

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
FM CONSTRUCTION PERMIT  
FM RADIO STATION WIXK-FM  
COON RAPIDS, MINNESOTA

SEPTEMBER 10, 2001

CH 296C2    22 KW    179 M

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Technical Narrative

The technical exhibit of which this narrative is part was prepared as to modify radio station WIXK-FM assigned to Coon Rapids, Minnesota.<sup>1</sup> WIXK-FM presently has a construction permit for operation at the *United* tower with an effective radiated power of 25 kilowatts and an antenna height above terrain of 150 meters.<sup>2</sup> By this instant application, WIXK-FM seeks to modify its construction permit to specify operation at the *Telefarm North* tower, increase the antenna height above average terrain to 179 meters and decrease the effective radiated power to 22 kilowatts.

The proposal would not be subject to environmental processing in accordance with Section 1.1306. The proposed WIXK-FM facility will be located on an existing tower, with a registration number of 1023883. It is believed that this proposal conforms with all applicable rules and regulations of the FCC.

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<sup>1</sup> WIXK-FM was assigned to Channel 296C2 at Coon Rapids in MM Docket 00-37, Report and Order, released September 29, 2000.

<sup>2</sup> See FCC File Number: BPH-20001222AAK.

Proposed Transmitter Location

A map showing the transmitter site location is provided in Figure 1. A sketch showing the proposed antenna and existing supporting structure is shown on Figure 2.

Interference Concerns

The 115 dBu predicted "blanketing" contour of the proposed station would extend radially less than 2 kilometers from the transmitting site. No interference is expected as the proposed transmitter site is located on a tower already employed by other higher powered FM radio and television stations. However, the applicant recognizes its responsibility to resolve complaints of interference, including blanketing and receiver-induced interference as required by Sections 73.315(b), 73.316(e) and 73.318.

Coverage Contours

The predicted coverage contours for the proposed operation were calculated in accordance with the provisions of Section 73.313. In accordance with current FCC practice, the distances to the contours were calculated without consideration given to terrain roughness correction factors.

The average terrain elevations from 3 to 16 kilometers along eight radials evenly spaced at 45-degree intervals were obtained from the co-located KSTP-FM authorization. The terrain elevations were then used in combination with the effective radiated power for determining the distances to coverage contours.

Figure 3 is a map showing the predicted coverage contours. As can be seen, the FCC predicted 70 dBu coverage contour will completely encompass the principal community of Coon Rapids.

#### Allocation Study

Sheet 1 of Figure 4 is an allocation study for channel 296C2 at the proposed site. The figure contains a tabulation of actual and required separation distances from other pertinent stations and allotments. The proposed site meets the FCC's minimum separation requirements, specified in Section 73.207(b) of the Commission's Rules, to all assignments and stations except toward KARP-FM at Dassel, KROC-FM at Rochester and KBFH(FM) at Moose Lake.

Section 73.215 processing is requested towards KARP-FM. The actual separation distance is 111.9 kilometers from the proposed WIXK-FM to KARP-FM; the minimum fully spaced (Section 73.207) separation distance is 117 kilometers; the minimum short-spaced (Section 73.215) separation distance is 106 kilometers. There is no predicted prohibited contour overlap between the proposed WIXK-FM and KARP-FM, as shown on Sheet 2 of Figure 4.

Section 73.215 processing is also requested towards the licensed and proposed KROC-FM. The actual separation distance is 174.4 kilometers from the proposed WIXK-FM to the licensed KROC-FM; the minimum fully spaced (Section 73.207) separation distance is 176 kilometers; the minimum short-spaced (Section 73.215) separation distance is 163 kilometers. The actual separation distance is 165.2 kilometers from the proposed WIXK-FM to the proposed KROC-FM. There is no predicted prohibited contour overlap between the

proposed WIXK-FM and the proposed and existing KROC-FM as shown on Sheet 2 of Figure 4.

Station KBFH(FM) at Moose Lake has been ordered to Channel 295A from Channel 296A in MM Docket Number 00-37. Therefore, this station will not be an allocation concern to WIXK-FM upon operation on Channel 295A.

#### Radiofrequency Electromagnetic Field Exposure

The proposed facility has been evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level in accordance with OET Bulletin No. 65, *Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*.<sup>3</sup> The power density at the base of the tower was calculated using the appropriate procedure contained in Section 2, Supplement A, *Additional Information for Radio and Television Broadcast Stations*, of the Bulletin.

