

# **ENGINEERING REPORT**

Translator Application  
Channel 268D, 101.5 MHz  
Spooner, WI

**March, 2003**

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**MUNN-REESE, INC.**  
Broadcast Engineering Consultants  
Coldwater, MI 49036

## Discussion

This firm has been retained to prepare the required engineering report in support of a new Translator Application for Spooner, WI, on Channel 268. The Translator will rebroadcast KDNW, Duluth, MN, Channel 247. This proposal meets the requirements of the Rules.

It has been determined that the translator may be used in the area without interference to any existing FM broadcast station. A copy of the FCC Form 349 Tech Box Worksheet has been included in **Exhibit 1.0**. This represents the actual technical information as filed with the FCC in the recent Translator Window. A copy of the allocation has been included for this translator has been included as **Exhibit 1.1**. A copy of the vertical placement of the antenna on the proposed tower has been included as **Exhibit 2.0**. The proposed Translator Coverage area has been depicted in **Exhibit 3.0**. **Exhibit 3.1** of this report is a map showing the relationship of the primary station protected contour to the protected contour of the translator station.

The proposed facility will meet the requirements of the Rules for operation without a licensed operator in attendance. The transmitter site should be reached promptly at all hours and in all seasons. The transmitter should be equipped with proper control and interface circuits which will place the translator in a non-radiating condition in the event the proper incoming signal is absent. The transmitter and controls should be placed in a locked area to prevent unauthorized tampering with the equipment. A person or persons should be assigned to observe the signals of the station each day, and to take corrective action if required. The equipment proposed for this operation is listed in the type-approved list of the Commission.

## CERTIFICATION

I hereby certify, subject to penalties for perjury, that the contents of this Engineering Statement are true and accurate to the best of my knowledge and belief.

March 27, 2003

**Munn-Reese, Inc.**

By Wayne S. Reese  
Wayne S. Reese, President

By Donald J. Baad  
Donald J. Baad, Project Engineer

By Justin W. Asher  
Justin W. Asher, Project Engineer

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Section III-A - Engineering

**Exhibit 1.0 - FCC Form 349**

**TECHNICAL SPECIFICATIONS**

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

**TECH BOX**

1. Channel: \_\_\_\_\_

2. Primary Station:	Call Sign	City	State	Channel
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3. Delivery Method:

Off-air     
  Microwave     
  Satellite     
  Via \_\_\_\_\_     
  Other

4. Antenna Location Coordinates: (NAD 27)

\_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ "     N     S Latitude  
 \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ "     E     W Longitude

5. Antenna Structure Registration Number: \_\_\_\_\_

Not applicable     
  FAA Notification Filed with FAA

6. Antenna Location Site Elevation Above Mean Sea Level: \_\_\_\_\_ meters

7. Overall Tower Height Above Ground Level: \_\_\_\_\_ meters

8. Height of Radiation Center Above Ground Level: \_\_\_\_\_ meters (H)    \_\_\_\_\_ meters (V)

9. Effective Radiated Power: \_\_\_\_\_ kW (H)    \_\_\_\_\_ kW (V)

10. Transmitting Antenna:

Nondirectional     
  Directional "Off-the-shelf"     
  Directional composite

Manufacturer	Model
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Rotation: \_\_\_\_\_ °     No rotation

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0		60		120		180		240		300	
10		70		130		190		250		310	
20		80		140		200		260		320	
30		90		150		210		270		330	
40		100		160		220		280		340	
50		110		170		230		290		350	
Additional Azimuths											

## Exhibit 1.1 - Translator Allocation

REFERENCE CH# 268D - 101.5 MHz, Pwr= 0.019 kW, HAAT=111.9 M, COR= 427 M DISPLAY DATES  
 45 47 40 N Average Protected F(50-50)= 7.22 km DATA 03-22-03  
 91 55 03 W Ave. F(50-10) 40 dBu= 24.2 54 dBu= 10.2 80 dBu= 2.1 100 dBu= .3 SEARCH 03-27-03

