



## ENGINEERING STATEMENT

In support of an  
Application for Construction Permit

For Digital Channel 48

KVTJ Jonesboro, AR

780 kW ERP      297 m HAAT

### PURPOSE

MARSAND, INC. has been retained by Agape Church, Inc., the licensee of KVTJ analog Channel 48 of Jonesboro, AR, to prepare this engineering statement in support of an Application for Construction Permit (CP) for post-transition digital service on KVTJ-DT Channel 48. There is a CP for the paired transitional digital Channel 49 (BPCDT-19990930AAS), but a form 382 was filed electing to “flash cut” on the existing, licensed analog Channel 48 (BFRECT-20050208AEG). Subsequently, the Federal Communications Commission (the “Commission”) established Channel 48 for KVTJ-DT’s post-transition operation in its release of the Seventh Report and Order in MB Docket No. 87-258 Appendix B (“Appendix B”). In this application, KVTJ-DT seeks authorization for post-transitional digital operation on its Channel 48 at 780 kW Effective Radiated Power (ERP) and 297 m Height Above Average Terrain (HAAT) utilizing the existing, analog non-directional antenna.

### DISCUSSION

KVTJ-DT proposes to use the existing, licensed analog Channel 48 antenna and install a new digital transmitter and new RF filter for digital service. Since the predicted 41 dBu F(50,90) contour of the proposed digital facilities would fall outside of the predicted DTV F(50,90) service grade contour (see **Figure 1**) of the allotted digital facility specified in Appendix B, KVTJ-DT requests a waiver of the DTV Filing Freeze as permitted in Paragraph 151 of the Third Periodic Review Report and Order. The predicted contour of the proposed

digital facility does not extend more than 5 miles in any azimuth more than the predicted contour of the allotted facility in Appendix B (See **Table 1**). Furthermore, an interference study using the TV Process by Techware (a software program which is familiar to the Commission that is written in Fortran and run on a Sun Microsystems workstation and employs the methods outlined in the OET 69 Bulletin), confirms that the proposed facility would not exceed 0.5% new interference to any other station listed in Appendix B. A summary of the interference study is listed in **Table 2**.

