

**Comprehensive Technical Statement
In support of
Center for Communication and Development**

**Minor Modification to Amended Construction Permit
BMPED-20100104ADM**

**KMOJ (FM)
Facility ID 14679
Channel 210C3, 89.9 MHz
Minneapolis, MN**

Introduction

Center for Communication and Development ("CCD"), licensee of KMOJ (FM), was granted Construction Permit BPED-20080228ABA to relocate and make minor changes in the facility. A subsequent amendment BMPED-20100104ADM was granted, and the facility has been constructed. License application BLED-20101227AAG has been filed to cover the construction.

In performing the required Directional Antenna certification, the surveyor provided site coordinates that differed from the ASR record upon which the application was based. A subsequent survey was performed to confirm the coordinates and to determine the site elevation and tower height. All three of these items vary from the ASR record. A copy of the certified survey is included as Attachment A to this statement.

The tower owner has committed to filing an amended ASR record and performing FAA coordination as required.

KMOJ is operating at 5.4 kW under BSTA-20110131AQT pending submission and grant of this application, and modification of its license application.

In this application, CCD proposes amendments to the following items in BMPED-20100104ADM, all intended to conform the Construction Permit to the site survey:

- Antenna coordinates
- Site elevation
- Antenna height above mean sea level
- Antenna height above average terrain
- Directional antenna pattern

History

KMOJ began in 1976 as a 10 Watt Class D station on channel 209 (89.7 MHz). It was third adjacent to a nearby 10 Watt Class D station, KFAI, on channel 212 (90.3 MHz). In 1983, the FCC approved upgrades of both stations to Class A, and the move of KMOJ to its present channel 210 (89.9 MHz). This set up a unique situation in which two second-adjacent Class A stations were authorized at locations less than two miles apart. A copy of the Memorandum, Opinion and Order authorizing the facilities is on file in BMPED-20100104ADM.

A contract between the licensees deals with the unique situation. It requires that the transmitters be located at least 0.75 miles apart, and that interference from either station may not exceed 2%

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of the coverage area of the other station. That contract was accepted by the FCC and made a part of the record. A copy is on file in BMPED-20100104ADM.

In 2007, KFAI received a Construction Permit to move its facility to a location that is closer to KMOJ, but still more than 0.75 miles away, as required by the contract between the licensees. That facility was built and is currently licensed.

In 1986, KCMP, then owned by Saint Olaf College and now owned by Minnesota Public Radio, filed a Construction Permit application to improve its facilities (BPED-19860221MR). A copy of the application is on file in BMPED-20100104ADM. This application included a Request for Waiver of 47 CFR 73.509 (a so-called "*Raleigh*" waiver) to allow KCMP to receive interference from KMOJ. The application was approved in 1990, and a copy of the authorization is on file in BMPED-20100104ADM.

As a *Raleigh* station, KCMP must accept interference from a relocated and upgraded KMOJ, as long as (a) the interference area does not exceed 10% of KCMP's coverage area, and (b) there is a substantial improvement in the coverage of KMOJ.

The information presented in this Statement will show that correcting the data for KMOJ to reflect the site survey will not affect the FCC's finding in granting BMPED-20100104ADM that KMOJ will satisfy the requirements of the *Raleigh* precedent.

Allocation Study

app_id	fac_id	adj	chan	status	call	st	city	erp	da	haat	brg	dkm	fsrq	fsΔ
1369824	14679	0	210C3	CP MOD	KMOJ	MN	MINNEAPOLIS	6.2	Y	116	120	0.13	153	-152.87
74218	14679	0	210A	LIC	KMOJ	MN	MINNEAPOLIS	1	N	24	223	13.02	142	-128.98
1364854	93446	1	209C2	LIC	KPCS	MN	PRINCETON	40	N	42	330	62.51	117	-54.49
1112154	62162	3	207C1	LIC	KCMP	MN	NORTHFIELD	97.6	N	234	169	42.95	76	-33.05
1274784	22630	2	212A	LIC	KFAI	MN	MINNEAPOLIS	0.9	Y	241	216	12.78	42	-29.22
114044	42955	1	211C1	LIC	KSJR-FM	MN	COLLEGEVILLE	100	N	258	295	116.96	144	-27.04
1210392	173861	1	211C3	CP	NEW	WI	SPRING VALLEY	16	Y	88	93	74.25	99	-24.75
672234	57277	0	210C3	LIC	KRPR	MN	ROCHESTER	3.2	N	180	150	132.09	153	-20.91
1346060	39790	1	209C2	LIC	KMSU	MN	MANKATO	17	N	133	213	122.06	117	5.06
1325649	121767	2	212C3	LIC	KMKL	MN	NORTH BRANCH	15	Y	121	17	55.10	43	12.10
1370319	4282	1	209C2	CP	WUEC	WI	EAU CLAIRE	25	Y	195	102	138.29	117	21.29
295775	63089	0	210C2	LIC	WWSA	WI	BRULE	38	N	168	38	199.58	177	22.58

The above table summarizes the potential conflicts at the proposed location. The "fsrq" column shows the 73.207 required distance based on Class. All records exceeding the required distance by more than 25km are suppressed.

The KMOJ LIC and CP MOD records will be superseded.

KFAI is covered by the FCC-approved contract mentioned above. A specific study showing that the proposed KMOJ facility meets the requirements of the contract is provided below.

KCMP is a *Raleigh* waiver station. A specific study is provided below.

All other records are studied below in groups based on channel adjacency (the "adj" column).