For the power density calculation, the proposed ERI 4 level Series 1080 panel antenna vertical plane pattern was employed. This pattern is provided in Figure 5. Assuming a maximum downward relative field value of 0.25 (the largest value for all horizontal depression angles greater than 20°) and a radiation center of 149 meters (490 feet) above ground level, it is calculated that the predicted power density would be less than 0.005 mW/cm<sup>2</sup> at ground level. This is less than 5 percent of the Commission's guideline value in an uncontrolled environment for an FM radio station.<sup>4</sup>

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<sup>3</sup> OET Bulletin 65, Second Edition 97-01, August, 1997.

<sup>4</sup> The FCC maximum guideline for a FM broadcast station in an uncontrolled environment is 0.2 mW/cm<sup>2</sup>.

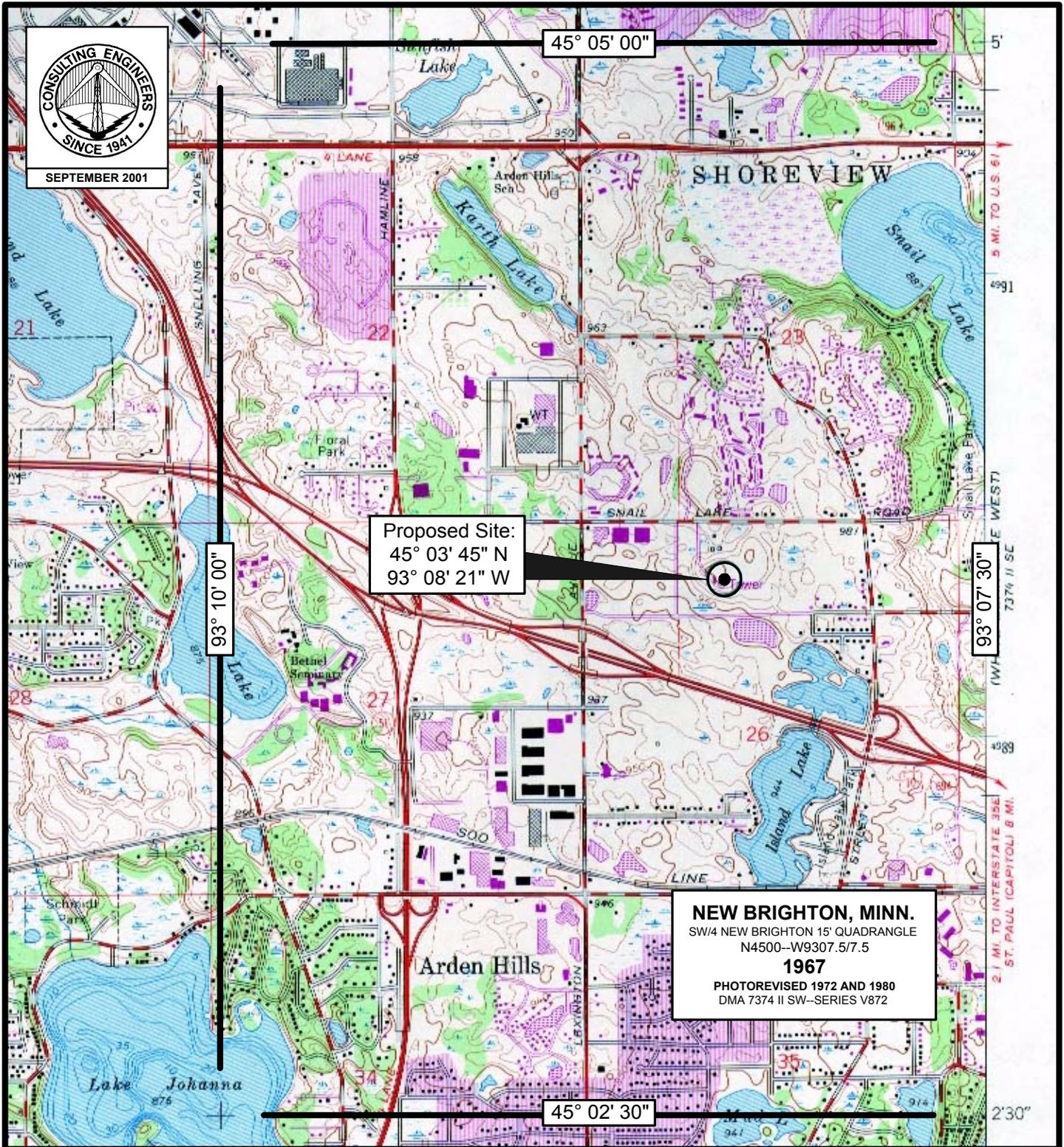
Access to the transmitting site is restricted and appropriately marked with warning signs. When it becomes necessary for workers to ascend the tower, appropriate measures, such as reduction or shut down of power if necessary, shall be taken to ensure that the human exposure to radiofrequency radiation will not exceed the FCC guidelines. Since there are multiple emitters from other broadcasters users located on this tower, WIXK-FM will coordinate with the other users when workers have to ascend the tower.

