT	-20021025AAN
12	WJRT-TV	FLINT MI	152.1	CP	BDTV	-0008
12	WJRT-DT	FLINT MI	152.0	PLN	DTVPLN	-DTVP0962

Total scenarios = 1

Result key: 2  
Scenario 1 Affected station 2  
Before Analysis

Results for: 11A MI GRAND RAPIDS BMPEDT 20031024AAN CP  
HAAT 238.0 m, ATV ERP 50.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	1790126	28225.9
not affected by terrain losses	1752483	27285.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	54302	1521.5
lost to ATV IX only	54302	1521.5
lost to all IX	54302	1521.5

Potential Interferring Stations Included in above Scenario 1

10A MI ONONDAGA	BDTV	0000	CP
11A IN LAFAYETTE	BMPCDT	20030116ABG	CP
11A WI MADISON	BPCDT	19991101AIM	CP
11A MI ALPENA	BPCDT	19991101AHA	CP
11A OH TOLEDO	BLCDT	20031103ABR	LIC
11A WI GREEN BAY	BDTV	0000	CP

After Analysis

Results for: 11A MI GRAND RAPIDS BMPEDT 20031024AAN CP  
HAAT 238.0 m, ATV ERP 50.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	1790126	28225.9
not affected by terrain losses	1752483	27285.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	54302	1521.5
lost to ATV IX only	54302	1521.5
lost to all IX	54302	1521.5

Potential Interferring Stations Included in above Scenario 1

10A MI ONONDAGA	BDTV	0000	CP
11A IN LAFAYETTE	BMPCDT	20030116ABG	CP
11A WI MADISON	BPCDT	19991101AIM	CP
11A MI ALPENA	BPCDT	19991101AHA	CP
11A OH TOLEDO	BLCDT	20031103ABR	LIC
11A WI GREEN BAY	BDTV	0000	CP
12A MI FLINT	BDTV	0008	CP

#####



Analysis of Interference to Affected Station 3

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
11	WBKB-TV	ALPENA MI	BPCDT	-19991101AHA

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
10	WWUP-TV	SAULT STE. MARIE MI	157.8	CP	BDTV	-0000
11	WGVU-TV	GRAND RAPIDS MI	271.5	CP MOD	BMPEDT	-20031024AAN
11	WTOL	TOLEDO OH	337.0	LIC	BLCDDT	-20031103ABR
11	WLUK-TV	GREEN BAY WI	355.3	CP	BDTV	-0000
12	WJRT-TV	FLINT MI	169.2	CP	BDTV	-0008
12	WJRT-DT	FLINT MI	169.2	PLN	DTVPLN	-DTVP0962

Proposal causes no interference

#####

Analysis of Interference to Affected Station 4

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
11	WTOL	TOLEDO OH	BLCDDT	-20031103ABR

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
10	WOIO	SHAKER HEIGHTS OH	143.7	LIC	BLCDDT	-19991110AAR
10	WILX-TV	ONONDAGA MI	130.4	CP	BDTV	-0000
11	WLFI-TV	LAFAYETTE IN	306.3	CP MOD	BMPCDDT	-20030116ABG
11	WGVU-TV	GRAND RAPIDS MI	251.4	CP MOD	BMPEDT	-20031024AAN
11	WBKB-TV	ALPENA MI	337.0	CP	BPCDDT	-19991101AHA
11	WHAS-TV	LOUISVILLE KY	424.2	LIC	BLCDDT	-20020503AAT
12	WINM	ANGOLA IN	120.8	LIC	BLCDDT	-20021025AAN
12	WMFD-TV	MANSFIELD OH	119.4	CP	BPCDDT	-20040526ABT
12	WJRT-TV	FLINT MI	181.9	CP	BDTV	-0008
12	WJRT-DT	FLINT MI	181.8	PLN	DTVPLN	-DTVP0962

Proposal causes no interference

#####

Analysis of Interference to Affected Station 5

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
12	WINM	ANGOLA IN	BLCDT	-20021025AAN