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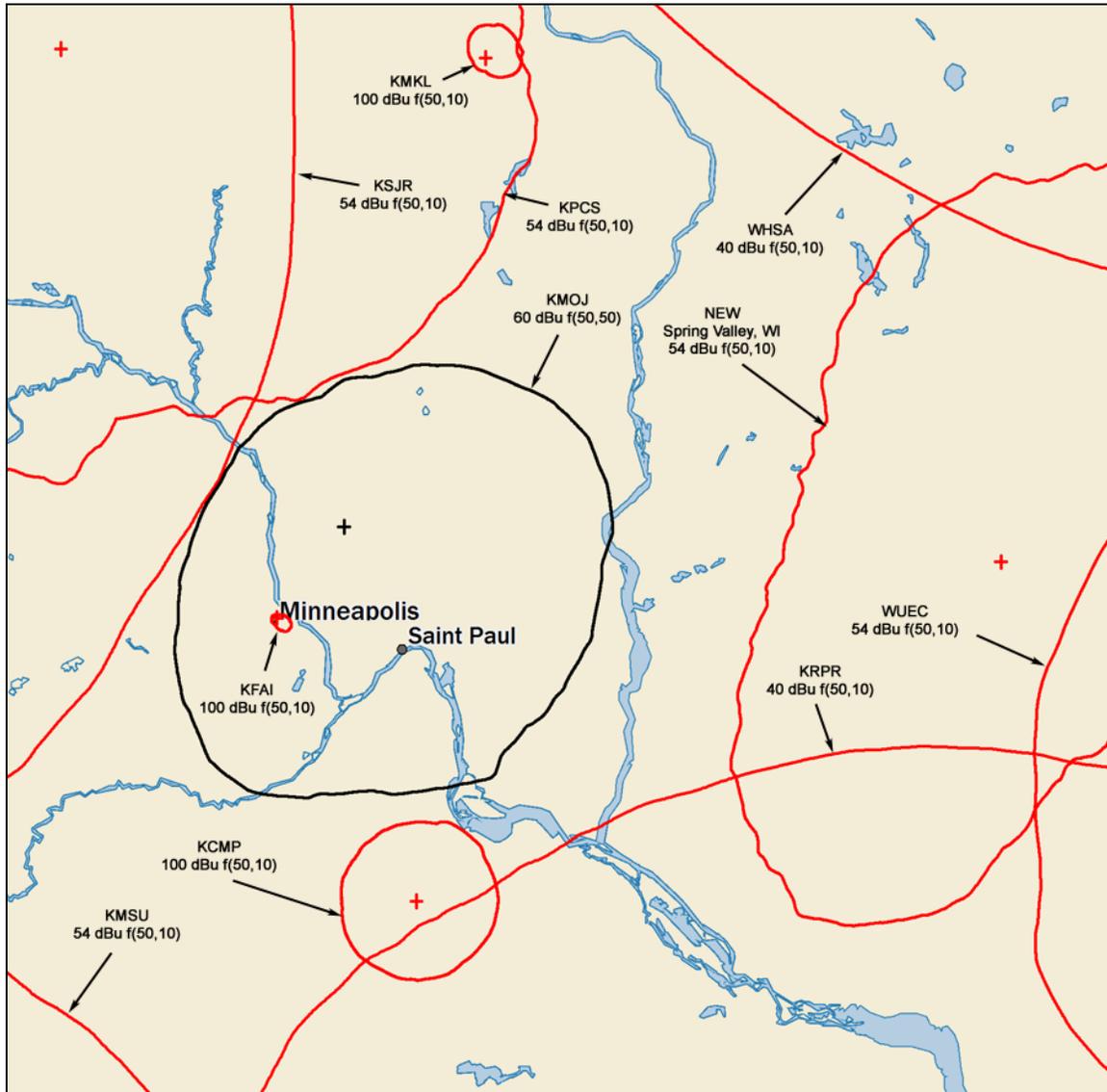
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Data Sources

All contours shown in the following interference studies were drawn using the USGS03 3-second terrain database.

Detailed Interference Study – Inbound



Red polygons represent interfering $f(50,10)$ contours.

The 100 dBu $f(50,10)$ interfering contour of KFAI falls within the proposed 60 dBu $f(50,50)$ contour. This situation is discussed below.

KSJR and KPCS present potential overlap to the proposed 60 dBu $f(50,50)$ contour. A detailed interference map is provided on the next page showing that overlap does not actually occur.

No other conflicts come close to overlapping the proposed 60 dBu $f(50,50)$ contour.

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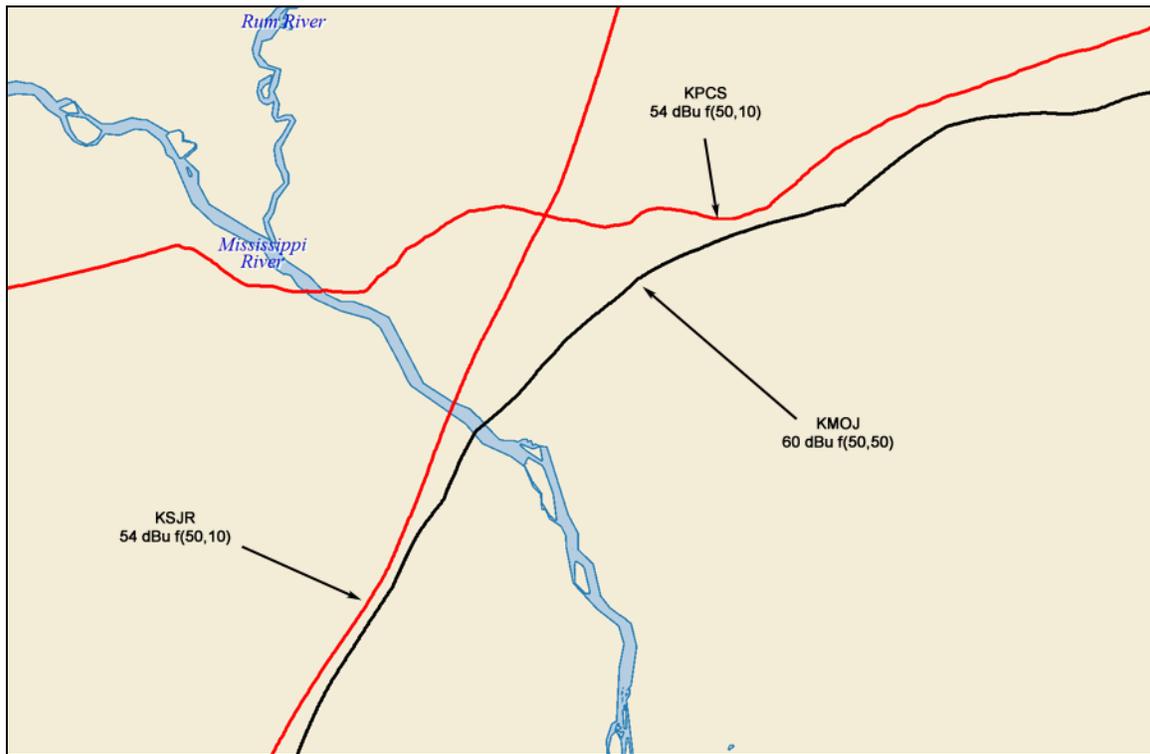
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Detailed Interference Study – Inbound Detail