Charles A. Cooper, P.E.

September 21, 2001

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
941.329.6000

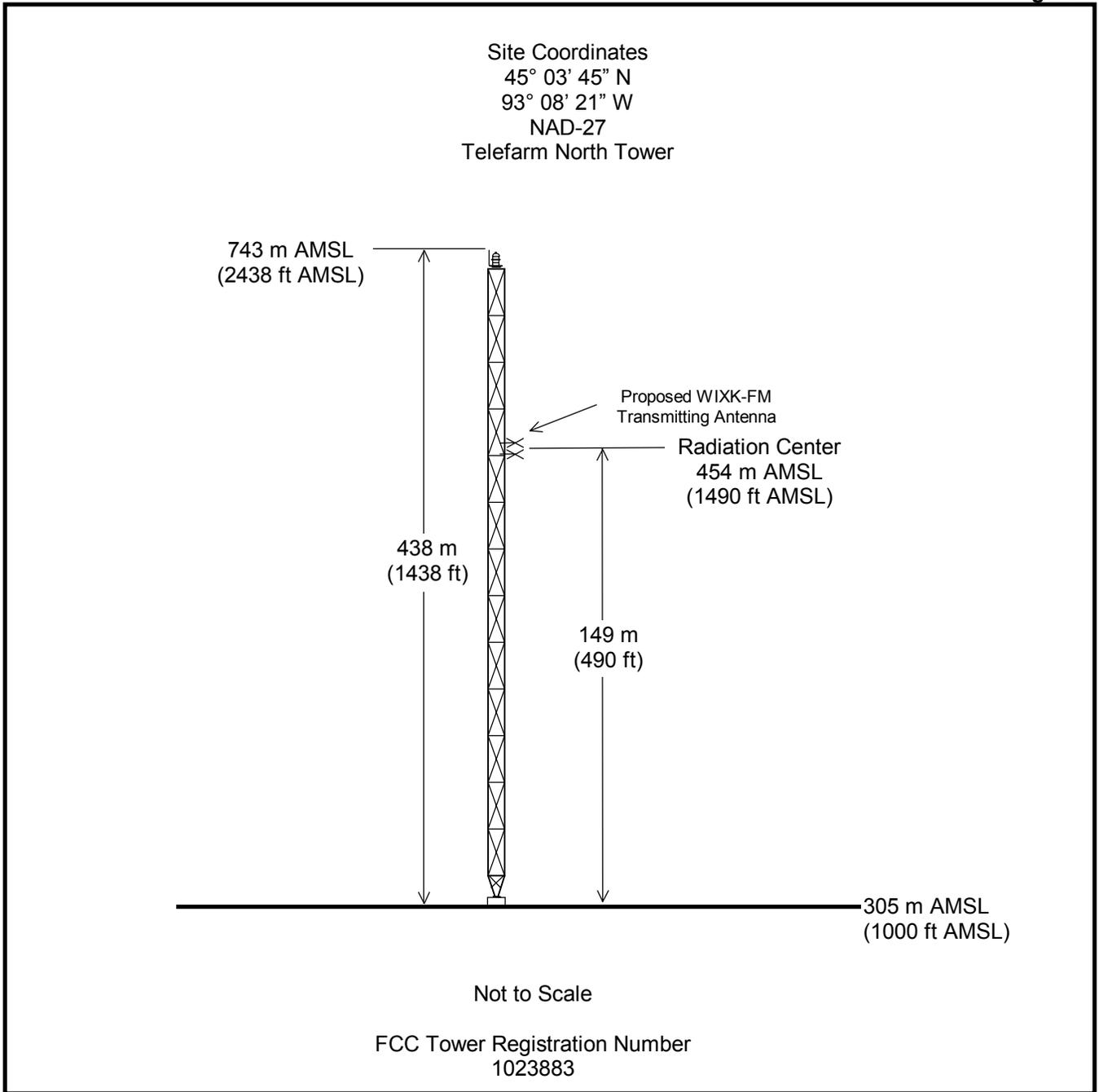
Figure 1



## PROPOSED TRANSMITTER SITE

FM RADIO STATION WIXK-FM  
COON RAPIDS, MINNESOTA  