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	WBBM-TV	CHICAGO IL	239.9	CP	BFRCT	-20050303AAG
11	WLFI-TV	LAFAYETTE IN	192.7	CP MOD	BMPCDT	-20030116ABG
11	WGVU-TV	GRAND RAPIDS MI	190.0	CP MOD	BMPCDT	-20031024AAN
11	WTOL	TOLEDO OH	120.8	LIC	BLCDT	-20031103ABR
12	WMFD-TV	MANSFIELD OH	198.4	CP	BPCDT	-20040526ABT
12	WKRC-TV	CINCINNATI OH	261.1	CP	BDTV	-0000
12	WJRT-TV	FLINT MI	206.7	CP	BDTV	-0008
12	WJRT-DT	FLINT MI	206.6	PLN	DTVPLN	-DTVP0962
12	WICU-TV	ERIE PA	403.5	CP	BDTV	-0000
13	WSYX	COLUMBUS OH	225.8	LIC	BLCDT	-20030801AXM
13	WTVG	TOLEDO OH	118.3	CP	BDTV	-0000
13	WZZM-TV	GRAND RAPIDS MI	225.4	CP	BDTV	-0000
13	WTHR	INDIANAPOLIS IN	205.6	LIC	BLCT	-840626KE

Total scenarios = 1

Result key: 3  
Scenario 1 Affected station 5  
Before Analysis

Results for: 12A IN ANGOLA BLC DT 20021025AAN LIC

HAAT 132.0 m, ATV ERP 16.5 kW	POPULATION	AREA (sq km)
within Noise Limited Contour	946777	19420.8
not affected by terrain losses	932700	19041.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	58138	1746.3
lost to ATV IX only	58138	1746.3
lost to all IX	58138	1746.3

Potential Interferring Stations Included in above Scenario 1

12A IL CHICAGO	BFRCT	20050303AAG	CP
11A OH TOLEDO	BLC DT	20031103ABR	LIC
12A OH MANSFIELD	BPC DT	20040526ABT	CP
12A OH CINCINNATI	BDTV	0000	CP
13A OH TOLEDO	BDTV	0000	CP
12A MI FLINT	DTVPLN	DTVP0962	PLN

After Analysis

Results for: 12A IN ANGOLA BLC DT 20021025AAN LIC

HAAT 132.0 m, ATV ERP 16.5 kW	POPULATION	AREA (sq km)
within Noise Limited Contour	946777	19420.8
not affected by terrain losses	932700	19041.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	62511	1986.0
lost to ATV IX only	62511	1986.0
lost to all IX	62511	1986.0

Potential Interferring Stations Included in above Scenario 1

12A IL CHICAGO	BFRCT	20050303AAG	CP
11A OH TOLEDO	BLC DT	20031103ABR	LIC
12A OH MANSFIELD	BPC DT	20040526ABT	CP
12A OH CINCINNATI	BDTV	0000	CP
13A OH TOLEDO	BDTV	0000	CP
12A MI FLINT	BDTV	0008	CP

The following station failed the de minimis interference criteria.

12D MI FLINT BDTV 0008  
ERP 18.20 kW HAAT 286.0 m RCMSL 477.5 m  
Antenna none

Due to interference to the following station and scenario: 1

12D IN ANGOLA BLC DT 20021025AAN  
ERP 16.50 kW HAAT 132.0 m RCMSL 392.0 m  
Antenna CDB 00000000033342

Percent Service lost without proposal:	0.0	to BLC DT	20021025AAN
Percent Service lost with proposal:	0.5	to BLC DT	20021025AAN

Analysis of Interference to Affected Station 6

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
12	WMFD-TV	MANSFIELD OH	BPCDT	-20040526ABT