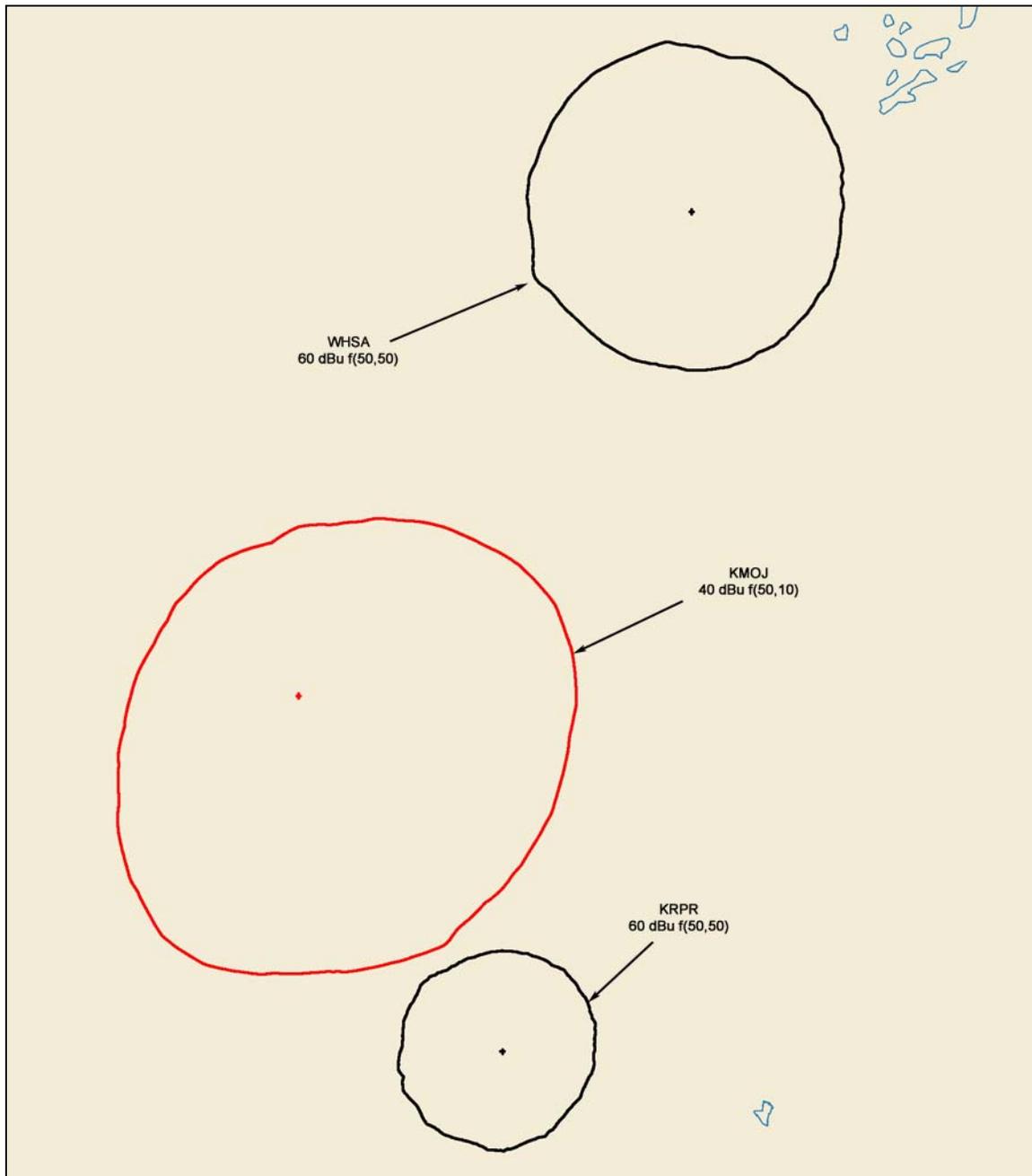
This detail map shows that the contours do not intersect, and that no prohibited overlap will occur.

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Detailed Interference Study – Outbound Co-channel



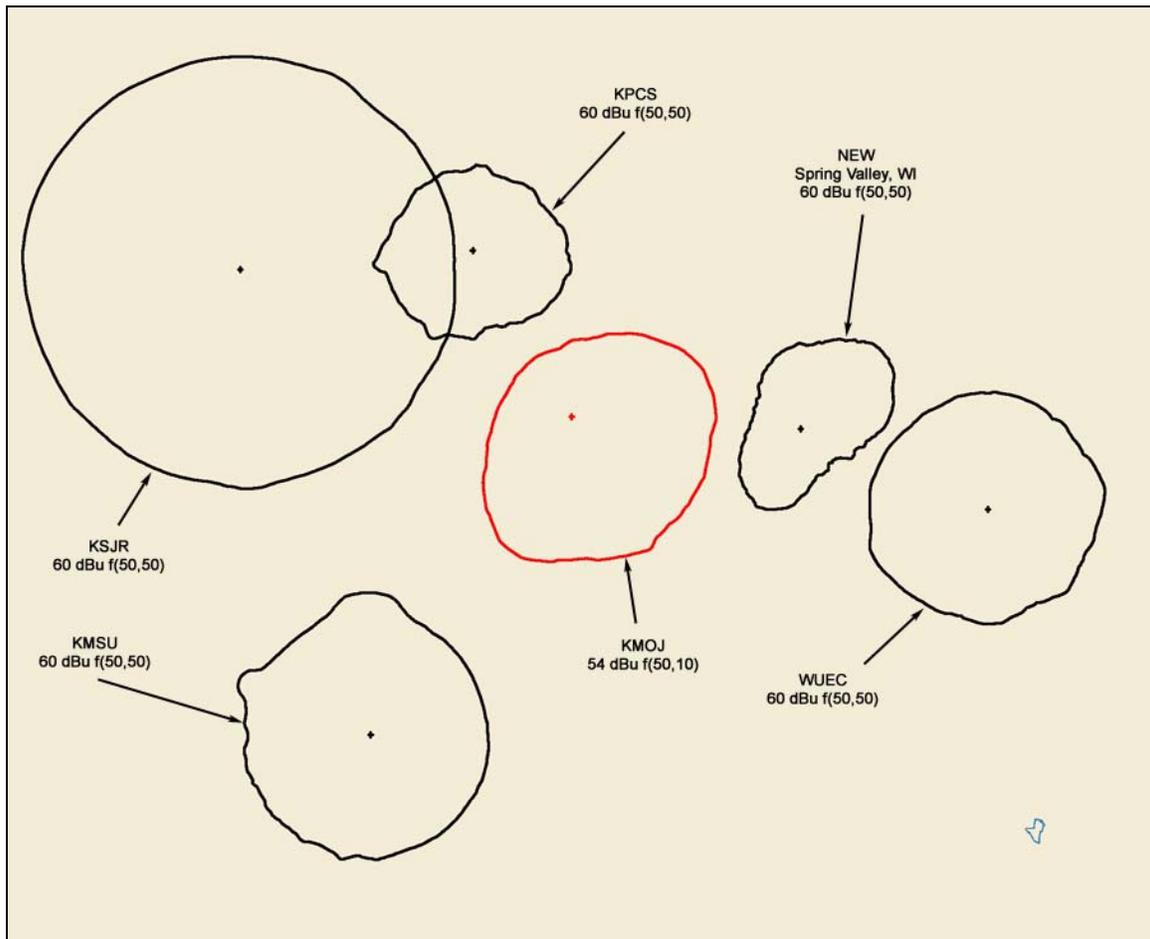
There is no prohibited overlap with any co-channel facility or application.

