

Comprehensive Technical Statement
In support of

Center for Communication and Development

Minor Amendment to Application BMPED-20100204ADM
for
Minor Modification to Construction Permit BPED-20080228ABA

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

Introduction

The Center for Communication and Development ("CCD"), licensee of KMOJ (FM), holds Construction Permit BPED-20080228ABA to relocate and make minor changes in the facility. The CP approved changes to the following parameters:

- Transmitter location
- ERP
- Antenna height
- Add directional antenna
- Class (A to C3)

Two subsequent amendments were filed to modify the proposed facility at the new location. While the site remained available, in the final lease negotiation, the tower owner demanded a rent amount that the station felt was too heavy a burden on its resources. The applicant has now chosen a nearby replacement tower and has reached agreement with the owner on final lease terms, including rent. Therefore, CCD now proposes to modify the following aspects of the Construction Permit:

- Transmitter Location
- ERP
- Antenna Height
- Directional antenna pattern

This Technical Statement wholly replaces the statement filed with the application in 2008, and all subsequent modifications thereto. It does not rely upon any showings contained therein.

CCD anticipates rapid construction once the changes are authorized.

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 included as Attachment A to this Statement.

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% 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 included as Attachment B to this statement.

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 included as Attachment C. 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 included as Attachment D.

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 the proposed upgrade to KMOJ satisfies the requirements of the contract between KMOJ and KFAI, satisfies the requirements of the *Raleigh* precedent, and provides a very significant improvement in the coverage of KMOJ.

Allocation Study

app_id	adj	chan	status	call	st	city	erp	da	haat	brg	dkm	fsrq	fs Δ
1354481	0	210C3	APP	KMOJ	MN	MINNEAPOLIS	4	Y	171	103	2.87	153	-150.13
1363297	0	210C3	APP	KMOJ	MN	MINNEAPOLIS	4	Y	171	103	2.87	153	-150.13
1246928	0	210C3	CP	KMOJ	MN	MINNEAPOLIS	1.4	Y	273	103	2.87	153	-150.13
74218	0	210A	LIC	KMOJ	MN	MINNEAPOLIS	1	N	24	224	13.05	142	-128.95
1359522	1	209C2	LIC	KPCS	MN	PRINCETON	40	N	42	330	62.61	117	-54.39
1112154	3	207C1	LIC	KCMP	MN	NORTHFIELD	97.6	N	234	169	42.87	76	-33.13
1274784	2	212A	LIC	KFAI	MN	MINNEAPOLIS	0.9	Y	241	217	12.80	42	-29.20
114044	1	211C1	LIC	KSJR-FM	MN	COLLEGEVILLE	100	N	258	295	117.08	144	-26.92
1210392	1	211C3	CP	NEW	WI	SPRING VALLEY	16	Y	88	93	74.14	99	-24.86
672234	0	210C3	LIC	KRPR	MN	ROCHESTER	3.2	N	180	150	131.98	153	-21.02
1346060	1	209C2	LIC	KMSU	MN	MANKATO	17	N	133	213	122.07	117	5.07
1325649	2	212C3	LIC	KMKL	MN	NORTH BRANCH	15	Y	121	17	55.13	43	12.13
295775	0	210C2	LIC	WHSB	WI	BRULE	38	N	168	38	199.56	177	22.56

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.

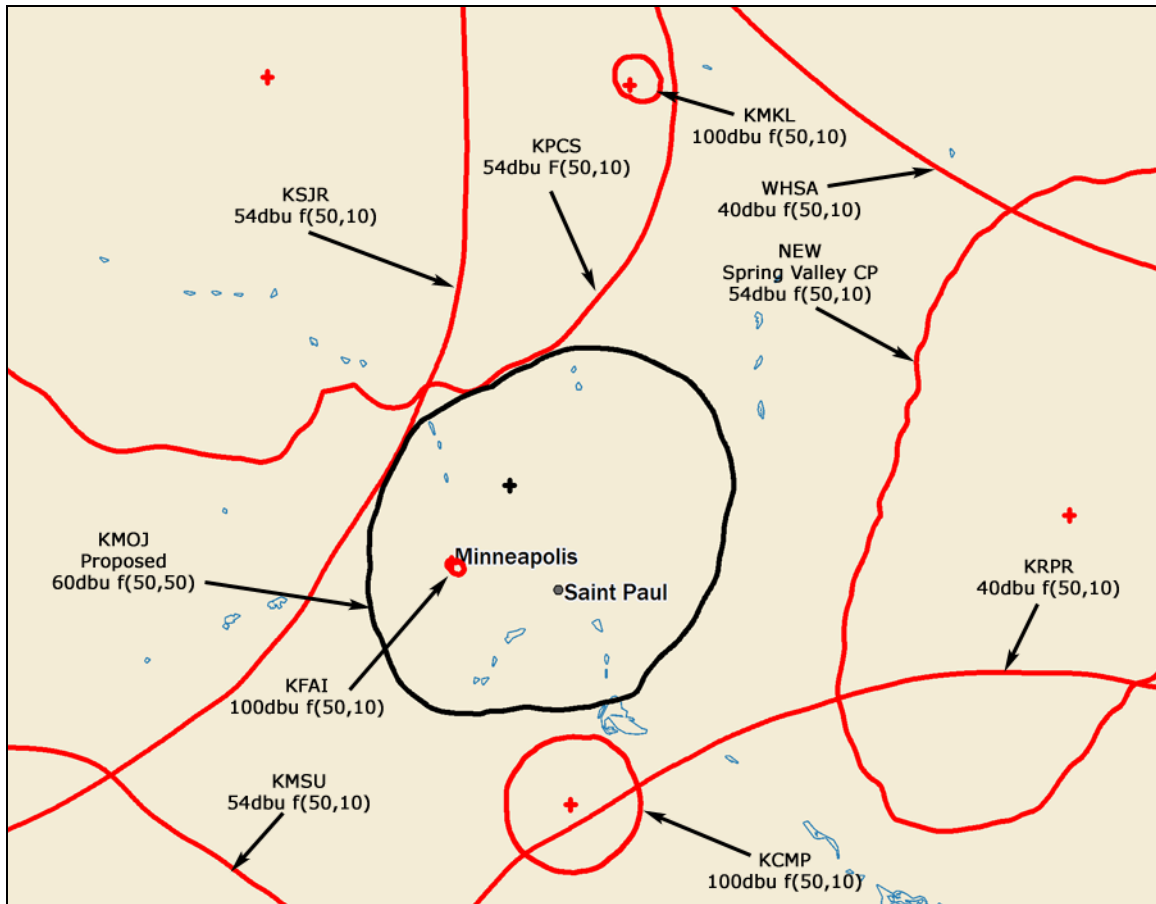
The KMOJ LIC, CP and APP records will be superseded.

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).

Detailed Interference Study – Inbound



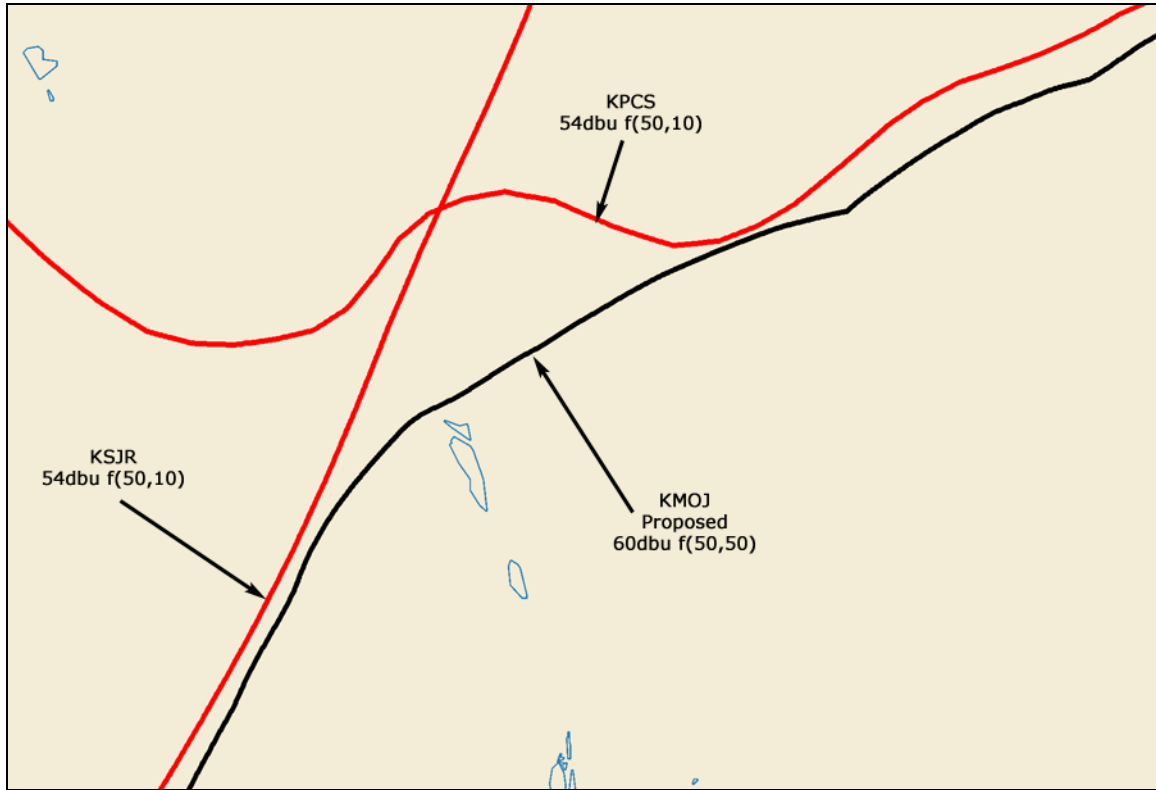
Red polygons represent interfering f(50,10) contours.

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

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

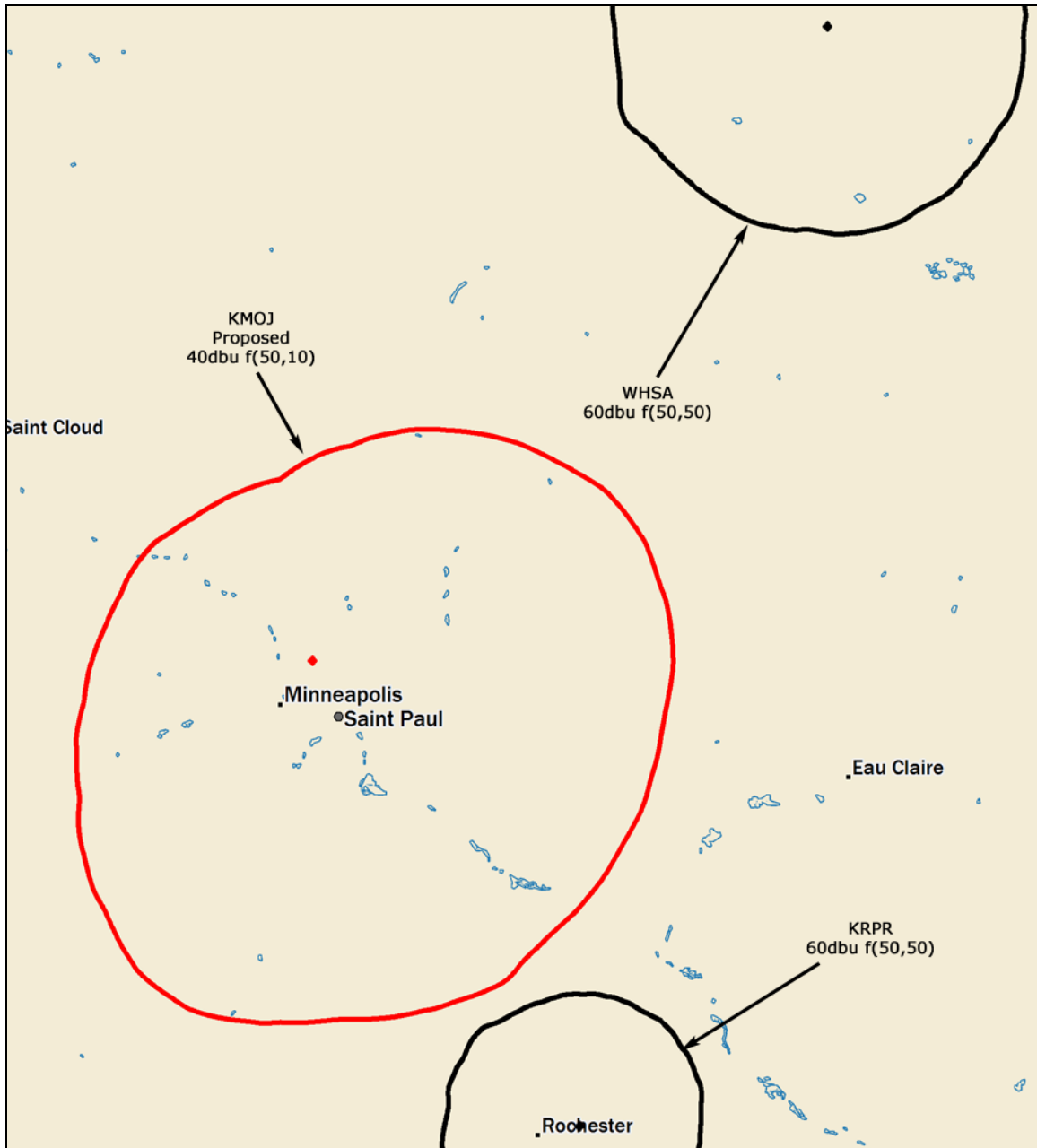
No other conflicts come close to overlapping the proposed 60dbu f(50,50) contour.

