

Exhibit 13.2 - KFNW(AM) - Proposed Translator vs AM Contours

KFNW.L

Latitude: 46-48-06 N
Longitude: 096-52-59 W
ERP: 0.10 kW
Channel: 201
Frequency: 1200 kHz

K273DJ.C

BNPFT20180418ACA
Latitude: 46-48-06 N
Longitude: 096-52-59 W
ERP: 0.25 kW
Channel: 273
Frequency: 102.5 MHz
AMSL Height: 334.0 m
Elevation: 276.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

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■ KFNW.L
■ K273DJ.C (273)

Circle R = 40.0 km

FCC F(50-50) 60.00 dBu (FCC HAAT)

Moorehead
K273DJ.C
KFNW.L

Scale 1:1,500,000

0 20 40 60 km

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Coldwater, MI 49036

Exhibit 13.3

University Of Northwestern-st. Paul

REFERENCE CH# 273D - 102.5 MHz, Pwr= 0.25 kw, HAAT= 0.0 M, COR= 334 M
46 48 06.0 N. Average Protected F(50-50)= 7.09 km
96 52 59.0 W. Omni-directional

DISPLAY DATES
DATA 10-17-18
SEARCH 10-23-18



CH CITY	CALL	TYPE STATE	ANT AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
273D West Fargo	K273DJ	CP ND	0.0 0.0	0.00 BNPFT20180418ACA	46 48 06.0 96 52 59.0	0.250		---Reference---		
270C1 Fargo	KRWK	LIC _CX ND	314.5 134.3	33.12 BMLH20071019AJB	47 00 36.0 97 11 41.0	96.000 305	10.3 595	73.2 Midwest Communications, In	12.8	-41.2*<
272C2 Detroit Lakes	KRCQ	LIC _CX MN	96.0 276.8	79.66 BLH20120605AAQ	46 43 19.0 95 50 37.0	50.000 126	75.3 549	49.7 Leighton Enterprises, Inc.	-5.5<	16.2
220C Fargo	KDSU	LIC _CN ND	315.0 134.8	33.36 BLED19820621AB	47 00 48.0 97 11 37.0	100.000 302	4.8 593	3.4 North Dakota State Univers	28.5R	4.9M
274C1 Thief River Falls	KNTN	LIC NCN MN	8.9 189.1	132.31 BLH19911216KA	47 58 38.0 96 36 32.0	100.000 164	90.1 439	60.3 Minnesota Public Radio	32.0	57.9
273C1 Devils Lake	KDVL	LIC _CN ND	311.3 129.8	202.95 BLH19830829AB	47 59 16.0 98 55 59.0	100.000 143	151.2 596	55.4 Double Z Broadcasting, Inc	41.7	113.8
276C1 Wimbledon	KRVX	LIC NCX ND	278.6 97.5	109.40 BLH20051026ACF	46 56 21.0 98 18 30.0	99.000 144	7.1 587	58.4 Two Rivers Broadcasting, I	92.4	49.9
273C1 Willmar	KQIC	LIC _CN MN	141.5 322.8	226.36 BLH19810522AG	45 11 40.0 95 05 01.0	100.000 253	166.1 609	67.3 Lakeland Broadcasting Comp	50.3	125.8
273C2 Kelliher	KKWB	LIC ZCX MN	57.0 238.6	195.77 BLH20081029ADY	47 44 21.0 94 41 10.0	50.000 144	135.0 555	49.4 Bemidji Radio, Inc.	50.7	112.6
274D Valley City	K274BH	LIC _C_ ND	280.2 99.4	87.06 BLFT20120614ABQ	46 56 07.0 98 00 42.0	0.250 20	10.1 445	7.1 Two Rivers Broadcasting, I	67.0	66.1
275C1 Sisseton	KBWS-FM	LIC _CX SD	197.4 17.0	138.17 BMLH20110526AAT	45 36 52.0 97 24 51.0	100.000 140	6.7 698	56.4 Armada Media - Watertown,	121.8	80.7
274C2 Pequot Lakes	KTIG	LIC NCN MN	93.2 275.0	188.35 BMLED19980105KC	46 40 48.0 94 25 02.0	40.000 165	75.4 567	50.6 Minnesota Christian Broadc	103.0	124.0
270C2 Walker	KQKK	LIC NC_ MN	81.0 262.9	201.19 BLH19990802KA	47 03 14.0 94 15 32.0	50.000 119	5.2 524	47.1 Carol J. Delahunt	186.0	153.0
271C2 Roseau	KCAJ-FM	LIC _CN MN	22.3 203.1	222.39 BLH19960626KA	48 38 50.0 95 44 10.0	50.000 87	4.3 429	40.5 North Country Media, Inc.	208.0	180.8
272C1 Winnipeg	CITI-FM	APP ?HN MB	356.9 176.7	328.90	49 45 20.0 97 07 52.0	100.000 206	122.6 438	96.1 196.1		211.7

