

TECHNICAL EXHIBIT  
APPLICATION FOR DTV CONSTRUCTION PERMIT  
IN SUPPORT OF ITS POST-TRANSITION FACILITY  
STATION KRWF-DT (FACILITY ID 35585)  
REDWOOD FALLS, MINNESOTA

MARCH 19, 2008

CH 27 58 KW (MAX-DA) 151 M

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Technical Narrative – Waiver Requested

This Technical Exhibit supports an application for digital television (DTV) station KRWF-DT for its final DTV operation at Redwood Falls, Minnesota. This application requests a construction permit (CP) for a digital television operation on channel 27, using its current digital television operation (BDSTA-20020701ABP).

Proposed Facilities

Station KRWF-DT proposes to operate DTV channel 27 from its current transmitter site coordinates and transmitting facilities. The directional antenna maximum effective radiated power (ERP) is 58 kilowatts and the antenna height above average terrain (HAAT) is 151 meters. The transmitter site coordinates are:

44° 29' 03" North Latitude  
95° 29' 27" West Longitude

A sketch of antenna and pertinent elevations are included as Figure 1. Figure 2 depicts the antenna patterns.

Figure 3 is a map showing the current and proposed post transition DTV predicted coverage contours as well as the associated Appendix B allotment contour. For

each noise-limited contour, the 40 dBu dipole-adjusted contour was used. The extent of the contours has been calculated using the normal FCC prediction method. The predicted 40 dBu contour for the present and proposed post transition DTV operation will extend more than 5 miles beyond the DTV allotment contour in some locations. A waiver is requested so that KRWF-DT is able to continue using its current DTV operation for the post transition period.

The Redwood Falls city limits were derived from information contained in the 2000 U.S. Census of Population and Housing.

#### Population Served

The herein proposed KRWF-DT facility is predicted to serve 89,163 people, post-transition, based upon the 2000 Census. KRWF-DT's associated Appendix B facility is predicted to serve 84,071 persons. Therefore, the herein proposed KRWF-DT facility would serve greater than 95% of KRWF-DT's Appendix B population.

In order for the KRWF operation to use its existing Andrew DTV antenna (under special temporary authority and also authorized in BMPCDT-20010518AAO) and not extend coverage beyond the Appendix B facility, KRWF would be limited to an ERP of only 5 kW-DA. Assuming this 5 kW-DA ERP, the predicted service is 67,059 people, or 79.8% of the Appendix B facility. Thus, a waiver of the Freeze on contour extension is requested in order to use the existing DTV facilities.

#### Allocation Considerations

Since the proposed KRWF-DT ERP exceeds the Commission's *Appendix B* allocated maximum effective radiated power in some azimuthal directions<sup>1</sup>, a waiver of the current freeze on filing DTV maximization applications is requested. In support of that

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<sup>1</sup> 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.

waiver request, an allocation study was completed to ensure no prohibited interference would occur. The proposed KRWF-DT operation meets the FCC's post-transition interference standards to pertinent Class A and DTV allotments using the procedures outlined in the FCC's OET-69 Bulletin with a 2 kilometer grid cell size, a 1 kilometer terrain increment, and the 2000 US Census. The results of the interference analyses are summarized in Figure 4.

#### Canadian Coordination

The proposed operation is located 467 kilometers (or outside of the coordination zone) from the Canadian Border.

#### Radiofrequency Electromagnetic Field Exposure

The proposed KRWF-DT facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed DTV antenna is located 151 meters above ground level with a maximum ERP of 58 kW. A conservative relative field value of 0.3 was assumed for the calculation (see Figure 2). The calculated power density at a point 2 meters above ground level will not exceed  $0.0079 \text{ mW/cm}^2$ . This is less than 5% of the FCC's recommended limit of  $0.37 \text{ mW/cm}^2$  for channel 27 for an "uncontrolled" environment.

Access to the transmitting site will be 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 over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the station is at reduced power or shut down. The proposed KRWF-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.



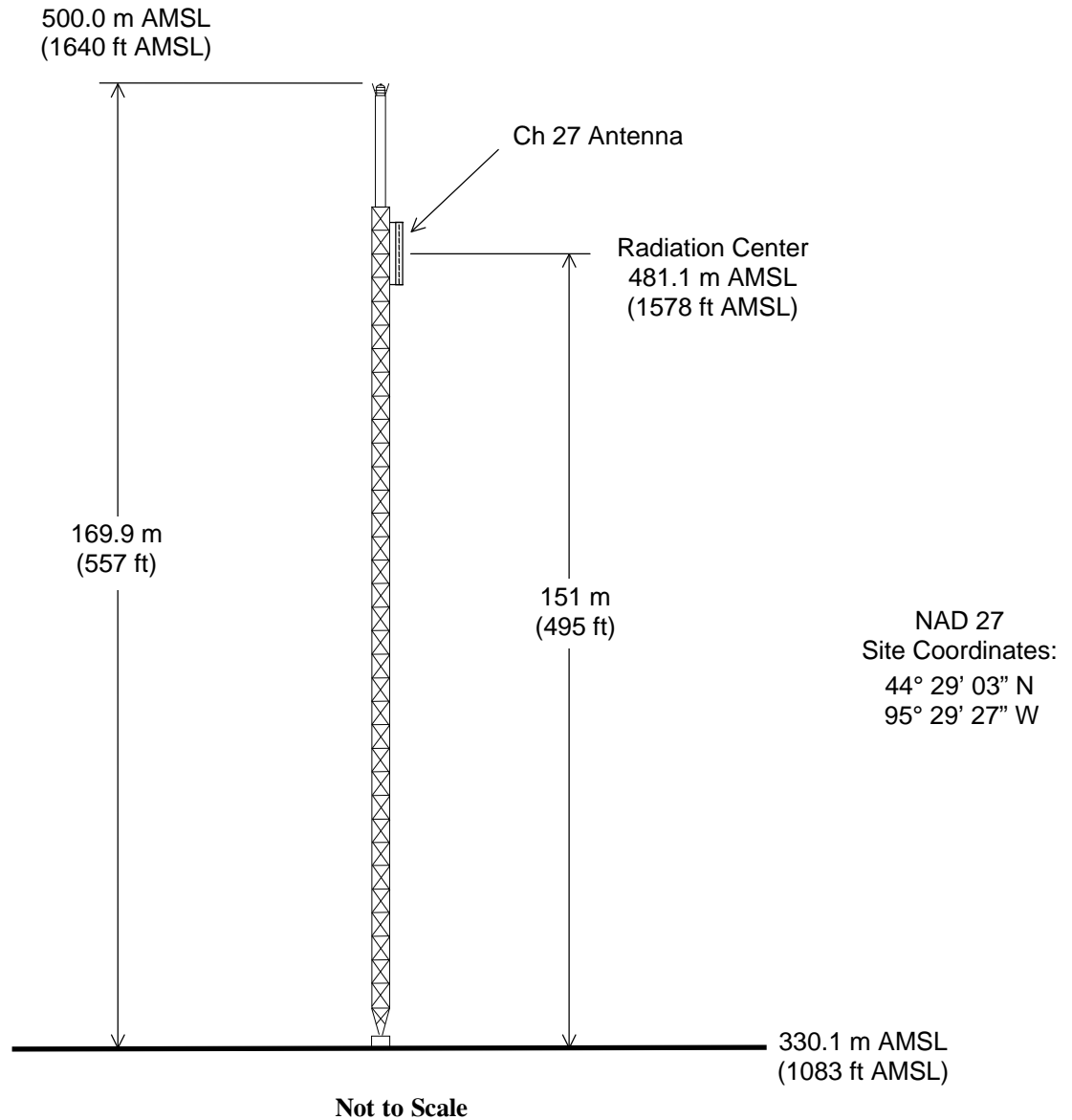
Jonathan N. Edwards

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
(941) 329-6000  
JON@DLR.COM

March 19, 2008



Registration No. 1024180



## ANTENNA AND SUPPORTING STRUCTURE

STATION KRWF-DT

REDWOOD FALLS, MINNESOTA

CH 27 58 KW (MAX-DA) 151 M

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

Figure 2



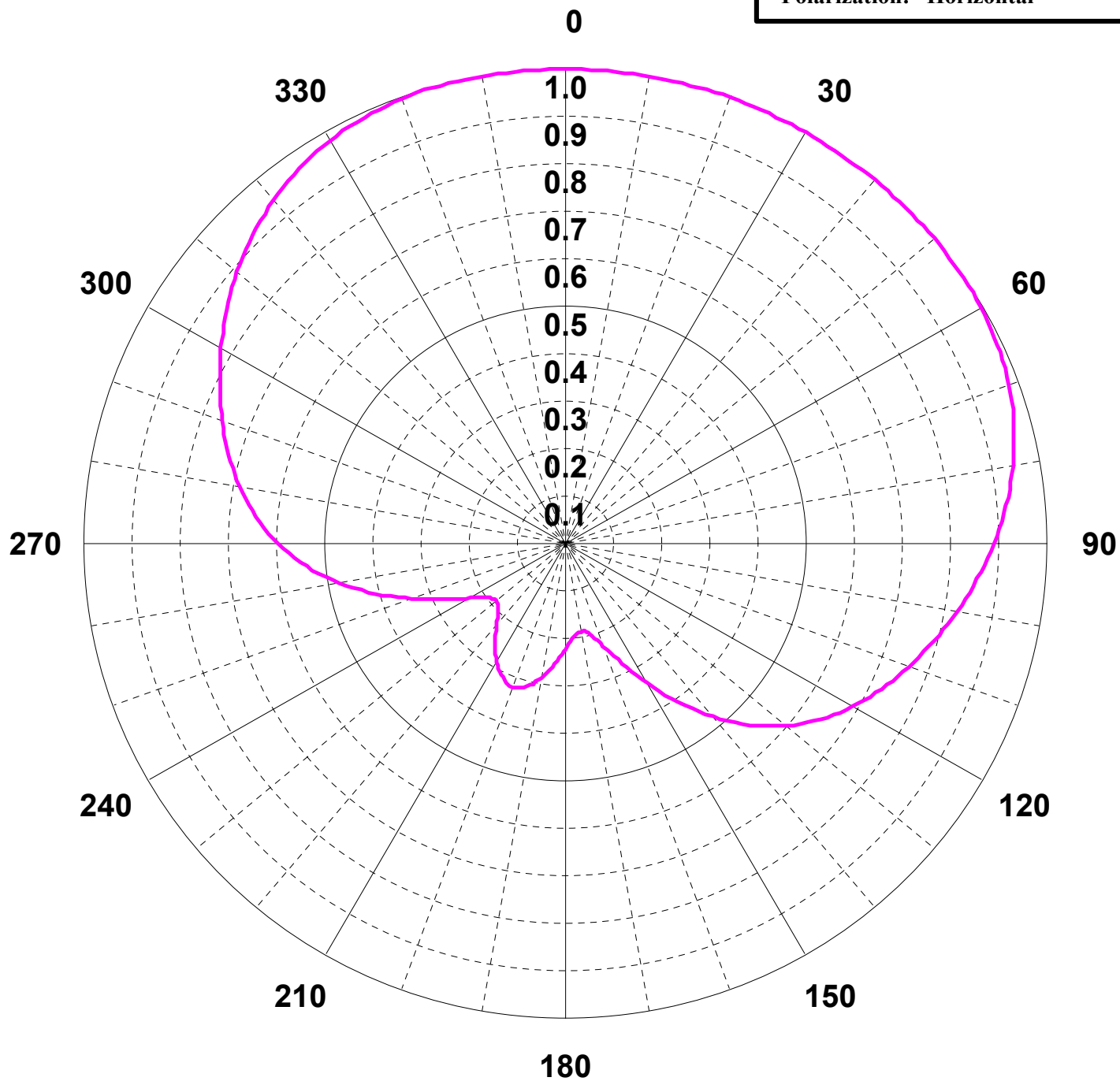
**ANDREW**

Channel: 27

Type: ALP-EC

Gain: 1.86 (2.7 dB)

Polarization: Horizontal



ANDREW CORPORATION  
10500 W. 153rd Street  
Orland Park, Illinois U.S.A. 60462

Date: 5/16/01



Figure 2

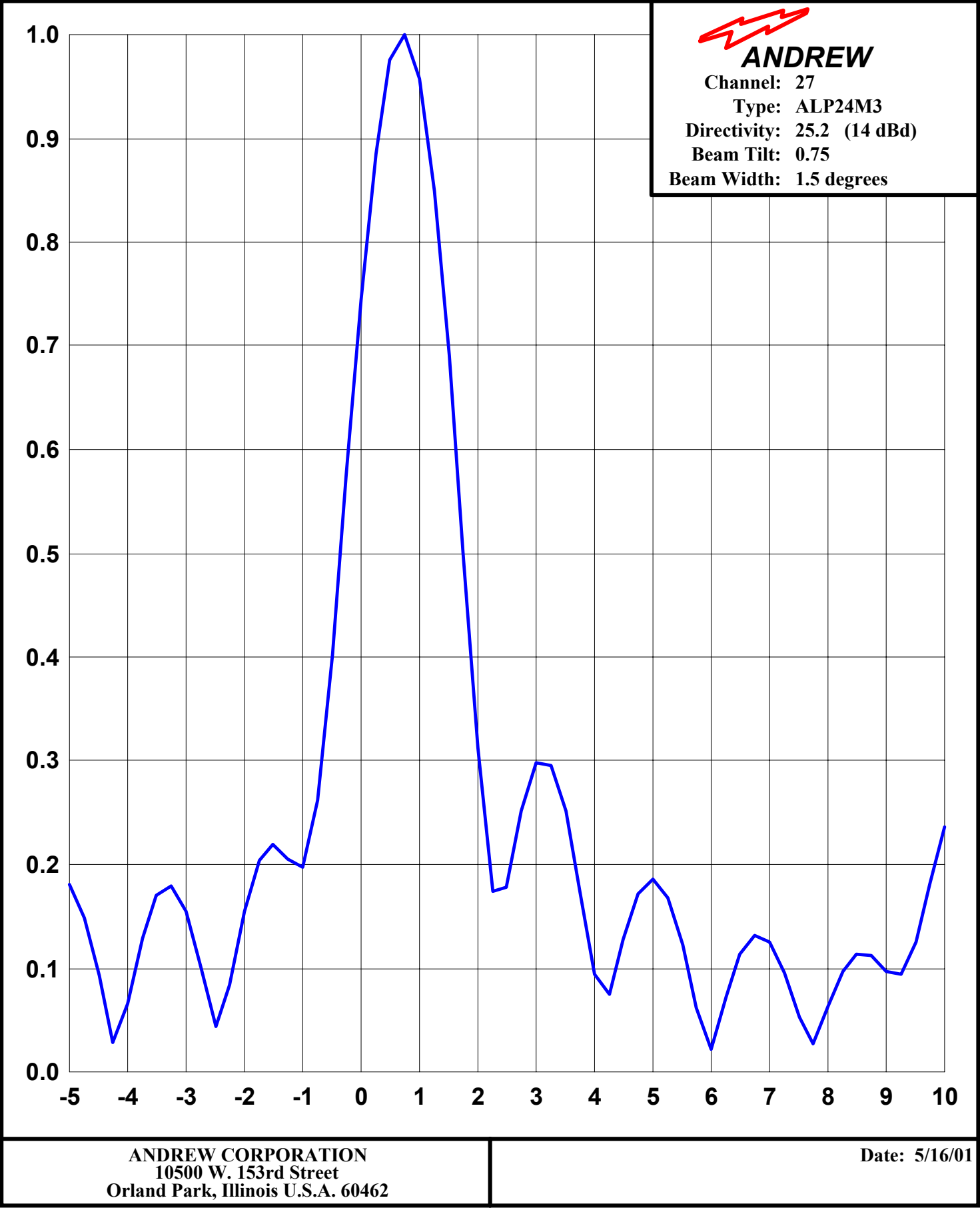
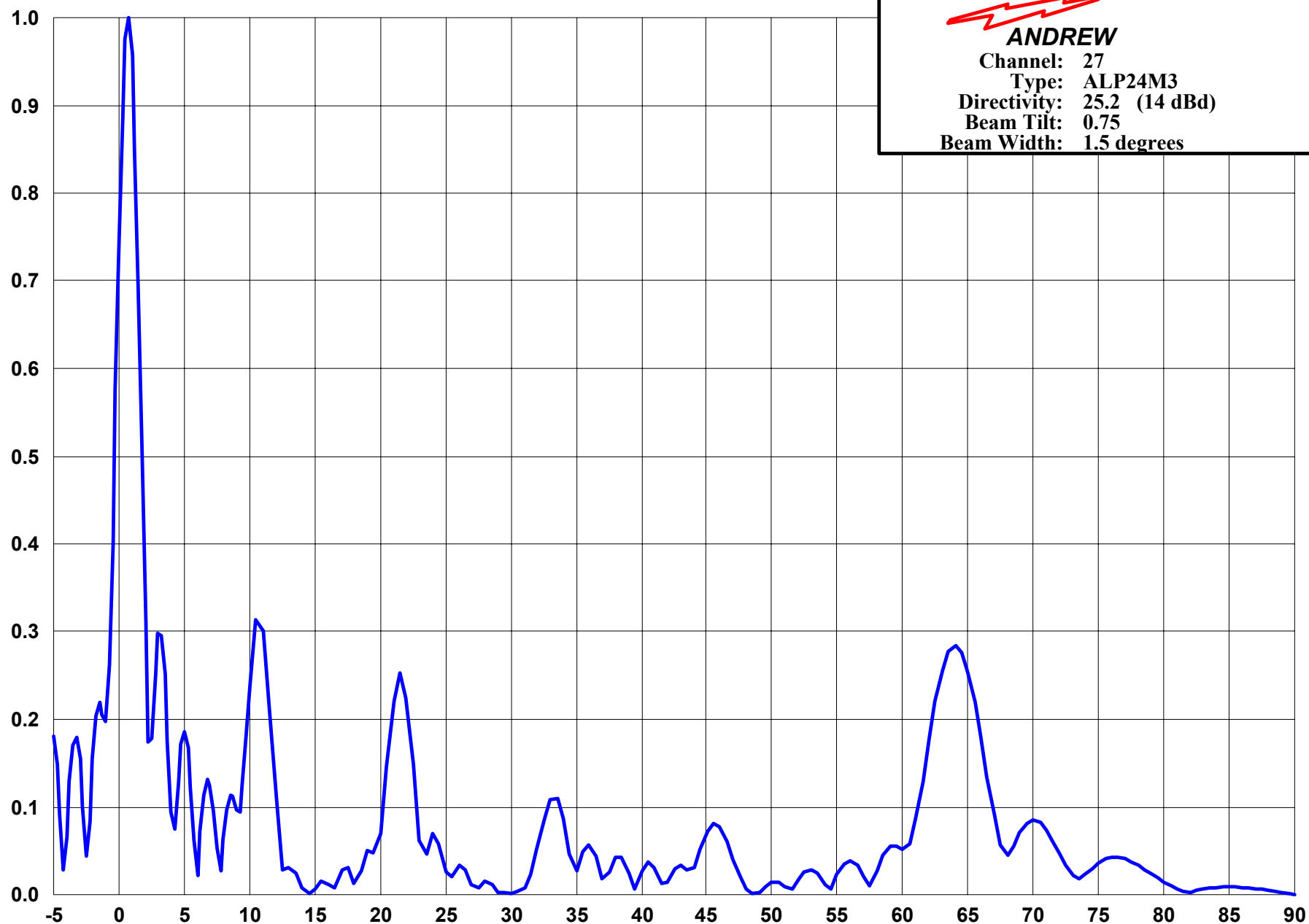


Figure 2

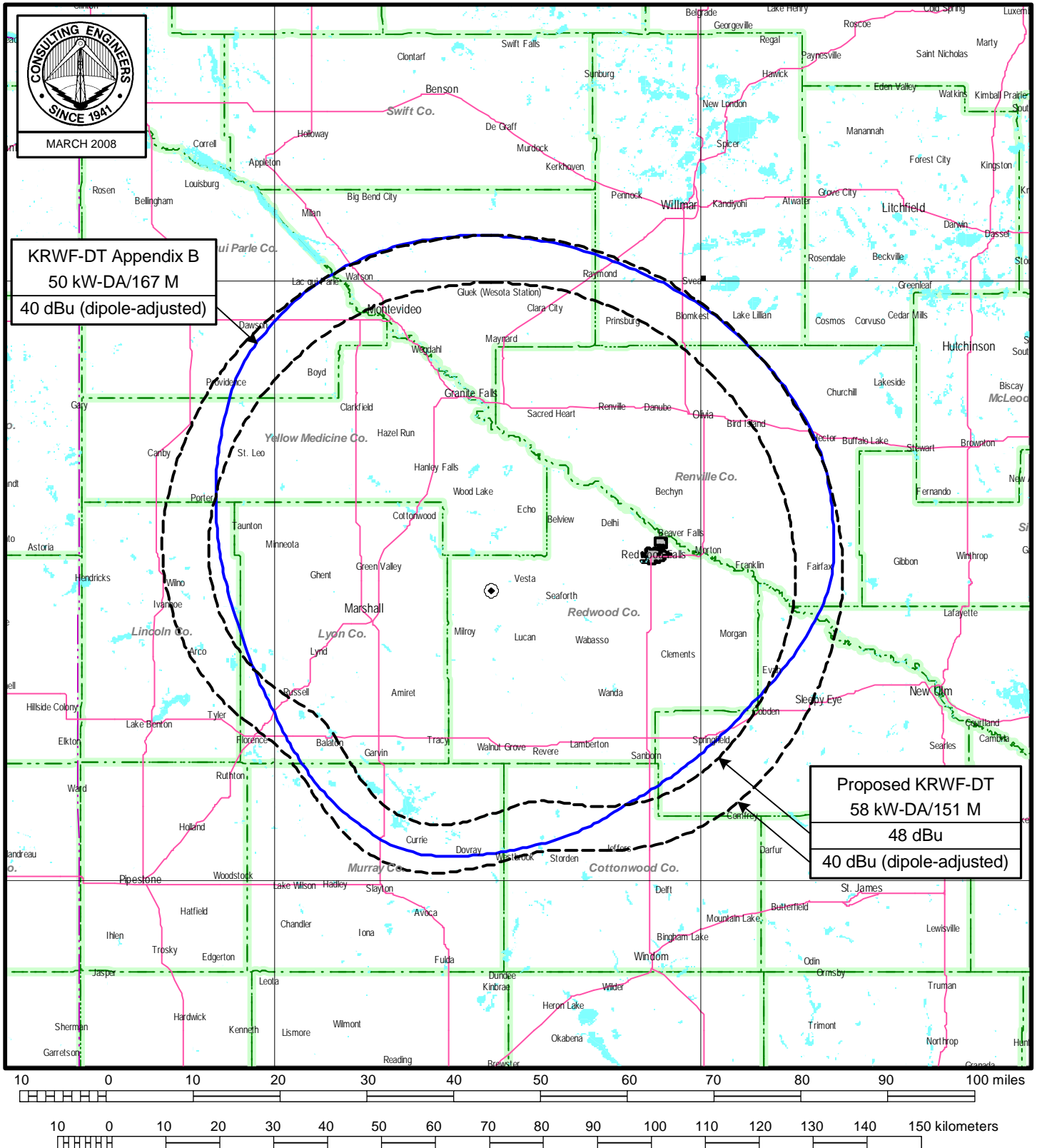


**ANDREW**  
Channel: 27  
Type: ALP24M3  
Directivity: 25.2 (14 dBd)  
Beam Tilt: 0.75  
Beam Width: 1.5 degrees

ANDREW CORPORATION  
10500 W. 153rd Street  
Orland Park, Illinois U.S.A. 60462

Date: 5/16/01

**Figure 3**



## **PREDICTED COVERAGE CONTOURS**

**STATION KRWF-DT**  
**REDWOOD FALLS, MINNESOTA**  
**CH 27 58 kW (MAX-DA) 151**  
 du Treil, Lundin & Rackley, Inc Sarasota, Florida

Census data selected 2000

Post Transition Data Base Selected  
/export/home/cdbb/tvdb.sff\_G  
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 03-12-2008 Time: 12:15:17  
Record Selected for Analysis

KRWF-DT USERRECORD-01 REDWOOD FALLS MN US  
Channel 27 ERP 58. kW HAAT 151. m RCAMSL 00481 m  
Latitude 044-29-03 Longitude 0095-29-27  
Status APP Zone 2 Border  
Dir Antenna Make CDB Model 00000000039879 Beam tilt N Ref Azimuth 0.  
Last update Cutoff date Docket

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	56.846	160.6	64.9
45.0	57.884	155.9	64.6
90.0	45.942	160.0	63.8
135.0	16.694	147.3	58.1
180.0	2.858	145.0	49.6
225.0	2.437	140.2	48.5
270.0	20.672	147.2	59.1
315.0	48.772	151.5	63.5

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 quite zone  
Proposed facility OK toward Table Mountain  
Proposed facility is beyond the Canadian coordination distance  
Proposed facility is beyond the Mexican coordination distance  
Proposed station is OK toward AM broadcast stations

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Start of Interference Analysis

Channel	Call	City/State	ARN
27	KRWF-DT	REDWOOD FALLS MN	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
26	KTCI-TV	ST. PAUL MN	197.3	CP	BDTV	-00000185
27	KFXA	CEDAR RAPIDS IA	382.9	CP	BPCDT	-19991028ACW
27	NEW	DULUTH MN	366.1	CP	BNPCT	-20060421ABZ
27	KCPM	GRAND FORKS ND	404.8	CP MOD	BMPCT	-20031223AAH
27	WHWC-TV	MENOMONIE WI	293.0	CP MOD	BMPEDT	-20030625AAD
28	KSIN-TV	SIOUX CITY IA	228.5	CP MOD	BMPEDT	-20020802AAO

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Analysis of Interference to Affected Station 1

## Analysis of current record

Channel	Call	City/State	Application Ref. No.
26	KTCI-TV	ST. PAUL MN	BDTV -00000185

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
26	KFTC	BEMIDJI MN	298.0	LIC	BLCT -19991203AAP
26	WKOW-TV	MADISON WI	362.9	CP	BPCDT -20000501AEY
27	NEW	DULUTH MN	207.2	CP	BNPCT -20060421ABZ
27	WHWC-TV	MENOMONIE WI	99.0	CP MOD	BMPEDT -20030625AAD
27	KRWF-DT	REDWOOD FALLS MN	197.3	APP	USERRECORD-01

Proposed station is beyond the site to  
nearest cell evaluation distance

#####

## Analysis of Interference to Affected Station 2

## Analysis of current record

Channel	Call	City/State	Application Ref. No.
27	KFXA	CEDAR RAPIDS IA	BPCDT -19991028ACW

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
27	WCIU-TV	CHICAGO IL	368.4	CP MOD	BMPEDT -20021202ABR
27	WACY	APPLETON WI	417.3	CP	BDTV -00000193
27	WHWC-TV	MENOMONIE WI	329.1	CP MOD	BMPEDT -20030625AAD
27	KRWF-DT	REDWOOD FALLS MN	382.9	APP	USERRECORD-01

Proposal causes no interference

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## Analysis of Interference to Affected Station 3

## Analysis of current record

Channel	Call	City/State	Application Ref. No.
27	NEW	DULUTH MN	BNPCT -20060421ABZ

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
26	KFTC	BEMIDJI MN	217.8	LIC	BLCT -19991203AAP
26	KTCI-TV	ST. PAUL MN	207.2	CP	BDTV -00000185
27	KCPM	GRAND FORKS ND	393.4	CP MOD	BMPCT -20031223AAH
27	WACY	APPLETON WI	420.4	CP	BDTV -00000193
27	WHWC-TV	MENOMONIE WI	194.5	CP MOD	BMPEDT -20030625AAD
28	KAWB	BRAINERD MN	183.2	LIC	BLEDT -20030429AAJ
27	KRWF-DT	REDWOOD FALLS MN	366.1	APP	USERRECORD-01

Proposal causes no interference

#####

## Analysis of Interference to Affected Station 4

## Analysis of current record

Channel	Call	City/State	Application Ref. No.
27	KCPM	GRAND FORKS ND	BMPCT -20031223AAH

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
26	KFTC	BEMIDJI MN	175.6	LIC	BLCT	-19991203AAP
27	NEW	DULUTH MN	393.4	CP	BNPCT	-20060421ABZ
27	KRWF-DT	REDWOOD FALLS MN	404.8	APP	USERRECORD-01	

Proposed station is beyond the site to  
nearest cell evaluation distance

#####

#### Analysis of Interference to Affected Station 5

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
27	WHWC-TV	MENOMONIE WI	BMPEDT	-20030625AAD

#### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
26	KTCI-TV	ST. PAUL MN	99.0	CP	BDTV	-00000185
27	KFXA	CEDAR RAPIDS IA	329.1	CP	BPCDT	-19991028ACW
27	NEW	DULUTH MN	194.5	CP	BNPCT	-20060421ABZ
27	WACY	APPLETON WI	316.1	CP	BDTV	-00000193
28	WYOW	EAGLE RIVER WI	219.5	CP MOD	BMPCDT	-20041001ANY
27	KRWF-DT	REDWOOD FALLS MN	293.0	APP	USERRECORD-01	

Total scenarios = 1

Result key: 1

Scenario 1 Affected station 5

Before Analysis

Results for: 27A WI MENOMONIE BMPEDT 20030625AAD CP  
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	118027	261.9
lost to ATV IX only	118027	261.9
lost to all IX	118027	261.9

Potential Interfering Stations Included in above Scenario 1

26A MN ST. PAUL	BDTV	00000185	CP
27A IA CEDAR RAPIDS	BPCDT	19991028ACW	CP
27A MN DULUTH	BNPCT	20060421ABZ	CP
27A MN REDWOOD FALLS	BDTV	00000194	CP
27A WI APPLETON	BDTV	00000193	CP

After Analysis

Results for: 27A WI MENOMONIE BMPEDT 20030625AAD CP  
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	118027	261.9
lost to ATV IX only	118027	261.9
lost to all IX	118027	261.9

Potential Interfering Stations Included in above Scenario 1

26A MN ST. PAUL	BDTV	00000185	CP
27A IA CEDAR RAPIDS	BPCDT	19991028ACW	CP
27A MN DULUTH	BNPCT	20060421ABZ	CP
27A WI APPLETON	BDTV	00000193	CP
27A MN REDWOOD FALLS	USERRECORD01		APP

Percent new IX = 0.0000%  
Worst case new IX 0.0000% Scenario 1

#####

#### Analysis of Interference to Affected Station 6

##### Analysis of current record

Channel	Call	City/State	Application Ref. No.
28	KSIN-TV	SIOUX CITY IA	BMPEDT -20020802AAO

##### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
28	KHNE-TV	HASTINGS NE	243.9	LIC	BL EDT -20030409ABN
27	KRWF-DT	REDWOOD FALLS MN	228.5	APP	USERRECORD-01

Proposed station is beyond the site to  
nearest cell evaluation distance

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#### Analysis of Interference to Affected Station 7

##### Analysis of current record

Channel	Call	City/State	Application Ref. No.
27	KRWF-DT	REDWOOD FALLS MN	USERRECORD-01

##### Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
26	KTCI-TV	ST. PAUL MN	197.3	CP	BDTV -00000185
27	KFXA	CEDAR RAPIDS IA	382.9	CP	BPCDT -19991028ACW
27	NEW	DULUTH MN	366.1	CP	BNPCT -20060421ABZ
27	KCPM	GRAND FORKS ND	404.8	CP MOD	BMPCT -20031223AAH
27	WHWC-TV	MENOMONIE WI	293.0	CP MOD	BMPEDT -20030625AAD
28	KSIN-TV	SIOUX CITY IA	228.5	CP MOD	BMPEDT -20020802AAO

Total scenarios = 1

Result key: 2

Scenario 1 Affected station 7

Before Analysis

Results for: 27A MN REDWOOD FALLS USERRECORD01 APP  
HAAT 151.0 m, ATV ERP 58.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	89175	11464.9
not affected by terrain losses	89163	11456.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	0	0.0
lost to ATV IX only	0	0.0
lost to all IX	0	0.0

Potential Interfering Stations Included in above Scenario 1

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