Detailed Interference Study – Inbound Detail



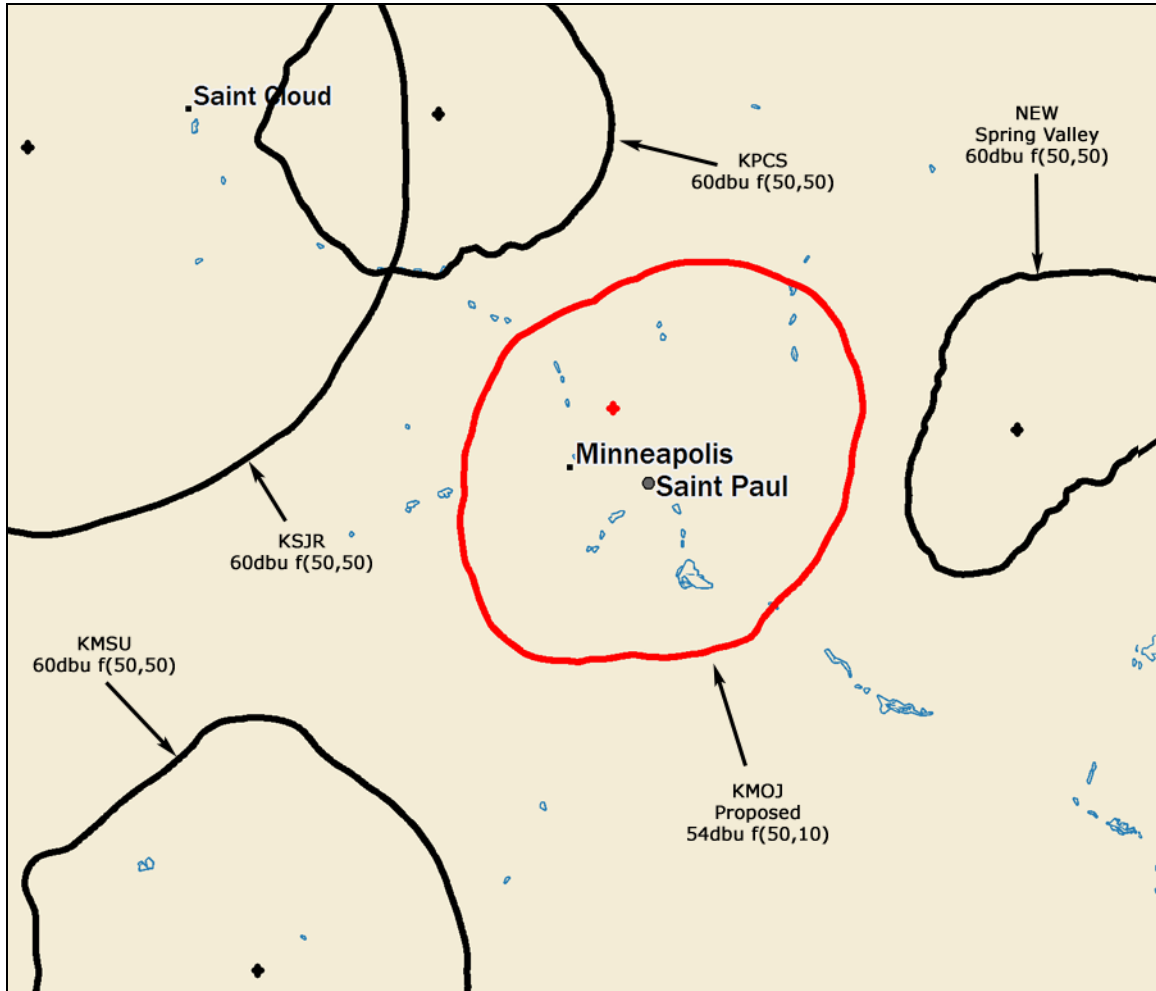
This detail map shows that the contours do not intersect, and that no prohibited overlap will occur.

Detailed Interference Study – Outbound Co-channel



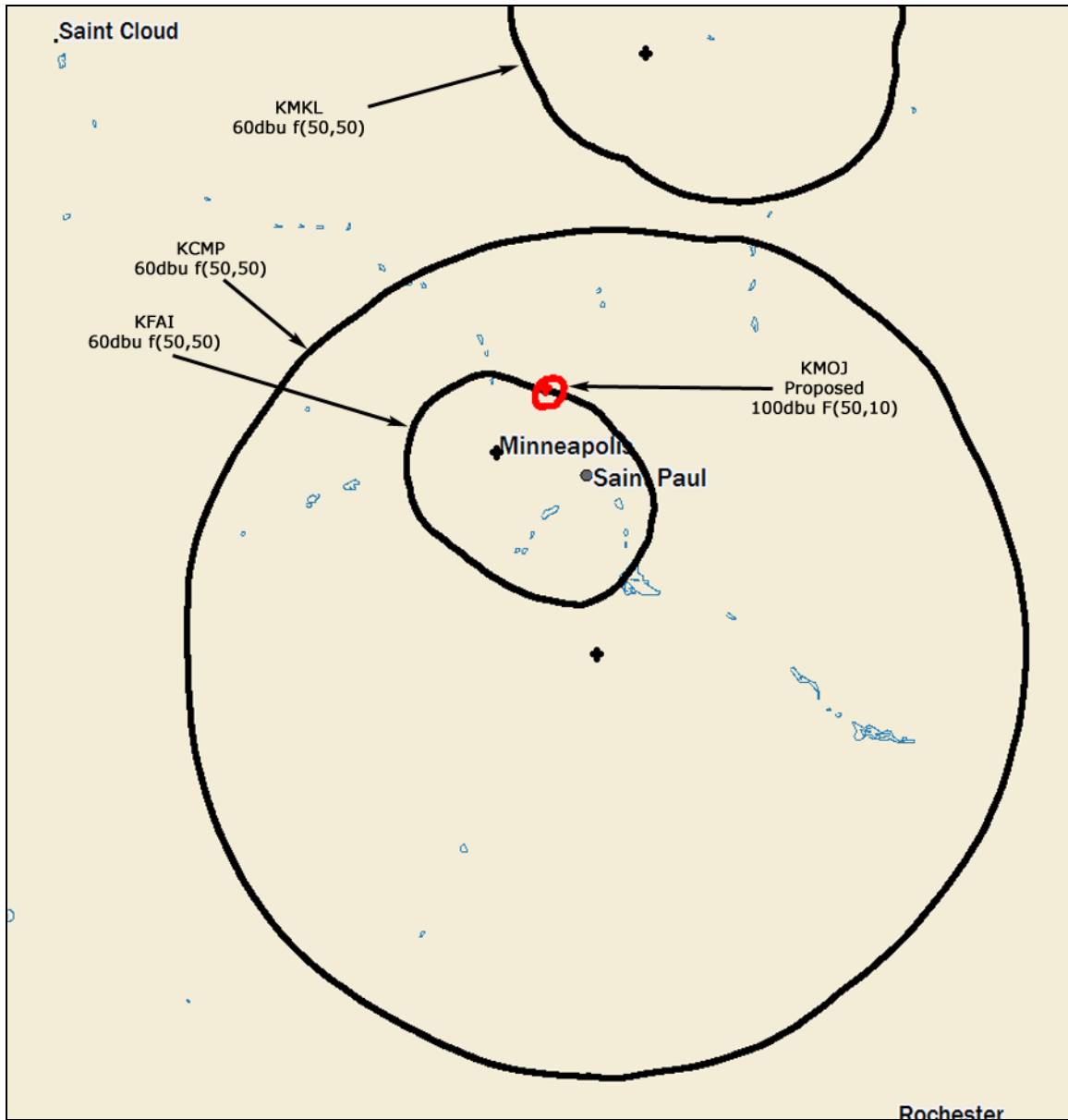
There is no prohibited overlap with any co-channel facility or application.

Detailed Interference Study – Outbound First Adjacent



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

Detailed Interference Study – Outbound Second and Third Adjacent

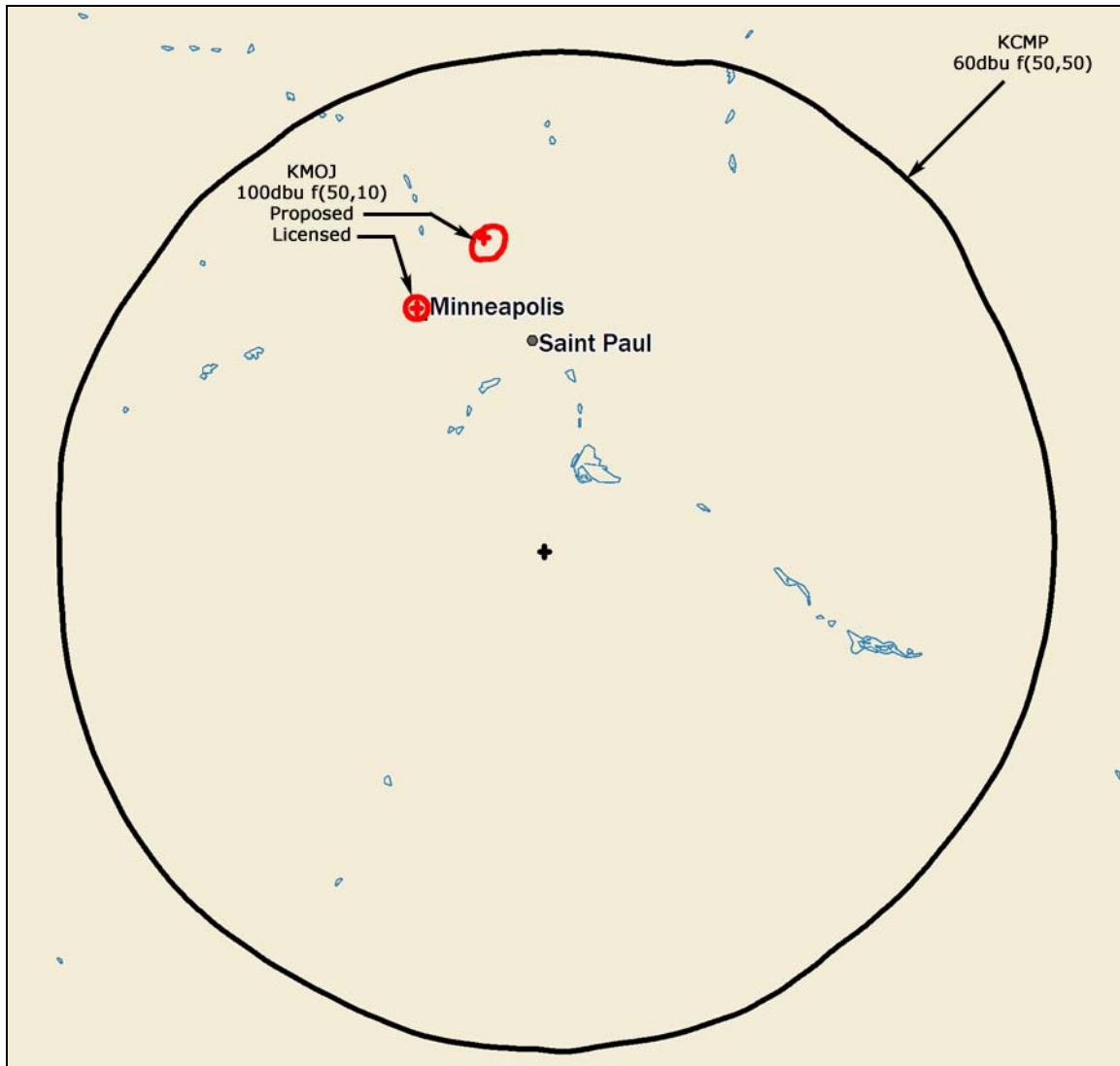


There is no prohibited overlap with any second or third adjacent facility or application other than KFAI and KCMP. This situation is discussed below.