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Detailed Interference Study – Outbound First Adjacent



There is no prohibited overlap with any first adjacent facility or application.

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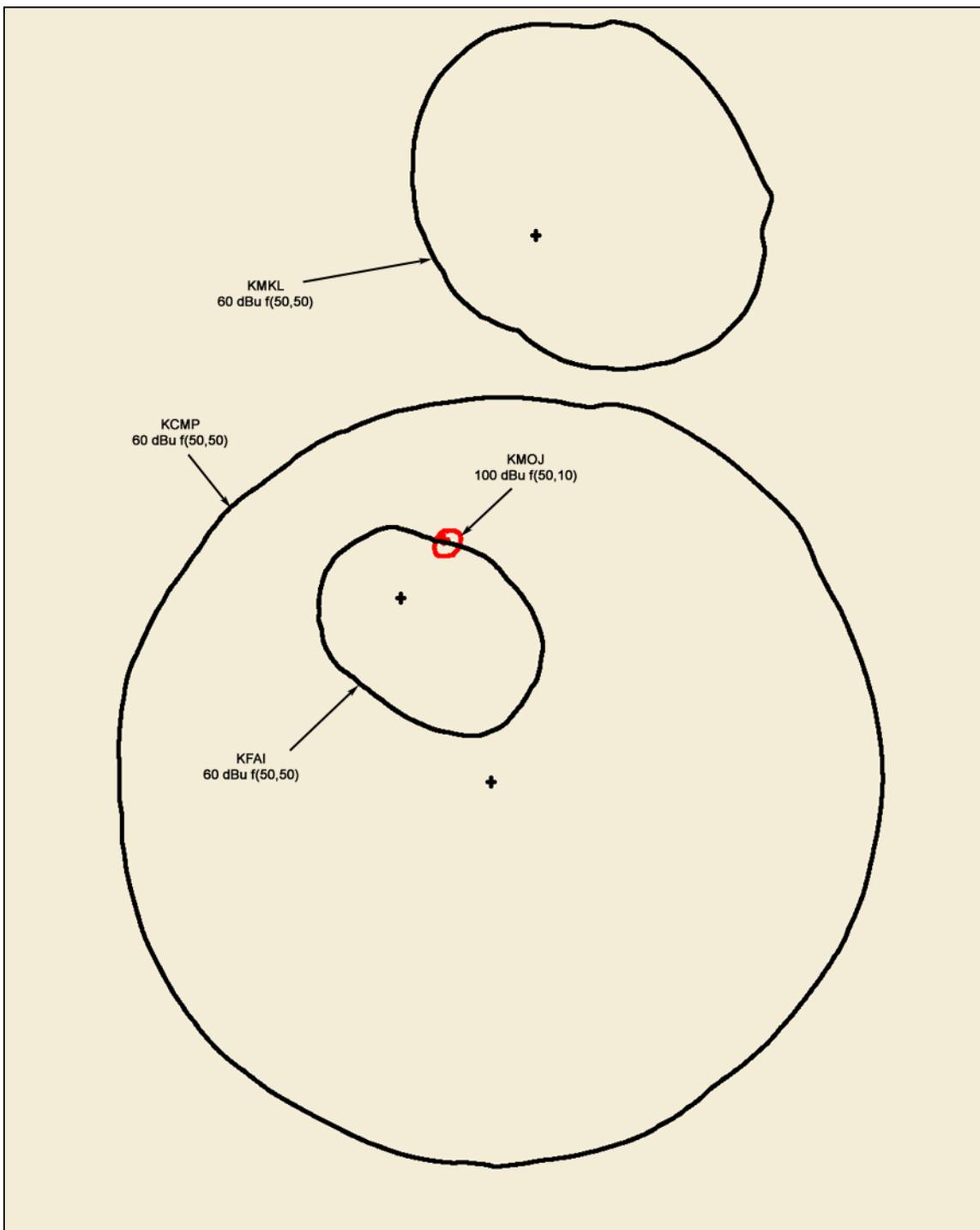
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Detailed Interference Study – Outbound Second and Third Adjacent



There is no prohibited overlap with any second or third adjacent facility or application other than KCMP and KFAI. These conflicts are discussed below.

