

TECHNICAL EXHIBIT
DTV MAXIMIZATION APPLICATION
STATION WTVF(DT)
NASHVILLE, TENNESSEE
CH 5 25 KW 425 M

Technical Narrative

This Technical Exhibit supports an application for digital television (DTV) station WTVF(DT) for its "maximized" DTV operation at Nashville, Tennessee. This application requests a construction permit (CP) for WTVF(DT) digital television operation on channel 5 at Nashville with a non-directional effective radiated power of 25 kilowatts.

Proposed Facilities

Station WTVF(DT) proposes to operate DTV channel 5 from its authorized DTV facility. The antenna height above average terrain for the channel 5 DTV operation will be 425 meters. The proposed WTVF(DT) effective radiated power exceeds the Commission's *Appendix B* allocated maximum effective radiated power in some azimuthal directions for WTVF(DT).¹ Therefore, an allocation study was completed to ensure no prohibited interference would occur.

¹ See Seventh Report And Order And Eighth Further Notice Of Proposed Rule Making in the Matter of Advanced Television Systems and their Impact Upon the Existing Television Broadcast Service, MB Docket 87-268, Released August 6, 2007; Adopted August 1, 2007.

The proposed DTV transmitter site will be located atop the WTVF(DT) tower. Therefore, the proposed site location is:

36° 16' 05" North Latitude
86° 47' 16" West Longitude

A sketch of antenna and pertinent elevations are included as Figure 1.

The Appendix contains the vertical plane radiation pattern for the proposed antenna system.

Figure 2 is a map showing the proposed DTV predicted coverage contour and the associated DTV appendix B Noise-Limited coverage contour. The extent of the contours have been calculated using the normal FCC prediction method. The extent of the contour has been calculated using the normal FCC prediction method.

Maximum DTV Effective Radiated Power and HAAT

The proposed WTVF-DT effective radiated power and antenna height above average terrain exceeds that permitted by Section 73.622(f)(6) of the Commission Rules. WTVF-DT is seeking a waiver of this Rule for the herein requested effective radiated power of 25 kilowatts and an antenna height above terrain of 425 meters. As WTVF-DT will operate post-transition on a low-band VHF Channel, Channel 5, additional effective radiated power is necessary to overcome the additional noise, both atmospheric and impulse noise, that is not considered within the Commission's DTV planning factors.

Population Served

The herein proposed WTVF(DT) "maximized" facility is predicted to serve 2,225,028 persons, post-transition based upon the 2000 Census. WTVF(DT)'s associated Appendix B facility is predicted to serve 2,087,000 persons. Therefore, the herein proposed WTVF(DT) facility would serve more than 100% of WTVF(DT)'s Appendix B population. The OET-69 studies were conducted using a cell size of 2.0 km/side and distance increments for Longley-Rice analysis of 0.5 km.

Allocation Considerations

The proposed WTVF(DT) Channel 5 facility meets the requirements of Section 73.623 of the FCC Rules concerning predicted interference to other Appendix B DTV allotments. Longley-Rice interference analyses were conducted pursuant to the requirements of the FCC Rules; OET Bulletin No. 69; and published FCC guidelines for preparation of such interference analyses. The Longley-Rice interference analyses were conducted using the software developed by du Treil, Lundin & Rackley, Inc. based on the FCC published software routines.² Stations selected for analysis were determined pursuant to the distance requirements outlined in the FCC DTV Processing Guidelines Public Notice. The results of the interference analyses for the proposed WTVF(DT) facility are summarized herein at Figure 3. As indicated therein, the proposed facility will meet the 0.5% criterion outlined in the FCC

² The duTreil, Lundin & Rackley, Inc. DTV interference analysis program is based on the program and procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 2 km was employed.

Rules and published guidelines with respect to all considered stations³, except to DTV station WMC-TV on channel 5 at Memphis, Tennessee. An interference agreement with WMC-TV has been obtained.