CH 296C2 22 KW 179 M

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

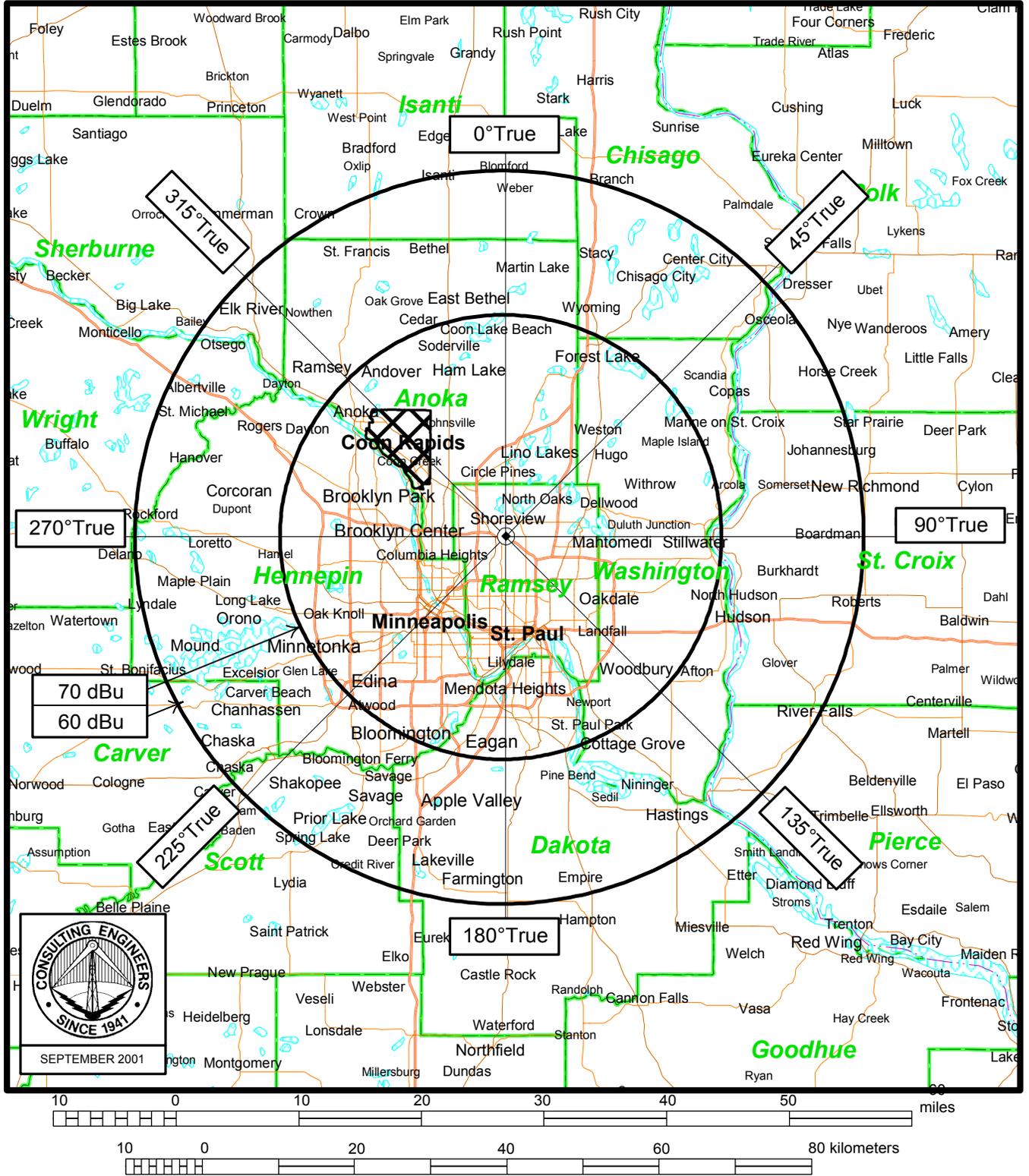


**PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

FM RADIO STATION WIXK-FM  
COON RAPIDS, MINNESOTA  
CH 296C2 22 KW 179 M