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
11	WTOL	TOLEDO OH	119.4	LIC	BLCDT	-20031103ABR
12	WYMT-TV	HAZARD KY	399.8	LIC	BLCDT	-20040109ACY
12	WWPX	MARTINSBURG WV	413.3	LIC	BLCDT	-20021108AAX
12	WINM	ANGOLA IN	198.4	LIC	BLCDT	-20021025AAN
12	WKRC-TV	CINCINNATI OH	243.5	CP	BDTV	-0000
12	WJRT-TV	FLINT MI	298.9	CP	BDTV	-0008
12	WJRT-DT	FLINT MI	298.9	PLN	DTVPLN	-DTVP0962
12	WICU-TV	ERIE PA	261.4	CP	BDTV	-0000
12	WBOYTV	CLARKSBURG WV	254.8	LIC	BLCT	-860107KG
13	WSYX	COLUMBUS OH	98.0	LIC	BLCDT	-20030801AXM
13	WTVG	TOLEDO OH	121.9	CP	BDTV	-0000
13	WQED	PITTSBURGH PA	226.7	LIC	BLET	-0335

Total scenarios = 1

Result key: 4  
Scenario 1 Affected station 6  
Before Analysis

Results for: 12A OH MANSFIELD BPCDT 20040526ABT CP  
HAAT 180.0 m, ATV ERP 14.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	1453340	21789.8
not affected by terrain losses	1263115	20764.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	153577	1279.6
lost to ATV IX only	153577	1279.6
lost to all IX	153577	1279.6

Potential Interferring Stations Included in above Scenario 1

12A IN ANGOLA	BLCDT	20021025AAN	LIC
12A OH CINCINNATI	BDTV	0000	CP
12A PA ERIE	BDTV	0000	CP
12A WV CLARKSBURG	BLCT	860107KG	LIC
13A OH COLUMBUS	BLCDT	20030801AXM	LIC
13A OH TOLEDO	BDTV	0000	CP
12A MI FLINT	DTVPLN	DTVP0962	PLN

After Analysis

Results for: 12A OH MANSFIELD BPCDT 20040526ABT CP  
HAAT 180.0 m, ATV ERP 14.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	1453340	21789.8
not affected by terrain losses	1263115	20764.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	153577	1279.6
lost to ATV IX only	153577	1279.6
lost to all IX	153577	1279.6

Potential Interferring Stations Included in above Scenario 1

12A IN ANGOLA	BLCDT	20021025AAN	LIC
12A OH CINCINNATI	BDTV	0000	CP
12A PA ERIE	BDTV	0000	CP
12A WV CLARKSBURG	BLCT	860107KG	LIC
13A OH COLUMBUS	BLCDT	20030801AXM	LIC
13A OH TOLEDO	BDTV	0000	CP
12A MI FLINT	BDTV	0008	CP

#####

Analysis of Interference to Affected Station 7

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
12	WICU-TV	ERIE PA	BDTV	-0000

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	WVPX	MARTINSBURG WV	332.6	LIC	BLCDT	-20021108AAX
12	WINM	ANGOLA IN	403.5	LIC	BLCDT	-20021025AAN
12	WMFD-TV	MANSFIELD OH	261.4	CP	BPCDT	-20040526ABT
12	WJRT-TV	FLINT MI	355.8	CP	BDTV	-0008
12	WJRT-DT	FLINT MI	355.8	PLN	DTVPLN	-DTVP0962
12	WBOYTV	CLARKSBURG WV	310.1	LIC	BLCT	-860107KG
13	WQED	PITTSBURGH PA	179.9	LIC	BLET	-0335

Proposal causes no interference

#####

Analysis of Interference to Affected Station 8

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
13	WTVG	TOLEDO OH	BDTV	-0000

