

TECHNICAL EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
DIGITAL TELEVISION STATION WWJX-DT  
JACKSON, MISSISSIPPI

SEPTEMBER 21, 2009

CH 51    1000 KW    356 M

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Technical Narrative

The technical exhibit of which this narrative is part was prepared on behalf of digital television station WWJX on Channel 51 assigned to Jackson, Mississippi. By this instant application, it is proposed to relocate the transmitter site, increase the effective radiated power and radiation center of WWJX-DT.

The proposal would not be subject to environmental processing in accordance with Section 1.1306. The proposed Jackson facility will be located on a new tower; therefore, a new Federal Aviation Administration (FAA) *Determination of No Aeronautical Hazard* is being requested.

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Proposed Transmitter Location

The proposed transmitting facility will consist of a non-directional Dielectric antenna mounted on a tower located at Raymond, Mississippi. The location is uniquely described by the following geographic coordinates [NAD-27], which were obtained from the Commission's engineering database:

32° 14' 36" North Latitude  
90° 23' 45" West Longitude

A sketch showing the proposed antenna and supporting structure is shown on Figure 1.

DTV Frequency Allocation

Implementation of the proposed Jackson facility will have a *de minimus* impact on the Commission's DTV assignments and stations. Using the procedures outlined in OET Bulletin No. 69, an interference analysis was completed.<sup>1</sup> As shown in Figure 3, the interference to DTV stations and allotments is considered *de minimis*.

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<sup>1</sup> OET Bulletin No. 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, July 2, 1997.

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Transmitting Antenna

A Dielectric TFU-26DSC-R 03 non-directional antenna pattern is proposed for this Jackson facility with 0.75° of electrical beam tilt. The vertical plane relative field pattern and tabulation is provided within Appendix A.

Coverage Contours

The predicted coverage contour for the proposed operation was calculated in accordance with the provisions of Section 73.313. The average terrain elevations from 3 to 16 kilometers along eight radials evenly spaced at 45 degree intervals, and thirty-two additional radials for contour definition, were obtained from the National Geophysical Data Center's (NGDC) 30-second terrain database. The terrain elevations were then used in combination with the effective radiated power for determining the distances to coverage contours.

Figure 2 is a map showing the predicted coverage contours. As the map illustrates, the FCC predicted City Grade coverage contour entirely encompasses the Jackson city limits.

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Interference Considerations

Several full-service stations are located on and near the supporting structure as the herein proposed. However, no objectionable interference is predicted. WWJX-DT does accept full responsibility for the elimination of any objectionable interference, if any occurs, to facilities in existence or authorized prior to grant of this application pursuant to Sections 73.685(d) and (g) of the Commission's Rules.

Radiofrequency Electromagnetic Field Exposure

The proposed facility has been evaluated in terms of potential radiofrequency electromagnetic fields at ground level in accordance with OST Bulletin No. 65, *Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*.<sup>2</sup> The proposed calculated power density at the base of the tower was calculated using the appropriate equation contained on page 30 in Supplement A, *Additional Information for Radio and Television Broadcast Stations*, of the Bulletin.

For the calculation, a "worst-case" downward relative field value of 1.0 was assumed for the transmitting antenna. Therefore, using a maximum average effective radiated power of 1000 kilowatts and a relative field value of 1.0, the predicted power density at ground level located 352 meters (1155 feet) below the antenna radiation center is 0.07 mW/cm<sup>2</sup>. This is fifteen percent of the Commission's

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<sup>2</sup> OET Bulletin 65, Edition 97-01, August, 1997.

