

TECHNICAL EXHIBIT  
APPLICATION FOR AUXILIARY FM CONSTRUCTION PERMIT  
RADIO STATION WIXK-FM AUXILIARY FACILITY  
COON RAPIDS, MINNESOTA  
CH 296C2    7 KW    171 M

Technical Narrative

The technical exhibit of which this narrative is part was prepared on behalf of radio station WIXK-FM on Channel 296C2 assigned to Coon Rapids, Minnesota. WIXK-FM is applying for a construction permit for an auxiliary [stand-by] facility with an effective radiated power of 7 kilowatts and an antenna height above average terrain of 171 meters.

It is proposed to locate the WIXK-FM auxiliary facility on the same structure employed by KUOM(AM) on 770 kHz at Minneapolis and KBEM-FM on Channel 203A at Minneapolis.

The proposed auxiliary's FCC predicted 60 dBu coverage contour will be encompassed by the main station's proposed 60 dBu contour in compliance with Section 73.1675(a)(1).<sup>1</sup>

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<sup>1</sup> The WIXK-FM facility proposed by BMPH-20010920AAC was used to define the main facility protected contour.

Proposed Transmitter Location

The proposed auxiliary transmitting facility is to be located on an existing tower defined by Tower Registration Number: 1024866. The location is uniquely described by the following geographic coordinates [NAD-27], which were obtained from the Commission's Tower Registration Database:

44° 59' 54" North Latitude  
93° 11' 18" West Longitude

A sketch showing the proposed antenna and existing tower is shown on Figure 1.

Co-location Impact on KUOM(AM)

The proposed facility would be co-located with AM radio station KUOM(AM) assigned to Minneapolis, Minnesota. KUOM(AM) is a non-directional daytime only facility on 770 kilohertz. No adverse impact is predicted with KUOM(AM). After the auxiliary antenna is constructed, a new application for license for KUOM(AM) will be filed reflecting any change in the tower impedance.

Coverage Contour

The predicted 60 dBu coverage contour 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 N.G.D.C. 30-second terrain database. The terrain elevations were then used in combination with the effective radiated power for determining the distances to coverage contours.

Figure 2 is a map showing the predicted 60 dBu coverage contours of the proposed auxiliary facility and proposed main facility.

#### 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>2</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 calculation, a combined horizontal and vertical polarized effective radiated power of 14 kilowatts is employed with a radiation center of 149 meters (490 feet) above ground level. A "worst-case" downward vertical field radiation value of 1.0 is assumed. The calculated power density is therefore 0.03 mW/cm<sup>2</sup> at ground level. This is 15

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<sup>2</sup> OET Bulletin 65, Second Edition 97-01, August, 1997.

percent of the Commission's guideline value in an uncontrolled environment for a FM radio station.<sup>3</sup>

Station KBEM-FM on Channel 203A assigned to Minneapolis has been authorized to be co-located on the proposed WIXK-FM auxiliary facility. KBEM-FM will operate with a circularly polarized effective radiated power of 2.9 kilowatts with a radiation center above ground level of 114 meters. Again using an assumed "worst-case" downward vertical field radiation value, the calculated power density is 0.015 mW/cm<sup>2</sup> at ground level. This is 8 percent of the Commission's guideline value in an uncontrolled environment for a FM radio station

The other co-located station is KUOM(AM) on 770 kHz. KUOM(AM) operates with a daytime only power of 5 kilowatts, non-directional, employing a tower with an electrical height of 157 degrees. KUOM(AM) was evaluated in terms of electrical and magnetic field strengths that would be produced at the base of the tower. Using Table 2 of Appendix D of OET Bulletin No. 65, the worst case distance at which the electric and magnetic fields would fall below ANSI Guidelines for both a controlled and uncontrolled environment is 2 meters.

The KUOM(AM) tower is surrounded by a 30 foot by 30 foot chain link fence with a distance no closer than 4 meters (15 feet) from the tower base. Beyond this distance, the electric and magnetic fields from both the proposed FM facility, KBEM-FM and KUOM(AM) will be below the Commission's uncontrolled guideline value.

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<sup>3</sup> The FCC maximum guideline for a FM broadcast station in an uncontrolled environment is 0.2 mW/cm<sup>2</sup>.