Radiofrequency Electromagnetic Field Exposure

The proposed WTVF(DT) facilities were evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level to workers and the general public. The radiation center for the proposed WTVF(DT) antenna is located 348 meters above ground level. The maximum effective radiated power is 25 kilowatts. A "worst case" downward relative field value of 0.25 is assumed for the antenna's downward radiation. The calculated power density at a point 2 meters above ground level is 0.0004 mW/cm². This is less than 5 percent of the Commission's recommended limit of 0.2 mW/cm² for channel 5 for an "uncontrolled" environment.

Access to the transmitting site is restricted and appropriately marked with warning signs. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work

3 Interference analysis results reflect the net change in interference to a given station considering the interference predicted to occur from all other stations (i.e. "masking") including the allotment facility for WTVF(DT). This properly reflects the net interference change for determining compliance with the FCC 0.5% *de minimis* standard.

over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed WTVF(DT) operation appears to be otherwise categorically excluded from environmental processing.

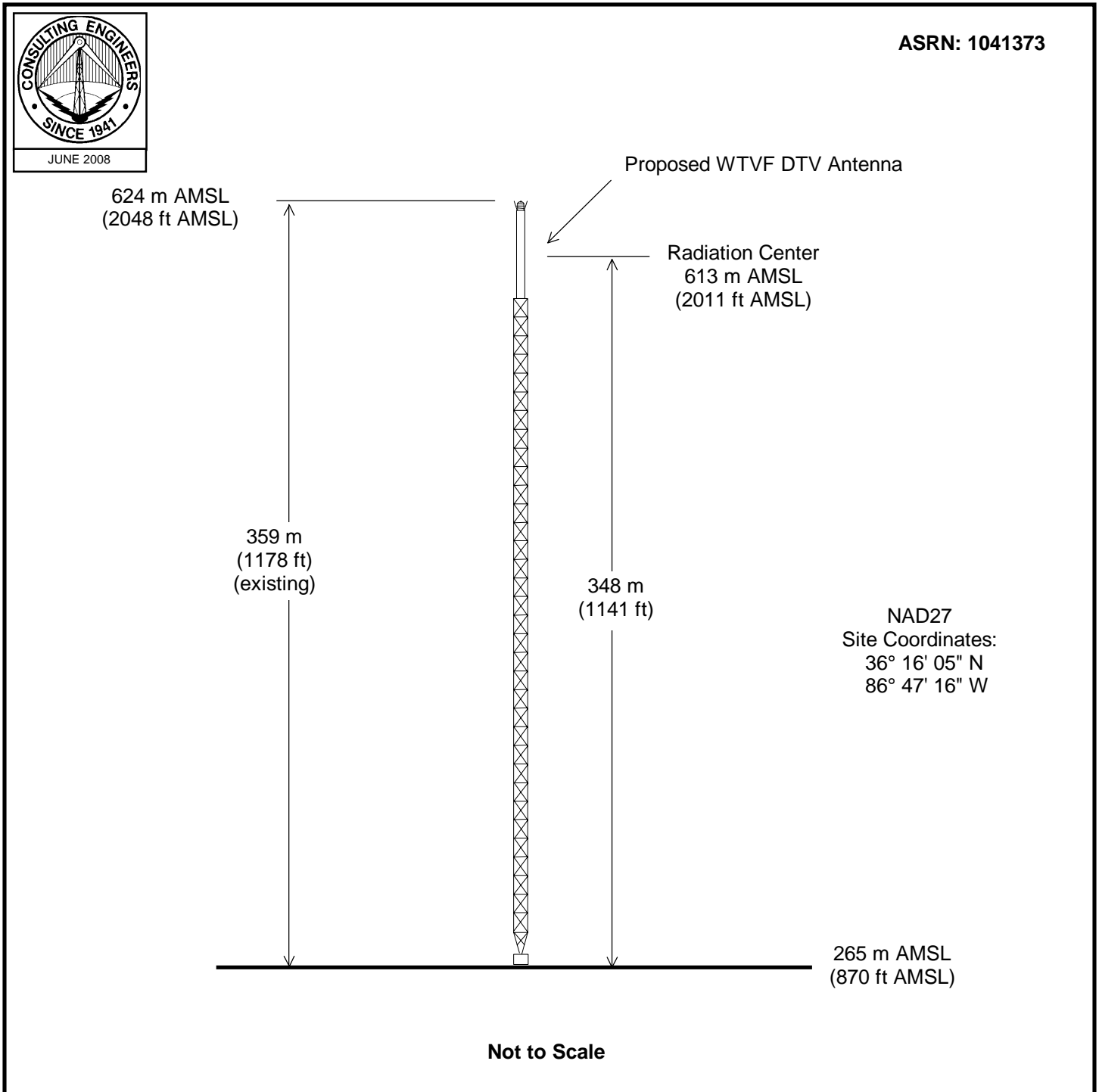
It is noted that this statement only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be or already have been provided to the FCC by the tower owner.