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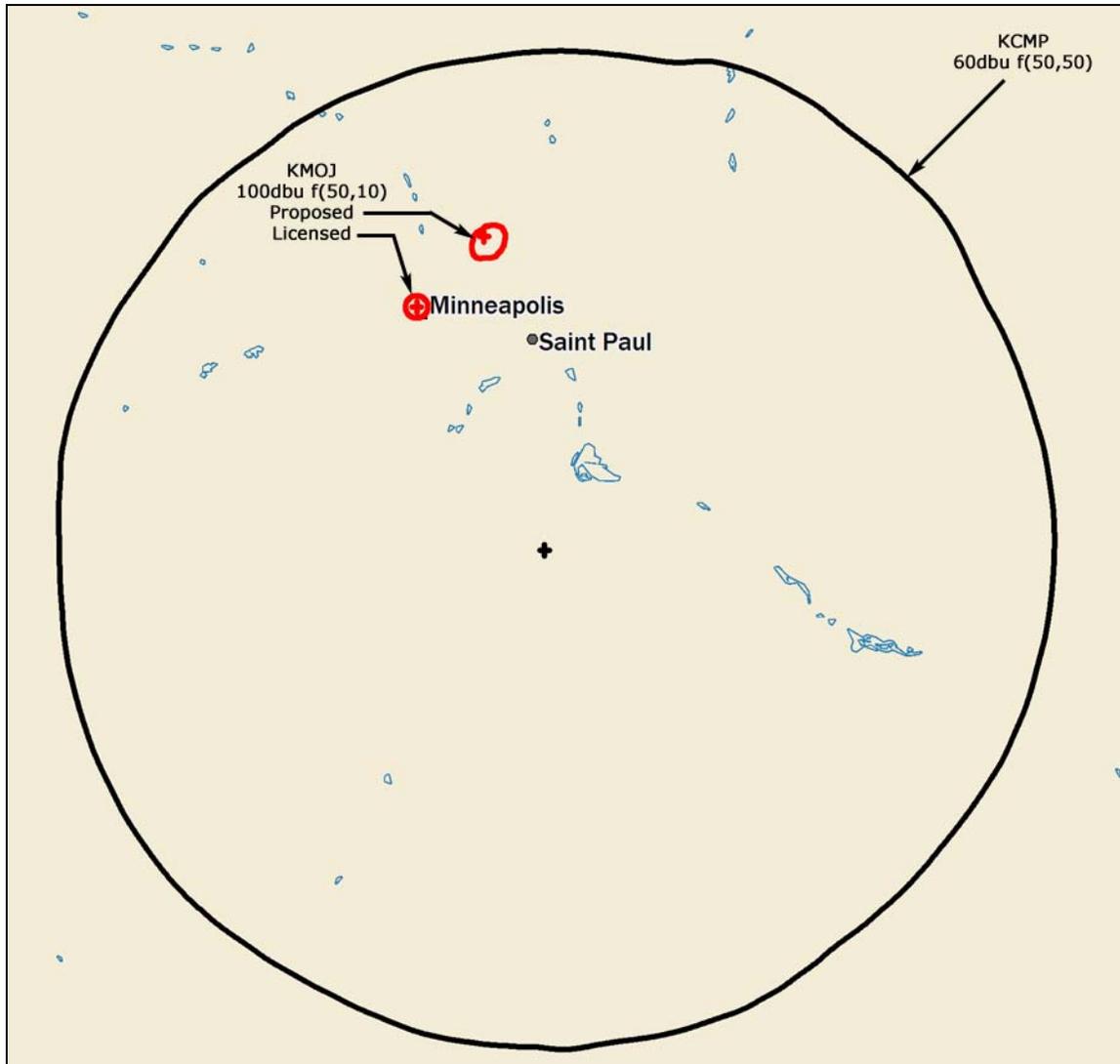
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Detailed Interference Study – KCMP

KCMP upgraded using a *Raleigh* waiver as described in the introduction above. *Raleigh* stations may accept interference in up to 10% of their coverage area. A station that already interferes with a *Raleigh* station has flexibility to relocate and/or upgrade, provided that the interference caused to the *Raleigh* station is less than 10% of its coverage area.

Interference to KCMP



Based on the 100 dBu $f(50,10)$ contours, the proposed interference area is 16 km², or 0.11% of the KCMP coverage area of 14,068 km². This is a small fraction of the 10% allowed. The population of the current interference area is 12,769, or 0.45% of the population within the KCMP 60dBu $f(50,50)$ contour of 2,783,263. The population within the proposed interference area is 10,081, or 0.36% of the population within the KCMP 60dBu $f(50,50)$ contour. This represents the same 20% reduction in the population receiving interference that was approved when BMPED-20100104ADM was granted.

The current population within the KMOJ 60 dBu $f(50,50)$ contour is 651,016. The population within the proposed KMOJ 60dBu $f(50,50)$ contour is 1,683,524, resulting in additional service to

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more than one million people when compared to the population covered by the licensed facility before BMPED-20100104ADM was granted.

Interference to KMOJ

There is no overlap between the proposed KMOJ 60 dBu $f(50,50)$ contour and the 100 dBu $f(50,10)$ contour of KCMP.

Summary (KMOJ / KCMP)

Interference to KCMP will remain well below the *Raleigh* criterion of 10%.

There will be no prohibited interference to KMOJ.

Therefore, the proposal should be acceptable.

Detailed Interference Study – KFAI

As mentioned in the introduction, a very unusual situation exists between KFAI and KMOJ, in that they are second-adjacent stations that are separated by less than two miles. This arrangement was approved by the FCC in Memorandum Opinion and Order FCC83M-1300, which resolved Broadcast Dockets 82-543 and 82-544. A copy of the MO&O is on file in BMPED-20100104ADM.

A contract between the stations limits mutual interference to a maximum of 2% of the stations' coverage areas, and precludes co-location by requiring a minimum separation between the transmitter sites of 0.75 mile. A copy of the contract is on file in BMPED-20100104ADM.

KFAI recently relocated from its long-time transmitter site on a building in Minneapolis to a new site that meets the contractual requirements, but is slightly closer to KMOJ. The FCC approved this application (BPEP-20070220ABR) on November 6, 2007. KFAI is now licensed to operate from that facility.

This modification application retains the same Arden Hills transmitter site approved in BMPED-20100101ADM. With the corrected coordinates, it is 7.94 miles from the KFAI site, continuing to meet the contractual requirement that the site be separated by at least 0.75 mile.