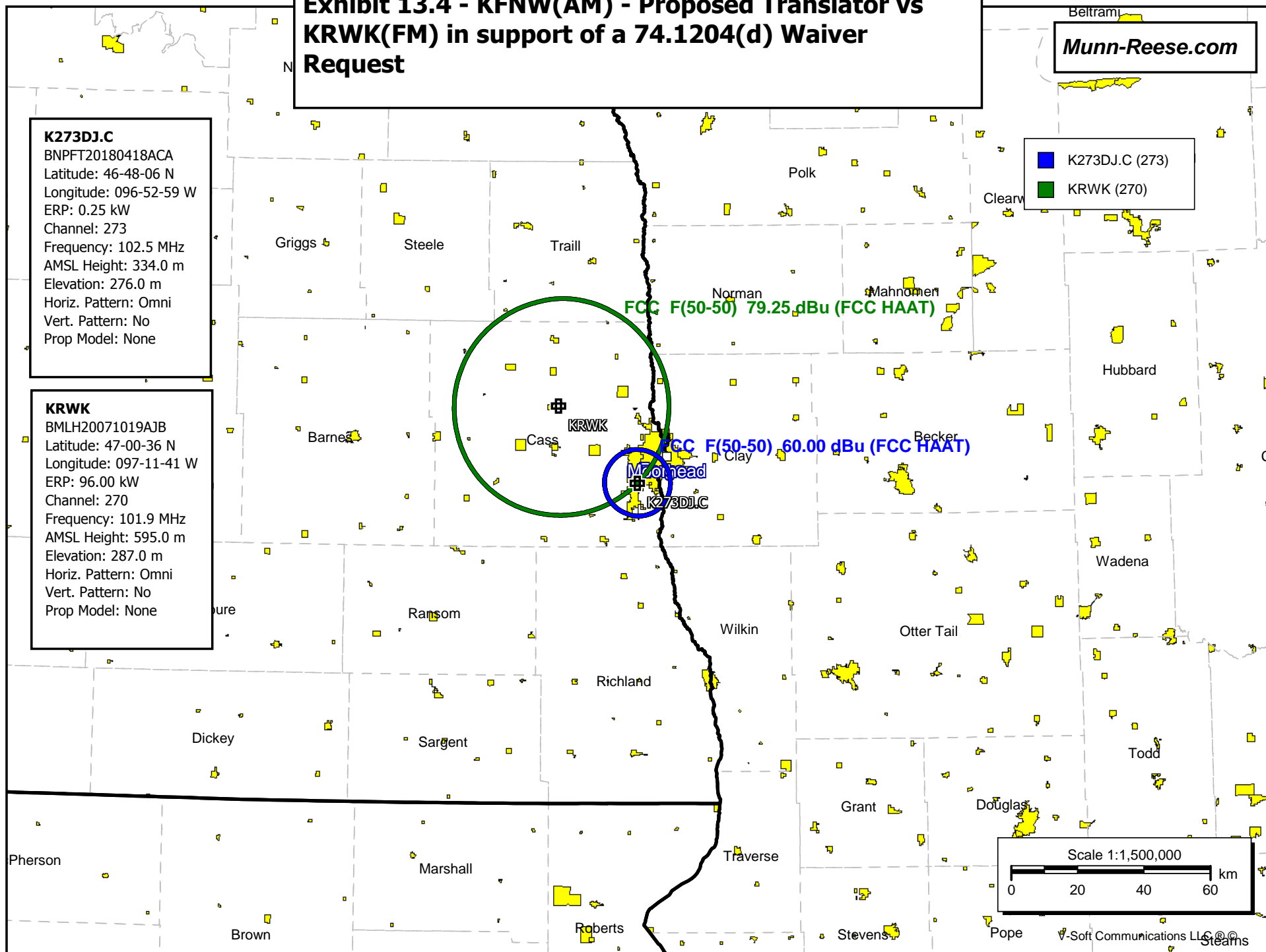
Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
Contour distances are on direct line to and from reference station. Reference zone= West Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding. Call signs with strikeout need not be protected.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.
< = Station meets FCC minimum distance spacing for its class.
< = Contour Overlap
Reference station has protected zone issue: AM tower