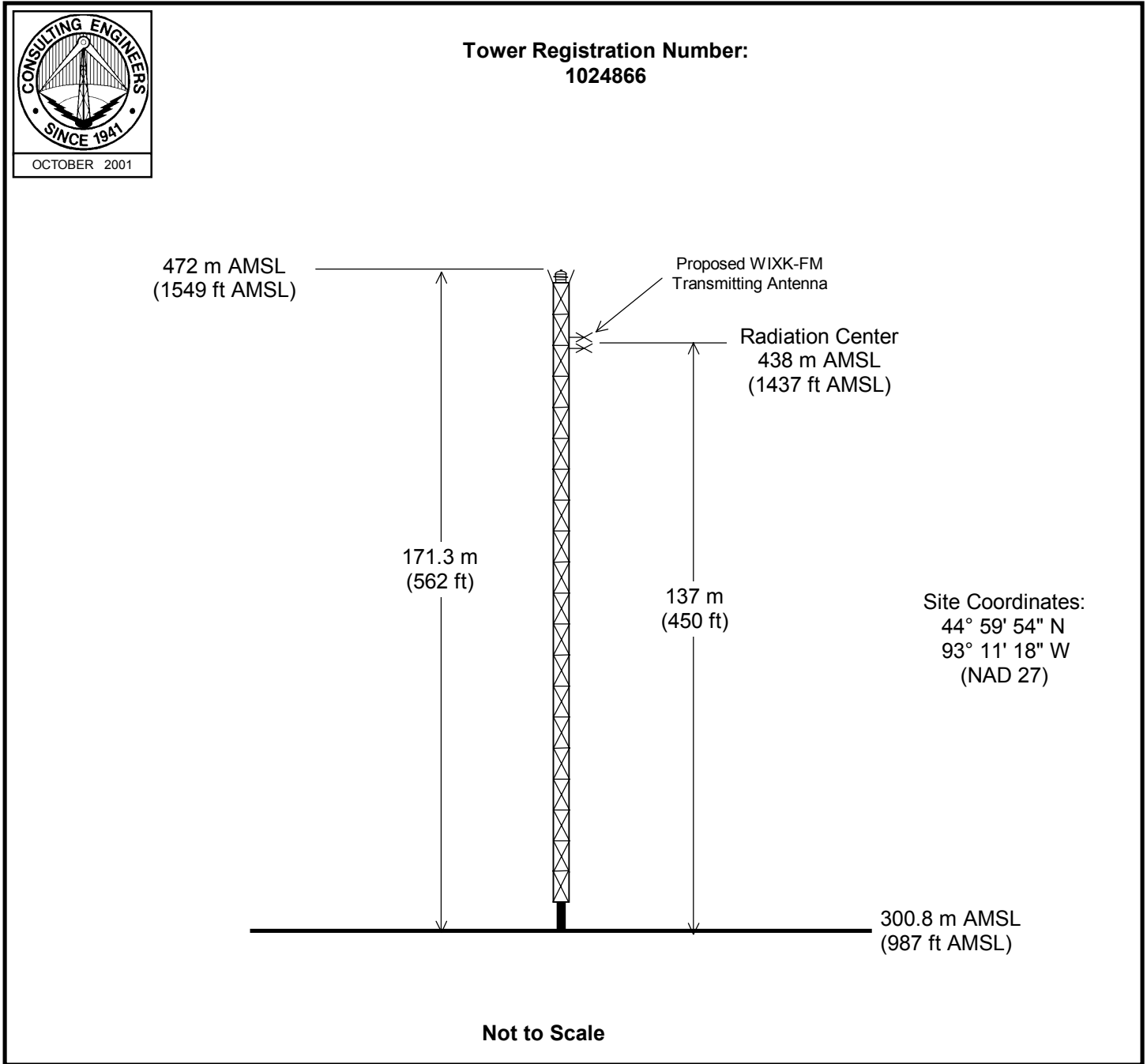
Access to the transmitting site is restricted and appropriately marked with warning signs. When it becomes necessary for workers to ascend the tower, appropriate measures, such as reduction or shut down of power if necessary, shall be taken to ensure that the human exposure to radiofrequency radiation will not exceed the FCC guidelines.