guideline in an uncontrolled environment for a television station.<sup>3</sup>

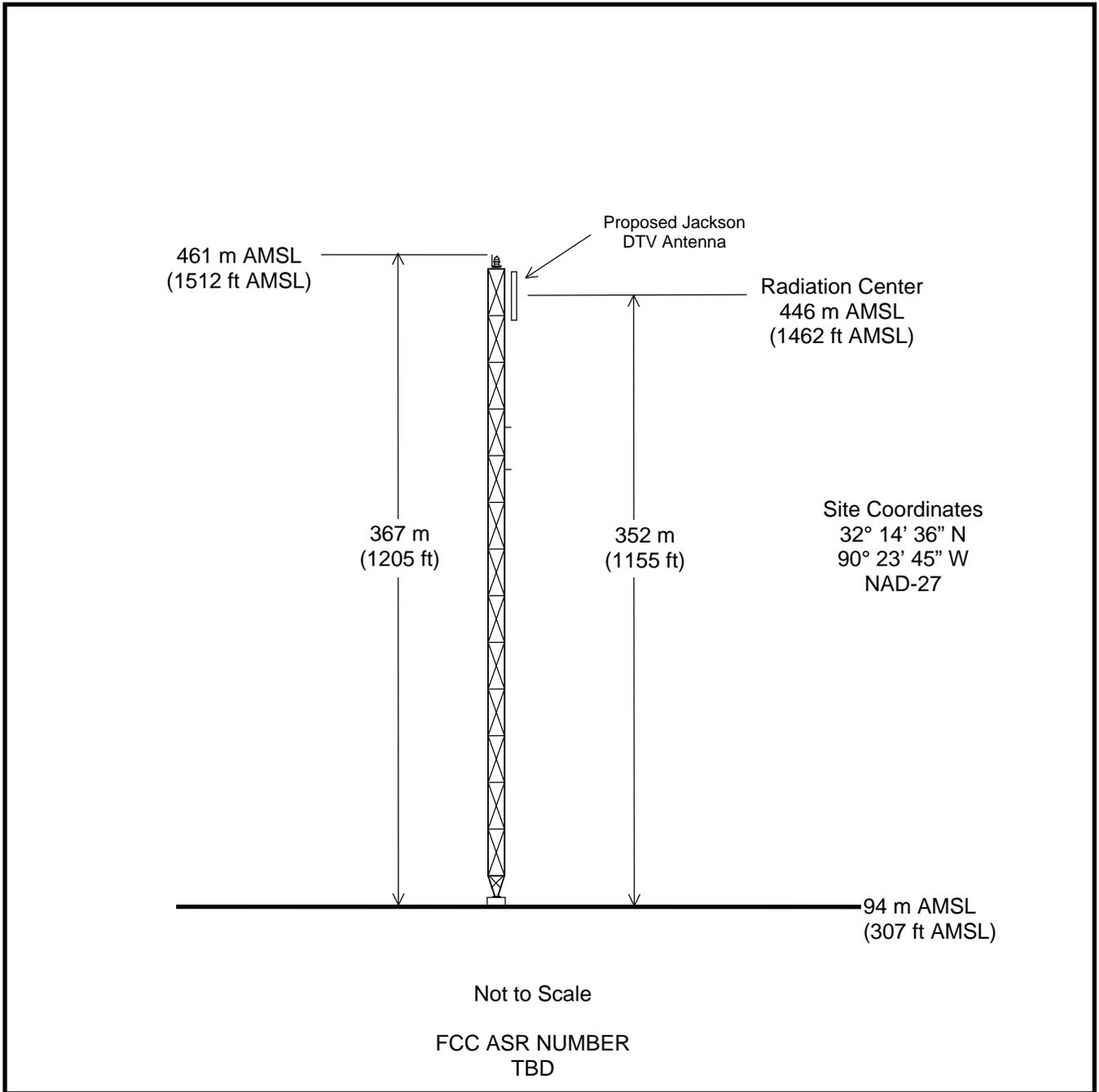
Charles A. Cooper

September 21, 2009

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
941.329.6000

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<sup>3</sup> The FCC maximum guideline for an UHF broadcast television station on Channel 51 in an uncontrolled environment is 0.46 mW/cm<sup>2</sup>.