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

Figure 3



### FCC PREDICTED COVERAGE CONTOURS

RADIO STATION WIXK-FM  
COON RAPIDS, MINNESOTA  
CH 269C2 22 KW 179 M

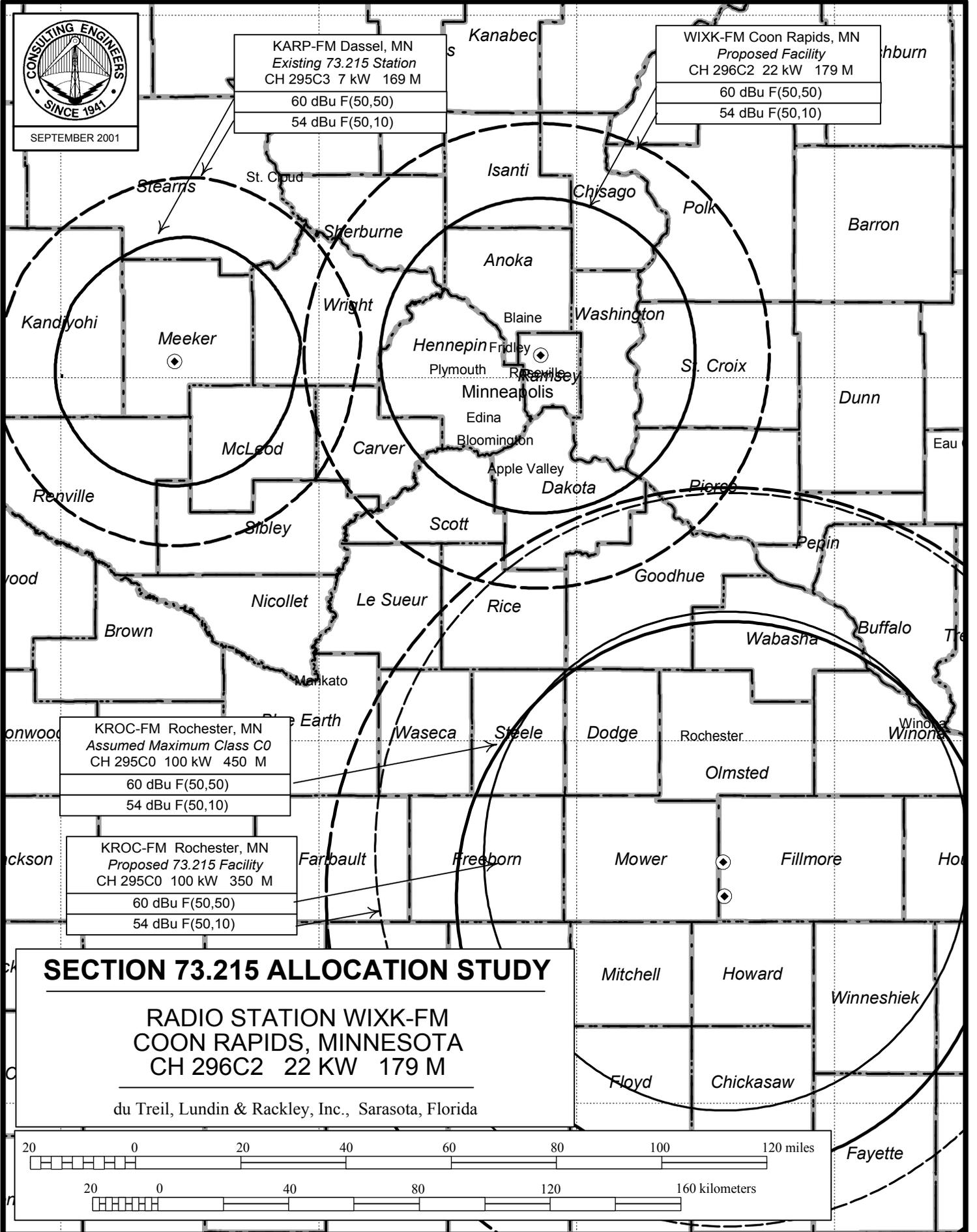
du Treil, Lundin & Rackley, Inc., Sarasota, Florida