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	WINM	ANGOLA IN	118.3	LIC	BLCDT	-20021025AAN
12	WMFD-TV	MANSFIELD OH	121.9	CP	BPCDT	-20040526ABT
12	WJRT-TV	FLINT MI	179.9	CP	BDTV	-0008
12	WJRT-DT	FLINT MI	179.9	PLN	DTVPLN	-DTVP0962
13	WSYX	COLUMBUS OH	196.9	LIC	BLCDT	-20030801AXM
13	WKYT-TV	LEXINGTON KY	413.7	LIC	BLCDT	-20021025AAO
13	WQED	PITTSBURGH PA	320.1	LIC	BLET	-0335
13	WZZM-TV	GRAND RAPIDS MI	273.1	CP	BDTV	-0000
13	WTHR	INDIANAPOLIS IN	303.8	LIC	BLCT	-840626KE
13	WOWK-TV	HUNTINGTON WV	367.7	CP	BFRCT	-20050815ABI

Proposal causes no interference

#####

Analysis of Interference to Affected Station 9

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
13	WZZM-TV	GRAND RAPIDS MI	BDTV	-0000

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	WBBM-TV	CHICAGO IL	212.5	CP	BFRCT	-20050303AAG
12	WINM	ANGOLA IN	225.4	LIC	BLCDT	-20021025AAN
12	WJRT-TV	FLINT MI	150.2	CP	BDTV	-0008
12	WJRT-DT	FLINT MI	150.2	PLN	DTVPLN	-DTVP0962
13	WTVG	TOLEDO OH	273.1	CP	BDTV	-0000
13	WNU	MARQUETTE MI	371.4	CP	BDTV	-0000
13	WTHR	INDIANAPOLIS IN	376.4	LIC	BLCT	-840626KE
13	WREXTV	ROCKFORD IL	293.7	LIC	BLCT	-1372

Proposal causes no interference

#####

Analysis of Interference to Affected Station 10  
DTV Baseline Analysis

Channel	Call	City/State	Application	Ref. No.
12	WJRT-DT	FLINT MI	DTVPLN	-DTVP0962

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
------	------	------------	----------	--------	-------------	----------

Results for: 12A MI FLINT                      DTVPLN      DTVP0962      PLN

	POPULATION	AREA (sq km)
HAAT 287.0 m, ATV ERP 13.7 kW		
within Noise Limited Contour	2365412	27695.8
not affected by terrain losses	2225941	27077.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	0	0.0
lost to ATV IX only	0	0.0
lost to all IX	0	0.0

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
12	WJRT-TV	FLINT MI	BDTV	-0008

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	WBBM-TV	CHICAGO IL	329.1	CP	BFRCTT	-20050303AAG
11	WGVU-TV	GRAND RAPIDS MI	152.1	CP MOD	BMPEDT	-20031024AAN
11	WBKB-TV	ALPENA MI	169.2	CP	BPCDT	-19991101AHA
11	WTOL	TOLEDO OH	181.9	LIC	BLCDT	-20031103ABR
12	WINM	ANGOLA IN	206.7	LIC	BLCDT	-20021025AAN
12	WMFD-TV	MANSFIELD OH	298.9	CP	BPCDT	-20040526ABT
12	WICU-TV	ERIE PA	355.8	CP	BDTV	-0000
13	WTVG	TOLEDO OH	179.9	CP	BDTV	-0000
13	WZZM-TV	GRAND RAPIDS MI	150.2	CP	BDTV	-0000

Total scenarios = 1



Result key: 5  
Scenario 1 Affected station 10  
Before Analysis

Results for: 12A MI FLINT BDTV 0008 CP  
HAAT 286.0 m, ATV ERP 18.2 kW  
POPULATION AREA (sq km)  
within Noise Limited Contour 2497798 29135.8  
not affected by terrain losses 2381457 28569.3  
lost to NTSC IX 0 0.0  
lost to additional IX by ATV 147020 638.8  
lost to ATV IX only 147020 638.8  
lost to all IX 147020 638.8

Potential Interferring Stations Included in above Scenario 1

12A IL CHICAGO	BFRCT	20050303AAG	CP
12A IN ANGOLA	BLCDT	20021025AAN	LIC
12A OH MANSFIELD	BPCDT	20040526ABT	CP
12A PA ERIE	BDTV	0000	CP

#####

FINISHED FINISHED FINISHED FINISHED FINISHED FINISHED