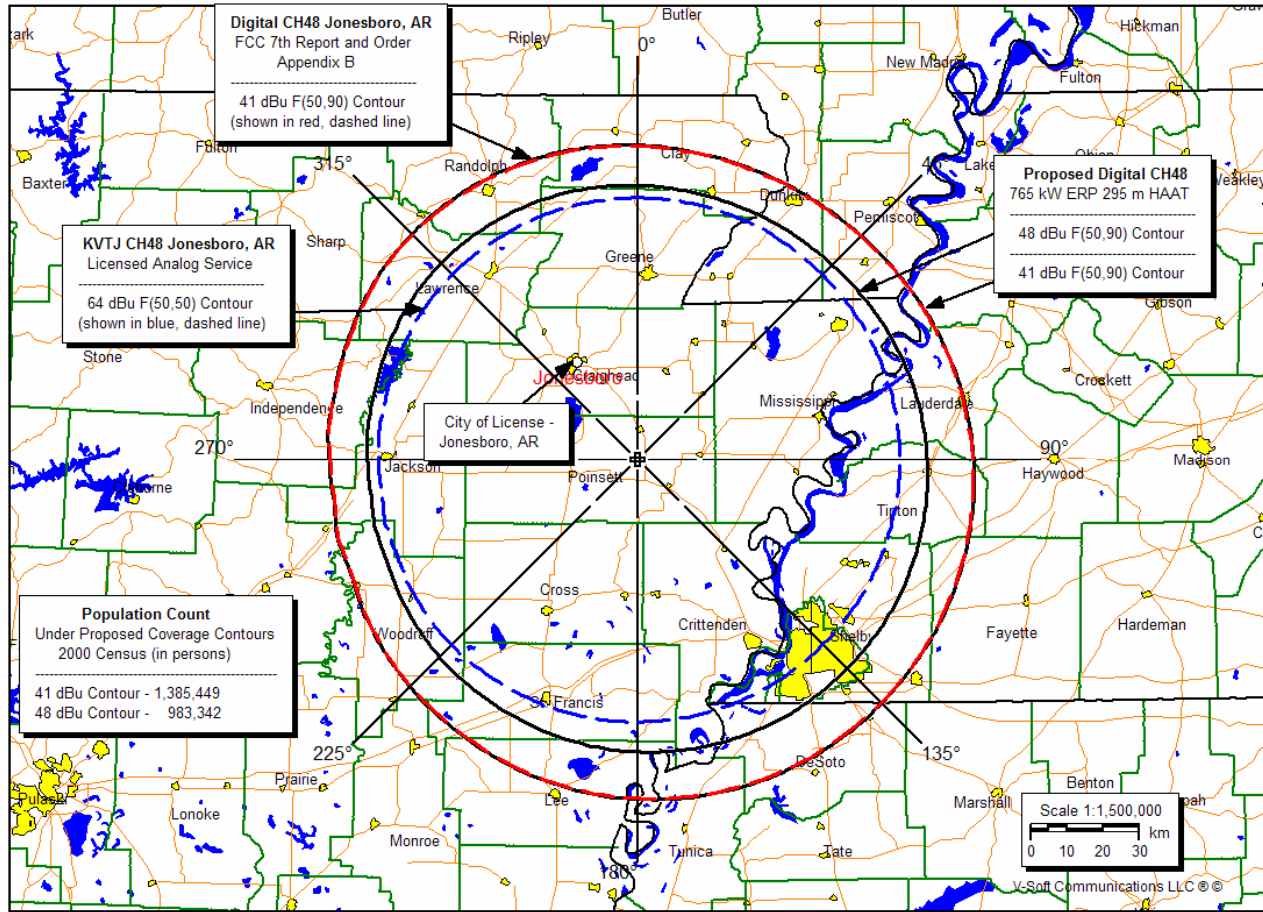
The predicted F(50,90) 48 dBu contour would encompass the principal community, Jonesboro, AR, entirely as shown in **Figure 1**. A population study under the 41 dBu contour predicts service to 1,385,449 people or 100% of the population specified in the new DTV Table Appendix B.

There is no additional predicted interference to others based on the DTV Table Appendix B. The proposal is clear of any FCC monitoring stations, quiet zones, and Table Mountain. It is also further than 3.2 km from the nearest AM station.

## **CONCLUSION**

It is respectfully requested that the Commission grant this request for CP for the proposed transmission facility as indicated in the accompanying TECH BOX.

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**Figure 1 – Coverage Map of the Proposal**

41 dBu F(50,90) Contour based on V-Soft 3 second US Terrain			
Bearing (deg)	Proposed Facility Distance (km)	Appendix B Allotted Facility Distance (km)	Difference (km)
0	85.8	85.5	0.3
10	85.4	85.1	0.3
20	85.2	85.0	0.2
30	85.5	85.3	0.2
40	86.0	85.8	0.2
50	87.0	86.7	0.3
60	88.1	87.9	0.2
70	89.5	89.2	0.3
80	90.7	90.5	0.2
90	91.8	91.6	0.2
100	92.7	92.5	0.2
110	93.4	93.2	0.2
120	94.0	93.8	0.2
130	94.3	94.1	0.2
140	94.4	94.2	0.2
150	94.5	94.2	0.3
160	94.1	93.9	0.2
170	93.6	93.4	0.2
180	92.9	92.7	0.2
190	92.0	91.8	0.2
200	91.0	90.7	0.3
210	89.7	89.4	0.3
220	88.5	88.3	0.2
230	87.2	87.0	0.2
240	85.8	85.6	0.2
250	84.4	84.2	0.2
260	83.9	83.6	0.3
270	84.1	83.9	0.2
280	84.8	84.5	0.3
290	85.3	85.0	0.3
300	86.3	86.0	0.3
310	87.0	86.7	0.3
320	87.1	86.9	0.2
330	87.0	86.8	0.2
340	86.7	86.5	0.2
350	86.3	86.0	0.3

Note: A Difference > 8 km would exceed the 5 mile limitation.