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Channel 296C2 Allocation Study

45° 03' 45" North Latitude  
93° 08' 21" West Longitude

Call Id	City St	File Status Num	Channel Freq	ERP HAAT	DA Id	Latitude Longitude	73 215	Bear	Dist. (km)	Req. (km)	
KARP-F 49139	DASSEL MN	BLH LIC C	19990405KB	295 C3 106.9	7.000 169	N	45-02-43 094-33-32	Y	269.5	111.86	117.0
<i>(Section 73.215 processing requested toward KARP-FM.)</i>											
KROC-F 61323	ROCHESTER MN	BPH APP C	20010330AAC	295 C0 106.9	100.000 350	N	43-39-54 092-25-53	Y	159.8	165.22	176.0
<i>(Section 73.215 processing requested toward KROC-FM.)</i>											
KROC-F 61323	ROCHESTER MN	BLH LIC C	7076	295 C0 106.9	100.000 338	N	43-34-15 092-25-37	N	160.9	175.22	176.0
<i>(Section 73.215 processing requested toward KROC-FM.)</i>											
WIXK-F 60641	COON RAPIDS MN	BPH CP C	20001222AAK	296 C2 107.1	25.000 150	N	45-03-30 093-07-27	Y	111.5	1.27	
<i>(Applicant's presently authorized facility.)</i>											
WIXK-F 60641	NEW RICHMON WI	BLH LIC C	19910415KC	296 C3 107.1	18.000 83	N	45-05-10 092-34-19	Y	86.4	44.74	
<i>(Applicant's existing licensed facility.)</i>											
KBFH 614	MOOSE LAKE MN	BLH LIC C	19990805KC	296 A 107.1	0.100 -16		46-27-10 29243 092-45-47		10.6	157.27	166.0
<i>(Station KBFM(FM) ordered to Channel 295A in MM Docket Number 00-37. Therefore, no allocation concern)</i>											
KMGK 6652	GLENWOOD MN	BMLH LIC C	19900102KB	296A 107.1	3.300 91	N	45-36-53 095-23-28	N	290.0	186.88	166.0



KARP-FM Dassel, MN  
Existing 73.215 Station  
CH 295C3 7 kW 169 M

60 dBu F(50,50)  
54 dBu F(50,10)

WIXK-FM Coon Rapids, MN  
Proposed Facility  
CH 296C2 22 kW 179 M

60 dBu F(50,50)  
54 dBu F(50,10)

KROC-FM Rochester, MN  
Assumed Maximum Class C0  
CH 295C0 100 kW 450 M

60 dBu F(50,50)  
54 dBu F(50,10)

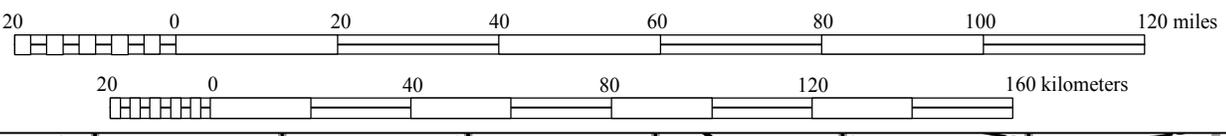
KROC-FM Rochester, MN  
Proposed 73.215 Facility  
CH 295C0 100 kW 350 M

60 dBu F(50,50)  
54 dBu F(50,10)