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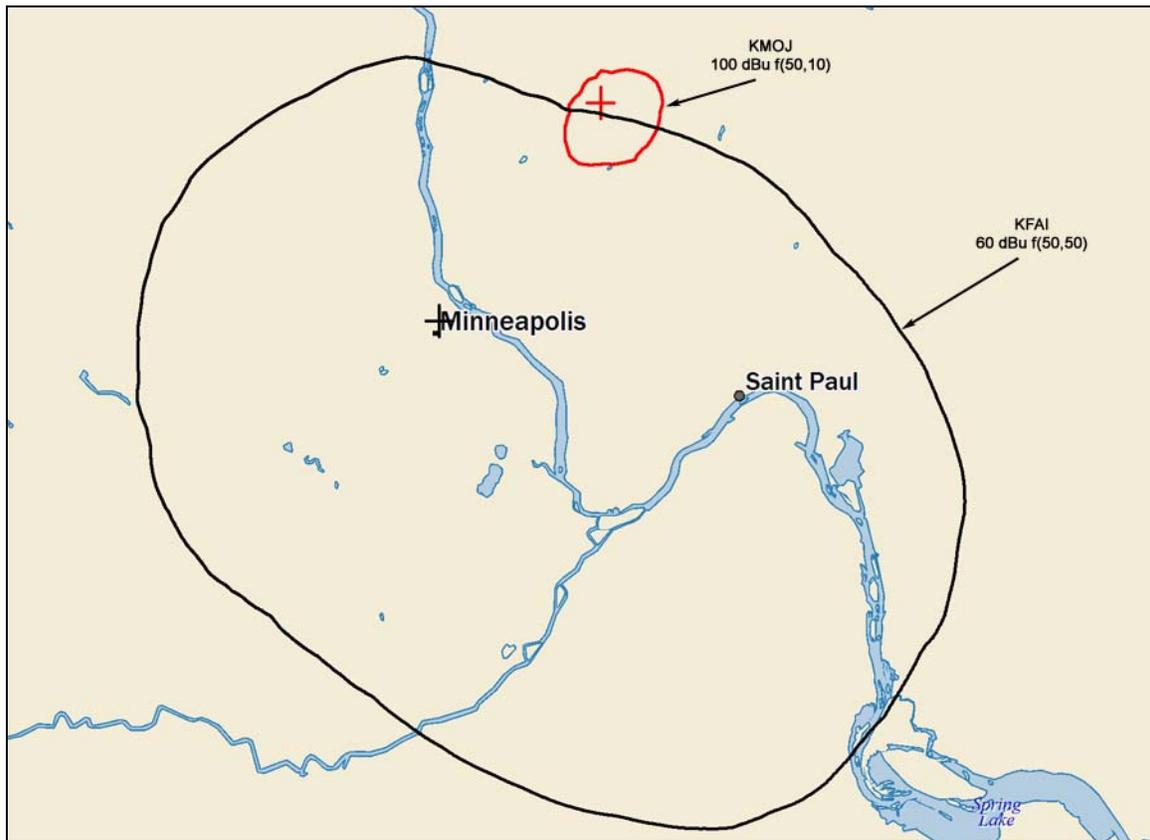
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Interference to KFAI



The area within the proposed 100 dBu $f(50,10)$ contour is 15 km², about half of which falls within the KFAI 60 dBu $f(50,50)$ contour. The total area within the KFAI 60 dBu $f(50,50)$ contour is 1,067 km². Therefore, the interference area will consist of approximately 0.7% of the KFAI coverage area, and will remain well below both the *Raleigh* criterion of 10% and the contractual obligation of 2%.

The population within the KFAI 60 dBu $f(50,50)$ contour is 1,320,685. The area is 1,067 km².

The population within the licensed 100 dBu $f(50,10)$ contour of KMOJ is 12,769, all of whom lie within the 60dBu $f(50,50)$ contour of KFAI, and may therefore be deemed to receive interference. The population within the approved 100 dBu $f(50,10)$ contour is 10,081, but only 4,181 are also within the KFAI 60 dBu $f(50,50)$ contour.

Therefore, the population receiving interference will be reduced by 66%, from 12,769 to 4,181, with the result that 0.3% of the population within the KFAI 60dBu $f(50,50)$ contour will be in the area deemed to be subject to interference.

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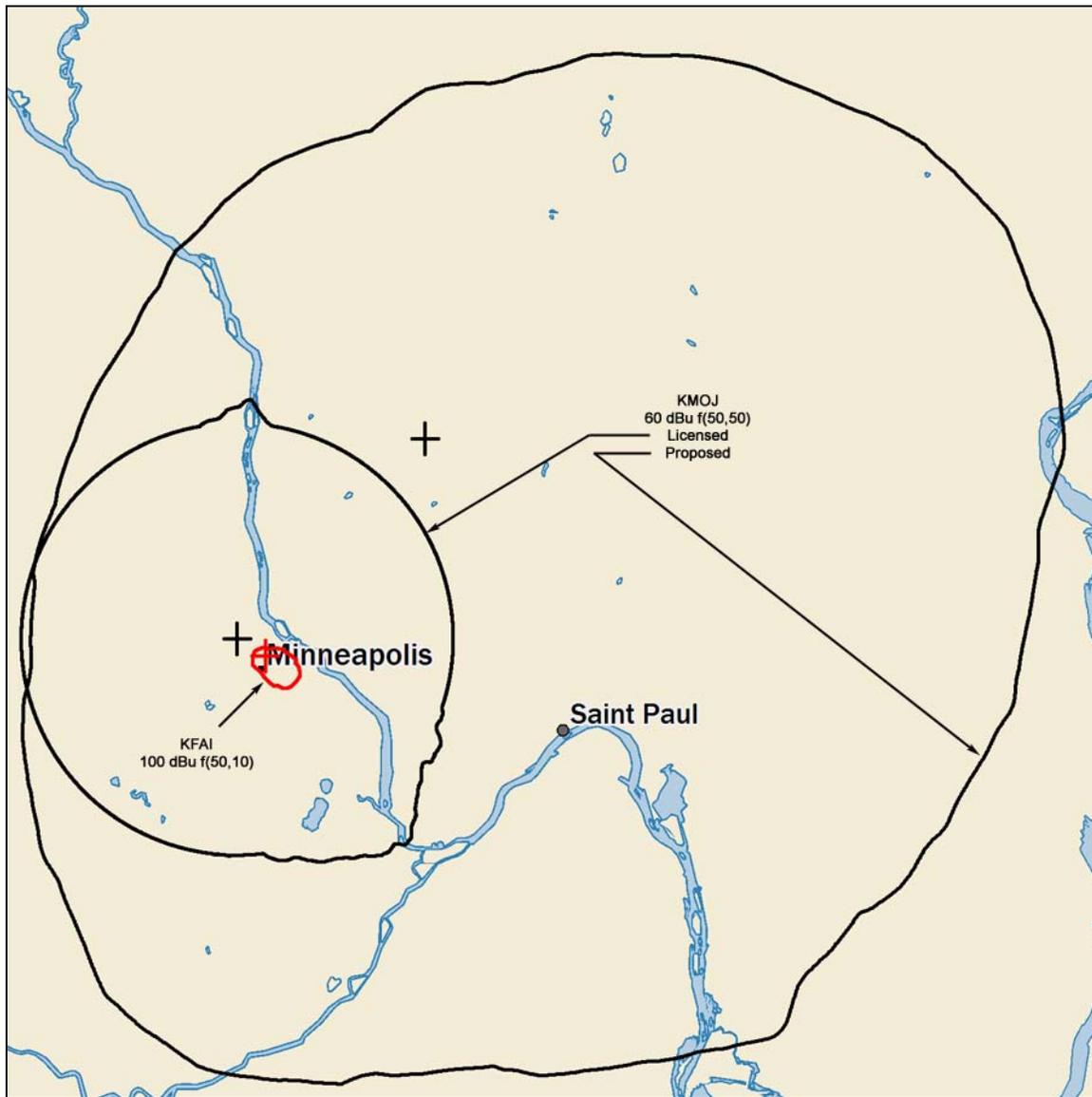
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Interference to KMOJ