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 100dbu f(50,10) contours, the proposed interference area is 15km², or 0.11% of the KCMP coverage area. 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 of 2,783,263. The population within the proposed interference area is 10,121, or 0.36% of the population within the KCMP 60dbu contour. This represents a 20% reduction in the population receiving interference.

The current population within the KMOJ 60dbu contour is 651,016. The population within the proposed KMOJ 60dbu contour is 1,633,902, resulting in additional service to nearly one million people.

It is submitted that a significant reduction in the population of the interference area, coupled with additional service to a very large population, makes a compelling argument in favor of the instant application.

Interference to KMOJ

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

Summary (KMOJ / KCMP)

Interference to KCMP will be well below the *Raleigh* criterion of 10%, and KMOJ will increase its population coverage by nearly one million people.

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 attached as Attachment A to this Statement.

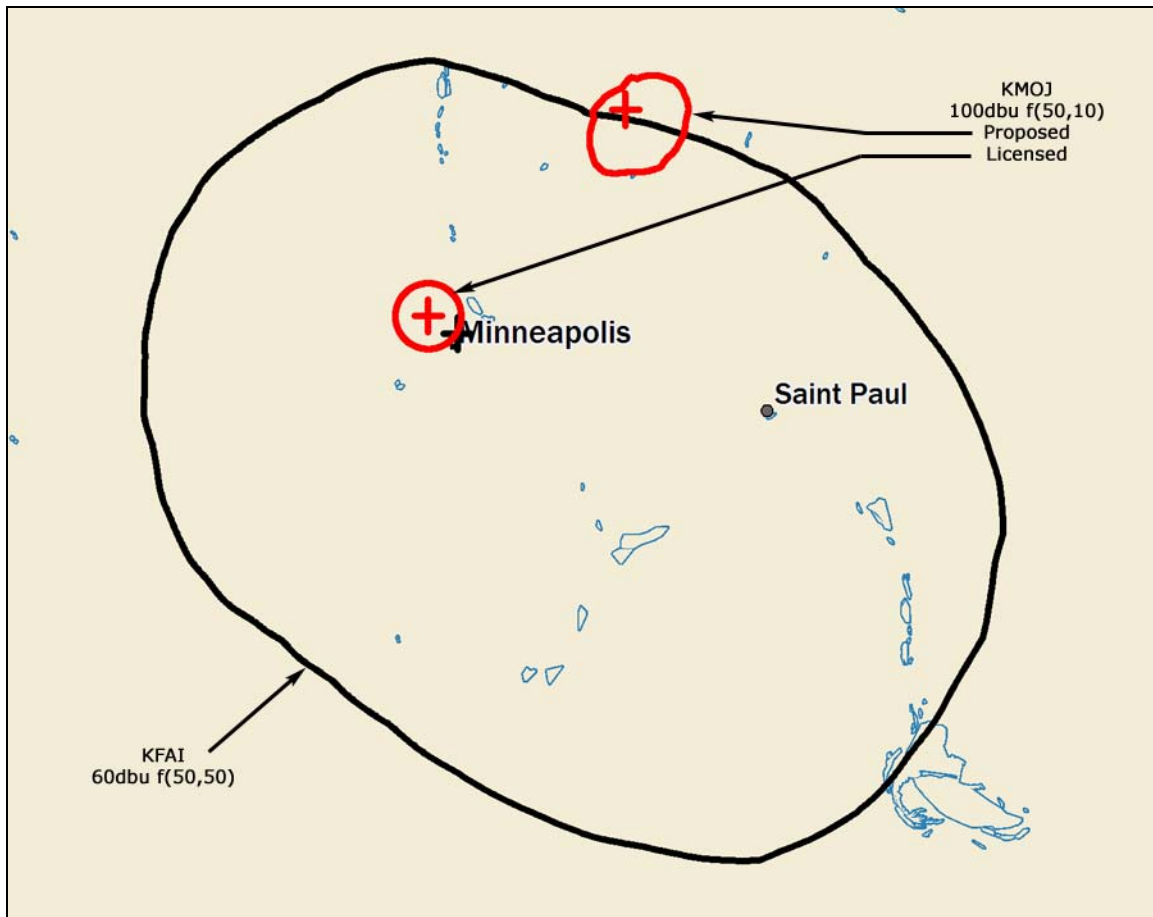
A contract between the stations limits mutual interference to a maximum of 2% of the stations' coverage areas, and precludes co-location by requiring a minimum separation between the transmitter sites of 0.75 mile. A copy of the contract is included as Attachment B.

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 (BPED-20070220ABR) on November 6, 2007. KFAI is now licensed to operate from that facility.

KMOJ proposes to relocate its transmitter to Arden Hills, MN. This location is 7.95 miles from the KFAI site, clearly meeting the contractual requirement that the sites be separated by at least 0.75 mile.

As shown in the map below, there will be a small overlap area with KFAI.

Interference to KFAI



The area within the proposed 100dbu f(50,10) is 15 km², about half of which falls within the KFAI 60dbu f(50,50) contour. The total area within the KFAI 60dbu f(50,50) contour is 1,067km². 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 60dbu f(50,50) contour is 1,320,685. The area is 1,067km².

The population within the current 100dbu f(50,10) contour of KMOJ is 12,769, all of whom lie within the 60dbu f(50,50) contour of KFAI, and are therefore deemed to receive interference. The population within the proposed 100dbu f(50,10) is 10,121, but only 4,319 are also within the KFAI 60dbu f(50,50).

Therefore, the population receiving interference will be reduced by 66%, from 12,769 to 4,319, or 0.5% of the population within the KFAI 60dbu f(50,50) contour.

Interference to KMOJ



The population within the proposed 60dbu f(50,50) is 1,633,902. The area is 1,802km².

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

Therefore, 0.7% of the population and 0.2% of the area of the proposed KMOJ facility will receive interference from KFAI.

Summary (KMOJ / KFAI)

The minimal interference areas and populations subject to interference 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 60dbu f(50,50) contours of all three stations.

New service to nearly one million people coupled with a significant reduction in the population receiving interference makes a compelling argument in favor of a grant of the instant application.

Blanketing Interference

The area within the 115dbu blanketing contour is 3km². The population within the blanketing contour is 884.

The applicant 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 196km must be studied for interference from any proposed facility on channel 210.

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

Transmitter Location

KMOJ proposes to relocate to the existing Arden Hills tower. The ASR of this tower is 1060523. The coordinates are 45° 04' 05" N / 93° 10' 30" W (NAD83) or 45° 04' 05" N / 93° 10' 29" W (NAD27).

The site elevation is 274m AMSL, and the antenna will be centered at 116m (380') AGL, or 390m AMSL.

The ASR record and NADCON conversion are attached as Attachment E and Attachment F, respectively.

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	0.220	120	1.000	240	0.460
10	0.274	130	1.000	250	0.370
20	0.342	140	1.000	260	0.300
30	0.430	150	1.000	270	0.260
40	0.535	160	1.000	280	0.230
50	0.665	170	1.000	290	0.210
60	0.830	180	1.000	300	0.200
70	0.950	190	1.000	310	0.190
80	1.000	200	1.000	320	0.180
90	1.000	210	0.900	330	0.178
100	1.000	220	0.720	340	0.178
110	1.000	230	0.575	350	0.178

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

RF Exposure

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

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.

Environmental

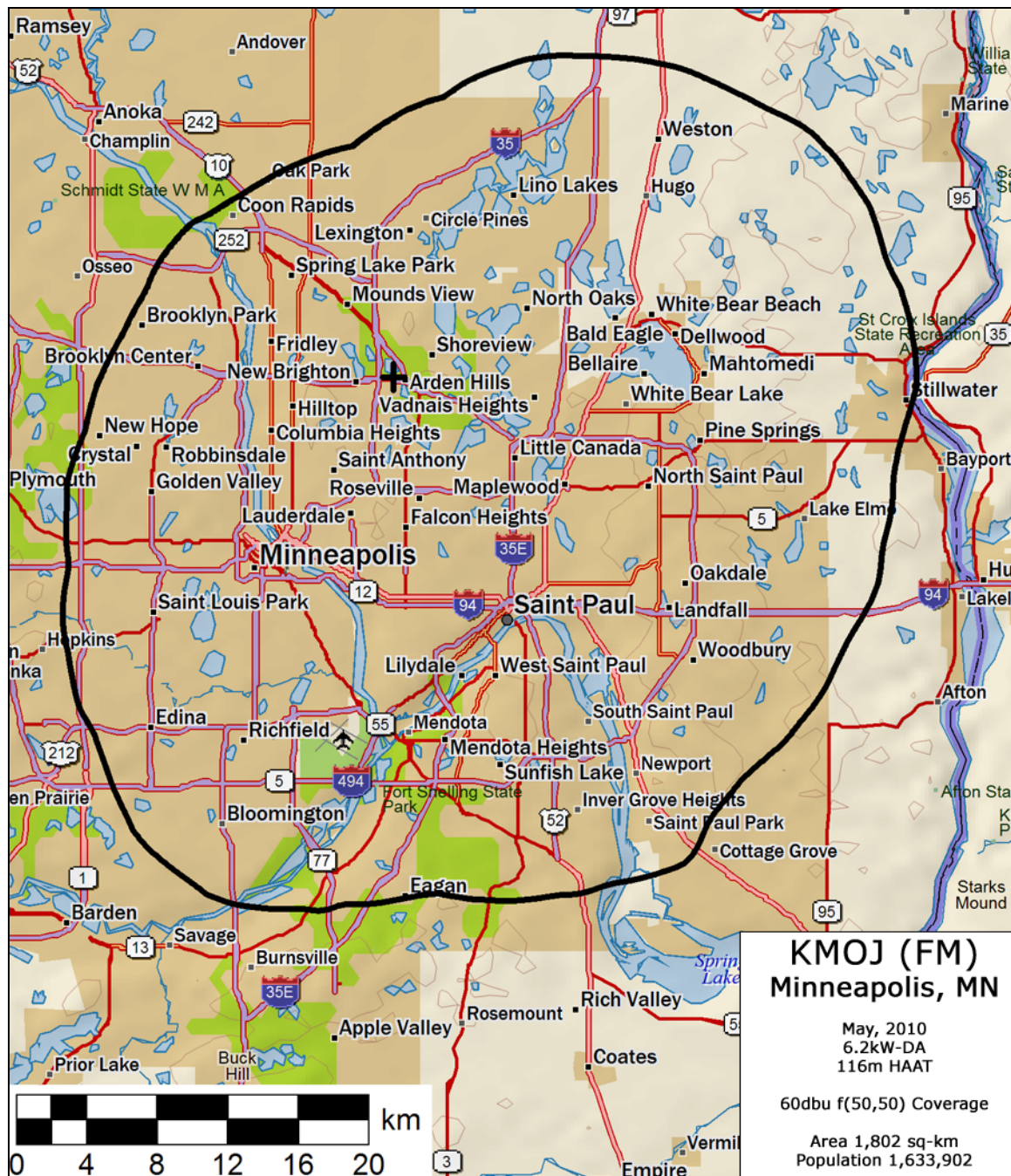
The instant application proposes a four-bay antenna mounted 380' above the ground on an existing 700' tower.

