

TECHNICAL EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
STATION KCWV(DT)  
DULUTH, MINNESOTA  
CH 27 40 KW (MAX-DA) 207 M

Technical Narrative

This Technical Exhibit supports an application for construction permit for digital television (DTV) station KCWV(DT) for its DTV operation at Duluth, Minnesota. This application requests a construction permit (CP) for KCWV(DT) digital television operation on channel 27 at Duluth with a directional effective radiated power of 40 kilowatts. KCWV(DT) intends to use an ERI ALP16L3-HSE-27 directional transmitting antenna for digital operation.

Proposed Facilities

Station KCWV(DT) proposes to operate DTV channel 27 from its operating DTV construction permit facility transmitter site. The antenna height above average terrain for the channel 27 DTV operation will be 207 meters. Therefore, an allocation study was completed to ensure no prohibited interference would occur.

The proposed DTV transmitter site will be located at an existing transmitting tower. Therefore, the proposed site location is:

46° 47' 07" North Latitude  
92° 07' 15" West Longitude

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

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

Figure 2 is a map showing the proposed DTV predicted coverage contours. The extent of the contours have been calculated using the normal FCC prediction method. The Duluth city limits were derived from information contained in the 2000 U.S. Census of Population and Housing.

#### Canadian Coordination

The proposed transmitter site is located 147 kilometers from the nearest point of the common U.S./Canadian border, and is therefore within the coordination area.

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Population Served

The herein proposed KCWV(DT) facility is predicted to serve 204,470 persons, post-transition based upon the 2000 Census.

Allocation Considerations

The proposed KCWV(DT) Channel 27 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.<sup>1</sup> 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 KCWV(DT) facility are summarized herein at Figure 3. As indicated therein, the proposed facility will meet the 0.5% criterion outlined in the FCC Rules and published guidelines with respect to all considered stations.<sup>2</sup>

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1 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.

2 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 KCWV(DT). This properly reflects the net interference change for determining compliance with the FCC 0.5% *de minimis* standard.

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Radiofrequency Electromagnetic Field Exposure

The proposed KCWV(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 KCWV(DT) antenna is located 137 meters above ground level. The maximum effective radiated power is 40 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  $0.005 \text{ mW/cm}^2$ . This is less than 5 percent of the Commission's recommended limit of  $0.367 \text{ mW/cm}^2$  for channel 27 for an "uncontrolled" environment.

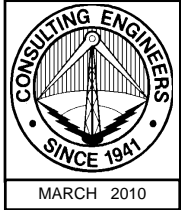
Access to the transmitting site is restricted and appropriately marked with warning signs. As this is a multi-user site an agreement between the stations will control access. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work 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 KCWV(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  
Sarasota, Florida 32437  
941.329.6000

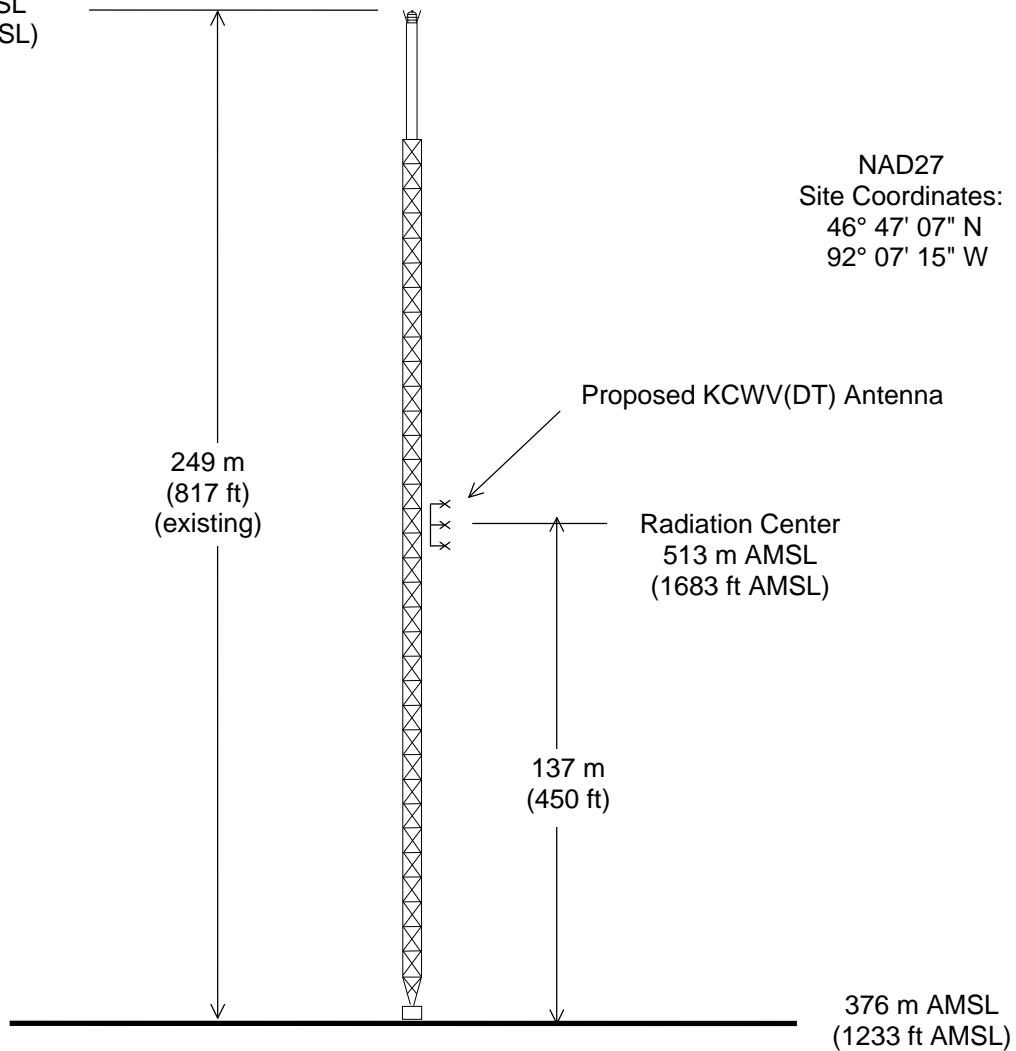
March 8, 2010



ASRN: 1024490

625 m AMSL  
(2050 ft AMSL)

NAD27  
Site Coordinates:  
46° 47' 07" N  
92° 07' 15" W



Not to Scale

## ANTENNA AND SUPPORTING STRUCTURE

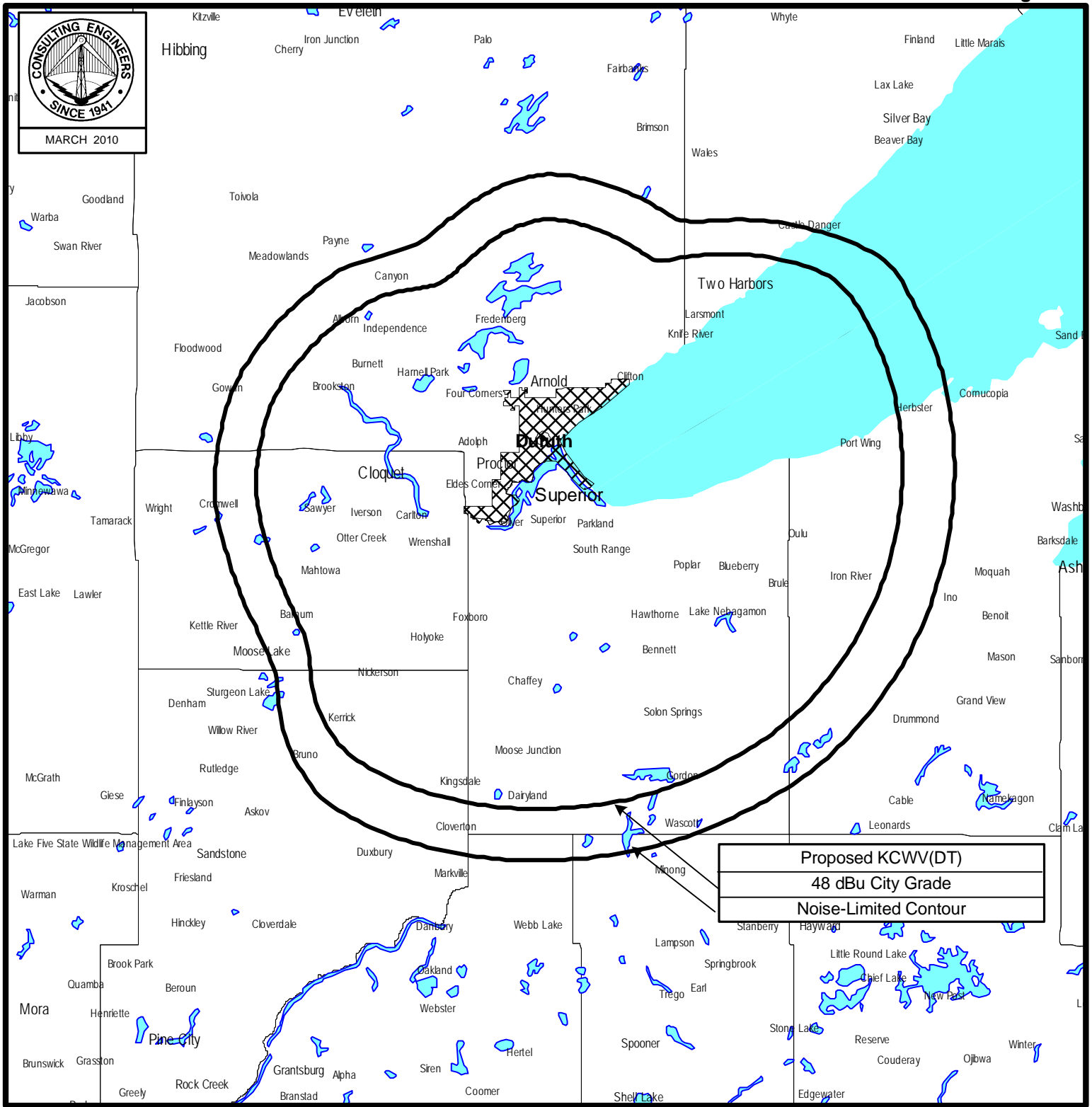
DTV STATION KCWV(DT)