**Table 1 – Contour Comparison of the Proposal vs. Appendix B Allotment**

Stations Potentially Affected by Proposal	Interference	
	Existing	New
WLJT Lexington, TN	(See Note 2)	
WKGB-TV Bowling Green, KY	(See Note 2)	

## Notes:

1. Proposed Station is beyond the site to the nearest cell
2. Proposal causes no interference.

**Table 2 – Summary of Interference Analysis of the Proposal**



MARSAND, INC.

Matthew A. Sanderford, Jr., P.E.

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## DECLARATION

Matthew A. Sanderford, Jr., P.E., declares and states that he is a graduate Electrical Engineer with a Bachelor of Science Degree in Electrical Engineering from the University of Texas at El Paso, a Licensed Professional Engineer in the State of Texas, and his qualifications are known to the Federal Communications Commission, and that he is President of MARSAND, INC., a Registered Professional Engineering firm in the State of Texas, and that firm has been retained by Agape Church, Inc., to perform the engineering support as contained in this report.

All facts contained herein are true of his own knowledge except where stated to be on information or belief provided by Agape Church, Inc., and as to those facts, he believes them to be true.

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I declare under penalty of perjury that the foregoing is true and correct.

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Matthew A. Sanderford, Jr., P.E.

President - MARSAND, INC.

Executed this 17<sup>th</sup> day of March, 2008

State of Texas

**Appendix**

Matthew A. Sanderford, Jr., P.E.

DTV

Call letters: **KVTJ** DT Date: **3/17/2008**  
 Location: **Jonesboro, AR**  
 Channel: **48** DTV FCC Dsgn:  
 Frequency: **677 MHz Mid-Band** Pilot Freq: **674.31**  
 Antenna: **Dielectric TFU-31JTH-R O4**

Transmitter Power Output (**Hor TPO**): **32.0 kW avg.** **15.04815 dBk Hor**  
 Filter Loss: **0** dB  
 TPO into Xmsn Line: **32.0 kW pk.** **15.05 dBk Hor**  
 Transmission Line: **6-1/8" Rigid**  
 Loss per 100 ft.: **0.124 dB Vert** **0.124 dB Hor**  
 Line Length: **930 ft. Vert** **100 ft. Hor**  
 Total Line Loss: **-1.277 dB** **-1.28 dB**