No new construction is proposed on the ground, and no change to the overall height of the structure is proposed.

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.

Population and Area Covered



The above map depicts the proposed 60dbu f(50,50) contour.
The population within the contour is 1,633,902.
The area within the contour is 1,802 km².

The principal community of Minneapolis is completely contained within the proposed 60dbu f(50,50) contour. The studio is located within the city of Minneapolis.

Conclusion

The instant application provides additional service to nearly one million people. It reduces the population within the KCMP interference area by 20%, and it reduces the population within the KFAI interference area by about 66%. It therefore represents a much more efficient use of the spectrum. No major environmental action is involved.

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

Attachment A – Memorandum Opinion and Order Approving the Contract, Waiving Separation Requirements, and Granting Both Mutually Exclusive Applications

Before the
Federal Communications Commission
Washington, D. C. 20554

FCC 83M-1300

3803

In re Applications of)	
)	
FRESH AIR, INC. (KFAI))	BC DOCKET NO. 82-543
Minneapolis, Minnesota)	File No. BPED-2642
)	
CENTER FOR COMMUNICATION)	
& DEVELOPMENT (KMOJ))	BC DOCKET NO. 82-544
Minneapolis, Minnesota)	File No. BPED-791231AV
)	
For Construction Permit for)	
Modification of Facilities of)	
Noncommercial Educational FM Stations))	

MEMORANDUM OPINION AND ORDER

Issued: April 18, 1983; Released: April 20, 1983

1. Under consideration are the Joint Petition For Approval of Settlement Agreement and Grant of Applications, filed by the applicants on February 18, 1983, and Supplement filed March 14, 1983.

2. This proceeding involves two mutually-exclusive applications for improvements in the facilities of existing noncommercial educational FM broadcast stations. The present and proposed facilities are as follows:

	<u>KFAI</u>	<u>KMOJ</u>
Present:	Channel 212D (10 W)	Channel 209D (10 W)
Proposed:	Channel 212A 0.125 kW, 442 ft.	Channel 210A 1.0 kW, 80 ft.

3. The proposals are mutually exclusive because operation of both stations as proposed would result in objectionable interference under Section 73.509(d)(3) of the Commission's Rules, which states that objectionable interference will be deemed to exist if the ratio of undesired to desired signal exceeds 10:1 for second adjacent channel signals. It is the view of the applicants, however, that the interference (if any in practice) would be de minimis and that a grant of both applications would be in the public interest. Therefore, they have entered into an agreement which provides that neither will object to a grant of the other's application as it now stands. A copy of that agreement has been filed with the petition wherein the applicants jointly request that the presiding judge approve the agreement and grant both of the pending applications for construction permit.

4. The predicted interference areas will be as follows:

To KFAI from KMOJ: 0.57 square miles (0.29% of 60 dBu service area)
To KMOJ from KFAI: 0.0374 square miles (0.028% of 60 dBu service area).

5. The interference to KMOJ from KFAI may occur only within a radius of one to two blocks around the downtown building where KFAI's transmitter will be located. This is a commercial business area with few, if any, residential dwellings.

6. The interference to KFAI from KMOJ may occur within only a very short distance from the KMOJ transmitter site in an area which includes railroad facilities, a shopping center, highway interchanges and open park land. This area, on an overall basis, is not heavily residential.

7. KMOJ cannot improve its facilities on channel 209 because of objectionable interference to WCAL(FM), channel 207C, Northfield, Minnesota. KMOJ currently operates second adjacent to WCAL and must move to a third adjacent channel in order to avoid objectionable interference if it wishes to increase power. A study by KMOJ's consulting engineer failed to find any frequency between 88.1 and 91.9 MHz which would be more suitable than channel 210 for an improvement in KMOJ's facilities.

8. The applicants submit that Section 73.509(a) of the Commission's Rules should be waived to permit a grant of both applications as they now stand for the following reasons.

9. KFAI and KMOJ both filed their applications pursuant to Section 73.512 of the Commission's Rules, which encourages Class D stations seeking renewal of license after June 1, 1980 to increase ERP to 100 watts or more (the alternative being to move to the commercial FM band with no protection from interference). Second Report and Order in Docket No. 20735, 44 RR 2d 235 (1978). The Commission looks favorably upon power increases by Class D stations, and the policy in favor of power increases may outweigh the detrimental effect of potential interference.


10. The interference to KFAI is only 0.29% of the 60 dBu service area, and the interference to KMOJ is only 0.028%. The interference radius from the KFAI transmitter is 0.43 miles (2,249 feet), and the interference from the KMOJ transmitter is 0.11 miles (576 feet). In Pittsburgh Community Broadcasting Corp., 71 FCC 2d 1458 (1979), the Commission granted a rule waiver where the interference area was 0.5 miles wide. In South County Community College District - Chabot College, 47 RR 2d 1272 (1980), the Commission approved interference over 0.1% of the 60 dBu service area.

11. In the public notice, "FCC Delegates Authority to the Chief of the Broadcast Bureau to Waive Small Amounts of Interference Received by Noncommercial Educational FM Proposals," 49 RR 2d 1524 (July 17, 1981), the Commission delegated authority to the Bureau Chief to waive interference

received in up to 5% of a station's 60 dBu service area. The Commission recognized the lack of available transmitter sites in urban areas, which is a factor in the instant case. It is clear that the Commission's current view is that interference areas of 5% or less are not nearly as critical as larger interference areas. The 5% figures is 17 times greater than the interference involved in the instant case. Furthermore, the Commission has favored facilities improvements even where second adjacent channel interference might be worsened. See, for example, Rutherford County Radio Co., Inc., 52 RR 2d 569 (B/C Bur. 1982). The interference involved here is very small and is within the scope of past waivers and current Commission policy. In light of the foregoing, approval of the agreement would be in the public interest.

Accordingly, IT IS ORDERED that the Joint Petition For Approval of Settlement Agreement, filed February 18, 1983 by the applicants, as supplemented March 14, 1983, IS GRANTED and the agreement IS APPROVED; Section 73.509(a) of the Commission's Rules IS WAIVED; the applications of Fresh Air, Inc. (KFAI) and Center For Communication & Development (KMOJ) ARE GRANTED; and this proceeding IS TERMINATED.

FEDERAL COMMUNICATIONS COMMISSION


John M. Frysiak
Administrative Law Judge

Attachment B – Contract Between KMOJ and KFAI

AGREEMENT

This Agreement is entered into this 3rd day of February, 1983, by and between Fresh Air, Inc. (hereinafter "Fresh Air"), licensee of noncommercial educational radio station KFAI(FM), Minneapolis, Minnesota, and the Center for Communication and Development (hereinafter "CCD"), licensee of noncommercial educational station KMOJ(FM), Minneapolis, Minnesota.

RECITALS

WHEREAS, KFAI and KMOJ are both currently licensed by the Federal Communications Commission (hereinafter "FCC") and are operated by Fresh Air and CCD respectively as Class D noncommercial educational stations, limited to a transmitter power output of ten watts; and

WHEREAS, Fresh Air has filed an application with the FCC for a construction permit to change the transmitter and antenna location of KFAI and to improve the transmission facilities of KFAI to an effective radiated power ("ERP") of 0.125 kilowatts ("kW") at an antenna height of 442 feet above average terrain ("HAAT") on a frequency of 90.3 MHz, Channel 212 (FCC File No. BPED-2642); and

WHEREAS, CCD has filed an application with the FCC for a construction permit to change the frequency of KMOJ and to improve the transmission facilities of KMOJ to an effective radiated power of 1.0 kW at 80 feet HAAT on a frequency of 89.9 MHz, Channel 210 (FCC File No. BPED-791231AV); and

WHEREAS, the FCC has designated the Fresh Air and CCD applications for a comparative hearing (BC Docket Nos. 82-543/544) to determine what disposition should be made of the applications in view of the fact that application of theoretical prediction techniques indicates that operation of the facilities proposed in the applications for KFAI and KMOJ would result in interference by each station to the other to an extent not permitted by the FCC's Rules and Regulations; and

WHEREAS, Fresh Air and CCD agree that such interference, if any in practice, would be too small to be of practical concern and should not be a bar to a grant of their respective applications or to operation as proposed in each application;

NOW, THEREFORE, each agreeing that the promises and covenants of the other party made in this Agreement are adequate consideration for their own promises and covenants, and each agreeing to be legally bound, Fresh Air and CCD hereby agree as follows:

AGREEMENTS

1. Joint Petition. Promptly after execution of this Agreement by both parties, Fresh Air and CCD together file a Joint Petition to the Administrative Law Judge presiding over the comparative hearing in BC Docket Nos. 82-543/544 requesting any waiver of Section 73.509(d)(3) and/or any other applicable FCC rules and/or policies which may be required and a grant of both Fresh Air's and CCD's applications proposing the following facilities:

	<u>KFAI</u>	<u>KMOJ</u>
Frequency:	90.3 MHz, Channel 212	89.9 MHz, Channel 210
ERP:	0.125 kW	1.0 kW
HAAT:	442 feet	80 feet
Transmitter		
Location:	Foshay Tower Building 812 Marquette Ave. Minneapolis, Minnesota	800 Fifth Ave. North Minneapolis, Minnesota
Geographical		
Coordinates:	44° 58' 29" n. lat. 93° 16' 17" w. lon.	44° 59' 00" n. lat. 93° 17' 22" w. lon.

2. Cooperation. Each party agrees to cooperate fully in the preparation and filing of the Joint Petition, to prepare and file any additional information requested by the FCC in connection with ruling on the Petition and/or the proposals therein, and to support approval of the Petition in appropriate pleadings at least through the stage of review by the full FCC. Neither party will be required to participate in a court appeal, however, if the FCC rejects the Joint Petition or fails to grant the parties' applications. In connection with fulfillment of their obligations under this Paragraph 2, each party agrees to make available to a reasonable extent the services of their respective attorneys, who shall divide the legal work subsequent to the filing of the Joint Petition in an equitable manner.

3. No Amendments. During the period between the date of this Agreement and the date when FCC action approving or disapproving the Agreement becomes final and beyond administrative or judicial review, each party agrees not to amend its pending application with respect to engineering matters, or to amend its application otherwise, except as may be required by rule or order of the FCC, without the prior consent of the other party, which consent shall not unreasonably be withheld.

4. Interference Limits: After the applications of the respective parties have been granted, each party agrees as follows:

a. For a period of one (1) year after the second station begins operation with new facilities pursuant to this Agreement, not to apply for a construction permit to change the facilities of its station in a manner which would cause predicted objectionable interference within an area comprising more than two percent (2%) of the area within the predicted 60 dBu service contour of the other party's station; and

b. Indefinitely, not to object on the grounds of electrical interference, before the FCC or other governmental entity with jurisdiction thereover, to any application by the other party to change the facilities of the other party's station in a manner such that objectionable predicted interference would not exceed two percent (2%) of the area with the predicted 60 dBu service contour of the objecting station.

5. Extremely Short Spacing: Notwithstanding the provision of Paragraph 4 of this Agreement, neither party will at any time, as long as this Agreement remains in force and effect, file

any application seeking authority to locate the antenna of its station closer than seventy-five one hundredths (0.75) miles from the antenna of the other party's station, measured to the nearest one-hundredth of a mile.