DULUTH, MINNESOTA

CH 27 40 KW (MAX-DT) 207 M

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

**Figure 2**



## **PREDICTED COVERAGE CONTOURS**

**STATION KCWV(DT)**

**DULUTH, MINNESOTA**

**CH 27 40 KW (MAX-DA) 207 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: 03-08-2010 Time: 11:00:11

Record Selected for Analysis

KCWV USERRECORD-01 DULUTH MN US  
Channel 27 ERP 40. kW HAAT 206. m RCAMSL 00513 m  
Latitude 046-47-07 Longitude 0092-07-15  
Status APP Zone 2 Border  
Dir Antenna Make CDB Model 00000000094742 Beam tilt N Ref Azimuth 180.  
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	4.147	90.2	46.5
45.0	3.238	206.3	54.0
90.0	22.983	330.0	72.2
135.0	39.006	330.0	75.4
180.0	40.000	315.1	74.3
225.0	39.006	187.4	65.0
270.0	22.983	109.4	56.7
315.0	3.238	80.8	43.9

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

SPACING VIOLATION FOUND BETWEEN STATION

KCWV 27 DULUTH MN USERRECORD01



**Figure 3**

and station

SHORT TO: KCWV 27 DULUTH MN DTVPLN DTVP0987  
 46 -47-15 92 -07-21  
 Req. separation 223.7 Actual separation 0.3 Short 223.4 km

SHORT TO: WHWC-TV 27 MENOMONIE WI DTVPLN DTVP1009  
 45 -02-49 91 -51-47  
 Req. separation 223.7 Actual separation 194.2 Short 29.5 km

SHORT TO: WHWC-TV 27 MENOMONIE WI BLEDT 20040824AAF  
 045-02-49 0091-51-47  
 Req. separation 223.7 Actual separation 194.2 Short 29.5 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 within the Canadian coordination distance  
 Distance to border = 147.1km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

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

Proposed Station			
Channel	Call	City/State	ARN
27	KCWV	DULUTH MN	USERRECORD01

## Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
26	KFTC	BEMIDJI MN	219.9	CP	BPCDT	-20080310ADP
26	KFTC	BEMIDJI MN	218.0	PLN	DTVPLN	-DTVP0946
27	KRWF	REDWOOD FALLS MN	366.0	PLN	DTVPLN	-DTVP0988
27	KRWF	REDWOOD FALLS MN	366.0	LIC	BLCDT	-20080502ABG
27	KCPM	GRAND FORKS ND	393.6	PLN	DTVPLN	-DTVP0991
27	WACY-TV	APPLETON WI	420.1	APP	BMPCDT	-20080620AHO
27	WACY	APPLETON WI	420.1	PLN	DTVPLN	-DTVP1008
27	WACY-TV	APPLETON WI	420.1	CP MOD	BMPCDT	-20061114ABU

Figure 3

27	WHWC-TV	MENOMONIE WI	194.2	PLN	DTVPLN	-DTVP1009
27	WHWC-TV	MENOMONIE WI	194.2	LIC	BLEDT	-20040824AAF
28	KAWB	BRAINERD MN	183.2	LIC	BLEDT	-20030429AAJ
28	KAWB	BRAINERD MN	183.2	PLN	DTVPLN	-DTVP1028
28	KAWB	BRAINERD MN	183.2	APP	BPEDT	-20080620AHQ

%%%

#### Analysis of Interference to Affected Station 1

##### Analysis of current record

Channel	Call	City/State	Application Ref. No.
26	KFTC	BEMIDJI MN	BPCDT -20080310ADP

##### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
27	KCWV	DULUTH MN	219.7	PLN	DTVPLN -DTVP0987
27	KCPM	GRAND FORKS ND	174.2	PLN	DTVPLN -DTVP0991
27	KCWV	DULUTH MN	219.9	APP	USERRECORD-01

Proposed station is beyond the site to  
nearest cell evaluation distance

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#### Analysis of Interference to Affected Station 2

##### Analysis of current record

Channel	Call	City/State	Application Ref. No.
26	KFTC	BEMIDJI MN	DTVPLN -DTVP0946

##### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
27	KCWV	DULUTH MN	217.8	PLN	DTVPLN -DTVP0987
27	KCPM	GRAND FORKS ND	175.6	PLN	DTVPLN -DTVP0991
27	KCWV	DULUTH MN	218.0	APP	USERRECORD-01

Proposed station is beyond the site to  
nearest cell evaluation distance

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#### Analysis of Interference to Affected Station 3

##### Analysis of current record

Channel	Call	City/State	Application Ref. No.
27	KRWF	REDWOOD FALLS MN	DTVPLN -DTVP0988

##### Stations Potentially Affecting This Station

**Figure 3**

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
27	KFXA	CEDAR RAPIDS IA	382.9	LIC	BLCDT	-20050713ABD
27	KFXA	CEDAR RAPIDS IA	382.9	PLN	DTVPLN	-DTVP0982
27	KCWV	DULUTH MN	366.1	PLN	DTVPLN	-DTVP0987
27	KCPM	GRAND FORKS ND	404.8	PLN	DTVPLN	-DTVP0991
27	WHWC-TV	MENOMONIE WI	293.0	PLN	DTVPLN	-DTVP1009
27	WHWC-TV	MENOMONIE WI	293.0	LIC	BLEDT	-20040824AAF
28	KSIN-TV	SIOUX CITY IA	228.5	LIC	BLEDT	-20050726AMC
28	KSIN-TV	SIOUX CITY IA	228.5	PLN	DTVPLN	-DTVP1019
27	KCWV	DULUTH MN	366.0	APP	USERRECORD-01	

Proposal causes no interference

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#### Analysis of Interference to Affected Station 4

##### Analysis of current record

Channel	Call	City/State	Application	Ref. No.
27	KRWF	REDWOOD FALLS MN	BLCDT	-20080502ABG

##### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
27	KFXA	CEDAR RAPIDS IA	382.9	LIC	BLCDT	-20050713ABD
27	KFXA	CEDAR RAPIDS IA	382.9	PLN	DTVPLN	-DTVP0982
27	KCWV	DULUTH MN	366.1	PLN	DTVPLN	-DTVP0987
27	KCPM	GRAND FORKS ND	404.8	PLN	DTVPLN	-DTVP0991
27	WHWC-TV	MENOMONIE WI	293.0	PLN	DTVPLN	-DTVP1009
27	WHWC-TV	MENOMONIE WI	293.0	LIC	BLEDT	-20040824AAF
28	KSIN-TV	SIOUX CITY IA	228.5	LIC	BLEDT	-20050726AMC
28	KSIN-TV	SIOUX CITY IA	228.5	PLN	DTVPLN	-DTVP1019
27	KCWV	DULUTH MN	366.0	APP	USERRECORD-01	

Proposal causes no interference

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#### Analysis of Interference to Affected Station 5

##### Analysis of current record

Channel	Call	City/State	Application	Ref. No.
27	KCPM	GRAND FORKS ND	DTVPLN	-DTVP0991

##### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
26	KFTC	BEMIDJI MN	174.2	CP	BPCDT	-20080310ADP
26	KFTC	BEMIDJI MN	175.6	PLN	DTVPLN	-DTVP0946
27	KCWV	DULUTH MN	393.4	PLN	DTVPLN	-DTVP0987
27	KRWF	REDWOOD FALLS MN	404.8	PLN	DTVPLN	-DTVP0988
27	KRWF	REDWOOD FALLS MN	404.8	LIC	BLCDT	-20080502ABG
27	KCWV	DULUTH MN	393.6	APP	USERRECORD-01	

**Figure 3**

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.
27	WACY-TV	APPLETON WI	BMPCDT	-20080620AHO