Charles Cooper

du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
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June 13, 2008

Figure 1

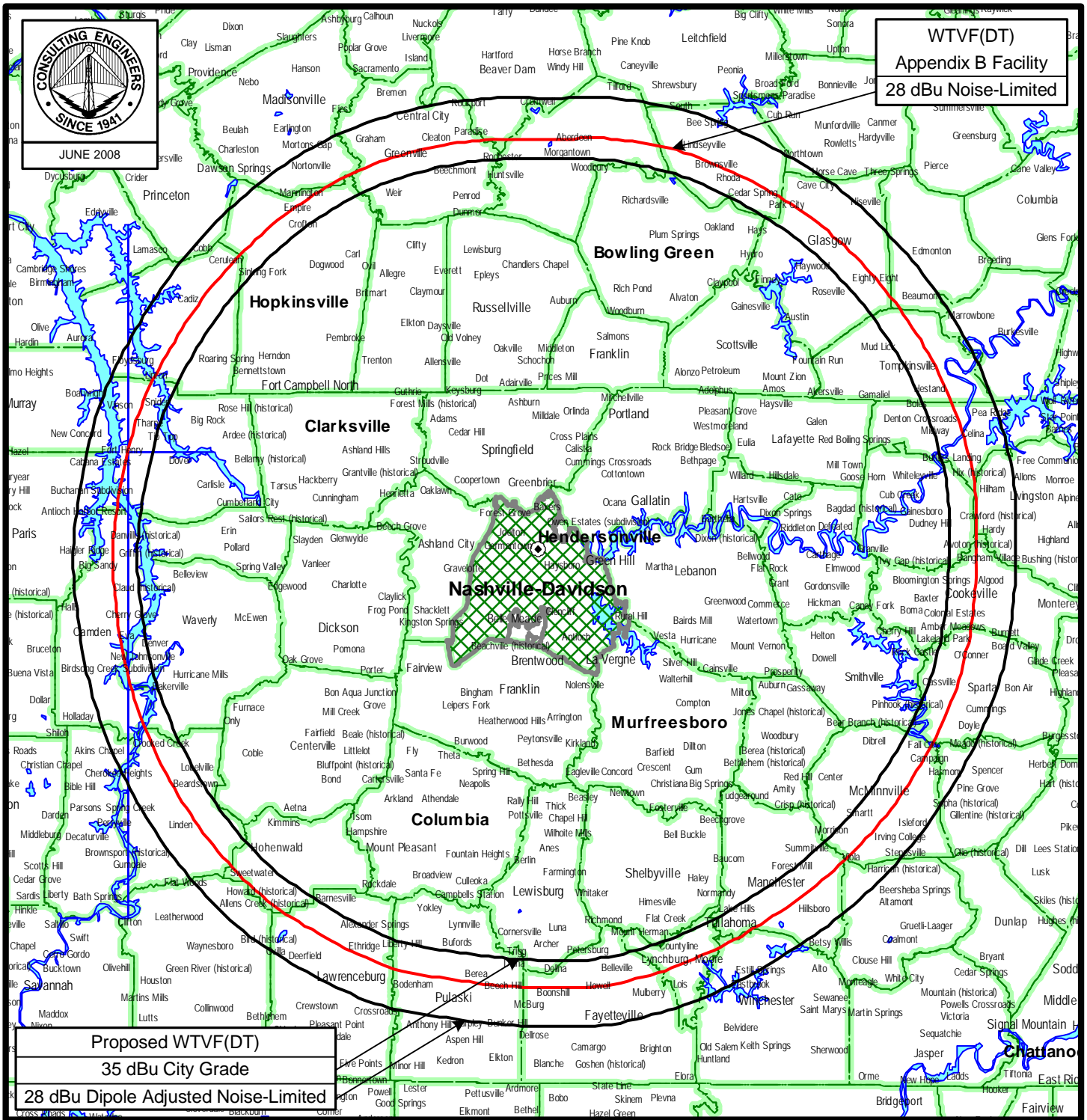


ANTENNA AND SUPPORTING STRUCTURE

DTV STATION WTVF
NASHVILLE, TENNESSEE
CH 5 25 KW 425 M

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

Figure 2



PREDICTED COVERAGE CONTOURS

DTV STATION WTVF(DT)

NASHVILLE, TENNESSEE

CH 5 25 KW 425 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida

Figure 3

TW Census data selected 2000
Post Transition Data Base Selected /export/home/cdbs/pt_tvdb.sff

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 06-13-2008 Time: 12:25:37

Record Selected for Analysis

WTVF USERRECORD-01 NASHVILLE TN US
Channel 05 ERP 25. kW HAAT 429. m RCAMSL 00613 m
Latitude 036-16-05 Longitude 0086-47-16
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 0.50 km

Facility does not meet maximum height/power limits
Channel 5 ERP = 25.00 HAAT = 429.

Azimuth (Deg)	ERP (kW)	HAAT (m)	28.0 dBu F(50,90) (km)
0.0	25.000	367.3	119.5
45.0	25.000	431.5	124.6
90.0	25.000	457.3	126.9
135.0	25.000	454.4	126.6
180.0	25.000	457.5	126.9
225.0	25.000	462.0	127.3
270.0	25.000	412.3	122.9
315.0	25.000	389.9	121.1

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet zone

Figure 3

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 2.81km from AM station
NASHVILLE TN WLAC Status: L Antenna: DAN
Proposed station is 2.72km from AM station
NASHVILLE TN WLAC Status: Antenna: DAN

Start of Interference Analysis

Channel	Call	Proposed Station City/State	ARN