6. Construction of Terms. Paragraphs 4 and 5 of this Agreement shall be construed, and the term "objectionable interference" shall be defined, in light of the rules and policies of the FCC in effect at the time when an application invoking those paragraphs is filed with the FCC, except that either party may file an application in anticipation of a future effective date of any FCC rule or policy change after the FCC has announced adoption of the change.

7. Dissatisfaction After Implementation. If, one (1) year or more after the second station begins operation under program test authority of the FCC with new facilities pursuant to this Agreement, either party feels that the other party's station is causing unacceptable interference to its own station, the dissatisfied party may, at its sole option, withdraw from its commitments under Paragraph 4(a) and (5) of this Agreement, but not Paragraph 4(b); but the other party will not be precluded from opposing any action by the withdrawing party which is contrary to Paragraphs 4(a) or 5. In addition, at the request of either party which feels that its station is suffering unacceptable interference from the station of the other, both parties will be required to review this Agreement and to join in good faith discussions with a view toward finding alternative solutions to the problem, such discussions to include, but not be limited to, exploring the

possibilities of sharing time and/or merger of the parties. This Paragraph will require discussions of these and other alternatives but is not to be construed to impose any obligation on either party to accept any such alternatives.

8. Specific Performance: The Parties acknowledge that failure of a party to meet its obligations under this Agreement cannot be compensated for by money damages and thus agree that in the event of a failure by either to fulfill its obligations hereunder, the other party may seek an order of specific performance from the FCC or any court of applicable jurisdiction.

9. Severability: The provisions of this Agreement are not severable. If any provision of this Agreement is not approved by the FCC, then this Agreement shall be null and void, and the parties agree to re-enter into good faith negotiations to review the Agreement and to secure approval of a revised Agreement which meets the spirit and intent of this Agreement.

10. Headings. The headings in this Agreement are solely for the convenience of the Parties and shall not be construed to alter or affect the meaning of the explicit language of this Agreement.

11. Governing Law. This Agreement shall be construed under the laws of the State of Minnesota.

12. Notices. Any notices given pursuant to this Agreement shall be given by prepaid certified or registered U.S. mail, return receipt requested, addressed as follows:

If to Fresh Air:

Fresh Air, Inc.
Station KFAI
3104 - 16th Avenue South
Minneapolis, MN 55407

with a copy to:

John P. Crigler, Esquire
Haley, Bader and Potts
2000 M Street, N.W.
Washington, D.C. 20036

If to CCD:

Center for Communication and
Development
Station KMOJ
810 Fifth Avenue North
Minneapolis, MN 55405

with a copy to:

Peter Tannenwald, Esquire
Arent, Fox, Kintner, Plotkin
& Kahn
1050 Connecticut Ave., N.W.
Washington, D.C. 20036-5339

or to such other name or address as either party may from time to time specify in writing to the other.

13. Amendments. This Agreement may not be amended except in writing signed by duly authorized representatives of both Parties hereto.

14. Successors. This Agreement shall inure to the benefit of the parties and their respective heirs, successors, and assigns, including, but not limited to, any future board of directors or other governing body of Fresh Air or CCD and any future licensee of KFAI or KMOJ.

15. Counterparts. This document may be executed in any number of counterparts, each one of which shall have the full force and effect of an original document, but all of which shall constitute one and the same Agreement.

16. Authority to Sign. Each signatory to this Agreement warrants that he or she has the authority to bind the

Party on whose behalf he or she is signing with respect to the subject matter of this Agreement.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the day first set forth above.

FRESH AIR, INC.

CENTER FOR COMMUNICATION AND
DEVELOPMENT

By:

Jimmy S. Nichols

By:

Edna Lee

Title:

President

Title:

President

Witness:

Alice McKenney

Witness:

Alice McKenney

Attachment C – Application for KCMP Facilities, Including Waiver Request to Accept Interference from KMOJ

Engr. Copy

Before the
Federal Communications Commission
Washington, D.C. 20554

✓

RECEIVED BY
FEDERAL COMMUNICATIONS
COMMUNICATIONS
MAR 11 1986

In the Matter of:

Application of St. Olaf College,)
Northfield, Minnesota to move transmitter site)
and to increase antenna height)

To: Chief, Mass Media Bureau

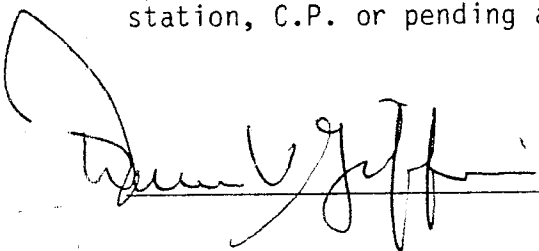
R

Request for Waiver:

St. Olaf College of Northfield, Minnesota, licensee of WCAL (FM) hereby requests waiver of Sec. 73.509 of the Rules and Regulations to allow the station to receive de-minimus interference.

The interference caused by these stations is within the station's 100 dBu F(50-10) interference contour, which travels only 1.61 km. In each case, the interference area amounts to 8.14 Sq. km, which is only .04955 of the area encompassed by the proposed 60 dBu F(50-50) contour (16,433 Sq. km.) Since the Commission staff traditionally waives received interference of one percent (or more), we respectfully request that the de-minimus interference herein described also be waived.

Operation under the proposed facilities, will cause no interference to any FM station, C.P. or pending application.

 , date 2/17/86

St. Olaf College
Northfield, Minnesota

REC'D DATA MGMT STAFF

MAR 11 1986

AUDIO SERVICES

Name of Applicant St. Olaf College

1. Purpose of authorization applied for:

☐ Construct a new station☐ Install Auxiliary system

Change:

☒ Effective radiated power *☐ Frequency☒ Antenna height above average terrain *☒ Transmitter location *☐ Studio location outside community of license☐ Other (Summarize briefly the nature of the changes proposed.)
* see exhibit #1, Engineering Statement

2. Community of license:

State

Minnesota

City or Town

Northfield

3. Facilities requested:

Frequency

Channel No.

Class (Check one below)

89.3

MHz

207☐ A
☒ C☐ B
☐ C1☐ B1
☐ C2☐ D

4. Geographic coordinates of antenna (to nearest second)

North Latitude

44⁰42'43"

West Longitude

93⁰03'30"

5. Effective radiated power:

Polarization

Horizontal Plane

Maximum (Beam tilt only)

Horizontal

97.6

kW

100

kW

Vertical

97.6

kW

100

kW

(.5 degree beam tilt)

6. Height in meters of antenna radiation center:

Above
Average terrain (HAAT)Above
Mean Sea LevelAbove
Ground

Horizontal

307.7

meters

584.5

meters

301

meters

Vertical

307.7

meters

584.5

meters

301

meters

7. Is a directional antenna being proposed?

☐ YES ☒ NOIf Yes, attach as Exhibit No. N/A an engineering statement with all data specified in Section 73.316(d) of the Commission's Rules.

15. Tabulation of Terrain Data. (Calculated in accordance with the procedure prescribed in Section 73.313 of the Commission's Rules utilizing 7.5 minute topographic maps, if available.)

Radial bearing (degrees true)	Height of antenna, radiation center above average elevation of radial (3-16 kilometers) Meters	Predicted Distance
		To the 1 mV/m contour
		Kilometers
0°	306.4	72.6
45°	342.6	75.3
90°	323.4	73.9
135°	301.3	72.2
180°	304.3	72.5
225°	303.0	72.4
270°	288.6	71.2
315°	291.8	71.4

Terrain data from TASERVICE, Boulder, CO. Uses required 4 point interpolation.
(Institute for Telecommunication Sciences)

Allocation Studies

(See Subpart C of Part 73 of the Commission's Rules and Regulations)

16. Is the proposed antenna location within 320 kilometers (199 miles) of the common border between the United States and Mexico? ☐ Yes ☒ No
- If Yes, attach as Exhibit No. N/A a showing of compliance with all provisions of the Agreement between the United States of America and the United Mexican States concerning Frequency Modulation Broadcasting in the 88 to 108 MHz band.

17. With regard to stations within 320 kilometers (199 miles) of the common border between the United States and Mexico, attach as Exhibit No. N/A information required in 1/.

18. If the proposed operation is for a channel in the range from channel 201 through 220 (88.1 through 91.9 MHz), then with regard to stations more than 320 kilometers (199 miles) from the common border between the United States and Mexico or if this proposed operation is for a class D station in the range from Channel 221 through 300 (92.1 through 107.9 MHz), attach as Exhibit No. 5 a complete allocation study to establish the lack of prohibited overlap of contours involving these stations. The allocation study should include the following:

* see exhibit 5a, 5b & 5c

- The normally protected interference-free and the interfering contours for the proposed operation along all azimuths.
- Complete normally protected interference-free contours of all other proposals and existing stations to which objectionable interference would be caused.
- Interfering contours over pertinent arcs of all other proposals and existing stations from which objectionable interference would be received.
- Normally protected and interfering contours over pertinent arcs, of all other proposals and existing stations, which require study to show the absence of objectionable interference.
- Plot of the transmitter location of each station or proposal requiring investigation, with identifying call letters, file numbers and operating or proposed facilities.
- When necessary to show more detail, an additional allocation study will be attached utilizing a map with a larger scale to clearly show interference or absence thereof.
- A scale of miles and properly labeled longitude and latitude lines, shown across the entire (Exhibit(s)). Sufficient lines should be shown so that the location of the sites may be verified.
- The name of the map(s) used in the exhibit(s).

- 1/ A showing that the proposed operation meets the minimum distance separation requirements. If any separations are proposed that are less than the applicable minimum separation requirements plus 15 kilometers, include these stations. Also include existing stations, proposed stations, and cities which appear in the Table of Assignments; the location and geographic coordinates of each antenna, proposed antenna or reference point, as appropriate; and distance to each from proposed antenna location.

Name of Applicant

St. Olaf College

Call Sign

WCAL

Station Location

Northfield, Minnesota

Purpose of Application (Put "X" in appropriate box)

- ☐ New antenna construction
☐ Alteration of existing antenna structure
☒ Change in location

Facilities Requested

100 KW at 317 meters, Ch. 207
 Single, guyed galvanized steel
 tower.

1. Location of Antenna:

State Minnesota

County Dakota

City or Town Rosemount

Exact antenna location (*street address*). If outside city limits, give name of nearest town and distance and direction of antenna from town.
 One quarter mile southwest of corner of 160th st. and Blaine Ave. in the
 University of Minnesota Rosemount Research Center. 1.8 miles west of HWY 52.

Geographical coordinates (*to nearest second*). For directional antenna give coordinates of center of array. For single vertical radiator give tower location.

North Latitude 44° 42' 43" West Longitude 93° 03' 30"

2. Is the proposed site the same transmitter-antenna site of other stations authorized by the Commission or specified in another application pending before the Commission?

☐ YES ☒ NO

If Yes, give call sign:

3. Has the FAA been notified of proposed construction?

☒ YES ☐ NO

If Yes, give date and office where notice was filed.

Nov. 21, 1985, Des Plaines, IL

4. List all landing areas within 5 miles of antenna site. Give distance and direction to the nearest boundary of each landing area from the antenna site.

Landing Area	Distance	Direction
(a) (Lakeville) AIRLAKE	7.8 Mi	S.W.
(b) S. St. Paul, Fleming	7.8 Mi	n
(c)		

5. Attach as Exhibit No. * a description of the antenna system, including whether tower(s) are self-supporting or guyed. If a directional antenna, give spacing and orientation of towers.

Single tower, uniform cross section, galvanized steel tower with Harris FMH-10BC side-mounted antenna at 987.6' A.G.