Antenna Input Power: **23.83 kW** **13.77 dBk**

TPO Average: **32.0 KW avg w/ V & H**

Efficiency: **74.521 %**

Vertical Pol % = **0 %**

Elevation Antenna Gain -

*Horizontal -*

*Vert. Polarization -* **1.00 Gain** **0.00 dB**

*Hor. Polarization -* **19.59 Gain** **12.92 dB**

Maximum -

*Vert. Polarization -* **1.00 Gain** **0.00 dB**

*Hor. Polarization -* **32.73 Gain** **15.15 dB**

Azimuthal Antenna Gain -

*Vert. Polarization -* **1.00 Gain** **0.00 dB**

*Hor. Polarization -* **1.00 Gain** **0.00 dB**

**Horizontal ERP -**

**Vertical Polarization:** **0.00 kW** **0.00 dBk**

**Horizontal Polarization:** **466.8 kW** **26.7 dBk**

**Maximum ERP -**

**Vertical Polarization:** **0.00 kW** **0.00 dBk**

**Horizontal Polarization:** **780.0 kW** **28.92 dBk**

V TPO = **0.00 kW**

**DTV Xmtr Power Average:** **31.98 kW**



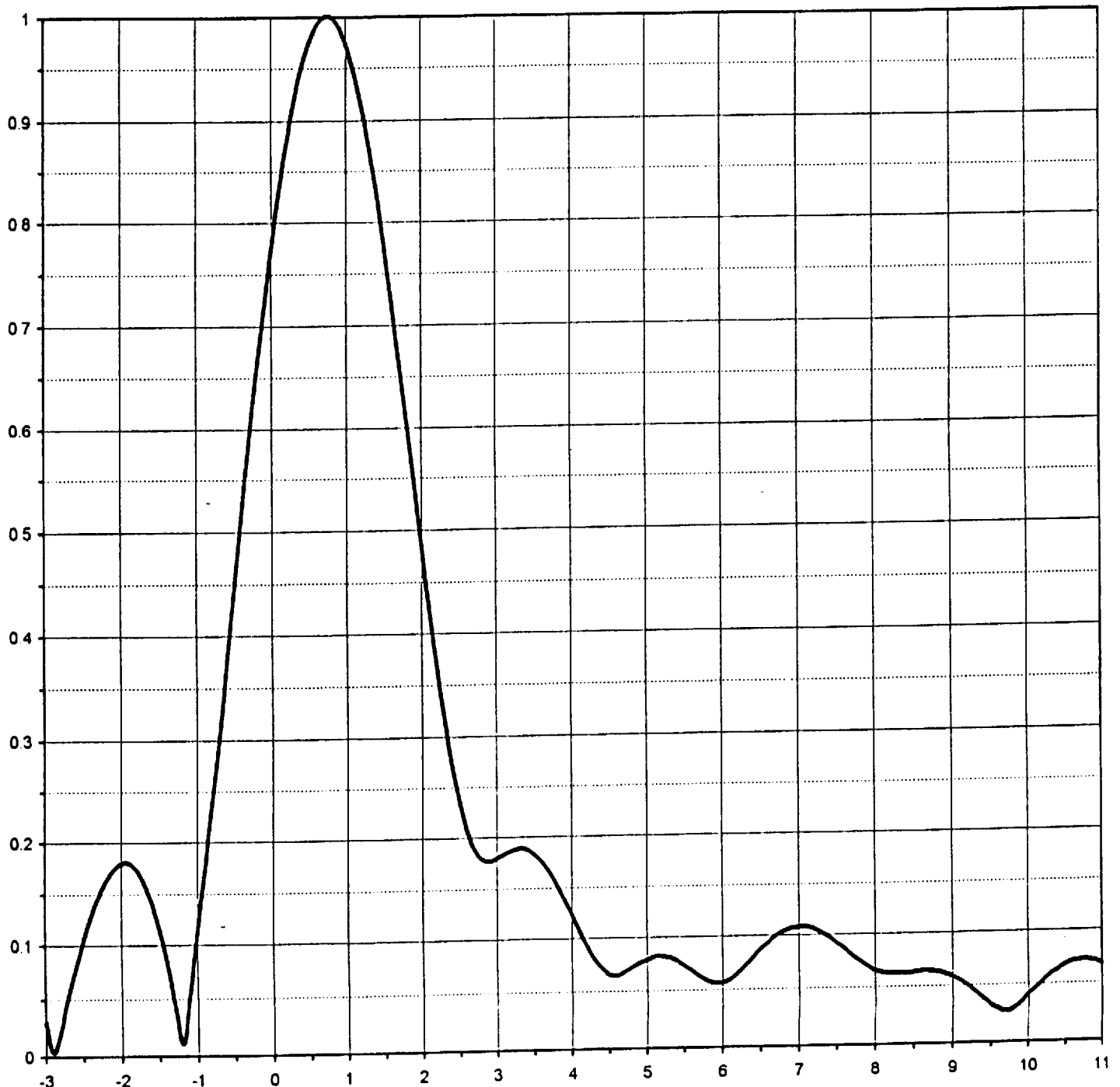
# DIELECTRIC



Proposal Number	DCA-7568	
Date	27-Mar-97	
Call Letters	KVTJ	Channel 48
Location	Jonesboro, AR	
Customer		
Antenna Type	TFU-31JTH-R O4	

## ELEVATION PATTERN

RMS Gain at Main Lobe	32.7 (15.15 dB)	Beam Tilt	0.75 deg
RMS Gain at Horizontal	19.6 (12.92 dB)	Frequency	677.00 MHz
Calculated / Measured	Calculated	Drawing #	31J327075