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BNPFT20180418ACA
Latitude: 46-48-06 N
Longitude: 096-52-59 W
ERP: 0.25 kW
Channel: 273
Frequency: 102.5 MHz
AMSL Height: 334.0 m
Elevation: 276.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

BMLH20071019AJB
 Latitude: 47-00-36 N
 Longitude: 097-11-41 W
 ERP: 96.00 kW
 Channel: 270
 Frequency: 101.9 MHz
 AMSL Height: 595.0 m
 Elevation: 287.0 m
 Horiz. Pattern: Omni
 Vert. Pattern: No
 Prop Model: None

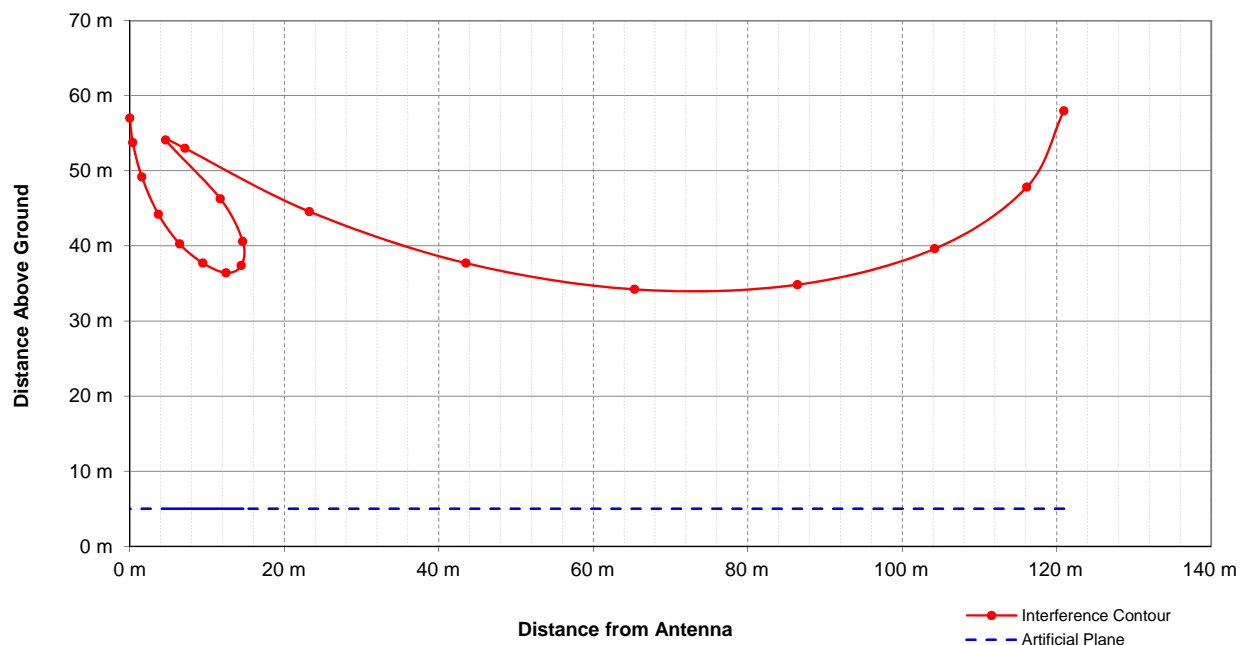
 K273DJ.C (273)
 KRWK (270)