## **PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

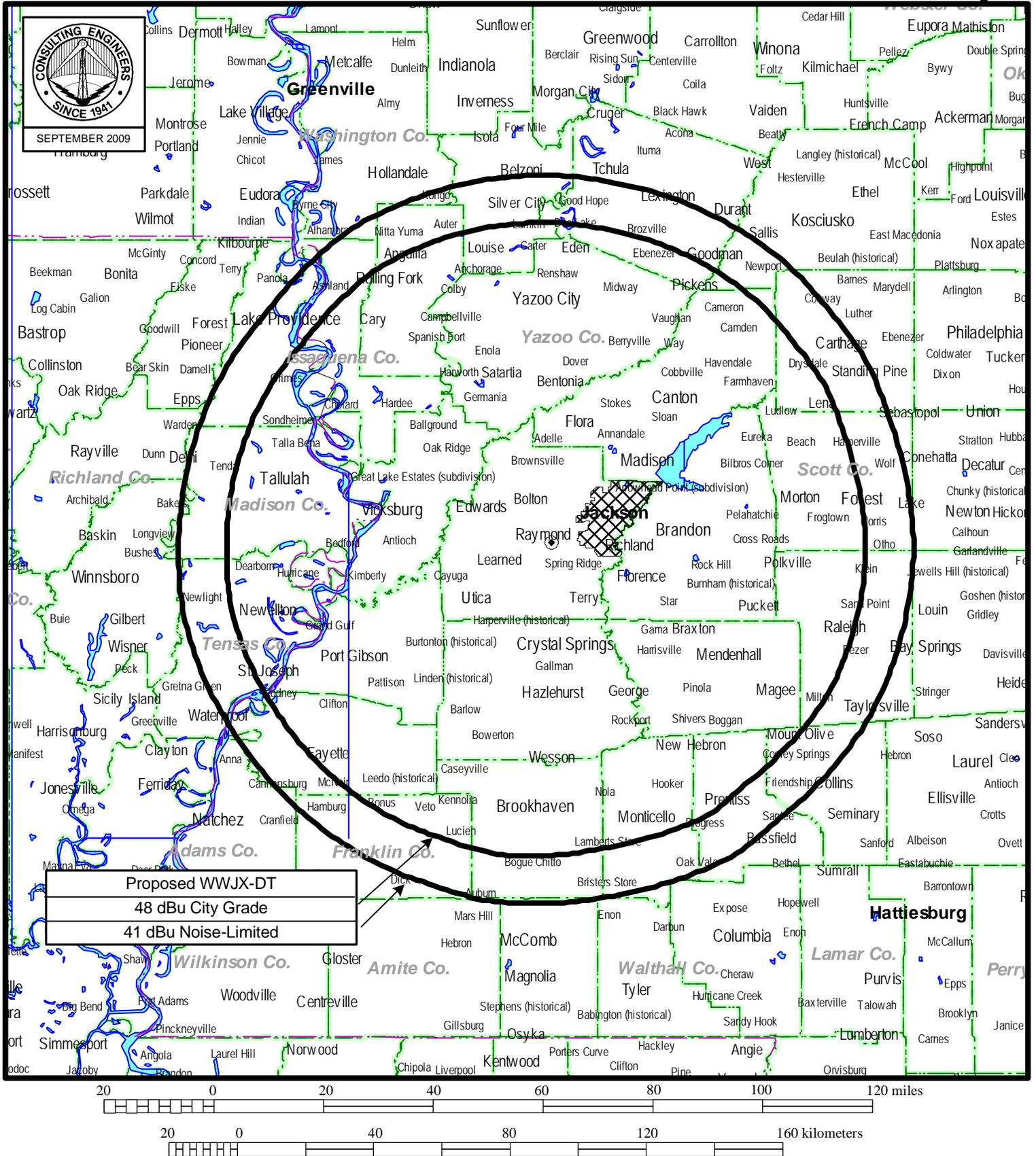
DIGITAL TELEVISION STATION WWJX-DT

JACKSON, MISSISSIPPI

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du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Figure 2



## PREDICTED COVERAGE CONTOURS

DTV STATION WWJX-DT  
 JACKSON, MISSISSIPPI  
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du Treil, Lundin & Rackley, Inc Sarasota, Florida

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OET-69 ALLOCATION STUDY

APPLICATION FOR CONST TW Census data selected 2000  
Post Transition Data Base Selected /export/home/cdbs/pt\_tvdb.sff

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 09-21-2009 Time: 13:24:33

Record Selected for Analysis

WWJX USERRECORD-01 JACKSON MS US  
Channel 51 ERP 1000. kW HAAT 354. m RCAMSL 00446 m  
Latitude 032-14-36 Longitude 0090-23-45  
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	1000.000	363.9	102.9
45.0	1000.000	348.1	101.6
90.0	1000.000	344.9	101.3
135.0	1000.000	332.6	100.2
180.0	1000.000	339.7	100.9
225.0	1000.000	359.3	102.6
270.0	1000.000	379.6	104.3
315.0	1000.000	362.3	102.8