Tower		#1	#2	#3	#4	#5	#6
Overall height above ground (include obstruction lighting)	meters	317					
	feet	1040					
Overall height above mean sea level (include obstruction lighting)	meters	600.5					
	feet	1970					

TRIPLICATE

860221MW

A F F I D A V I T

(WCAH)

Re: 860221MR

COUNTY OF BLACK HAWK)
- SS.:
STATE OF IOWA)

DOUGLAS L. VERNIER, being duly sworn upon oath, deposes and says:

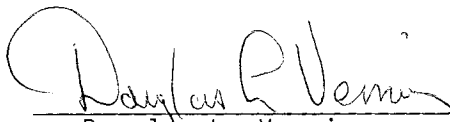
That he has held a Federal Communications Commission First Class Radiotelephone License continually since 1964. In 1983 this license was reissued by the Commission as a General Radiotelephone license no. PG-163856;

That he studied engineering at the University of Michigan and that he has received degrees from the University in Radio and Television Communication. That he has been active in Broadcast Consulting for over 16 years;

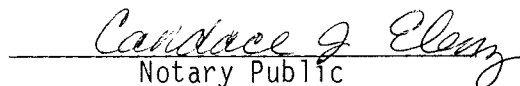
That his qualifications are a matter of record with the Federal Communications Commission;

That he has been retained by St. Olaf College of Northfield, Minnesota and has developed the engineering showings appended hereto;

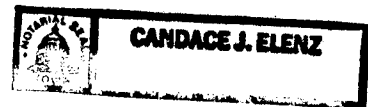
That he has prepared these engineering showings, the technical information contained in same and the facts stated within are true of his knowledge.


Douglas L. Vernier

Sworn to and subscribed before me
this 3rd day of February, 1986.


Notary Public

My commission expires: 9-14-86



01/27/86

FM - CHANNEL SIX TV RELATIONSHIPS LISTING

WCAL FM NORTHFIELD MN (DATA SHEET)

N. LAT. = 44 28 35
W. LNG. = 93 11 8

F(50-50) Contours:

H.A.A.T. = 100.4 M, 329.5 F
PWR = 100 K.W.
CHAN = 207 / 89.3 MHz.60 dBu (1 mV/m) = 50.18 KM
54 dBu (.5 mV/m) = 63.05 KM
34 dBu (50 uV/m) = 122.34 KM.

COVERAGE AREA= 7910.67 SQ. KM.

F(50-10) Interference Contours (KM):

100 dBu = 5.73	86 dBu = 13.02	72 dBu = 30.60	58 dBu = 66.20
98 dBu = 6.38	84 dBu = 14.52	70 dBu = 34.30	56 dBu = 73.17
96 dBu = 7.18	82 dBu = 16.41	68 dBu = 39.07	54 dBu = 80.14
94 dBu = 8.00	80 dBu = 19.25	66 dBu = 43.84	52 dBu = 87.62
92 dBu = 9.19	78 dBu = 22.09	64 dBu = 48.67	50 dBu = 95.13
90 dBu = 10.41	76 dBu = 24.92	62 dBu = 54.41	48 dBu = 104.17
88 dBu = 11.63	74 dBu = 27.76	60 dBu = 60.14	46 dBu = 113.74

TV STATIONS WITH DISTANCE RELATIONSHIPS:

Cutoff distance for channel 207 = 196 KM

06- KAAL , AUSTIN MN 94.25 KM, 58.56 Mi. 178.4 Deg.
100 K.W. 320 M. 51.30 dBu I 58.01 dBu
47 dBu = 105.47 KM. 68 dBu = 55.78 KM
N. LAT. 43 37 42 W. LNG. 93 9 12

F(50-50) Protected Contours (KM), & U/D in dB:

47 dBu = 105.47, 20.3	57 dBu = 80.89, 9.5	67 dBu = 57.96, 3.0
48 dBu = 102.78, 18.9	58 dBu = 78.55, 8.6	68 dBu = 55.78, 2.6
49 dBu = 100.10, 17.6	59 dBu = 76.21, 7.8	69 dBu = 53.60, 2.3
50 dBu = 97.42, 16.3	60 dBu = 73.87, 7.0	70 dBu = 51.42, 2.0
51 dBu = 94.97, 15.2	61 dBu = 71.53, 6.3	71 dBu = 49.24, 1.7
52 dBu = 92.62, 14.2	62 dBu = 69.19, 5.5	72 dBu = 47.23, 1.5
53 dBu = 90.27, 13.1	63 dBu = 66.85, 4.9	73 dBu = 45.35, 1.2
54 dBu = 87.93, 12.2	64 dBu = 64.51, 4.4	74 dBu = 43.48, 1.0
55 dBu = 85.58, 11.3	65 dBu = 62.32, 3.8	75 dBu = 41.60, 0.8
56 dBu = 83.24, 10.4	66 dBu = 60.14, 3.4	76 dBu = 39.73, 0.6

06+ KBJR , SUPERIOR WI 270.24 KM, 167.92 Mi. 18 Deg.
100 K.W. 307.8 M. 13.94 dBu I 23.29 dBu
47 dBu = 104.56 KM. 68 dBu = 55 KM
N. LAT. 46 47 21 W. LNG. 92 6 50

05- KSTP , ST. PAUL MN 65.22 KM, 40.53 Mi. 3.2 Deg.
100 K.W. 518.5 M. 69.25 dBu I 73.32 dBu
47 dBu = 122.24 KM. 68 dBu = 68.32 KM
N. LAT. 45 3 45 W. LNG. 93 8 22

EXHIBIT #1
ENGINEERING STATEMENT

Concerning the Application of
WCAL (FM)
St. Olaf College
Northfield, Minnesota

Feb. 3, 1986

Channel 207

97.6 K.W.

This engineering statement supports the application of St. Olaf College of Northfield, Minnesota to change transmitter site and increase H.A.A.T. The instant proposal also updates St. Olaf's current file BPED-840224AD by providing information which satisfies the requirements of Sec. 73.525 of the Commission's Rules and Regulations regarding protection to channel six-television.

Under the instant proposal, a 25 KW, Broadcast Electronic FM transmitter generates an output power of 21.7 kilowatts. The 50 ohm, Cablewave HCC 318-50, 3 1/8" copper ridged transmission line, has an efficiency for its 289.6 meter length of 81.95 percent. Therefore, the Harris FMH-10BC, ten bay circularly polarized antenna, has at its input, 17.8 kilowatts of power. The proposed antenna has a major lobe power gain of 5.618 in the both planes resulting in an effective main lobe radiated power of 100 KW. Employing .5 degrees beam tilt, the antenna provides a horizontal gain of 5.482 resulting in an effective radiated power of 97.6 kilowatts.

Exhibit # 2 is a sectional aeronautical chart showing the proposed 60 dBu F(50-50) contour. The area within the new 60 dBu contour amounts to 16,433 Sq. km. This figure was determined by using a compensating polar-planimeter. The population was determined to be 2,189,362 by superimposing the 60 dBu contour over a U.S. Census map and applying figures from the 1980 census.

Exhibit # 3 is a sectional aeronautical chart showing the change area. Total change amounts to 94.6 percent.

Exhibit # 4a and # 4b is full scale section of a 7.5 minute U.S. Geological Survey topographic quadrangle map and a photo reduction of the same map showing the exact transmitter location. There are no AM transmitters within 2 miles of the proposed site.

Exhibit # 5a is an allocation map showing a de-minimum amount of interference received by the proposed application. This interference is caused by third adjacent stations KMOJ and WRFW. The interference area lies entirely within each station's 100 dBu contour which extends 1.61 km from each transmitter site. In each case, this interference area amounts to only .04955 percent of the WCAL, instant proposal, 60 dBu F(50-50), normally protected, contour area. Exhibit 5b is another allocation map which shows the lack of interference caused by the instant proposal. Exhibit 5c is a computer print-out displaying all pertinent frequency and distant relationships. The exhibit uses antenna C.O.R. H.A.A.T. as published in the Commission's data base. No significant

relationships were found.

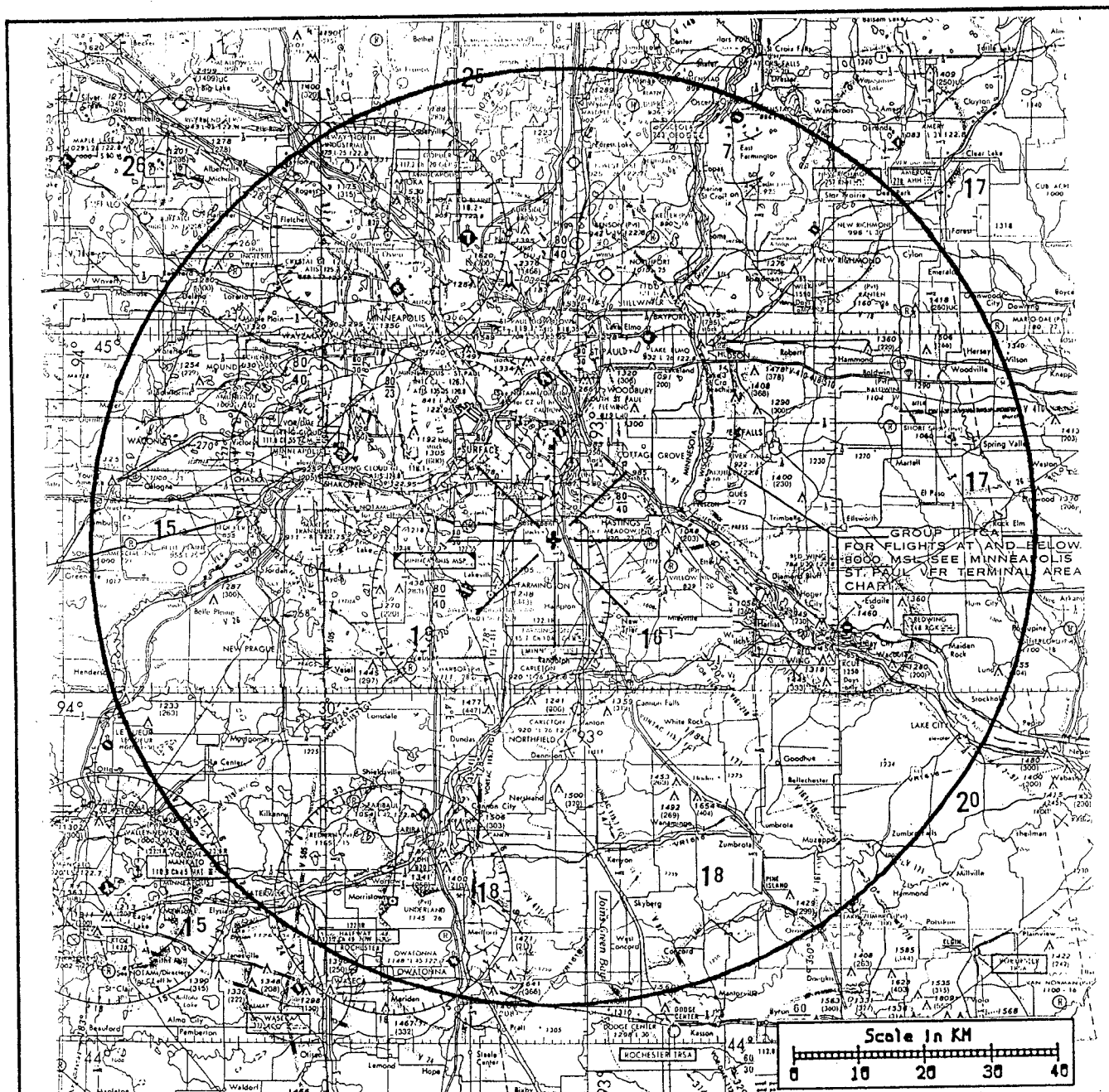
#6, 6a and 6b is a channel-six study reflecting compliance by the applicant to the requirements of Sec. 73.525 of the Rules and Regulations.

Exh. 7 is a discussion of blanketing and the steps proposed to remedy any interference.

Exhibit #8a is the environmental impact statement while exhibit # 8b shows compliance with the Commission's new R.F. radiation standards.