**SECTION 73.215 ALLOCATION STUDY**

**RADIO STATION WIXK-FM  
COON RAPIDS, MINNESOTA  
CH 296C2 22 KW 179 M**

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



ELECTRONICS RESEARCH, INC.  
 7777 GARDNER ROAD  
 CHANDLER, IN. 47618

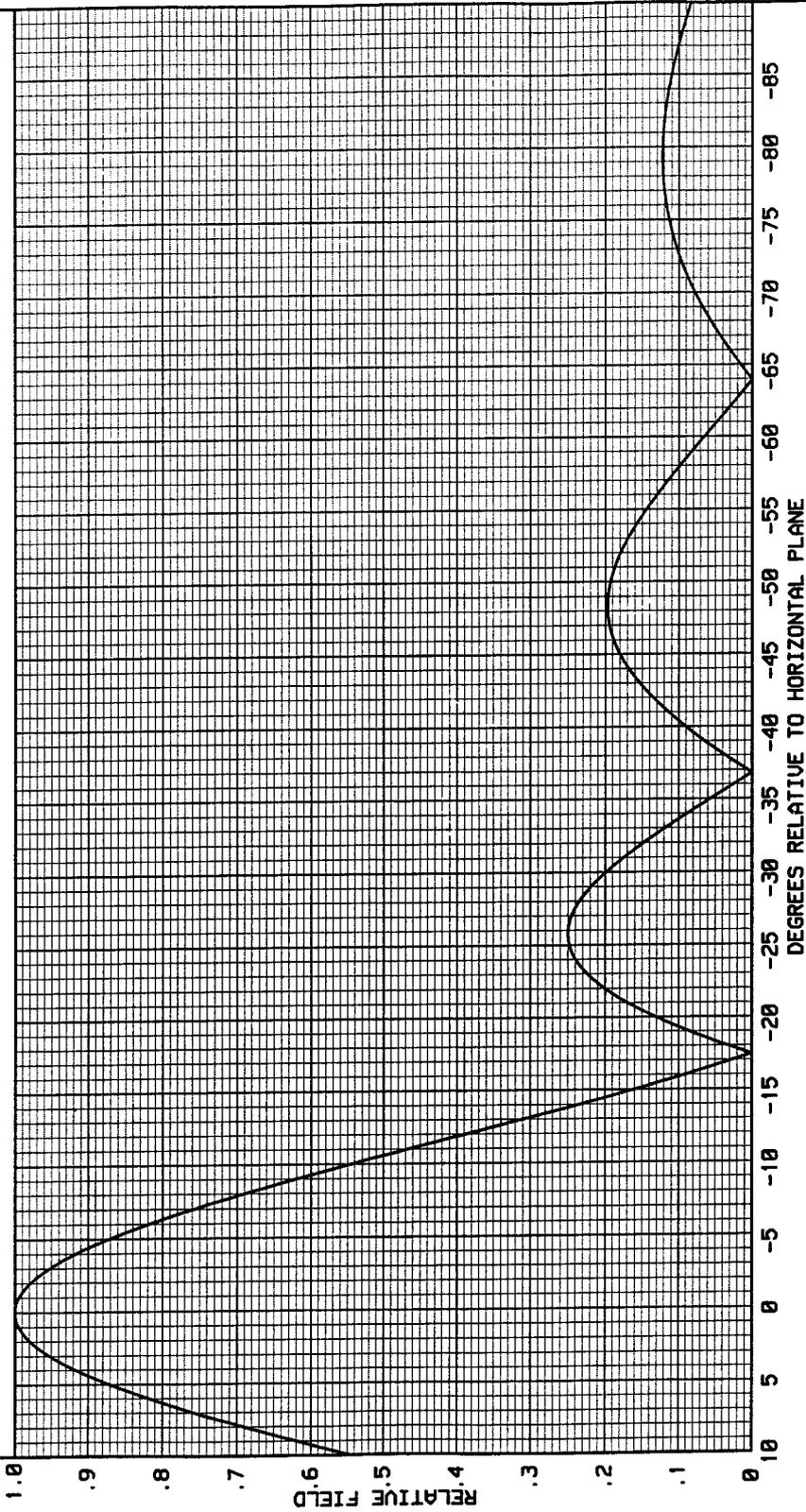
FIGURE 1

-----THEORETICAL-----  
 VERTICAL PLANE RELATIVE FIELD

4 LEVELS OF TYPE 1000 ELEMENTS  
 +0.00 DEGREE(S) BEAM TILT  
 0 PERCENT FIRST NULL FILL  
 0 PERCENT SECOND NULL FILL

POWER GAIN IS 1.918 IN THE HORIZONTAL PLANE(.918 IN THE MAX.)  
 [ POWER GAINS AT 95% ANTENNA EFFICIENCY ]

SEPTEMBER 12, 2001  
 107.1 MHz  
 BAY SPACING  
 92.00 INCHES  
 (.8348 WAVELENGTH)



**PROPOSED TRANSMITTER ANTENNA  
 VERTICAL PLANE PATTERN**

FM RADIO STATION WIXK-FM  
 COON RAPIDS, MINNESOTA

CH 296C2 22 KW 179 M

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