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
26	WKOW	MADISON WI	191.2	CP	BPCDT	-20080619AEK
26	WKOW-TV	MADISON WI	191.2	PLN	DTVPLN	-DTVP0969
26	WKOW	MADISON WI	191.2	LIC	BLCDDT	-19981104KG
27	KFXA	CEDAR RAPIDS IA	417.3	LIC	BLCDDT	-20050713ABD
27	KFXA	CEDAR RAPIDS IA	417.3	PLN	DTVPLN	-DTVP0982
27	WCIU-TV	CHICAGO IL	277.0	PLN	DTVPLN	-DTVP0983
27	WCIU-TV	CHICAGO IL	277.0	LIC	BLCDDT	-20060525ADR
27	WCIU-TV	CHICAGO IL	277.0	CP MOD	BMPCDT	-20090105ACO
27	KCWV	DULUTH MN	420.4	PLN	DTVPLN	-DTVP0987
27	WHWC-TV	MENOMONIE WI	316.1	PLN	DTVPLN	-DTVP1009
27	WHWC-TV	MENOMONIE WI	316.1	LIC	BLEDT	-20040824AAF
28	WYOW	EAGLE RIVER WI	186.3	PLN	DTVPLN	-DTVP1046
28	WYOW	EAGLE RIVER WI	186.3	APP	BPCDT	-20090630ACN
28	WYOW	EAGLE RIVER WI	186.3	CP MOD	BMPCDT	-20041001ANY
28	WTMJ-TV	MILWAUKEE WI	141.0	LIC	BLCDDT	-20001218ACR
28	WTMJ-TV	MILWAUKEE WI	141.0	PLN	DTVPLN	-DTVP1047
27	KCWV	DULUTH MN	420.1	APP	USERRECORD-01	

Proposal causes no interference

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# Analysis of Interference to Affected Station 7

## Analysis of current record

Channel	Call	City/State	Application	Ref. No.
27	WACY	APPLETON WI	DTVPLN	-DTVP1008

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
26	WKOW	MADISON WI	191.2	CP	BPCDT	-20080619AEK
26	WKOW-TV	MADISON WI	191.2	PLN	DTVPLN	-DTVP0969
26	WKOW	MADISON WI	191.2	LIC	BLCDDT	-19981104KG
27	KFXA	CEDAR RAPIDS IA	417.3	LIC	BLCDDT	-20050713ABD
27	KFXA	CEDAR RAPIDS IA	417.3	PLN	DTVPLN	-DTVP0982
27	WCIU-TV	CHICAGO IL	277.0	PLN	DTVPLN	-DTVP0983
27	WCIU-TV	CHICAGO IL	277.0	LIC	BLCDDT	-20060525ADR
27	WCIU-TV	CHICAGO IL	277.0	CP MOD	BMPCDT	-20090105ACO
27	KCWV	DULUTH MN	420.4	PLN	DTVPLN	-DTVP0987

**Figure 3**

27	WHWC-TV	MENOMONIE WI	316.1	PLN	DTVPLN	-DTVP1009
27	WHWC-TV	MENOMONIE WI	316.1	LIC	BLEDT	-20040824AAF
28	WYOW	EAGLE RIVER WI	186.3	PLN	DTVPLN	-DTVP1046
28	WYOW	EAGLE RIVER WI	186.3	APP	BPCDT	-20090630ACN
28	WYOW	EAGLE RIVER WI	186.3	CP MOD	BMPCDT	-20041001ANY
28	WTMJ-TV	MILWAUKEE WI	141.0	LIC	BLCDDT	-20001218ACR
28	WTMJ-TV	MILWAUKEE WI	141.0	PLN	DTVPLN	-DTVP1047
27	KCWV	DULUTH MN	420.1	APP	USERRECORD-01	

Proposal causes no interference

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### Analysis of Interference to Affected Station 8

#### Analysis of current record

Channel	Call	City/State	Application	Ref. No.
27	WACY-TV	APPLETON WI	BMPCDT	-20061114ABU

#### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
26	WKOW	MADISON WI	191.2	CP	BPCDT	-20080619AEK
26	WKOW-TV	MADISON WI	191.2	PLN	DTVPLN	-DTVP0969
26	WKOW	MADISON WI	191.2	LIC	BLCDDT	-19981104KG
27	KFXA	CEDAR RAPIDS IA	417.3	LIC	BLCDDT	-20050713ABD
27	KFXA	CEDAR RAPIDS IA	417.3	PLN	DTVPLN	-DTVP0982
27	WCIU-TV	CHICAGO IL	277.0	PLN	DTVPLN	-DTVP0983
27	WCIU-TV	CHICAGO IL	277.0	LIC	BLCDDT	-20060525ADR
27	WCIU-TV	CHICAGO IL	277.0	CP MOD	BMPCDT	-20090105ACO
27	KCWV	DULUTH MN	420.4	PLN	DTVPLN	-DTVP0987
27	WHWC-TV	MENOMONIE WI	316.1	PLN	DTVPLN	-DTVP1009
27	WHWC-TV	MENOMONIE WI	316.1	LIC	BLEDT	-20040824AAF
28	WYOW	EAGLE RIVER WI	186.3	PLN	DTVPLN	-DTVP1046
28	WYOW	EAGLE RIVER WI	186.3	APP	BPCDT	-20090630ACN
28	WYOW	EAGLE RIVER WI	186.3	CP MOD	BMPCDT	-20041001ANY
28	WTMJ-TV	MILWAUKEE WI	141.0	LIC	BLCDDT	-20001218ACR
28	WTMJ-TV	MILWAUKEE WI	141.0	PLN	DTVPLN	-DTVP1047
27	KCWV	DULUTH MN	420.1	APP	USERRECORD-01	

Proposal causes no interference

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### Analysis of Interference to Affected Station 9

#### Analysis of current record

Channel	Call	City/State	Application	Ref. No.
27	WHWC-TV	MENOMONIE WI	DTVPLN	-DTVP1009

#### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
27	KFXA	CEDAR RAPIDS IA	329.1	LIC	BLCDDT	-20050713ABD
27	KFXA	CEDAR RAPIDS IA	329.1	PLN	DTVPLN	-DTVP0982

**Figure 3**

27	KCWV	DULUTH MN	194.5	PLN	DTVPLN	-DTVP0987
27	KRWF	REDWOOD FALLS MN	293.0	PLN	DTVPLN	-DTVP0988
27	KRWF	REDWOOD FALLS MN	293.0	LIC	BLCDDT	-20080502ABG
27	WACY-TV	APPLETON WI	316.1	APP	BMPCDDT	-20080620AHO
27	WACY	APPLETON WI	316.1	PLN	DTVPLN	-DTVP1008
27	WACY-TV	APPLETON WI	316.1	CP MOD	BMPCDDT	-20061114ABU
28	WYOW	EAGLE RIVER WI	219.5	PLN	DTVPLN	-DTVP1046
28	WYOW	EAGLE RIVER WI	219.5	APP	BPCDDT	-20090630ACN
28	WYOW	EAGLE RIVER WI	219.5	CP MOD	BMPCDDT	-20041001ANY
27	KCWV	DULUTH MN	194.2	APP	USERRECORD-01	

Total scenarios = 12

Result key: 1  
 Scenario 1 Affected station 9  
 Before Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	626	80.6
lost to ATV IX only	626	80.6
lost to all IX	626	80.6

Potential Interfering Stations Included in above Scenario 1

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4073	503.7
lost to ATV IX only	4073	503.7
lost to all IX	4073	503.7

Potential Interfering Stations Included in above Scenario 1

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.4003%

Result key: 2

**Figure 3**

Scenario            2   Affected station            9  
Before Analysis

Results for: 27A WI MENOMONIE            DTVPLN    DTVP1009    PLN  
HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	626	80.6
lost to ATV IX only	626	80.6
lost to all IX	626	80.6

Potential Interfering Stations Included in above Scenario    2

27A IA CEDAR RAPIDS	BLCDT	20050713ABD	LIC
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDT	20061114ABU	CP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE            DTVPLN    DTVP1009    PLN  
HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4073	503.7
lost to ATV IX only	4073	503.7
lost to all IX	4073	503.7

Potential Interfering Stations Included in above Scenario    2

27A IA CEDAR RAPIDS	BLCDT	20050713ABD	LIC
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDT	20061114ABU	CP
27A MN DULUTH	USERRECORD01		APP

Percent new IX =    0.4003%

Result key:            3  
Scenario            3   Affected station            9  
Before Analysis

Results for: 27A WI MENOMONIE            DTVPLN    DTVP1009    PLN  
HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11011	88.6
lost to ATV IX only	11011	88.6
lost to all IX	11011	88.6

Potential Interfering Stations Included in above Scenario    3

**Figure 3**

27A IA CEDAR RAPIDS	BLCDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	DTVPLN	DTVP0987	PLN

**After Analysis**

Results for: 27A WI MENOMONIE                      DTVPLN      DTVP1009      PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14458	511.7
lost to ATV IX only	14458	511.7
lost to all IX	14458	511.7

Potential Interfering Stations Included in above Scenario      3

27A IA CEDAR RAPIDS	BLCDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	USERRECORD01		APP

Percent new IX =      0.4052%

Result key:                      4  
 Scenario                      4   Affected station                      9  
 Before Analysis