The population within the proposed 60 dBu $f(50,50)$ is 1,683,524. The area is 1,887 km².

The population within the KFAI 100 dBu contour is 10,696. The area is 3.5 km².

Therefore, 0.6% of the population and 0.2% of the area of the proposed KMOJ facility will receive interference from KFAI.

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Summary (KMOJ / KFAI)

The minimal interference areas and populations subject to interference more than meet the KMOJ-KFAI contractual requirement that the interference area be limited to 2% or less and the *Raleigh* waiver requirement that limits the interference area to 10% of the 60 dBu $f(50,50)$ contours of all three stations.

Blanketing Interference

The area within the 115 dBu blanketing contour is 1.5 km². The population within the blanketing contour is 844.

CCD commits to resolving any blanketing interference complaints in accord with 47 CFR 73.318.

Channel 6 Interference

Full power digital channel 6 television stations within 196 km must be studied for interference from any proposed facility on channel 210.

There are no full power digital TV6 stations within 196 km of the proposed site.

Transmitter Location

The ASR of the tower remains 1060523.

As discussed in the introduction, the ASR record for this tower is being corrected based on a certified survey, included as Attachment A.

The NADCON conversion to NAD-27 is included as Attachment B.

The correct coordinates are:

NAD-83:

45° 04' 07.11" N

93° 10' 35.10" W

NAD-27:

45° 04' 07" N

93° 10' 34" W

The site elevation is 281 m AMSL, based on the new site survey.

The antenna will be centered at 116 m (380') AGL, or 397 m AMSL.

Based on the USGS03 terrain database used throughout this statement, the 8-radial overall HAAT is 120 m.

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Directional Antenna

A directional antenna is proposed. The pattern tabulation is shown below. The rotation is zero.

az	rel fld	az	rel fld	az	rel fld
0	0.270	120	1.000	240	0.464
10	0.300	130	1.000	250	0.369
20	0.340	140	1.000	260	0.294
30	0.415	150	1.000	270	0.251
40	0.522	160	1.000	280	0.226
50	0.642	170	1.000	290	0.200
60	0.794	180	1.000	300	0.190
70	0.950	190	1.000	310	0.200
80	1.000	200	1.000	320	0.210
90	1.000	210	0.925	330	0.220
100	1.000	220	0.735	340	0.220
110	1.000	230	0.584	350	0.220

The maximum depth of the pattern is less than 15db, and no ten degree increment exhibits a change in relative field of more than 2db.

RF Exposure

The maximum ERP will be 6.2 kW-H plus 6.2 kW-V. The antenna will consist of four bays, spaced at 0.5λ , and centered 116 m above ground level.

For the worst-case antenna, FMModel produces an exposure level of less than $1.04 \mu\text{W}/\text{cm}^2$, a level that is one half of one percent of the permissible level for casual exposure.

It is therefore submitted that no detailed study of RF exposure at the site is necessary. Should the Commission require a detailed analysis, the applicant commits to providing it. It should be noted that the height above ground of the KMOJ antenna is not changing, nor is the antenna bay configuration or maximum ERP.

Appropriate fencing and signage are provided at the site.

The applicant commits to reducing power or temporarily suspending operations in coordination with other tenants when necessary in order to protect workers on the tower.

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Environmental

The instant application proposes a four-bay antenna mounted 380' above the ground on an existing 625' tower, the same tower authorized in BMPED-20100101AM.

No new construction is proposed on the ground, and no change to the overall height of the structure is proposed. Indeed, as explained above, construction has been completed.

As discussed immediately above, RF energy from the proposed facility will provide a fraction of one percent of the permissible level for casual exposure.

Therefore, it is submitted that the proposal does not represent a major environmental action.

Principal Community Coverage

The principal community of Minneapolis is completely contained within the 60 dBu $f(50,50)$ contour.

Main Studio Location

The studio is located within the city of Minneapolis and within the 60 dBu $f(50,50)$ contour.

International

The FM Agreements with Canada and Mexico require coordination of any proposal within 320 km of the border.

The distance to the nearest point along the US/Canada border is 353 km. Coordination with Canada is not required.

The distance to the nearest point along the US/Mexico border is 1,846 km. Coordination with Mexico is not required.

Quiet Zone Calculations [73.1030(a) & (b)]

The proposed site is outside the National Radio Quiet Zone (National Radio Astronomy Observatory Notification Area) in West Virginia.

The proposed site is outside the Arecibo Observatory notification area in Puerto Rico.

The proposed site is not within a 100 km extension of the Table Mountain Radio Receiving Zone in Colorado.

Protected Monitoring Stations [73.1030(c)]

The nearest Protected Monitoring Station is 628 km distant, in Grand Island, NE.