Exhibit # 9 is a vertical sketch showing the proposed tower and side-mounted antenna

Doug Vernier



1 mV/m CONTOUR

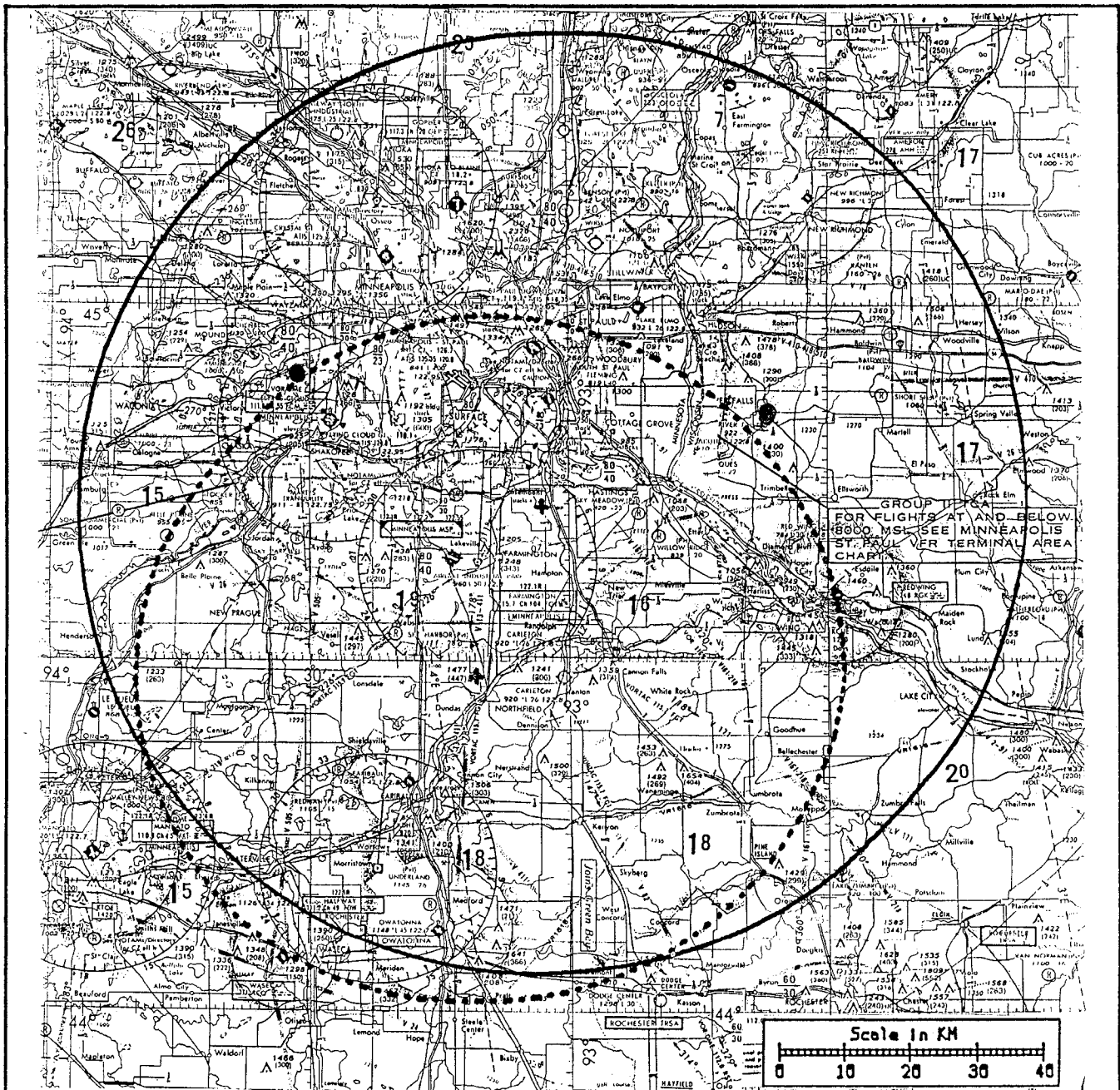
Area = 16,433 Sq. km
Population = 2,189,362

Area by compensating
polar planimeter.
U.S. Aeronautical Chart

EXHIBIT #2

WCAL - FM
St. Olaf College
Northfield, Minnesota
Ch 207 97.6kW 307.7M HAAT
Feb. '86

DOUG VERNIER
BROADCAST CONSULTANT
1600 PICTURESQUE DR.
CEDAR FALLS, IA 50613
319 266-7435



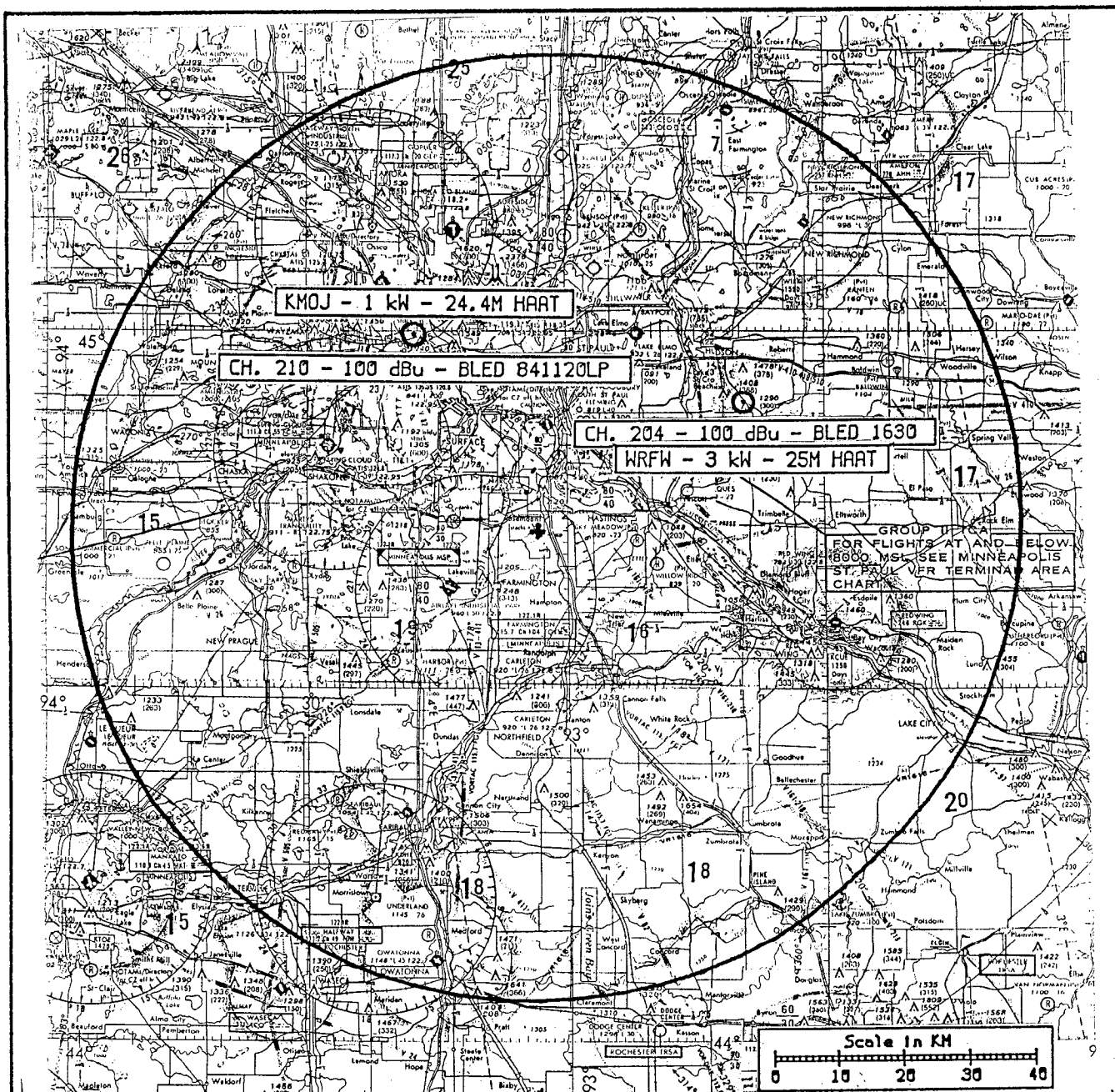
CHANGE AREA

Map shows change area
 Present 60 dBu = dotted
 Proposed 60 dBu = solid
 Percent change = 94.6%
 Loss area = 439.2 Sq km
 Gain area = 7999.8 Sq km
 Present area = 8919.2 Sq km
 U.S. Aeronautical Chart

EXHIBIT #3

WCAL-FM
 St. Olaf College
 Northfield, Minnesota
 Ch 207 97.6kW 307.7M HAAT
 Feb. '86

DOUG VERNIER
 BROADCAST CONSULTANT
 1600 PICTURESQUE DR.
 CEDAR FALLS, IA 50613
 319 266-7435



ALLOCATION STUDY

Map shows Interference
received within proposed
60 dBu F(50-50) Contour.

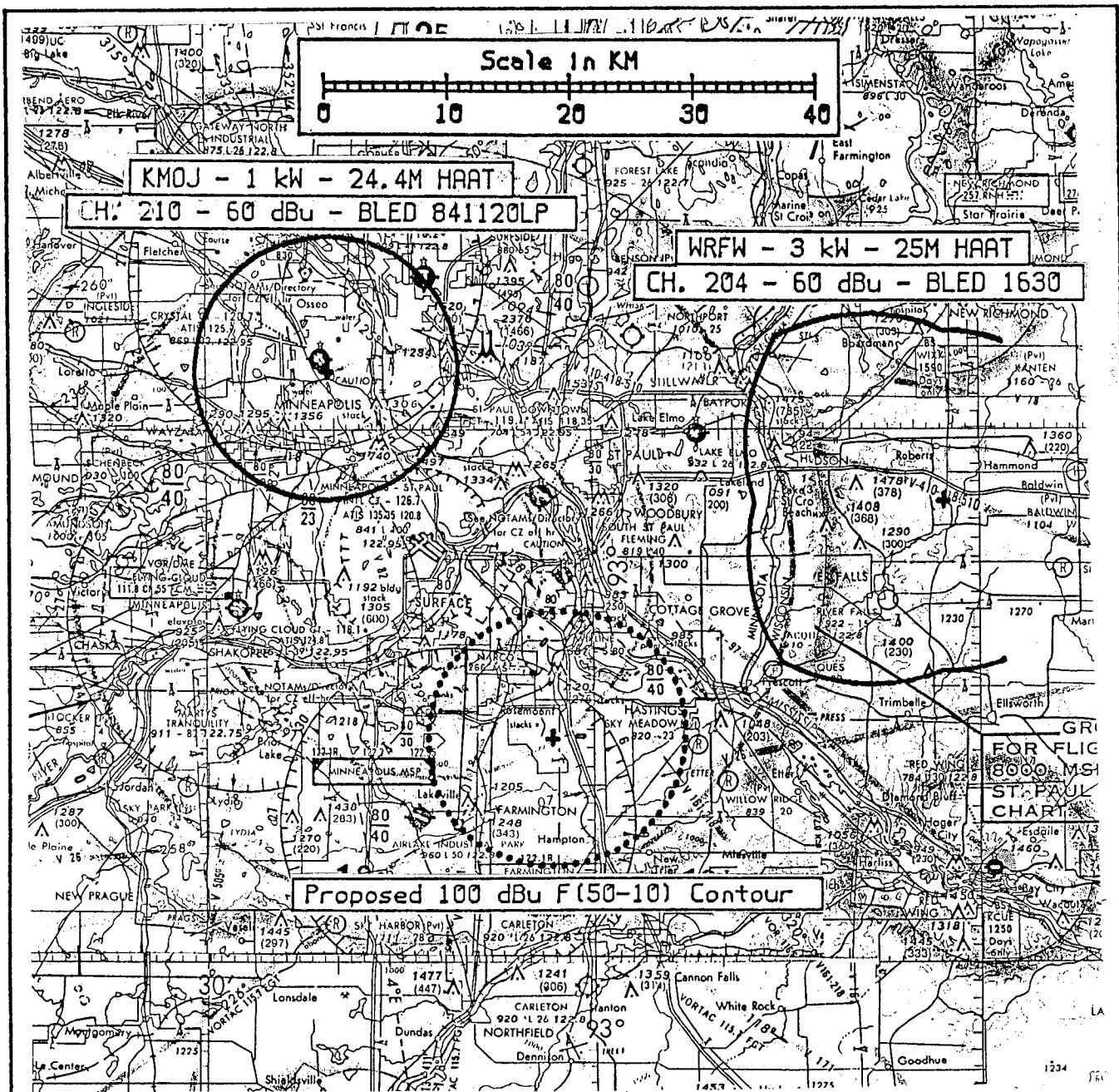
U.S. Aeronautical Chart

Scale 1 in = 24.2 km

EXHIBIT #5a

WCAL-FM
St. Olaf College
Northfield, Minnesota
Ch 207 97.6kW 307.7M HAAT
Feb. '86

DOUG VERNIER
BROADCAST CONSULTANT
1600 PICTURESQUE DR.
CEDAR FALLS, IA 50613
319 266-7435



ALLOCATION STUDY

Map shows lack of
Interference caused.