DIELECTRIC COMMUNICATIONS

RAYMOND ME TEL 207 655-4555 FAX 207-655-7120

# KVTJ-DT - Proposed - 41 dBu Contour Table.txt

Call Letters: KVTJ-DT (Proposed)  
 File Number: BPCDT19990930AAS  
 Latitude: 35-36-16 N  
 Longitude: 090-31-18 W  
 ERP: 780.00 kW  
 Channel: 48  
 Frequency: 677.0 MHz  
 AMSL Height: 362.8 m  
 Elevation: 65.8 m  
 HAAT: 297.0 m  
 Horiz. Antenna Pattern: Directional  
 Vert. Elevation Pattern: Yes  
 Electrical Beam Tilt: 0.75

Type of contour: FCC  
 Location Variability: 50.0 %  
 Time Variability: 90.0 %  
 # of Radials Calculated: 360  
 Field Strength: 41.00 dBuV/m

Primary Terrain: V-Soft 3 Second US Terrain

Bearing (deg)	Distance (km)	HAAT (m)
0.0	85.8	296.0
10.0	85.4	295.9
20.0	85.2	295.9
30.0	85.5	297.0
40.0	86.0	296.1
50.0	87.0	296.4
60.0	88.1	296.6
70.0	89.5	297.4
80.0	90.7	298.0
90.0	91.8	297.9
100.0	92.7	298.1
110.0	93.4	298.2
120.0	94.0	298.7
130.0	94.3	298.6
140.0	94.4	298.8
150.0	94.5	300.0
160.0	94.1	299.7
170.0	93.6	299.8
180.0	92.9	299.4
190.0	92.0	299.6
200.0	91.0	299.7
210.0	89.7	299.0
220.0	88.5	299.2
230.0	87.2	298.4
240.0	85.8	294.5
250.0	84.4	288.4
260.0	83.9	285.7
270.0	84.1	286.5
280.0	84.8	288.5
290.0	85.3	288.6
300.0	86.3	292.8
310.0	87.0	295.6
320.0	87.1	296.0
330.0	87.0	296.2
340.0	86.7	296.2
350.0	86.3	296.1

Average HAAT for radials shown: 296.1 m

KVTJ-DT - Appendix B - 41 dBu Contour Table.txt

Call Letters: KVTJ-DT (Appendix B)

File Number:

Latitude: 35-36-16 N

Longitude: 090-31-18 W

ERP: 982.00 kW

Channel: 48

Frequency: 677.0 MHz

AMSL Height: 361.0 m

Elevation: 65.0 m

HAAT: 295.0 m

Horiz. Antenna Pattern: Directional

Vert. Elevation Pattern: Yes

Electrical Beam Tilt: 0.0

Type of contour: FCC

Location Variability: 50.0 %

Time Variability: 90.0 %

# of Radials Calculated: 360

Field Strength: 42.00 dBuV/m

Primary Terrain: V-Soft 3 Second US Terrain

Bearing (deg)	Distance (km)	HAAT (m)
0.0	85.5	294.2
10.0	85.1	294.1
20.0	85.0	294.1
30.0	85.3	295.2
40.0	85.8	294.3
50.0	86.7	294.6
60.0	87.9	294.8
70.0	89.2	295.6
80.0	90.5	296.2
90.0	91.6	296.1
100.0	92.5	296.3
110.0	93.2	296.4
120.0	93.8	296.9
130.0	94.1	296.8
140.0	94.2	297.0
150.0	94.2	298.2
160.0	93.9	297.9
170.0	93.4	298.0
180.0	92.7	297.6
190.0	91.8	297.8
200.0	90.7	297.9
210.0	89.4	297.2
220.0	88.3	297.4
230.0	87.0	296.6
240.0	85.6	292.7
250.0	84.2	286.6
260.0	83.6	283.9
270.0	83.9	284.7
280.0	84.5	286.7
290.0	85.0	286.8
300.0	86.0	291.0
310.0	86.7	293.8
320.0	86.9	294.2
330.0	86.8	294.4
340.0	86.5	294.4
350.0	86.0	294.3