05	WTVF	NASHVILLE TN	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
05	WMC-TV	MEMPHIS TN	305.1	CP	BPCDT -20080327AFN
05	WMC-TV	MEMPHIS TN	305.1	PLN	DTVPLN -DTVP0027
05	WCYB-TV	BRISTOL VA	419.3	PLN	DTVPLN -DTVP0030
05	WCYB-TV	BRISTOL VA	419.3	CP	BPCDT -20080327AFS

Analysis of Interference to Affected Station 1

Channel	Call	City/State	Application Ref. No.
05	WMC-TV	MEMPHIS TN	BPCDT -20080327AFN

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
05	WTVF	NASHVILLE TN	305.1	PLN	DTVPLN -DTVP0028
05	WTVF	NASHVILLE TN	305.1	APP	USERRECORD-01

Total scenarios = 1

Result key: 1
Scenario 1 Affected station 1
Before Analysis

Results for: 5A TN MEMPHIS BPCDT 20080327AFN CP
HAAT 309.0 m, ATV ERP 7.3 kW
POPULATION AREA (sq km)
within Noise Limited Contour 1618046 34344.1
not affected by terrain losses 1612847 34116.1
lost to NTSC IX 0 0.0

Figure 3

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lost to additional IX by ATV      16026      844.3
lost to ATV IX only              16026      844.3
lost to all IX                   16026      844.3

Potential Interfering Stations Included in above Scenario      1

5A TN NASHVILLE          DTVPLN      DTVP0028      PLN

After Analysis

Results for:  5A TN MEMPHIS          BPCDT      20080327AFN      CP
HAAT  309.0 m, ATV ERP      7.3 kW
      POPULATION      AREA (sq km)
within Noise Limited Contour      1618046      34344.1
not affected by terrain losses      1612847      34116.1
lost to NTSC IX                    0          0.0
lost to additional IX by ATV      29134      1644.6
lost to ATV IX only               29134      1644.6
lost to all IX                    29134      1644.6