Results for: 27A WI MENOMONIE                      DTVPLN      DTVP1009      PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11011	88.6
lost to ATV IX only	11011	88.6
lost to all IX	11011	88.6

Potential Interfering Stations Included in above Scenario      4

27A IA CEDAR RAPIDS	BLCDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	BMPCDT	20061114ABU	CP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

**After Analysis**

Results for: 27A WI MENOMONIE                      DTVPLN      DTVP1009      PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14458	511.7
lost to ATV IX only	14458	511.7



**Figure 3**

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lost to all IX                                14458          511.7

Potential Interfering Stations Included in above Scenario      4

27A IA CEDAR RAPIDS          BLCDT      20050713ABD  LIC
27A MN REDWOOD FALLS        BLCDT      20080502ABG  LIC
27A WI APPLETON              BMPCDT      20061114ABU  CP
27A MN DULUTH                USERRECORD01      APP

Percent new IX =      0.4052%

Result key:          5
Scenario            5  Affected station          9
Before Analysis

Results for: 27A WI MENOMONIE          DTVPLN      DTVP1009      PLN
HAAT  350.0 m, ATV ERP  291.0 kW
                POPULATION      AREA (sq km)
within Noise Limited Contour      888182      27094.0
not affected by terrain losses      861695      26533.9
lost to NTSC IX                    0          0.0
lost to additional IX by ATV        626          80.6
lost to ATV IX only                 626          80.6
lost to all IX                     626          80.6

Potential Interfering Stations Included in above Scenario      5

27A IA CEDAR RAPIDS          DTVPLN      DTVP0982      PLN
27A MN REDWOOD FALLS        DTVPLN      DTVP0988      PLN
27A WI APPLETON              DTVPLN      DTVP1008      PLN
27A MN DULUTH                DTVPLN      DTVP0987      PLN

After Analysis

Results for: 27A WI MENOMONIE          DTVPLN      DTVP1009      PLN
HAAT  350.0 m, ATV ERP  291.0 kW
                POPULATION      AREA (sq km)
within Noise Limited Contour      888182      27094.0
not affected by terrain losses      861695      26533.9
lost to NTSC IX                    0          0.0
lost to additional IX by ATV        4073          503.7
lost to ATV IX only                 4073          503.7
lost to all IX                     4073          503.7

Potential Interfering Stations Included in above Scenario      5

27A IA CEDAR RAPIDS          DTVPLN      DTVP0982      PLN
27A MN REDWOOD FALLS        DTVPLN      DTVP0988      PLN
27A WI APPLETON              DTVPLN      DTVP1008      PLN
27A MN DULUTH                USERRECORD01      APP

Percent new IX =      0.4003%

Result key:          6
Scenario            6  Affected station          9
Before Analysis

```

**Figure 3**

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	626	80.6
lost to ATV IX only	626	80.6
lost to all IX	626	80.6

Potential Interfering Stations Included in above Scenario 6

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDT	20061114ABU	CP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4073	503.7
lost to ATV IX only	4073	503.7
lost to all IX	4073	503.7

Potential Interfering Stations Included in above Scenario 6

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDT	20061114ABU	CP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.4003%

Result key: 7  
 Scenario 7 Affected station 9  
 Before Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11011	88.6
lost to ATV IX only	11011	88.6
lost to all IX	11011	88.6

Potential Interfering Stations Included in above Scenario 7

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	DTVPLN	DTVP1008	PLN

**Figure 3**

27A MN DULUTH                      DTVPLN      DTVP0987      PLN

After Analysis

Results for: 27A WI MENOMONIE                      DTVPLN      DTVP1009      PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14458	511.7
lost to ATV IX only	14458	511.7
lost to all IX	14458	511.7

Potential Interfering Stations Included in above Scenario      7

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	USERRECORD01		APP

Percent new IX =      0.4052%

Result key:                      8  
 Scenario                      8      Affected station                      9  
 Before Analysis

Results for: 27A WI MENOMONIE                      DTVPLN      DTVP1009      PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11011	88.6
lost to ATV IX only	11011	88.6
lost to all IX	11011	88.6

Potential Interfering Stations Included in above Scenario      8

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	BMPCDT	20061114ABU	CP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE                      DTVPLN      DTVP1009      PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14458	511.7
lost to ATV IX only	14458	511.7
lost to all IX	14458	511.7

Potential Interfering Stations Included in above Scenario      8

**Figure 3**

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	BLCDDT	20080502ABG	LIC
27A WI APPLETON	BMPCDDT	20061114ABU	CP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.4052%

Result key: 9  
 Scenario 9 Affected station 9  
 Before Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	1085	145.1
lost to ATV IX only	1085	145.1
lost to all IX	1085	145.1

Potential Interfering Stations Included in above Scenario 9

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDDT	20080620AHO	APP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4316	544.0
lost to ATV IX only	4316	544.0
lost to all IX	4316	544.0

Potential Interfering Stations Included in above Scenario 9

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDDT	20080620AHO	APP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.3754%

Result key: 10  
 Scenario 10 Affected station 9  
 Before Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
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**Figure 3**

within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11470	153.1
lost to ATV IX only	11470	153.1
lost to all IX	11470	153.1

Potential Interfering Stations Included in above Scenario 10

27A IA CEDAR RAPIDS	BLCDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	BMPCDT	20080620AHO	APP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN

HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14701	552.0
lost to ATV IX only	14701	552.0
lost to all IX	14701	552.0

Potential Interfering Stations Included in above Scenario 10

27A IA CEDAR RAPIDS	BLCDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	BMPCDT	20080620AHO	APP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.3800%

Result key: 11

Scenario 11 Affected station 9

Before Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN

HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	1085	145.1
lost to ATV IX only	1085	145.1
lost to all IX	1085	145.1

Potential Interfering Stations Included in above Scenario 11

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDT	20080620AHO	APP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

**Figure 3**

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4316	544.0
lost to ATV IX only	4316	544.0
lost to all IX	4316	544.0

Potential Interfering Stations Included in above Scenario 11

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDT	20080620AHO	APP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.3754%

Result key: 12  
 Scenario 12 Affected station 9  
 Before Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11470	153.1
lost to ATV IX only	11470	153.1
lost to all IX	11470	153.1

Potential Interfering Stations Included in above Scenario 12

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	BLCDDT	20080502ABG	LIC
27A WI APPLETON	BMPCDT	20080620AHO	APP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE DTVPLN DTVP1009 PLN  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14701	552.0
lost to ATV IX only	14701	552.0
lost to all IX	14701	552.0

Potential Interfering Stations Included in above Scenario 12

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	BLCDDT	20080502ABG	LIC

**Figure 3**

27A WI APPLETON                      BMPCDT      20080620AHO    APP  
 27A MN DULUTH                      USERRECORD01                      APP

Percent new IX =      0.3800%

Worst case new IX      0.4052% Scenario      3

#####

# Analysis of Interference to Affected Station 10

## Analysis of current record

Channel	Call	City/State	Application	Ref. No.
27	WHWC-TV	MENOMONIE WI	BLEDT	-20040824AAF

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
27	KFXA	CEDAR RAPIDS IA	329.1	LIC	BLCDDT	-20050713ABD
27	KFXA	CEDAR RAPIDS IA	329.1	PLN	DTVPLN	-DTVP0982
27	KCWV	DULUTH MN	194.5	PLN	DTVPLN	-DTVP0987
27	KRWF	REDWOOD FALLS MN	293.0	PLN	DTVPLN	-DTVP0988
27	KRWF	REDWOOD FALLS MN	293.0	LIC	BLCDDT	-20080502ABG
27	WACY-TV	APPLETON WI	316.1	APP	BMPCDT	-20080620AHO
27	WACY	APPLETON WI	316.1	PLN	DTVPLN	-DTVP1008
27	WACY-TV	APPLETON WI	316.1	CP MOD	BMPCDT	-20061114ABU
28	WYOW	EAGLE RIVER WI	219.5	PLN	DTVPLN	-DTVP1046
28	WYOW	EAGLE RIVER WI	219.5	APP	BPCDT	-20090630ACN
28	WYOW	EAGLE RIVER WI	219.5	CP MOD	BMPCDT	-20041001ANY
27	KCWV	DULUTH MN	194.2	APP	USERRECORD-01	

Total scenarios =    12

Result key:            13

Scenario            1    Affected station            10

Before Analysis

Results for: 27A WI MENOMONIE                      BLEDT            20040824AAF    LIC

HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	626	80.6
lost to ATV IX only	626	80.6
lost to all IX	626	80.6

Potential Interfering Stations Included in above Scenario            1

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	DTVPLN	DTVP0987	PLN

**Figure 3**

## After Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4073	503.7
lost to ATV IX only	4073	503.7
lost to all IX	4073	503.7

Potential Interfering Stations Included in above Scenario 1

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.4003%

Result key: 14  
 Scenario 2 Affected station 10  
 Before Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	626	80.6
lost to ATV IX only	626	80.6
lost to all IX	626	80.6

Potential Interfering Stations Included in above Scenario 2

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDDT	20061114ABU	CP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

## After Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4073	503.7
lost to ATV IX only	4073	503.7
lost to all IX	4073	503.7

Potential Interfering Stations Included in above Scenario 2

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
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**Figure 3**

27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDT	20061114ABU	CP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.4003%

Result key: 15  
 Scenario 3 Affected station 10  
 Before Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11011	88.6
lost to ATV IX only	11011	88.6
lost to all IX	11011	88.6

Potential Interfering Stations Included in above Scenario 3

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDDT	20080502ABG	LIC
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14458	511.7
lost to ATV IX only	14458	511.7
lost to all IX	14458	511.7

Potential Interfering Stations Included in above Scenario 3

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDDT	20080502ABG	LIC
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.4052%

Result key: 16  
 Scenario 4 Affected station 10  
 Before Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9

**Figure 3**

lost to NTSC IX	0	0.0
lost to additional IX by ATV	11011	88.6
lost to ATV IX only	11011	88.6
lost to all IX	11011	88.6

Potential Interfering Stations Included in above Scenario 4

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDDT	20080502ABG	LIC
27A WI APPLETON	BMPCDDT	20061114ABU	CP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE BLEDDT 20040824AAF LIC  
HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14458	511.7
lost to ATV IX only	14458	511.7
lost to all IX	14458	511.7

Potential Interfering Stations Included in above Scenario 4

27A IA CEDAR RAPIDS	BLCDDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDDT	20080502ABG	LIC
27A WI APPLETON	BMPCDDT	20061114ABU	CP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.4052%

Result key: 17  
Scenario 5 Affected station 10  
Before Analysis

Results for: 27A WI MENOMONIE BLEDDT 20040824AAF LIC  
HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	626	80.6
lost to ATV IX only	626	80.6
lost to all IX	626	80.6

Potential Interfering Stations Included in above Scenario 5

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE BLEDDT 20040824AAF LIC

**Figure 3**