CH CITY	CALL	TYPE STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr (kW) HAAT (M)	COR (M) INT (km)	PRO (km) LICENSEE	*IN* (Overlap in km)	*OUT*
268D Spooner	NWC-X1	AP C WI	0.0 180.0	0.00	45 47 40 91 55 03	0.019	427 11.9	3.7 Northwestern College	-19.08<	-27.88<
266A Hayward	*WHSFM	LIC NCN WI	53.9 233.9	36.19 BLHL19950627KF	45 59 07 91 32 23	1.500 147	499 2.1	24.5 Qb Broadcasting, Ltd.	27.45	11.34
> Reference HAAT at 53.9°= 95.7 M, Pwr= 0.019 kW, Pro. Dist. = 6.68 km, Int Dist. = 0.31 km Proposed to Canada as Class B1 950217-Accepted by Canada 950331										
267C Richfield	*KDWBFM	LIC CN MN	229.4 49.4	124.94 BLHL19910814KA	45 03 30 93 07 27	100.000 309	593 106.0	73.1 Amfm Radio Licenses, L.l.c	13.37	44.01
> Reference HAAT at 229.4°= 67.9 M, Pwr= 0.019 kW, Pro. Dist. = 5.61 km, Int Dist. = 7.87 km										
269L1 Rice Lake	*WWJP-L	APP WI	158.6 338.6	39.46 BNPL20010118AAJ	45 27 50 91 43 58	0.000 -370	0 6.3	4.5 Meadow Creek Christian Rad	28.69	28.69
> Reference HAAT at 158.6°= 43.7 M, Pwr= 0.019 kW, Pro. Dist. = 4.47 km, Int Dist. = 6.3 km										
269L1 Rice Lake	*WWJP-L	CP WI	158.6 338.6	39.46 BMPL20021024AAL	45 27 50 91 43 58	0.100 7	377 8.0	5.6 Meadow Creek Christian Rad	27.00	27.52
> Reference HAAT at 158.6°= 43.7 M, Pwr= 0.019 kW, Pro. Dist. = 4.47 km, Int Dist. = 6.3 km										
271C St. Paul	*KEEYFM	LIC CN MN	229.4 49.4	124.94 BLHL19910814KJ	45 03 30 93 07 27	100.000 309	593 10.3	73.1 Amfm Radio Licenses, L.l.c	109.06	51.58
> Reference HAAT at 229.4°= 67.9 M, Pwr= 0.019 kW, Pro. Dist. = 5.61 km, Int Dist. = 0.31 km										
265C3 Pine City	*WCMPFM	LIC ZCN MN	278.8 98.8	81.62 BLHL19980814KG	45 54 07 92 57 25	25.000 94	381 3.9	38.1 Quarnstrom Media Group, Ll	70.92	43.20
> Reference HAAT at 278.8°= 97.9 M, Pwr= 0.019 kW, Pro. Dist. = 6.76 km, Int Dist. = 0.31 km Accepted as Class B1 by Canada 980513										
269C2 Duluth	*KLDJ	LIC CN MN	352.0 172.0	111.44 BLHL19960709KB	46 47 13 92 07 17	18.500 363	558 87.9	60.0 Nb Ii, Inc., Debtor In Pos	16.67	41.75
> Reference HAAT at 352.0°= 101.8 M, Pwr= 0.019 kW, Pro. Dist. = 6.89 km, Int Dist. = 9.72 km Accepted as Class B by Canada 980608-Specially negotiated, short-spaced allotment limited to 81kw ERP and 300m HAAT or the equivalent along the 332.3 degree azimuth toward channel 269B in Fort Frances, ON										