Potential Interfering Stations Included in above Scenario      1

5A TN NASHVILLE          USERRECORD01      APP

The following station failed the de minimis interference criteria.
5D TN NASHVILLE          USERRECORD01
ERP  25.00 kW HAAT  429.0 m RCAMSL  613.0 m
Antenna  none

Due to interference to the following station and scenario:      1
5D TN MEMPHIS          BPCDT      20080327AFN
ERP  7.30 kW HAAT  309.0 m RCAMSL  394.0 m
Antenna CDB 9999999999999999

Percent new interference from proposal:      0.8209 to BPCDT      20080327AFN

Worst case new IX      0.8209% Scenario      1

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Analysis of Interference to Affected Station      2

Analysis of current record
Channel      Call      City/State      Application Ref. No.
05      WMC-TV      MEMPHIS TN      DTVPLN      -DTV0027

Stations Potentially Affecting This Station

Chan      Call      City/State      Dist(km) Status      Application Ref. No.
05      WTVF      NASHVILLE TN      305.1      PLN      DTVPLN      -DTV0028
05      WTVF      NASHVILLE TN      305.1      APP      USERRECORD-01

Total scenarios =      1

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Figure 3

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Result key:      2
Scenario      1      Affected station      2
Before Analysis

Results for:  5A TN MEMPHIS          DTVPLN      DTVP0027      PLN
HAAT  308.0 m, ATV ERP      7.3 kW
      POPULATION      AREA (sq km)
within Noise Limited Contour      1616099      34104.1
not affected by terrain losses      1611534      33868.0
lost to NTSC IX                    0          0.0
lost to additional IX by ATV      15778      752.3
lost to ATV IX only               15778      752.3
lost to all IX                    15778      752.3

Potential Interfering Stations Included in above Scenario      1

5A TN NASHVILLE          DTVPLN      DTVP0028      PLN

After Analysis

Results for:  5A TN MEMPHIS          DTVPLN      DTVP0027      PLN
HAAT  308.0 m, ATV ERP      7.3 kW
      POPULATION      AREA (sq km)
within Noise Limited Contour      1616099      34104.1
not affected by terrain losses      1611534      33868.0
lost to NTSC IX                    0          0.0
lost to additional IX by ATV      27994      1532.5
lost to ATV IX only               27994      1532.5
lost to all IX                    27994      1532.5

Potential Interfering Stations Included in above Scenario      1

5A TN NASHVILLE          USERRECORD01      APP

The following station failed the de minimis interference criteria.
5D TN NASHVILLE          USERRECORD01
ERP  25.00 kW HAAT  429.0 m RCAMSL  613.0 m
Antenna  none

Due to interference to the following station and scenario:      1
5D TN MEMPHIS          DTVPLN      DTVP0027
ERP  7.26 kW HAAT  308.0 m RCAMSL  394.0 m
Antenna CDB 00000000084821

Percent new interference from proposal:      0.7655 to DTVPLN      DTVP0027

Worst case new IX      0.7655% Scenario      1

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Analysis of Interference to Affected Station      3

Analysis of current record

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Figure 3

Channel	Call	City/State	Application Ref. No.	
05	WCYB-TV	BRISTOL VA	DTVPLN	-DTVP0030

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
05	WTVF	NASHVILLE TN	419.3	PLN	DTVPLN -DTVP0028
05	WDTV	WESTON WV	327.1	CP	BPCDT -20080222AEC
05	WDTV	WESTON WV	327.2	PLN	DTVPLN -DTVP0031
05	WTVF	NASHVILLE TN	419.3	APP	USERRECORD-01

Total scenarios = 2

Result key: 3
 Scenario 1 Affected station 3
 Before Analysis

Results for: 5A VA BRISTOL DTVPLN DTVP0030 PLN
 HAAT 680.0 m, ATV ERP 8.9 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2215776	52687.0
not affected by terrain losses	1945354	47561.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	7081	153.4
lost to ATV IX only	7081	153.4
lost to all IX	7081	153.4