```

HAAT  350.0 m, ATV ERP  291.0 kW
                                POPULATION  AREA (sq km)
within Noise Limited Contour      888182      27094.0
not affected by terrain losses    861695      26533.9
lost to NTSC IX                    0           0.0
lost to additional IX by ATV      4073        503.7
lost to ATV IX only               4073        503.7
lost to all IX                   4073        503.7

Potential Interfering Stations Included in above Scenario      5

27A IA CEDAR RAPIDS      DTVPLN      DTVP0982      PLN
27A MN REDWOOD FALLS    DTVPLN      DTVP0988      PLN
27A WI APPLETON          DTVPLN      DTVP1008      PLN
27A MN DULUTH            USERRECORD01  APP

Percent new IX =      0.4003%

Result key:      18
Scenario      6  Affected station      10
Before Analysis

Results for: 27A WI MENOMONIE      BLEDT      20040824AAF  LIC
HAAT  350.0 m, ATV ERP  291.0 kW
                                POPULATION  AREA (sq km)
within Noise Limited Contour      888182      27094.0
not affected by terrain losses    861695      26533.9
lost to NTSC IX                    0           0.0
lost to additional IX by ATV      626        80.6
lost to ATV IX only               626        80.6
lost to all IX                   626        80.6

Potential Interfering Stations Included in above Scenario      6

27A IA CEDAR RAPIDS      DTVPLN      DTVP0982      PLN
27A MN REDWOOD FALLS    DTVPLN      DTVP0988      PLN
27A WI APPLETON          BMPCDT      20061114ABU  CP
27A MN DULUTH            DTVPLN      DTVP0987      PLN

After Analysis

Results for: 27A WI MENOMONIE      BLEDT      20040824AAF  LIC
HAAT  350.0 m, ATV ERP  291.0 kW
                                POPULATION  AREA (sq km)
within Noise Limited Contour      888182      27094.0
not affected by terrain losses    861695      26533.9
lost to NTSC IX                    0           0.0
lost to additional IX by ATV      4073        503.7
lost to ATV IX only               4073        503.7
lost to all IX                   4073        503.7

Potential Interfering Stations Included in above Scenario      6

27A IA CEDAR RAPIDS      DTVPLN      DTVP0982      PLN
27A MN REDWOOD FALLS    DTVPLN      DTVP0988      PLN
27A WI APPLETON          BMPCDT      20061114ABU  CP
27A MN DULUTH            USERRECORD01  APP

```

**Figure 3**

Percent new IX = 0.4003%

Result key: 19  
 Scenario 7 Affected station 10  
 Before Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11011	88.6
lost to ATV IX only	11011	88.6
lost to all IX	11011	88.6

Potential Interfering Stations Included in above Scenario 7

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14458	511.7
lost to ATV IX only	14458	511.7
lost to all IX	14458	511.7

Potential Interfering Stations Included in above Scenario 7

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	DTVPLN	DTVP1008	PLN
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.4052%

Result key: 20  
 Scenario 8 Affected station 10  
 Before Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11011	88.6
lost to ATV IX only	11011	88.6

**Figure 3**

```

lost to all IX                      11011          88.6

Potential Interfering Stations Included in above Scenario      8

27A IA CEDAR RAPIDS      DTVPLN      DTVP0982      PLN
27A MN REDWOOD FALLS    BLCDDT      20080502ABG  LIC
27A WI APPLETON         BMPCDT      20061114ABU   CP
27A MN DULUTH           DTVPLN      DTVP0987      PLN

After Analysis

Results for: 27A WI MENOMONIE      BLEDT      20040824AAF  LIC
HAAT  350.0 m, ATV ERP  291.0 kW

                POPULATION      AREA (sq km)
within Noise Limited Contour      888182      27094.0
not affected by terrain losses    861695      26533.9
lost to NTSC IX                   0          0.0
lost to additional IX by ATV      14458      511.7
lost to ATV IX only               14458      511.7
lost to all IX                   14458      511.7

Potential Interfering Stations Included in above Scenario      8

27A IA CEDAR RAPIDS      DTVPLN      DTVP0982      PLN
27A MN REDWOOD FALLS    BLCDDT      20080502ABG  LIC
27A WI APPLETON         BMPCDT      20061114ABU   CP
27A MN DULUTH           USERRECORD01      APP

Percent new IX =      0.4052%

Result key:      21
Scenario      9  Affected station      10
Before Analysis

Results for: 27A WI MENOMONIE      BLEDT      20040824AAF  LIC
HAAT  350.0 m, ATV ERP  291.0 kW

                POPULATION      AREA (sq km)
within Noise Limited Contour      888182      27094.0
not affected by terrain losses    861695      26533.9
lost to NTSC IX                   0          0.0
lost to additional IX by ATV      1085      145.1
lost to ATV IX only               1085      145.1
lost to all IX                   1085      145.1

Potential Interfering Stations Included in above Scenario      9

27A IA CEDAR RAPIDS      BLCDDT      20050713ABD  LIC
27A MN REDWOOD FALLS    DTVPLN      DTVP0988      PLN
27A WI APPLETON         BMPCDT      20080620AHO  APP
27A MN DULUTH           DTVPLN      DTVP0987      PLN

After Analysis

Results for: 27A WI MENOMONIE      BLEDT      20040824AAF  LIC
HAAT  350.0 m, ATV ERP  291.0 kW

                POPULATION      AREA (sq km)
within Noise Limited Contour      888182      27094.0

```

**Figure 3**

not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4316	544.0
lost to ATV IX only	4316	544.0
lost to all IX	4316	544.0

Potential Interfering Stations Included in above Scenario 9

27A IA CEDAR RAPIDS	BLCDT	20050713ABD	LIC
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDT	20080620AHO	APP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.3754%

Result key: 22

Scenario 10 Affected station 10

Before Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC

HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11470	153.1
lost to ATV IX only	11470	153.1
lost to all IX	11470	153.1

Potential Interfering Stations Included in above Scenario 10

27A IA CEDAR RAPIDS	BLCDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	BMPCDT	20080620AHO	APP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC

HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14701	552.0
lost to ATV IX only	14701	552.0
lost to all IX	14701	552.0

Potential Interfering Stations Included in above Scenario 10

27A IA CEDAR RAPIDS	BLCDT	20050713ABD	LIC
27A MN REDWOOD FALLS	BLCDT	20080502ABG	LIC
27A WI APPLETON	BMPCDT	20080620AHO	APP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.3800%

**Figure 3**

Result key: 23  
 Scenario 11 Affected station 10  
 Before Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	1085	145.1
lost to ATV IX only	1085	145.1
lost to all IX	1085	145.1

Potential Interfering Stations Included in above Scenario 11

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDT	20080620AHO	APP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

After Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4316	544.0
lost to ATV IX only	4316	544.0
lost to all IX	4316	544.0

Potential Interfering Stations Included in above Scenario 11

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	DTVPLN	DTVP0988	PLN
27A WI APPLETON	BMPCDT	20080620AHO	APP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.3754%

Result key: 24  
 Scenario 12 Affected station 10  
 Before Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	11470	153.1
lost to ATV IX only	11470	153.1
lost to all IX	11470	153.1

Potential Interfering Stations Included in above Scenario 12

Figure 3

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	BLCDDT	20080502ABG	LIC
27A WI APPLETON	BMPCDDT	20080620AHO	APP
27A MN DULUTH	DTVPLN	DTVP0987	PLN

# After Analysis

Results for: 27A WI MENOMONIE BLEDT 20040824AAF LIC  
 HAAT 350.0 m, ATV ERP 291.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	888182	27094.0
not affected by terrain losses	861695	26533.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14701	552.0
lost to ATV IX only	14701	552.0
lost to all IX	14701	552.0

Potential Interfering Stations Included in above Scenario 12

27A IA CEDAR RAPIDS	DTVPLN	DTVP0982	PLN
27A MN REDWOOD FALLS	BLCDDT	20080502ABG	LIC
27A WI APPLETON	BMPCDDT	20080620AHO	APP
27A MN DULUTH	USERRECORD01		APP

Percent new IX = 0.3800%

Worst case new IX 0.4052% Scenario 3

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## Analysis of Interference to Affected Station 11

### Analysis of current record

Channel	Call	City/State	Application	Ref. No.
28	KAWB	BRAINERD MN	BLEDT	-20030429AAJ

### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
27	KCWV	DULUTH MN	183.2	PLN	DTVPLN	-DTVP0987
28	WYOW	EAGLE RIVER WI	408.1	PLN	DTVPLN	-DTVP1046
28	WYOW	EAGLE RIVER WI	408.1	APP	BPCDDT	-20090630ACN
28	WYOW	EAGLE RIVER WI	408.1	CP MOD	BMPCDDT	-20041001ANY
29	WFTC	MINNEAPOLIS MN	183.7	CP MOD	BMPCDDT	-20080311ABZ
29	WFTC	MINNEAPOLIS MN	183.7	PLN	DTVPLN	-DTVP1060
27	KCWV	DULUTH MN	183.2	APP	USERRECORD-01	

Proposed station is beyond the site to  
 nearest cell evaluation distance

#####

## Analysis of Interference to Affected Station 12



**Figure 3**

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
28	KAWB	BRAINERD MN	DTVPLN	-DTVP1028

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
27	KCWV	DULUTH MN	183.2	PLN	DTVPLN	-DTVP0987
28	WYOW	EAGLE RIVER WI	408.1	PLN	DTVPLN	-DTVP1046
28	WYOW	EAGLE RIVER WI	408.1	APP	BPCDT	-20090630ACN
28	WYOW	EAGLE RIVER WI	408.1	CP MOD	BMPCDT	-20041001ANY
29	WFTC	MINNEAPOLIS MN	183.7	CP MOD	BMPCDT	-20080311ABZ
29	WFTC	MINNEAPOLIS MN	183.7	PLN	DTVPLN	-DTVP1060
27	KCWV	DULUTH MN	183.2	APP	USERRECORD-01	

Proposed station is beyond the site to  
nearest cell evaluation distance

#####

Analysis of Interference to Affected Station 13

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
28	KAWB	BRAINERD MN	BPEDT	-20080620AHQ

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
27	KCWV	DULUTH MN	183.1	PLN	DTVPLN	-DTVP0987
28	WYOW	EAGLE RIVER WI	408.1	PLN	DTVPLN	-DTVP1046
28	WYOW	EAGLE RIVER WI	408.1	APP	BPCDT	-20090630ACN
28	WYOW	EAGLE RIVER WI	408.1	CP MOD	BMPCDT	-20041001ANY
29	WFTC	MINNEAPOLIS MN	183.7	CP MOD	BMPCDT	-20080311ABZ
29	WFTC	MINNEAPOLIS MN	183.7	PLN	DTVPLN	-DTVP1060
27	KCWV	DULUTH MN	183.2	APP	USERRECORD-01	

Proposed station is beyond the site to  
nearest cell evaluation distance

#####

Analysis of Interference to Affected Station 14

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
27	KCWV	DULUTH MN	USERRECORD-01	

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
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**Figure 3**

26	KFTC	BEMIDJI MN	219.9	CP	BPCDT	-20080310ADP
26	KFTC	BEMIDJI MN	218.0	PLN	DTVPLN	-DTVP0946
27	KRWF	REDWOOD FALLS MN	366.0	PLN	DTVPLN	-DTVP0988
27	KRWF	REDWOOD FALLS MN	366.0	LIC	BLCDDT	-20080502ABG
27	KCPM	GRAND FORKS ND	393.6	PLN	DTVPLN	-DTVP0991
27	WACY-TV	APPLETON WI	420.1	APP	BMPCDT	-20080620AHO
27	WACY	APPLETON WI	420.1	PLN	DTVPLN	-DTVP1008
27	WACY-TV	APPLETON WI	420.1	CP MOD	BMPCDT	-20061114ABU
27	WHWC-TV	MENOMONIE WI	194.2	PLN	DTVPLN	-DTVP1009
27	WHWC-TV	MENOMONIE WI	194.2	LIC	BLEDT	-20040824AAF
28	KAWB	BRAINERD MN	183.2	LIC	BLEDT	-20030429AAJ
28	KAWB	BRAINERD MN	183.2	PLN	DTVPLN	-DTVP1028
28	KAWB	BRAINERD MN	183.2	APP	BPEDT	-20080620AHQ

Total scenarios = 2

Result key: 25  
 Scenario 1 Affected station 14  
 Before Analysis

Results for: 27A MN DULUTH USERRECORD01 APP  
 HAAT 206.0 m, ATV ERP 40.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	205385	12523.2
not affected by terrain losses	205363	12499.3
lost to NTSC IX	0	0.0
lost to additional IX by ATV	893	859.4
lost to ATV IX only	893	859.4
lost to all IX	893	859.4

Potential Interfering Stations Included in above Scenario 1

27A WI MENOMONIE	DTVPLN	DTVP1009	PLN
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Result key: 26  
 Scenario 2 Affected station 14  
 Before Analysis

Results for: 27A MN DULUTH USERRECORD01 APP  
 HAAT 206.0 m, ATV ERP 40.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	205385	12523.2
not affected by terrain losses	205363	12499.3
lost to NTSC IX	0	0.0
lost to additional IX by ATV	893	859.4
lost to ATV IX only	893	859.4
lost to all IX	893	859.4

Potential Interfering Stations Included in above Scenario 2

27A WI MENOMONIE	BLEDT	20040824AAF	LIC
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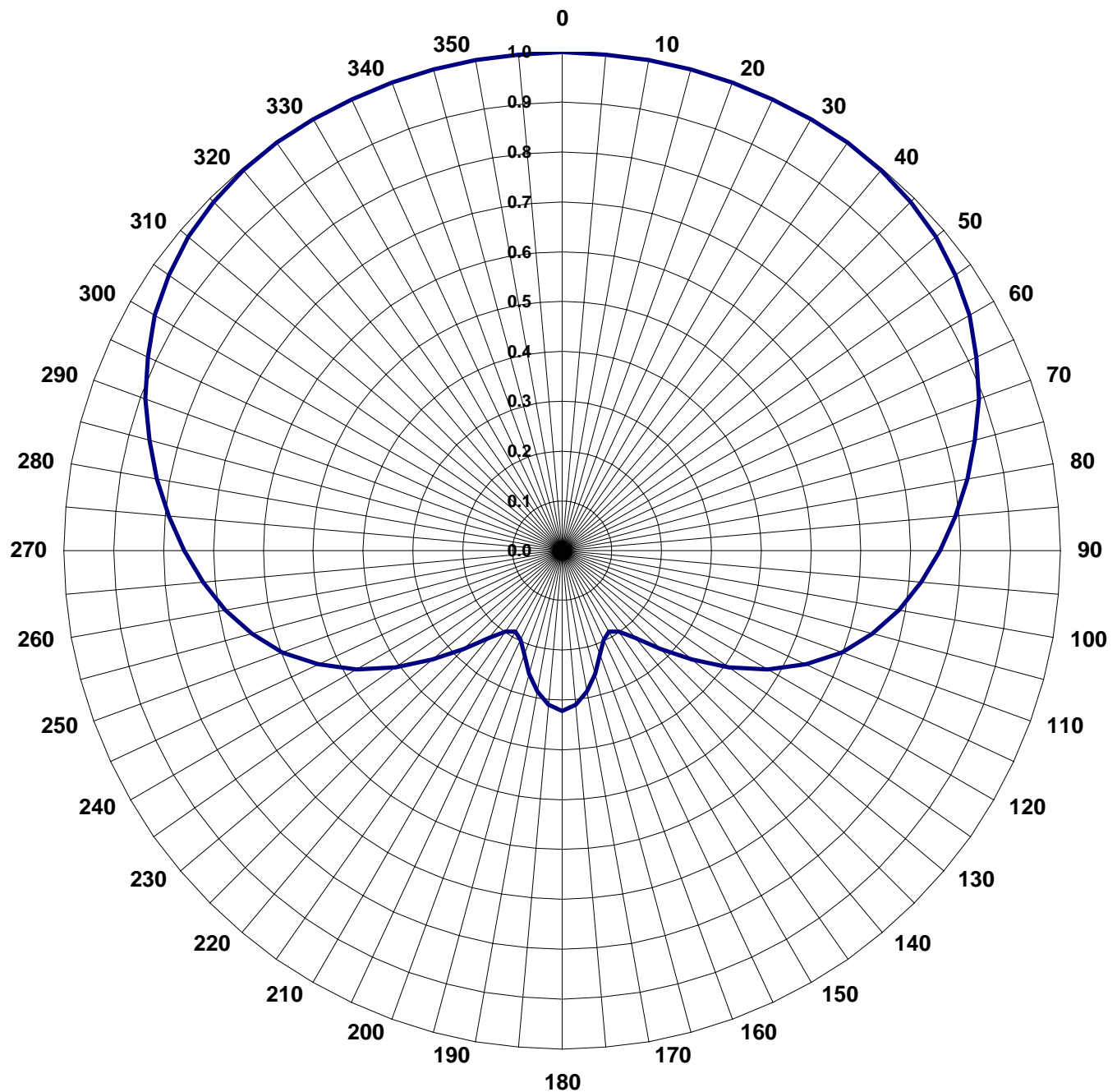
# APPENDIX

## TRANSMITTING ANTENNA VERTICAL AND HORIZONTAL PLANE PATTERN

## AZIMUTH PATTERN

**TYPE:****ALP-E****Frequency:****27 (DTV)****Numeric****dB****Location:****Duluth, MN****Directivity:****1.86****2.70****Polarization:****Horizontal****Peak(s) at:**

Note: Pattern shape and directivity may vary with  
channel and mounting configuration.



## TABULATED DATA FOR AZIMUTH PATTERN

TYPE: ALP-E

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	1.000	0.00	92	0.745	-2.56	184	0.314	-10.06	276	0.799	-1.95
2	0.999	-0.01	94	0.731	-2.72	186	0.307	-10.26	278	0.812	-1.81
4	0.999	-0.01	96	0.717	-2.89	188	0.298	-10.52	280	0.826	-1.66
6	0.999	-0.01	98	0.702	-3.07	190	0.287	-10.84	282	0.839	-1.52
8	0.999	-0.01	100	0.687	-3.26	192	0.274	-11.24	284	0.852	-1.39
10	0.999	-0.01	102	0.671	-3.47	194	0.261	-11.67	286	0.865	-1.26
12	0.999	-0.01	104	0.654	-3.69	196	0.248	-12.11	288	0.878	-1.13
14	0.999	-0.01	106	0.636	-3.93	198	0.234	-12.62	290	0.890	-1.01
16	0.999	-0.01	108	0.617	-4.19	200	0.222	-13.07	292	0.902	-0.90
18	0.999	-0.01	110	0.597	-4.48	202	0.211	-13.51	294	0.913	-0.79
20	0.999	-0.01	112	0.575	-4.81	204	0.201	-13.94	296	0.924	-0.69
22	0.999	-0.01	114	0.552	-5.16	206	0.194	-14.24	298	0.934	-0.59
24	0.999	-0.01	116	0.528	-5.55	208	0.189	-14.47	300	0.944	-0.50
26	0.999	-0.01	118	0.503	-5.97	210	0.188	-14.52	302	0.952	-0.43
28	0.999	-0.01	120	0.476	-6.45	212	0.189	-14.47	304	0.960	-0.35
30	0.999	-0.01	122	0.449	-6.96	214	0.194	-14.24	306	0.967	-0.29
32	0.999	-0.01	124	0.422	-7.49	216	0.203	-13.85	308	0.974	-0.23
34	0.999	-0.01	126	0.394	-8.09	218	0.214	-13.39	310	0.979	-0.18
36	0.999	-0.01	128	0.366	-8.73	220	0.229	-12.80	312	0.984	-0.14
38	0.998	-0.02	130	0.340	-9.37	222	0.247	-12.15	314	0.988	-0.10
40	0.996	-0.03	132	0.314	-10.06	224	0.267	-11.47	316	0.991	-0.08
42	0.994	-0.05	134	0.289	-10.78	226	0.289	-10.78	318	0.994	-0.05
44	0.991	-0.08	136	0.267	-11.47	228	0.314	-10.06	320	0.996	-0.03
46	0.988	-0.10	138	0.247	-12.15	230	0.340	-9.37	322	0.998	-0.02
48	0.984	-0.14	140	0.229	-12.80	232	0.366	-8.73	324	0.999	-0.01
50	0.979	-0.18	142	0.214	-13.39	234	0.394	-8.09	326	0.999	-0.01
52	0.974	-0.23	144	0.203	-13.85	236	0.422	-7.49	328	0.999	-0.01
54	0.967	-0.29	146	0.194	-14.24	238	0.449	-6.96	330	0.999	-0.01
56	0.960	-0.35	148	0.189	-14.47	240	0.476	-6.45	332	0.999	-0.01
58	0.952	-0.43	150	0.188	-14.52	242	0.503	-5.97	334	0.999	-0.01
60	0.944	-0.50	152	0.189	-14.47	244	0.528	-5.55	336	0.999	-0.01
62	0.934	-0.59	154	0.194	-14.24	246	0.552	-5.16	338	0.999	-0.01
64	0.924	-0.69	156	0.201	-13.94	248	0.575	-4.81	340	0.999	-0.01
66	0.913	-0.79	158	0.211	-13.51	250	0.597	-4.48	342	0.999	-0.01
68	0.902	-0.90	160	0.222	-13.07	252	0.617	-4.19	344	0.999	-0.01
70	0.890	-1.01	162	0.234	-12.62	254	0.636	-3.93	346	0.999	-0.01
72	0.878	-1.13	164	0.248	-12.11	256	0.654	-3.69	348	0.999	-0.01
74	0.865	-1.26	166	0.261	-11.67	258	0.671	-3.47	350	0.999	-0.01
76	0.852	-1.39	168	0.274	-11.24	260	0.687	-3.26	352	0.999	-0.01
78	0.839	-1.52	170	0.287	-10.84	262	0.702	-3.07	354	0.999	-0.01