Solid = F(50-50) 60 dBu
Dotted = proposed 100 dBu
Interference contour.

EXHIBIT #5b

WCAL-FM
St. Olaf College
Northfield, Minnesota
Ch 207 97.6kW 307.7M HAAT
Feb. '86

DOUG VERNIER
BROADCAST CONSULTANT
1600 PICTURESQUE DR.
CEDAR FALLS, IA 50613
319 266-7435



Reading the Computer Print-Out

The attached print-out shows all stations having a frequency and distance relationship with the given channel. The print-out should be self-explanatory for the most part. The parameters of the station being checked, (reference station) are printed in the heading. The 60 dBu protected contour is predicted from the Commission's F(50-50) table, while the 40, 54, 80 and 100 dBu contours are interference contours derived from the Commission's F(50-10) table. All contours are in kilometers and are predicted according to the requirements of Sec. 73.509 of the Rules, using data points identical to those published in Report No. RS 76-01 by Gary C. Kalagian. When interference contour distances are less than 16 kilometers the F(50-50) tables are used. When using this table, if distances are less than 1.6 KM the free-space equation is used to determine the extent of the predicted contour.

The column labeled "* IN *" shows the simple distance in kilometers between the reference station's 60 dBu protected contour and the data file station's interference contour. This distance is derived by adding the distance of the two contours and subtracting the sum from the actual distance between the stations, as derived from methods detailed in Sec. 73.208 of the Rules and Regulations as amended in Docket 80-90. Therefore, the column is a measure of incoming interference. Negative distances in this column indicate the presence of interference.

The column labeled "* OUT *" shows the number of kilometers of overlap or clearance between the reference station's interference contour and the data base station's protected contour. Negative distance figures in this column indicate outgoing interference.

Under the "BEARING" column, the first row of numbers indicate the bearing from true north of the data base station from the reference station, while the numbers in the second row indicate the reverse bearing.

All listed antenna heights are the averages of the height above average terrain of eight radials as found in the Commission's data base. The columns labeled "INT" and "PRO" hold the distance of the appropriate interference contour and the protected contour of data base stations having both a distance and frequency relationship.

Channels 218 through 220 require the use of the commercial channel spacings. When such channels are listed in relationship to commercial channels or assignments, the "IN" and "OUT" columns change their significance. Under the "IN" column, the distance shown and the letter "R" stand for the minimum distance required while the distance shown in the next column followed by the letter "M" indicates the available margin. These distances are determined under the requirements prescribed in Sec. 73.207 of the Rules as amended in Docket 80-90. This same procedure is used for all intermediate frequency relationships (I.F.), i.e. 53 and 54 channels removed, as well as for Canadian and Mexican spacing.

The "TYPE" column lists the status of the facility, ie. "AC" for American construction permit, "CC" for Canadian construction permit, "LI" for license or "AP" for application. If the letter "D" appears after the first two letters in the type column the facility is directional.

02/01/86

D. VERNIER/ CONSULTANT

319-266-7435

CH# 207C - 89.3 MHz

INTERFERENCE CHECKS WITH WCAL ROSEMOUNT AT N. LAT. 44 42 43 W. LNG. 93 3 30

PWR = 100 K.W. H.A.A.T = 307.7 M

60 DBU = 72.98 40 DBU = 172.8 54 DBU = 106.29 80 DBU = 34.38 100 DBU = 10.63

CH.#	CALL LOCATION	TYPE	* IN *	* OUT *	BEARING <---	DISTANCE	LAT. LONG.	PWR(KW) HAAT	INT. FILE #	PRO.
204A	WRFW RIVER FALLS WI	LI	-37.3	12.7	58.8 238.8	37.3KM 23.2Mi	44 53 8 92 39 20	3.00 25.0M	1.61 BLED	13.93 1630
205C	AP205 COLLEGEVILLE MN	AP	42.5	44.6	306.9 126.9	145.5KM 90.4Mi	45 29 52 94 32 14	100.00 230.4M	30.02 BPED	66.53 830512AJ
205C	WLSU LA CROSSE WI	LI	93.6	107.2	123.8 303.8	179.8KM 111.7Mi	43 48 42 91 11 15	6.30 164.6M	13.22 BLED	38.23 1753
205C	WOJB RESERVE WI	LI	85.6	89.1	46.1 226.1	185.9KM 115.5Mi	45 52 16 91 20 56	100.00 184.4M	27.38 BLED	62.41 820428AH
207C	WCALA NORTHFIELD MN	AP	-197.7	-209.1	202.0 22.0	28.5KM 17.7Mi	44 28 28 93 11 33	45.00 305.7M	153.18 BPED	64.75 840224AD
208A	KQAL WINONA MN	LI	46.1	16.8	123.2 303.2	134.7KM 83.7Mi	44 2 52 91 38 40	1.32 -45.7M	15.56 BLED	11.54 810706AH
208A	KLCD DECORAH IA	LI	101.2	71.7	146.7 326.7	185.6KM 115.3Mi	43 18 56 91 47 18	0.10 55.5M	11.35 BLED	7.59 811023AJ
209C	KMSUC MANKATO MN	AC	11.1	23.1	229.9 49.9	98.2KM 61.0Mi	44 8 34 94 0 8	20.00 121.9M	14.09 BPED	40.72 840117AY
209C	KMSUA MANKATO MN	AP	11.1	23.1	229.9 49.9	98.2KM 61.0Mi	44 8 34 94 0 8	20.00 121.9M	14.09 BMPED	40.72 851115II
209C	KMSU MANKATO MN	LI	18.8	43.0	229.9 49.9	98.0KM 60.9Mi	44 8 38 93 59 59	5.00 53.6M	6.23 BLED	20.64 831109AA
209C	WUEC EAU CLAIRE WI	LI	46.0	67.4	85.6 265.6	126.4KM 78.5Mi	44 47 58 91 27 59	0.74 192.6M	7.46 BLED	24.64 791016AB
210A	KMOJ MINNEAPOLIS MN	LI	-39.3	13.9	328.8 148.8	35.3KM 21.9Mi	44 59 0 93 17 22	1.00 24.4M	1.61 BLED	10.73 841120LP
210A	KRPR ROCHESTER MN	LI	19.1	59.7	142.5 322.5	93.9KM 58.3Mi	44 2 32 92 20 26	1.00 152.4M	1.80 BLED	23.53 810325AB

I.F. RELATIONSHIPS:

NONE FOUND

Attachment D – FCC Authorization of KCMP Application

United States of America
FEDERAL COMMUNICATIONS COMMISSION
FM BROADCAST STATION LICENSE

Authorizing Official:

Official Mailing Address:

MINNESOTA PUBLIC RADIO
480 CEDAR ST
SAINT PAUL MN 55101

Robert D. Greenberg
Supervisory Engineer
Audio Division
Media Bureau

Facility Id: 62162

Call Sign: KCMP

License File Number: BLED-19911203KB

Grant Date: June 26, 1992

This license expires 3:00 a.m.
local time, April 01, 1997.

This license covers Permit No.: BPED-19860221MR

Subject to the provisions of the Communications Act of 1934, subsequent acts and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions set forth in this license, the licensee is hereby authorized to use and operate the radio transmitting apparatus herein described.

This license is issued on the licensee's representation that the statements contained in licensee's application are true and that the undertakings therein contained so far as they are consistent herewith, will be carried out in good faith. The licensee shall, during the term of this license, render such broadcasting service as will serve the public interest, convenience, or necessity to the full extent of the privileges herein conferred.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequency designated in the license beyond the term hereof, nor in any other manner than authorized herein. Neither the license nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934. This license is subject to the right of use or control by the Government of the United States conferred by Section 606 of the Communications Act of 1934.

Name of Licensee: MINNESOTA PUBLIC RADIO

Station Location: MN-NORTHFIELD

Frequency (MHz): 89.3

Channel: 207

Class: C1

Hours of Operation: Unlimited

Transmitter: Type Accepted. See Sections 73.1660, 73.1665 and 73.1670 of the Commission's Rules.

Transmitter output power:

Antenna type: Non-Directional

Description:

Antenna Coordinates: North Latitude: 44 deg 41 min 19 sec
West Longitude: 93 deg 04 min 22 sec

	Horizontally Polarized Antenna	Vertically Polarized Antenna
Effective radiated power in the Horizontal Plane (kW):	98	98
Maximum effective radiated power (kW):	100	100
Height of radiation center above ground (Meters):	226	226
Height of radiation center above mean sea level (Meters):	516	516
Height of radiation center above average terrain (Meters):	234	234
Antenna structure registration number:	Not Required	
Overall height of antenna structure above ground:	244 Meters	

Obstruction marking and lighting specifications for antenna structure:

It is to be expressly understood that the issuance of these specifications is in no way to be considered as precluding additional or modified marking or lighting as may hereafter be required under the provisions of Section 303(q) of the Communications Act of 1934, as amended.

None Required

Special operating conditions or restrictions:

- 1 ANTENNA DESCRIPTION: ERI/CONTINENTAL G5CPS/705, TEN SECTIONS, CIRCULARLY POLARIZED, SIDE-MOUNTED ON A UNIFORM CROSS-SECTION GUYED STEEL TOWER.

*** END OF AUTHORIZATION ***

Attachment E – ASR Record for the Proposed Tower

Registration 1060523 [Map Registration](#)

Registration Detail			
Reg Number	1060523	Status	Constructed
File Number	A0070967	Constructed	08/01/1981
FAA Study	80-GL-1037-OE	EMI	No
FAA Issue Date	12/05/1980	NEPA	No
Antenna Structure			
Structure Type	TOWER - Free standing or Guyed Structure used for Communications Purposes		
Location (in NAD83 Coordinates)			
Lat/Long	45-04-05.0 N 093-10-30.0 W	1777 14TH ST	
City, State	ARDEN HILLS , MN		
Center of AM Array			
Heights (meters)			
Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)		
274.3	213.4		
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances		
487.7	213.4		
Painting and Lighting Specifications			
FCC Paragraphs B, D, H, J, 3, 5, 14, 21, 23			
.			
Owner & Contact Information			
FRN		Licensee ID	
Owner			
ARDEN TOWERS INC Attention To: DAN VAUGHAN 3440 BAYSIDE RD ORONO , MN 55356-9218		P: (612)473-3660 E: DAN_VAUGHAN@WORLDNET.ATT.NET	
Contact			
		P: E:	
.			
Last Action Status			
Status	Constructed	Received	02/01/1999
Purpose	New	Entered	02/03/1999
Mode	Mail In (Manual)		
Related Applications			

02/01/1999	A0070967 - New (NE)
Comments	
None	
Automated Letters	
None	

CLOSE WINDOW

Attachment F – NADCON Conversion of Tower Coordinates to NAD-27

Output from NADCON for station

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 5.12354	93 10 29.19635
NAD 83 datum values:	45 04 5.00000	93 10 30.00000
NAD 27 - NAD 83 shift values:	0.12354	-0.80365 (secs.)
	3.814	-17.581 (meters)
Magnitude of total shift:		17.989 (meters)

□



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