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Figure 1



## **PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

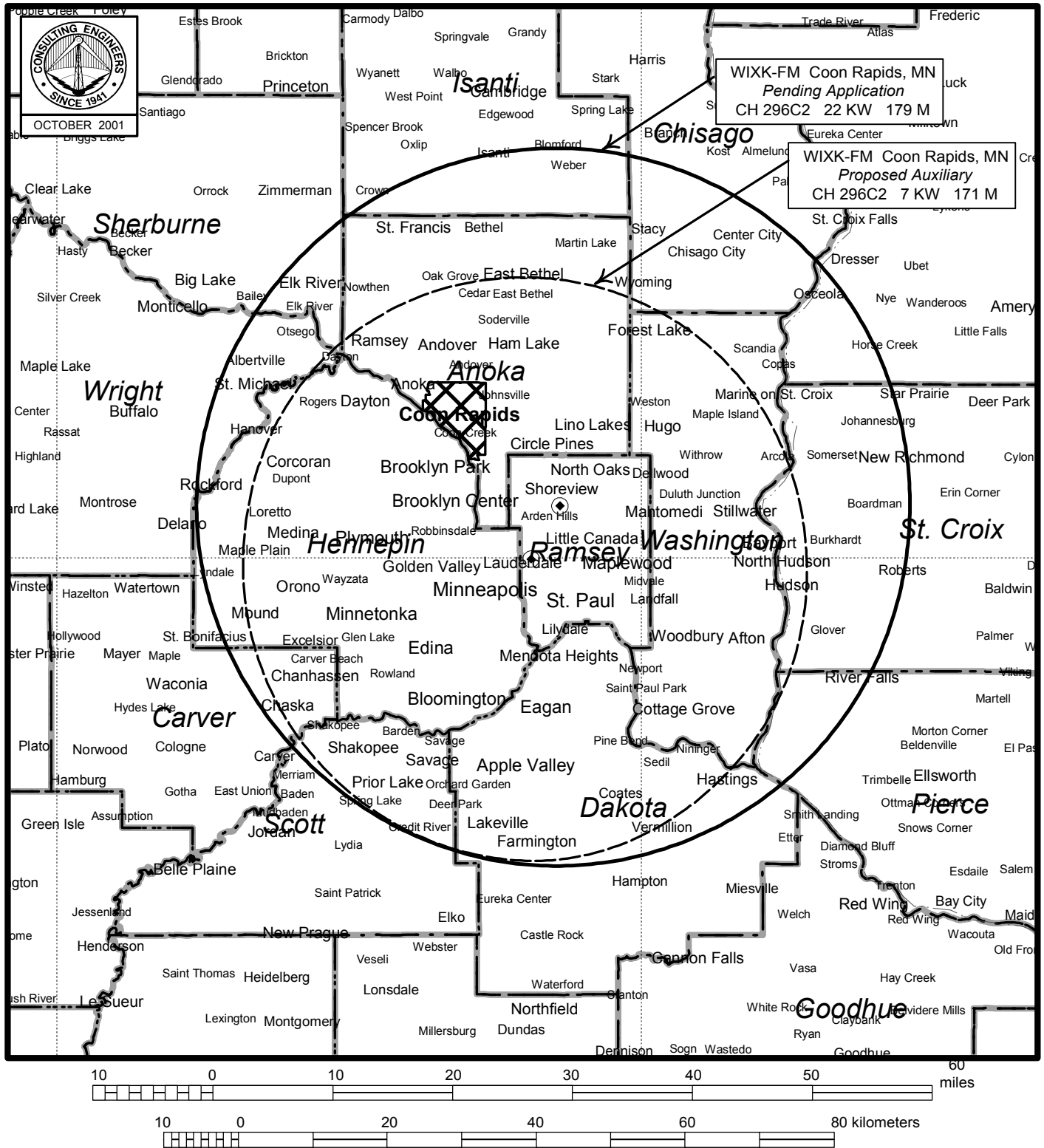
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Figure 2



## FCC PREDICTED 60 DBU COVERAGE CONTOURS (MAIN AND PROPOSED AUXILIARY)

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