Scale 1:1,500,000

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Exhibit 13.4 - Downward Radiation Study in Support of a 74.1204(d) Waiver Request



Proposed Antenna: Jampro JMBP-2 (Two Bay Fully Spaced)
Proposed Power: 0.25 kW
Antenna Height AGL: 58 meters
Interference Contour: 119.25 dBu f(50:10)
Artificial Ground Plane Height: 5 meters
Distance (Free Space) Equation: $= (10^{((106.92 - [\text{desired dBu}] + [\text{ERP in dBk}]) / 20)) * 1000}$
Field Strength (dBu) Equation: $= 106.92 - (20 * (\text{LOG10}[\text{DistMeters} / 1000])) + [\text{ERP in dBk}]$

Depression				Distance		Field Strength		Field Strength
Angle	Antenna			from Ant.	Distance	in dBu @	Distance	in dBu @
Below	Relative	ERP	ERP	to Interference	from Ant. to	Artificial Plane	from Ant.	Artificial Plane
Horizon	Field	in kW	in dBk	Contour	Artificial Plane	Artificial Plane	to Ground Level	Ground Level
0°	1.000	0.250	-6.02	120.91 m	infinite	---	---	---
-5°	0.964	0.232	-6.34	116.56 m	608.11 m	104.90 dBu	665.48 m	104.12 dBu
-10°	0.875	0.191	-7.18	105.80 m	305.21 m	110.05 dBu	334.01 m	109.26 dBu
-15°	0.740	0.137	-8.64	89.48 m	204.78 m	112.06 dBu	224.09 m	111.28 dBu
-20°	0.575	0.083	-10.83	69.52 m	154.96 m	112.29 dBu	169.58 m	111.51 dBu
-25°	0.397	0.039	-14.04	48.00 m	125.41 m	110.91 dBu	137.24 m	110.13 dBu
-30°	0.222	0.012	-19.09	26.84 m	106.00 m	107.32 dBu	116.00 m	106.54 dBu
-35°	0.072	0.001	-28.87	8.71 m	92.40 m	98.73 dBu	101.12 m	97.95 dBu
-40°	0.050	0.001	-32.04	6.05 m	82.45 m	96.55 dBu	90.23 m	95.77 dBu
-45°	0.137	0.005	-23.29	16.56 m	74.95 m	106.14 dBu	82.02 m	105.35 dBu
-50°	0.188	0.009	-20.54	22.73 m	69.19 m	109.58 dBu	75.71 m	108.80 dBu
-55°	0.208	0.011	-19.66	25.15 m	64.70 m	111.04 dBu	70.80 m	110.26 dBu
-60°	0.206	0.011	-19.74	24.91 m	61.20 m	111.44 dBu	66.97 m	110.66 dBu
-65°	0.185	0.009	-20.68	22.37 m	58.48 m	110.90 dBu	64.00 m	110.12 dBu
-70°	0.156	0.006	-22.16	18.86 m	56.40 m	109.74 dBu	61.72 m	108.95 dBu
-75°	0.118	0.003	-24.58	14.27 m	54.87 m	107.55 dBu	60.05 m	106.77 dBu
-80°	0.074	0.001	-28.64	8.95 m	53.82 m	103.67 dBu	58.89 m	102.88 dBu
-85°	0.035	0.000	-35.14	4.23 m	53.20 m	97.26 dBu	58.22 m	96.48 dBu
-90°	0.008	0.000	-47.96	0.97 m	53.00 m	84.48 dBu	58.00 m	83.69 dBu