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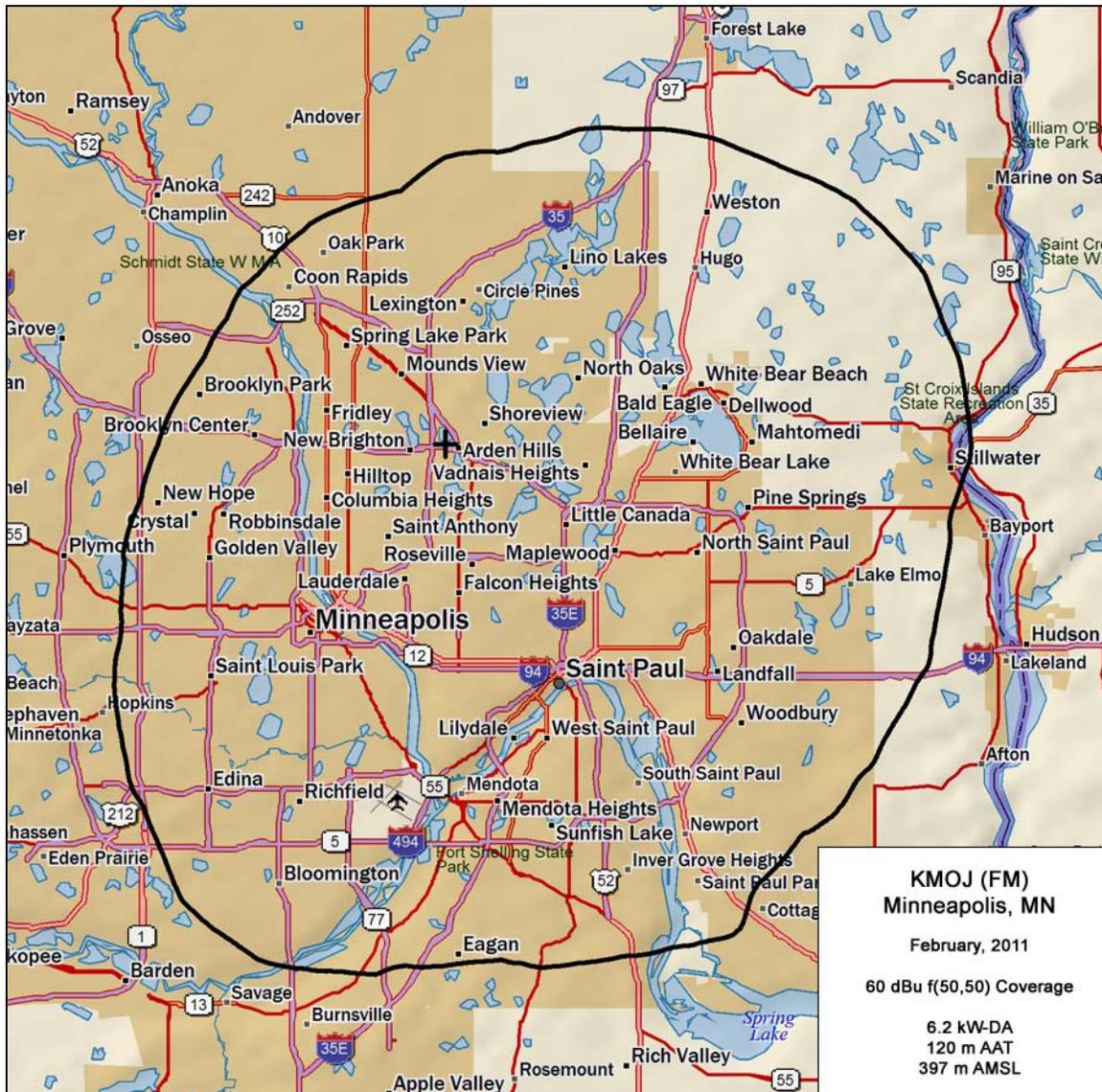
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Population and Area Covered



The above map depicts the proposed 60 dBu f(50,50) contour.

The population within the contour is 1,683,524.

The area within the contour is 1,886 km².

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Conclusion

This application is necessary to conform a granted and built Construction Permit to corrected data to be incorporated in the ASR for the same tower.

No major environmental action is involved.

Based on its existing Construction Permit, CCD has already constructed the facility described in this application, and is operating at reduced power under an STA.

CCD is prepared to file an amended license application immediately upon a grant of this application. It is filing this application for a modification of the Construction Permit so that the Commission may start its evaluation of interference showing while awaiting completion of the ASR correction by the tower owner.

It is respectfully submitted that an expeditious grant of the instant application would be in the public interest.

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Attachment A
Certified Site Survey

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Egan, Field & Nowak, Inc.

Client: Arden Towers, Inc.
3440 Bayside Road
Orono, MN 55356-9218

Horizontal Datum Source (select all that apply):

Ground survey GPS survey NAD 83 NAD 27

Vertical Datum Source (select all that apply):

Ground survey GPS survey NAVD 88 NGVD 29

Structure Type (select one):

New Tower Existing Tower Roof Top Water Tank Smokestack
 Other (describe):

Latitude: 45° 04' 07.11" North NAD 83
Longitude: 93° 10' 35.10" West NAD 83
Ground Elevation: 922 feet NAVD 88 / or 281.02 Meters NAVD 88
Height of Tower: 625 feet AGL / or 190.50 Meters AGL

CERTIFICATION: I certify that the latitude of 45°04'07.11" North and the longitude of 93°10'35.10" West, and that the site ground elevation of 922 feet NAVD 88 was determined based upon a site survey performed under my direct supervision on January 24, 2011.

The horizontal datum (coordinates) are based on the North American Datum of 1983 (NAD 83-96 Adjustment) and are expressed in degrees, minutes and seconds to the nearest hundredth of a second. The vertical datum (heights) are based on the North American Vertical Datum of 1988 (NAVD 88) and are determined to the nearest foot.

Surveyor Signature/Seal: 
Printed Name: Brent R Peters
Professional Surveyor #: 44123
Company: EGAN, FIELD & NOWAK, INC.
Phone: 612-466-3300
Date: January 27, 2011



Attachment B
NADCON Conversion

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Output from NADCON for station KMOJ @ Arden Tower

North American Datum Conversion

NAD 83 to NAD 27

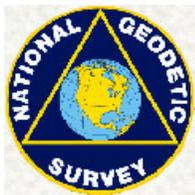
NADCON Program Version 2.11

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Transformation #: 1 Region: Conus

	Latitude	Longitude
NAD 27 datum values:	45 04 7.23355	93 10 34.29614
NAD 83 datum values:	45 04 7.11000	93 10 35.10000
NAD 27 - NAD 83 shift values:	0.12355	-0.80386 (secs.)
	3.814	-17.585 (meters)
Magnitude of total shift:		17.994 (meters)

□



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