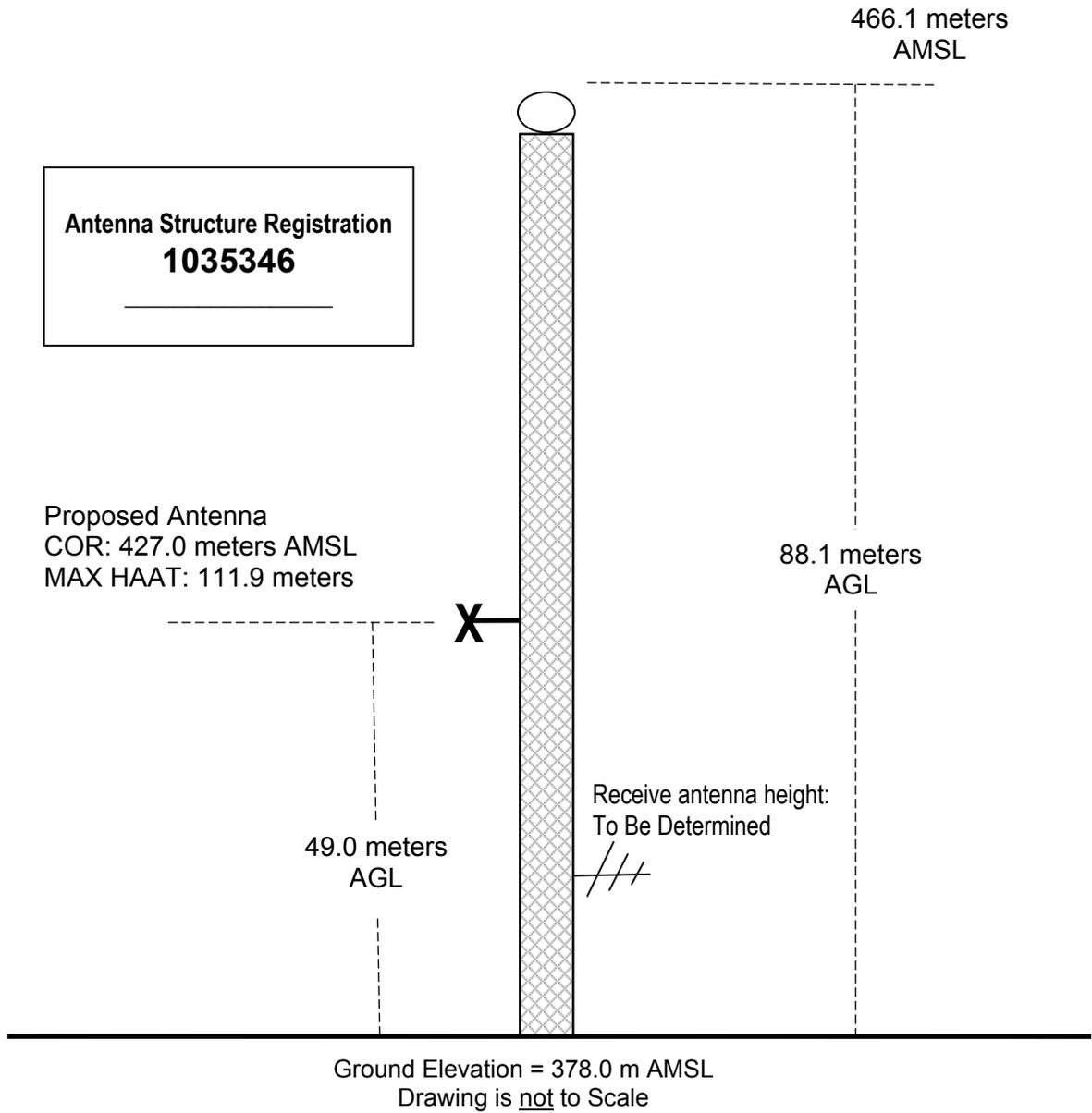
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 "\*" = ERP and HAAT on direct line to and from reference station. "<" = Contour Overlap

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# EXHIBIT 2.0 VERTICAL PLAN OF ANTENNA SYSTEM

This station will rebroadcast KDNW, Duluth, MN.

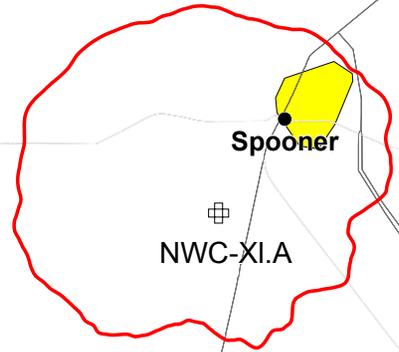
Site Location  
NL: 45° 47' 40"  
WL: 91° 55' 03"



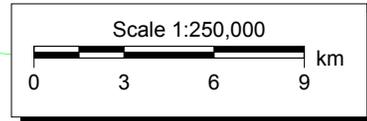
**NWC-XI.A**  
Spooner, WI  
Latitude: 45-47-40 N  
Longitude: 091-55-03 W  
ERP: 0.019 kW  
Channel: 268  
Frequency: 101.5 MHz  
AMSL Height: 427.0 m  
Horiz. Pattern: Omni

**Exhibit 3.0  
Coverage Map**

F(50-50) 60.0 dBu



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V-Soft Communications ©

### Exhibit 3.1 Primary Station Coverage Map

**KDNW**  
 Duluth, MN  
 Latitude: 46-47-20 N  
 Longitude: 092-07-04 W  
 ERP: 40.00 kW  
 Channel: 247  
 Frequency: 97.3 MHz  
 AMSL Height: 474.0 m  
 Horiz. Pattern: Omni

**NWC-XI.A**  
 Spooner, WI  
 Latitude: 45-47-40 N  
 Longitude: 091-55-03 W  
 ERP: 0.019 kW  
 Channel: 268  
 Frequency: 101.5 MHz  
 AMSL Height: 427.0 m  
 Horiz. Pattern: Omni

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