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

SPACING VIOLATION FOUND BETWEEN STATION

WWJX 51 JACKSON MS USERRECORD01

and station

SHORT TO: WWJX 51 JACKSON MS DTVPLN DTVP1802
32 -14-26 90 -24-15
Req. separation 223.7 Actual separation 0.8 Short 222.9 km

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

\*\*\*\*\*
Start of Interference Analysis

Channel Call City/State ARN
51 WWJX JACKSON MS USERRECORD01

Stations Potentially Affected by Proposed Station

Chan Call City/State Dist(km) Status Application Ref. No.
51 WPXX-TV MEMPHIS TN 334.2 LIC BLCDT -20020430ACC
51 WPXX-TV MEMPHIS TN 334.2 PLN DTVPLN -DTVP1813
51 KCEB LONGVIEW TX 428.1 PLN DTVPLN -DTVP1815
51 KCEB-DR LONGVIEW TX 428.1 APP BPRM -20080514AHH
51 KCEB LONGVIEW TX 428.1 CP MOD BMPCDT -20081118AAA

%%%

Analysis of Interference to Affected Station 1

Analysis of current record

Channel Call City/State Application Ref. No.
51 WPXX-TV MEMPHIS TN BLCDT -20020430ACC

Stations Potentially Affecting This Station

Chan Call City/State Dist(km) Status Application Ref. No.
51 WWJX JACKSON MS 334.7 PLN DTVPLN -DTVP1802
51 WWJX JACKSON MS 334.2 APP USERRECORD-01

Total scenarios = 1

Result key: 1
Scenario 1 Affected station 1
Before Analysis

Results for: 51A TN MEMPHIS BLCDT 20020430ACC LIC
HAAT 298.0 m, ATV ERP 1000.0 kW
POPULATION AREA (sq km)

within Noise Limited Contour	1464356	27638.5
not affected by terrain losses	1453037	27450.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	123	8.0
lost to ATV IX only	123	8.0
lost to all IX	123	8.0

Potential Interfering Stations Included in above Scenario 1

51A MS JACKSON DTVPLN DTVP1802 PLN

After Analysis

Results for: 51A TN MEMPHIS BLCDT 20020430ACC LIC  
 HAAT 298.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	1464356	27638.5
not affected by terrain losses	1453037	27450.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	293	52.0
lost to ATV IX only	293	52.0
lost to all IX	293	52.0

Potential Interfering Stations Included in above Scenario 1

51A MS JACKSON USERRECORD01 APP

Percent new IX = 0.0117%

Worst case new IX 0.0117% Scenario 1

#####

Analysis of Interference to Affected Station 2

Analysis of current record

Channel	Call	City/State	Application Ref. No.
51	WPXX-TV	MEMPHIS TN	DTVPLN -DTVP1813

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
51	WWJX	JACKSON MS	334.7	PLN	DTVPLN -DTVP1802
51	WWJX	JACKSON MS	334.2	APP	USERRECORD-01

Total scenarios = 1

Result key: 2  
 Scenario 1 Affected station 2  
 Before Analysis

Results for: 51A TN MEMPHIS DTVPLN DTVP1813 PLN  
 HAAT 298.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	1464356	27638.5
not affected by terrain losses	1453037	27450.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	123	8.0
lost to ATV IX only	123	8.0
lost to all IX	123	8.0

Potential Interfering Stations Included in above Scenario 1

51A MS JACKSON DTVPLN DTVP1802 PLN

After Analysis

Results for: 51A TN MEMPHIS DTVPLN DTVP1813 PLN  
 HAAT 298.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	1464356	27638.5
not affected by terrain losses	1453037	27450.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	293	52.0
lost to ATV IX only	293	52.0
lost to all IX	293	52.0

Potential Interfering Stations Included in above Scenario 1

51A MS JACKSON USERRECORD01 APP

Percent new IX = 0.0117%

Worst case new IX 0.0117% Scenario 1

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Analysis of Interference to Affected Station 3