80	0.826	-1.66	172	0.298	-10.52	264	0.717	-2.89	356	0.999	-0.01
82	0.812	-1.81	174	0.307	-10.26	266	0.731	-2.72	358	0.999	-0.01
84	0.799	-1.95	176	0.314	-10.06	268	0.745	-2.56	360	0.260	-11.70
86	0.785	-2.10	178	0.319	-9.92	270	0.758	-2.41			
88	0.772	-2.25	180	0.322	-9.84	272	0.772	-2.25			
90	0.758	-2.41	182	0.319	-9.92	274	0.785	-2.10			

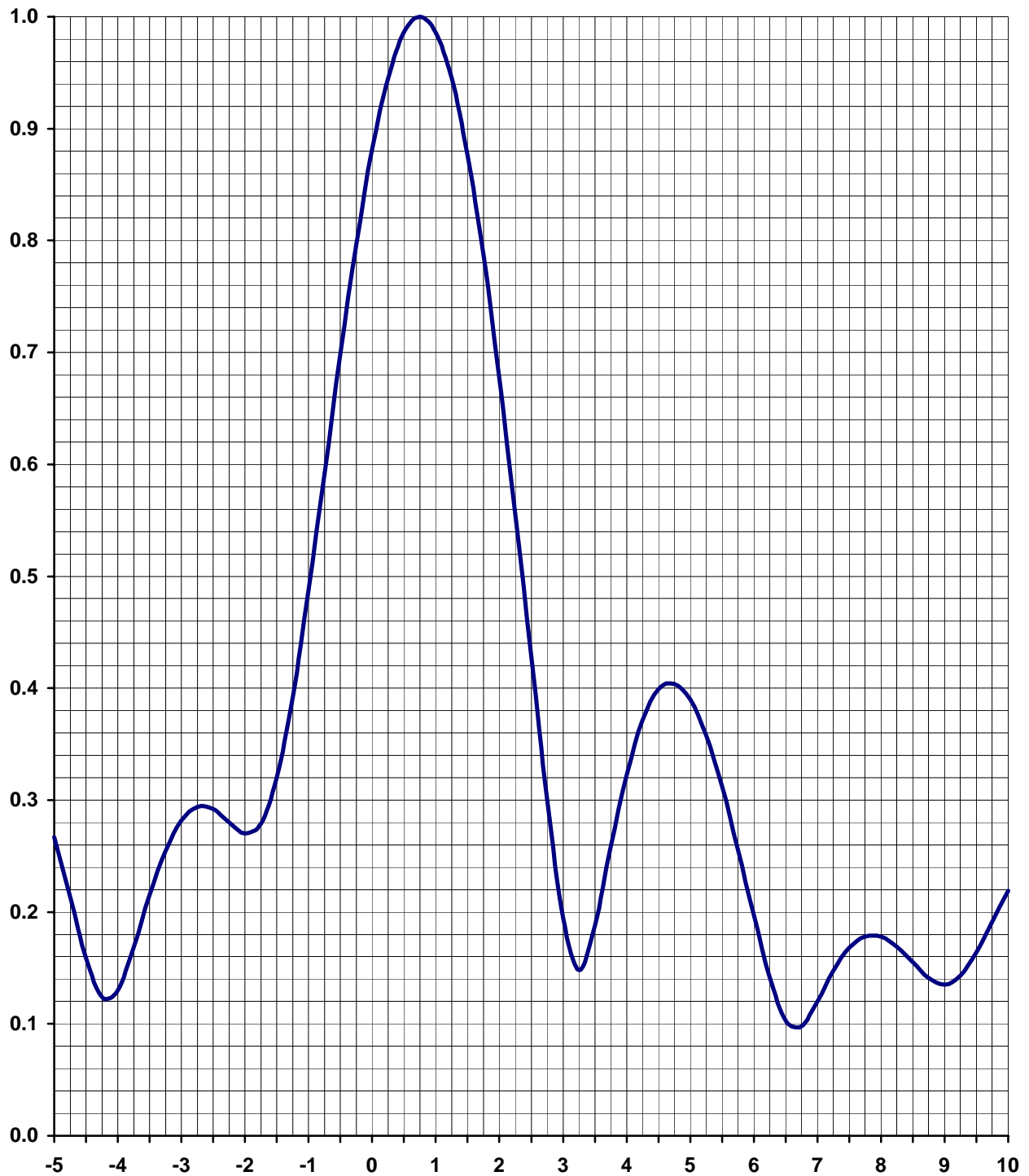
**ELEVATION PATTERN**

**TYPE:** **ALP16L3H**

<b>Directivity:</b>	<b>Numeric</b>	<b>dBd</b>
<b>Main Lobe:</b>	<b>15.08</b>	<b>11.78</b>
<b>Horizontal:</b>	<b>11.70</b>	<b>10.68</b>

**Frequency:** **27 (DTV)**

<b>Location:</b>	<b>Duluth, MN</b>
<b>Beam Tilt:</b>	<b>0.75</b>
<b>Polarization:</b>	<b>Horizontal</b>



## TABULATED DATA FOR ELEVATION PATTERN

### ALP16L3H

-5 to 10 degrees in 0.25 increments

10 to 90 degrees in 0.50 increments

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-5.000	0.267	-11.47	6.75	0.098	-20.18	27.00	0.055	-25.19	50.50	0.055	-25.19	74.00	0.203	-13.85
-4.750	0.213	-13.43	7.00	0.120	-18.42	27.50	0.047	-26.56	51.00	0.064	-23.88	74.50	0.191	-14.38
-4.500	0.159	-15.97	7.25	0.147	-16.65	28.00	0.034	-29.37	51.50	0.067	-23.48	75.00	0.178	-14.99
-4.250	0.124	-18.13	7.50	0.168	-15.49	28.50	0.019	-34.42	52.00	0.065	-23.74	75.50	0.164	-15.70
-4.000	0.130	-17.72	7.75	0.178	-14.99	29.00	0.008	-41.94	52.50	0.056	-25.04	76.00	0.151	-16.42
-3.750	0.169	-15.44	8.00	0.178	-14.99	29.50	0.003	-50.46	53.00	0.043	-27.33	76.50	0.137	-17.27
-3.500	0.215	-13.35	8.25	0.169	-15.44	30.00	0.000	---	53.50	0.029	-30.75	77.00	0.123	-18.20
-3.250	0.255	-11.87	8.50	0.155	-16.19	30.50	0.005	-46.02	54.00	0.024	-32.40	77.50	0.109	-19.25
-3.000	0.282	-11.00	8.75	0.141	-17.02	31.00	0.012	-38.42	54.50	0.038	-28.40	78.00	0.097	-20.26
-2.750	0.294	-10.63	9.00	0.135	-17.39	31.50	0.017	-35.39	55.00	0.057	-24.88	78.50	0.085	-21.41
-2.500	0.292	-10.69	9.25	0.143	-16.89	32.00	0.020	-33.98	55.50	0.075	-22.50	79.00	0.074	-22.62
-2.250	0.280	-11.06	9.50	0.164	-15.70	32.50	0.029	-30.75	56.00	0.090	-20.92	79.50	0.063	-24.01
-2.000	0.270	-11.37	9.75	0.191	-14.38	33.00	0.048	-26.38	56.50	0.099	-20.09	80.00	0.054	-25.35
-1.750	0.279	-11.09	10.00	0.219	-13.19	33.50	0.075	-22.50	57.00	0.102	-19.83	80.50	0.046	-26.74
-1.500	0.320	-9.90	10.50	0.261	-11.67	34.00	0.105	-19.58	57.50	0.098	-20.18	81.00	0.038	-28.40
-1.250	0.392	-8.13	11.00	0.271	-11.34	34.50	0.134	-17.46	58.00	0.090	-20.92	81.50	0.032	-29.90
-1.000	0.487	-6.25	11.50	0.246	-12.18	35.00	0.155	-16.19	58.50	0.076	-22.38	82.00	0.026	-31.70
-0.750	0.592	-4.55	12.00	0.196	-14.15	35.50	0.164	-15.70	59.00	0.060	-24.44	82.50	0.022	-33.15
-0.500	0.698	-3.12	12.50	0.133	-17.52	36.00	0.160	-15.92	59.50	0.045	-26.94	83.00	0.019	-34.42
-0.250	0.797	-1.97	13.00	0.073	-22.73	36.50	0.142	-16.95	60.00	0.036	-28.87	83.50	0.016	-35.92
0.000	0.881	-1.10	13.50	0.029	-30.75	37.00	0.113	-18.94	60.50	0.039	-28.18	84.00	0.014	-37.08
0.250	0.945	-0.49	14.00	0.006	-44.44	37.50	0.076	-22.38	61.00	0.051	-25.85	84.50	0.012	-38.42
0.500	0.986	-0.12	14.50	0.000	---	38.00	0.041	-27.74	61.50	0.064	-23.88	85.00	0.011	-39.17
0.750	1.000	0.00	15.00	0.014	-37.08	38.50	0.034	-29.37	62.00	0.075	-22.50	85.50	0.010	-40.00
1.000	0.986	-0.12	15.50	0.032	-29.90	39.00	0.057	-24.88	62.50	0.082	-21.72	86.00	0.009	-40.92
1.250	0.945	-0.49	16.00	0.047	-26.56	39.50	0.078	-22.16	63.00	0.085	-21.41	86.50	0.008	-41.94
1.500	0.877	-1.14	16.50	0.050	-26.02	40.00	0.089	-21.01	63.50	0.085	-21.41	87.00	0.007	-43.10
1.750	0.787	-2.08	17.00	0.040	-27.96	40.50	0.089	-21.01	64.00	0.082	-21.72	87.50	0.006	-44.44
2.000	0.678	-3.38	17.50	0.026	-31.70	41.00	0.079	-22.05	64.50	0.078	-22.16	88.00	0.005	-46.02
2.250	0.555	-5.11	18.00	0.033	-29.63	41.50	0.061	-24.29	65.00	0.077	-22.27	88.50	0.004	-47.96
2.500	0.427	-7.39	18.50	0.054	-25.35	42.00	0.041	-27.74	65.50	0.081	-21.83	89.00	0.003	-50.46
2.750	0.301	-10.43	19.00	0.068	-23.35	42.50	0.025	-32.04	66.00	0.090	-20.92	89.50	0.001	-60.00
3.000	0.194	-14.24	19.50	0.069	-23.22	43.00	0.022	-33.15	66.50	0.106	-19.49	90.00	0.000	---
3.250	0.148	-16.59	20.00	0.066	-23.61	43.50	0.029	-30.75	67.00	0.124	-18.13			
3.500	0.188	-14.52	20.50	0.081	-21.83	44.00	0.035	-29.12	67.50	0.144	-16.83			
3.750	0.258	-11.77	21.00	0.121	-18.34	44.50	0.035	-29.12	68.00	0.164	-15.70			
4.000	0.323	-9.82	21.50	0.169	-15.44	45.00	0.031	-30.17	68.50	0.182	-14.80			
4.250	0.371	-8.61	22.00	0.209	-13.60	45.50	0.025	-32.04	69.00	0.199	-14.02			
4.500	0.399	-7.98	22.50	0.232	-12.69	46.00	0.021	-33.56	69.50	0.213	-13.43			
4.750	0.404	-7.87	23.00	0.232	-12.69	46.50	0.020	-33.98	70.00	0.223	-13.03			
5.000	0.390	-8.18	23.50	0.209	-13.60	47.00	0.020	-33.98	70.50	0.231	-12.73			
5.250	0.358	-8.92	24.00	0.168	-15.49	47.50	0.018	-34.89	71.00	0.235	-12.58			
5.500	0.312	-10.12	24.50	0.117	-18.64	48.00	0.012	-38.42	71.50	0.236	-12.54			
5.750	0.256	-11.84	25.00	0.065	-23.74	48.50	0.002	-53.98	72.00	0.234	-12.62			
6.000	0.197	-14.11	25.50	0.029	-30.75	49.00	0.011	-39.17	72.50	0.230	-12.77			
6.250	0.142	-16.95	26.00	0.036	-28.87	49.50	0.027	-31.37	73.00	0.223	-13.03			
6.500	0.103	-19.74	26.50	0.051	-25.85	50.00	0.042	-27.54	73.50	0.214	-13.39			