Average HAAT for radials shown: 294.3 m

kvtj -dt\_780kw\_nondir

Census data selected 2000

Post Transition Data Base Selected  
/space/software/cdbs/tvdb.sff\_B  
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 03-16-2008 Time: 15:52:52

Record Selected for Analysis

KVTJ USERRECORD-01 JONESBORO AR US  
Channel 48 ERP 780. kW HAAT 296. m RCAMSL 00363 m  
Latitude 035-36-16 Longitude 0090-31-18  
Status APP Zone 2 Border  
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)	41.0 dBu F(50, 90) (km)
0.0	780.000	296.2	94.1
45.0	780.000	296.5	94.1
90.0	780.000	298.2	94.3
135.0	780.000	299.2	94.4
180.0	780.000	299.6	94.5
225.0	780.000	299.3	94.5
270.0	780.000	286.6	92.7
315.0	780.000	296.1	94.0

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

SPACING VIOLATION FOUND BETWEEN STATION

KVTJ 48 JONESBORO AR USERRECORD01

and station

SHORT TO: KVTJ 48 JONESBORO AR BPCDT 19990930AAS  
035-36-16 0090-31-18  
Req. separation 223.7 Actual separation 0.0 Short 223.7 km

kvtj -dt\_780kw\_nondir

LANDMOBILE SPACING VIOLATIONS FOUND

NONE

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet zone

Proposed facility OK toward Table Mountain

Proposed facility is beyond the Canadian coordination distance

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

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Start of Interference Analysis

Channel	Call	City/State	ARN
48	KVTJ	JONESBORO AR	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
47	WLJT	LEXINGTON TN	173.7	CP	BDTV	-00000289
48	WKGB-TV	BOWLING GREEN KY	385.1	LIC	BLEDT	-20020304ALH

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Analysis of Interference to Affected Station 1

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
47	WLJT	LEXINGTON TN	BDTV	-00000289

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
47	WRBU	EAST ST. LOUIS IL	342.1	CP	BDTV	-00000292
47	WAVE	LOUISVILLE KY	385.1	LIC	BLCDT	-20030306ABQ
48	KVTJ	JONESBORO AR	173.7	APP	USERRECORD-01	

Proposal causes no interference

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Analysis of Interference to Affected Station 2

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
48	WKGB-TV	BOWLING GREEN KY	BLEDT	-20020304ALH

Stations Potentially Affecting This Station

kvtj -dt\_780kw\_nondir

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
47	WAVE	LOUISVILLE KY	158.8	LIC	BLCDT	-20030306ABQ
48	WUVG-TV	ATHENS GA	419.8	CP MOD	BMPCDT	-20020118AAD
48	WCIA	CHAMPAIGN IL	370.5	CP MOD	BMPCDT	-20050701ACC
48	WTTV	BLOOMINGTON IN	261.1	CP MOD	BMPCDT	-20040519ADD
48	WVLR	TAZEWELL TN	283.4	LIC	BLCT	-20021018AAM
49	WDRB	LOUISVILLE KY	156.2	CP	BPCDT	-19991101AFN
49	WDKA	PADUCAH KY	206.8	CP	BFRCT	-20050701AAN
48	KVTJ	JONESBORO AR	385.1	APP	USERRECORD-01	

Proposal causes no interference

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### Analysis of Interference to Affected Station 3

#### Analysis of current record

Channel	Call	City/State	Application	Ref. No.
48	KVTJ	JONESBORO AR	USERRECORD-01	

#### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
47	WLJT	LEXINGTON TN	173.7	CP	BDTV	-00000289
48	WKGB-TV	BOWLING GREEN KY	385.1	LIC	BLEDT	-20020304ALH

Total scenarios = 1

Result key: 1  
 Scenario 1 Affected station 3  
 Before Analysis

Results for: 48A AR JONESBORO USERRECORD01 APP  
 HAAT 296.0 m, ATV ERP 780.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	1399906	26798.2
not affected by terrain losses	1399764	26790.1
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

Potential Interfering Stations Included in above Scenario 1

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