Potential Interfering Stations Included in above Scenario 1

5A WV WESTON	BPCDT	20080222AEC	CP
5A TN NASHVILLE	DTVPLN	DTVP0028	PLN

After Analysis

Results for: 5A VA BRISTOL DTVPLN DTVP0030 PLN
 HAAT 680.0 m, ATV ERP 8.9 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2215776	52687.0
not affected by terrain losses	1945354	47561.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	8835	169.5
lost to ATV IX only	8835	169.5
lost to all IX	8835	169.5

Potential Interfering Stations Included in above Scenario 1

5A WV WESTON	BPCDT	20080222AEC	CP
5A TN NASHVILLE	USERRECORD01		APP

Percent new IX = 0.0905%

Result key: 4
 Scenario 2 Affected station 3
 Before Analysis

Results for: 5A VA BRISTOL DTVPLN DTVP0030 PLN

Figure 3

HAAT 680.0 m, ATV ERP 8.9 kW		
	POPULATION	AREA (sq km)
within Noise Limited Contour	2215776	52687.0
not affected by terrain losses	1945354	47561.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	6392	121.1
lost to ATV IX only	6392	121.1
lost to all IX	6392	121.1

Potential Interfering Stations Included in above Scenario 2

5A WV WESTON	DTVPLN	DTVP0031	PLN
5A TN NASHVILLE	DTVPLN	DTVP0028	PLN

After Analysis

Results for: 5A VA BRISTOL DTVPLN DTVP0030 PLN
 HAAT 680.0 m, ATV ERP 8.9 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2215776	52687.0
not affected by terrain losses	1945354	47561.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	8146	137.2
lost to ATV IX only	8146	137.2
lost to all IX	8146	137.2

Potential Interfering Stations Included in above Scenario 2

5A WV WESTON	DTVPLN	DTVP0031	PLN
5A TN NASHVILLE	USERRECORD01		APP

Percent new IX = 0.0905%

Worst case new IX 0.0905% Scenario 1

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Analysis of Interference to Affected Station 4

Analysis of current record

Channel	Call	City/State	Application Ref. No.	
05	WCYB-TV	BRISTOL VA	BPCDT	-20080327AFS

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
05	WTVF	NASHVILLE TN	419.3	PLN	DTVPLN -DTVP0028
05	WDTV	WESTON WV	327.1	CP	BPCDT -20080222AEC
05	WDTV	WESTON WV	327.1	PLN	DTVPLN -DTVP0031
05	WTVF	NASHVILLE TN	419.3	APP	USERRECORD-01

Total scenarios = 2

Result key: 5

Figure 3

Scenario 1 Affected station 4
Before Analysis

Results for: 5A VA BRISTOL BPCDT 20080327AFS CP
HAAT 743.0 m, ATV ERP 7.1 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2241637	53098.6
not affected by terrain losses	1970539	47891.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	6808	205.9
lost to ATV IX only	6808	205.9
lost to all IX	6808	205.9

Potential Interfering Stations Included in above Scenario 1

5A WV WESTON	BPCDT	20080222AEC	CP
5A TN NASHVILLE	DTVPLN	DTVP0028	PLN

After Analysis

Results for: 5A VA BRISTOL BPCDT 20080327AFS CP
HAAT 743.0 m, ATV ERP 7.1 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2241637	53098.6
not affected by terrain losses	1970539	47891.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	7309	213.9
lost to ATV IX only	7309	213.9
lost to all IX	7309	213.9

Potential Interfering Stations Included in above Scenario 1

5A WV WESTON	BPCDT	20080222AEC	CP
5A TN NASHVILLE	USERRECORD01		APP

Percent new IX = 0.0255%

Result key: 6

Scenario 2 Affected station 4
Before Analysis

Results for: 5A VA BRISTOL BPCDT 20080327AFS CP
HAAT 743.0 m, ATV ERP 7.1 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2241637	53098.6
not affected by terrain losses	1970539	47891.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4444	153.4
lost to ATV IX only	4444	153.4
lost to all IX	4444	153.4

Potential Interfering Stations Included in above Scenario 2

5A WV WESTON	DTVPLN	DTVP0031	PLN
5A TN NASHVILLE	DTVPLN	DTVP0028	PLN

After Analysis

Figure 3

Results for: 5A VA BRISTOL BPCDT 20080327AFS CP
HAAT 743.0 m, ATV ERP 7.1 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2241637	53098.6
not affected by terrain losses	1970539	47891.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4945	161.5
lost to ATV IX only	4945	161.5
lost to all IX	4945	161.5

Potential Interfering Stations Included in above Scenario 2

5A WV WESTON	DTVPLN	DTVP0031	PLN
5A TN NASHVILLE	USERRECORD01		APP

Percent new IX = 0.0255%

Worst case new IX 0.0255% Scenario 1

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Analysis of Interference to Affected Station 5

Analysis of current record

Channel	Call	City/State	Application Ref. No.
05	WTVF	NASHVILLE TN	USERRECORD-01

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
05	WMC-TV	MEMPHIS TN	305.1	CP	BPCDT -20080327AFN
05	WMC-TV	MEMPHIS TN	305.1	PLN	DTVPLN -DTVP0027
05	WCYB-TV	BRISTOL VA	419.3	PLN	DTVPLN -DTVP0030
05	WCYB-TV	BRISTOL VA	419.3	CP	BPCDT -20080327AFS

Total scenarios = 4

Result key: 7

Scenario 1 Affected station 5
Before Analysis

Results for: 5A TN NASHVILLE USERRECORD01 APP
HAAT 429.0 m, ATV ERP 25.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2284977	48627.4
not affected by terrain losses	2255426	47160.0
lost to NTSC IX	0	0.0
lost to additional IX by ATV	15199	679.7
lost to ATV IX only	15199	679.7
lost to all IX	15199	679.7

Potential Interfering Stations Included in above Scenario 1

Figure 3

5A TN MEMPHIS BPCDT 20080327AFN CP
5A VA BRISTOL DTVPLN DTVP0030 PLN

Result key: 8
Scenario 2 Affected station 5
Before Analysis

Results for: 5A TN NASHVILLE USERRECORD01 APP
 HAAT 429.0 m, ATV ERP 25.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2284977	48627.4
not affected by terrain losses	2255426	47160.0
lost to NTSC IX	0	0.0
lost to additional IX by ATV	15199	679.7
lost to ATV IX only	15199	679.7
lost to all IX	15199	679.7

Potential Interfering Stations Included in above Scenario 2

5A TN MEMPHIS BPCDT 20080327AFN CP
5A VA BRISTOL BPCDT 20080327AFS CP

Result key: 9
Scenario 3 Affected station 5
Before Analysis

Results for: 5A TN NASHVILLE USERRECORD01 APP
 HAAT 429.0 m, ATV ERP 25.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2284977	48627.4
not affected by terrain losses	2255426	47160.0
lost to NTSC IX	0	0.0
lost to additional IX by ATV	15578	683.7
lost to ATV IX only	15578	683.7
lost to all IX	15578	683.7

Potential Interfering Stations Included in above Scenario 3

5A TN MEMPHIS DTVPLN DTVP0027 PLN
5A VA BRISTOL DTVPLN DTVP0030 PLN

Result key: 10
Scenario 4 Affected station 5
Before Analysis

Results for: 5A TN NASHVILLE USERRECORD01 APP
 HAAT 429.0 m, ATV ERP 25.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2284977	48627.4
not affected by terrain losses	2255426	47160.0
lost to NTSC IX	0	0.0
lost to additional IX by ATV	15578	683.7
lost to ATV IX only	15578	683.7
lost to all IX	15578	683.7

Potential Interfering Stations Included in above Scenario 4

Figure 3

5A TN MEMPHIS DTVPLN DTVP0027 PLN
5A VA BRISTOL BPCDT 20080327AFS CP

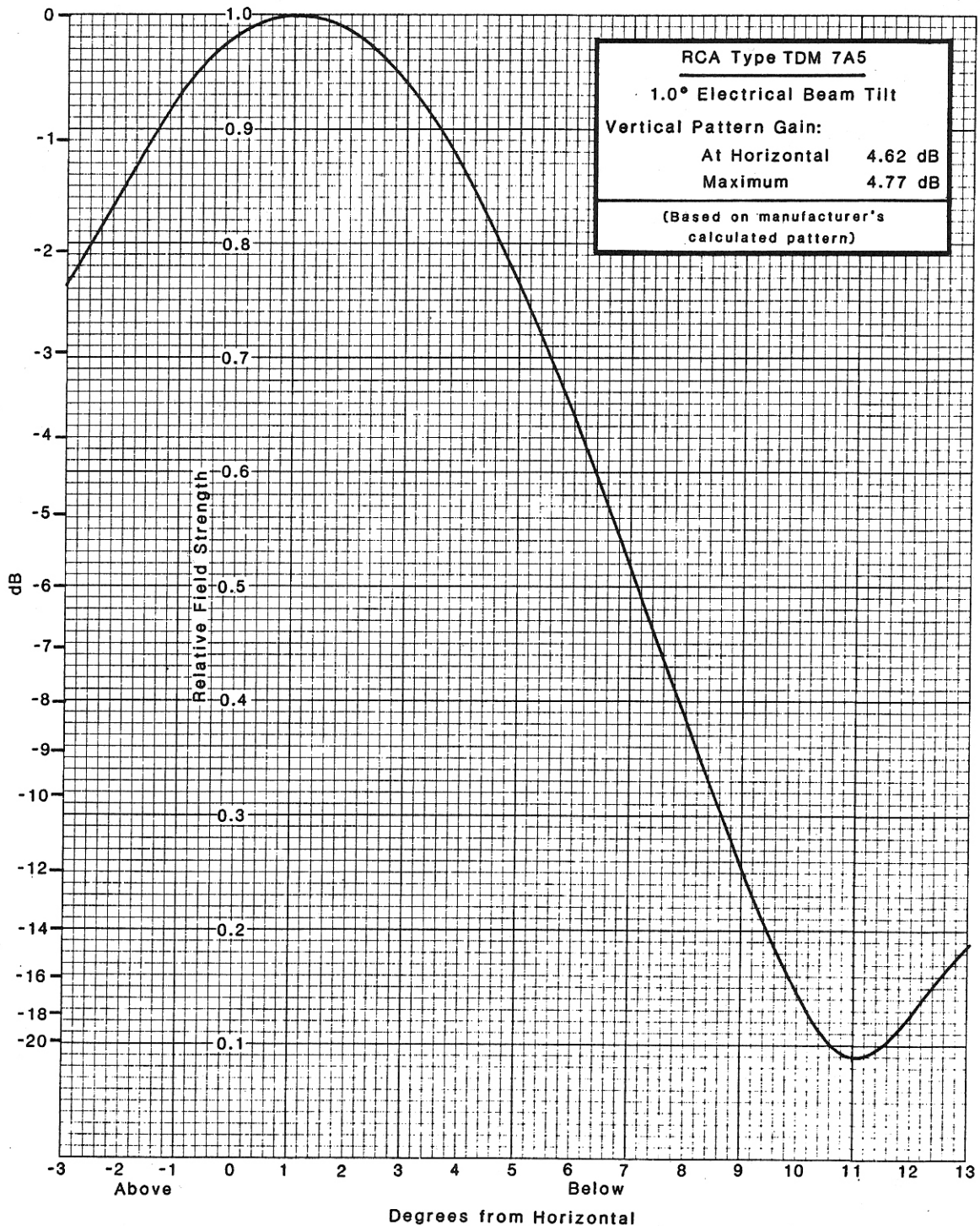
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FINISHED FINISHED FINISHED FINISHED FINISHED FINISHED

APPENDIX

TRANSMITTING ANTENNA
VERTICAL PLANE PATTERN

JUNE 1986



ANTENNA VERTICAL PLANE RADIATION PATTERN
CHANNEL FIVE TELEVISION COMPANY
TV BROADCAST STATION WTVF NASHVILLE, TENNESSEE
CH 5 100 KW 425 METERS

Jules Cohen & Associates, P.C. Consulting Electronics Engineers