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
51	KCEB	LONGVIEW TX	DTVPLN	-DTVP1815

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
50	KBTX-TV	BRYAN TX	215.5	PLN	DTVPLN	-DTVP1783
50	KBTX-TV	BRYAN TX	215.5	CP MOD	BMPCDT	-20080611AAI
51	WWJX	JACKSON MS	427.3	PLN	DTVPLN	-DTVP1802
51	KCEB-DR	LONGVIEW TX	0.0	APP	BPRM	-20080514AHH
51	WWJX	JACKSON MS	428.1	APP	USERRECORD-01	

Proposed station is beyond the site to nearest cell evaluation distance

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Analysis of Interference to Affected Station 4

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
51	KCEB-DR	LONGVIEW TX	BPRM	-20080514AHH

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
50	KBTX-TV	BRYAN TX	215.5	PLN	DTVPLN	-DTVP1783
50	KBTX-TV	BRYAN TX	215.5	CP MOD	BMPCDT	-20080611AAI
51	WWJX	JACKSON MS	427.3	PLN	DTVPLN	-DTVP1802
51	KCEB	LONGVIEW TX	0.0	PLN	DTVPLN	-DTVP1815
51	KCEB	LONGVIEW TX	0.0	CP MOD	BMPCDT	-20081118AAA
51	WWJX	JACKSON MS	428.1	APP	USERRECORD-01	

Proposed station is beyond the site to nearest cell evaluation distance

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Analysis of Interference to Affected Station 5

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
51	KCEB	LONGVIEW TX	BMPCDT	-20081118AAA

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
50	KBTX-TV	BRYAN TX	215.5	PLN	DTVPLN	-DTVP1783
50	KBTX-TV	BRYAN TX	215.5	CP MOD	BMPCDT	-20080611AAI
51	WWJX	JACKSON MS	427.3	PLN	DTVPLN	-DTVP1802
51	KCEB-DR	LONGVIEW TX	0.0	APP	BPRM	-20080514AHH
51	WWJX	JACKSON MS	428.1	APP	USERRECORD-01	

Proposed station is beyond the site to nearest cell evaluation distance

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Analysis of Interference to Affected Station 6

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
51	WWJX	JACKSON MS	USERRECORD-01	

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
51	WPXX-TV	MEMPHIS TN	334.2	LIC	BLCDDT	-20020430ACC
51	WPXX-TV	MEMPHIS TN	334.2	PLN	DTVPLN	-DTVP1813
51	KCEB	LONGVIEW TX	428.1	PLN	DTVPLN	-DTVP1815
51	KCEB-DR	LONGVIEW TX	428.1	APP	BPRM	-20080514AHH
51	KCEB	LONGVIEW TX	428.1	CP MOD	BMPCDT	-20081118AAA

Total scenarios = 2

Result key: 3  
 Scenario 1 Affected station 6  
 Before Analysis

Results for: 51A MS JACKSON USERRECORD01 APP

HAAT 354.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	754911	31416.0
not affected by terrain losses	753417	31161.8
lost to NTSC IX	0	0.0
lost to additional IX by ATV	132	52.5
lost to ATV IX only	132	52.5
lost to all IX	132	52.5

Potential Interfering Stations Included in above Scenario 1

51A TN MEMPHIS BLCDDT 20020430ACC LIC

Result key: 4  
 Scenario 2 Affected station 6  
 Before Analysis

Results for: 51A MS JACKSON USERRECORD01 APP

HAAT 354.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	754911	31416.0
not affected by terrain losses	753417	31161.8
lost to NTSC IX	0	0.0
lost to additional IX by ATV	132	52.5
lost to ATV IX only	132	52.5
lost to all IX	132	52.5

Potential Interfering Stations Included in above Scenario 2

51A TN MEMPHIS                    DTVPLN    DTVP1813    PLN  
#####  
FINISHED FINISHED FINISHED FINISHED FINISHED FINISHED

# APPENDIX A

MANUFACTURER PROVIDED  
ANTENNA ELEVATION PATTERN DATA

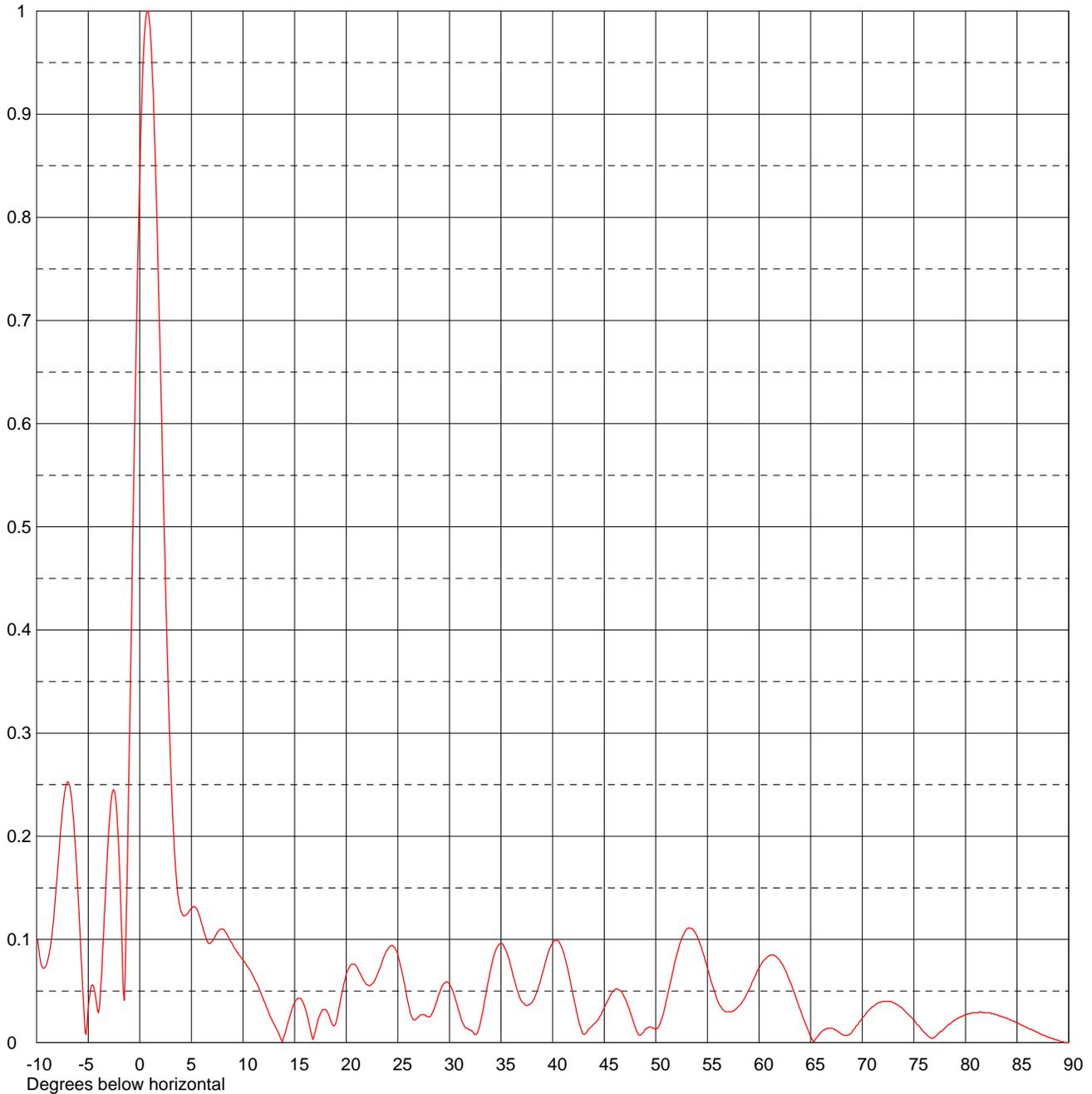


Exhibit No.

Date **21 Sep 2009**  
Call Letters  
Location  
Customer  
Antenna Type **TFU-26DSC O3**  
Channel **51**

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>22.5 (13.52 dB)</b>	Beam Tilt	<b>0.75 Degrees</b>
RMS Gain at Horizontal	<b>16.1 (12.07 dB)</b>	Frequency	<b>695.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>26Q225075-90</b>



Remarks: