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# PROOF OF PERFORMANCE MEASUREMENT REPORT

## FOR RADIO STATION KOBT-LP TOWER

## AND RADIO STATION KCNN-AM

**PREPARED BY:**

**GARRETT G. LYSIAK, P.E.**

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## ENGINEERING REPORT

**BACKGROUND**

This engineering report was prepared on behalf of radio station KOBT-LP to determine the effect of the station transmitting tower in Grand Forks, ND on the directional antenna patterns of radio station KCNN. The radio tower is 2.6 kilometers on a bearing of 292° from the KCNN transmitter site. Therefore, this report presents a description of the initial and post-construction measurements. Figure 1 shows the location of the radio station (KCNN) and the KOBT-LP tower.

**KCNN-AM OPERATIONS**

KCNN-AM, East Grand Forks, Minnesota is presently authorized operation on a frequency of 1590 kHz with a two (2) tower antenna system with a licensed daytime operating power of 5.0 kilowatts and nighttime operation of 1.0 kilowatts. The coordinates of the KCNN-AM site are as follows:

| | |
|---|---|
| Latitude North | 47° 52' 41" |
| Longitude West | 97° 00' 24" |

During the daytime KCNN-AM uses towers #1 and #3 of the antenna system and during night operation towers #2 and #3 are used.

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**MEASUREMENT PROCEDURES**

Following the initial monitoring point measurements, a series of close-in measurements were obtained to determine the re-radiated field from the KOBL-LP tower to the KCNN-AM facility operating in the daytime mode. These measurements can accurately gauge the emissions from the structure relative to the ambient KCNN-AM field strength. The field from the tower would be inherently non-directional. It can be measured along a single radial in the near field and would encounter no conductivity attenuation. Measurements were obtained from the KOBT-LP tower on a radial projecting outward at a bearing 90 degrees to a line projected from the center tower of the KCNN-AM site. A calibrated line marked at 10-foot intervals was extended from the tower out to 50 feet. A Potomac Field strength meter (FIM) was mounted on a tripod with a 90-degree rotation mark. The FIM was placed over each mark, aligned to the KCNN-AM site for the ambient reading and then rotated 90 degrees to obtain the reading from the KOBT-LP tower. The measured data obtained at the KOBT-LP tower site and the data clearly indicates that the tower is not radiating and shows an attenuation value greater than -30 db which is acceptable.

The KCNN-AM day and night monitor point field strengths were obtained pre and post construction to verify the effectiveness of the methodology. Figure 2 shows the locations of the KCNN-AM day monitoring points. Figure 3 shows the locations of the night KCNN-AM monitoring points.

The directional pattern for the day mode of operation for KCNN-AM is shown in Figure 4 and the night pattern is shown in Figure 5. These figures also show the direction of the KOBT-LP facility in relation to the day and night directional antenna patterns.

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The results of the monitoring point measurements are as follows:

| Monitoring Point | Day | Night | Lic Max (Mv/M) |
|---|---|---|---|
| 12.5° | 260 | | 320 |
| 72.5° | 240 | | 252 |
| 116.8° | | 1.8 | 4.7 |
| 132.5° | 110 | | 111 |
| 152.4 | | 13.6 | 13.8 |
| 253° | | 84 | 99 |

Since I was involved in the recent reconstruction of the KCNN-AM facility my records show that the pattern was in compliance with FCC licensed limits before the construction of KOBT-LP.

**Summary**

This report satisfies the special condition on the Construction Permit (BNPL-20010615AEF) regarding demonstrating that the operation of KCNN-AM is not affected by the operation of KOBT-LP. Based on my measurements and analysis on radio station KCNN-AM It is my professional opinion that the KOBT-LP does not impact the directional antenna system of KCNN-AM.

Respectfully Submitted,

Garrett G. Lysiak, P.E.

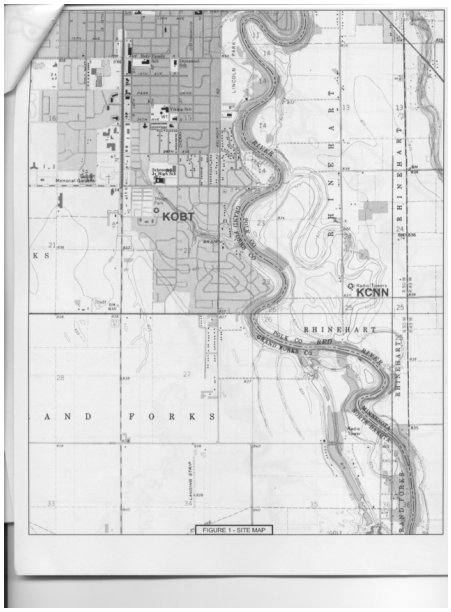



FIGURE 1 - SITE MAP

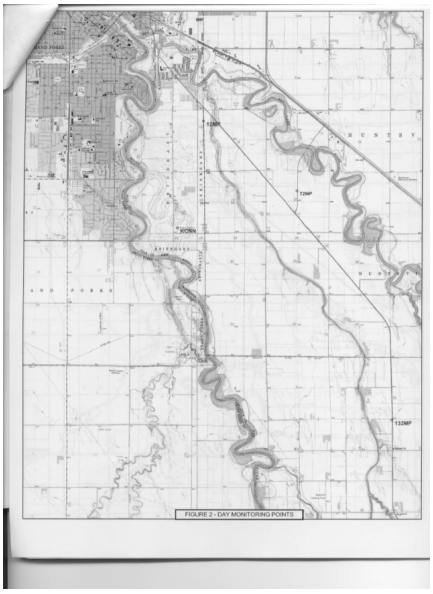



FIGURE 2 - DAY MONITORING POINTS

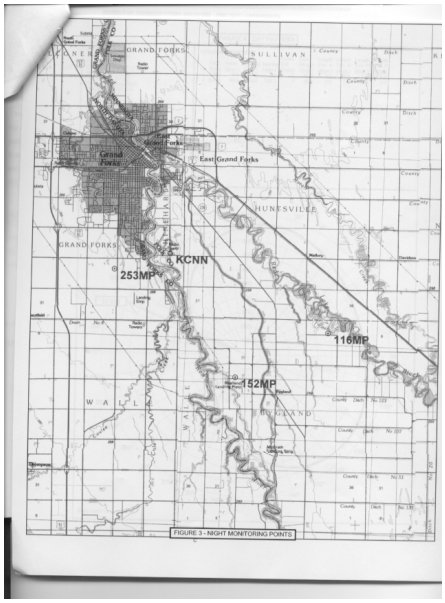
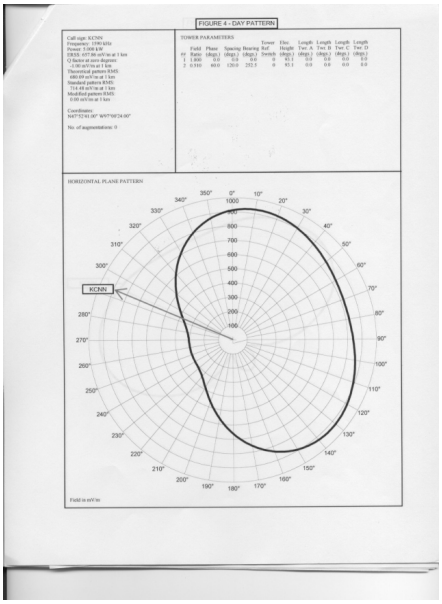



FIGURE 3 - NIGHT MONITORING POINTS

FIGURE 4 - DAY PATTERN



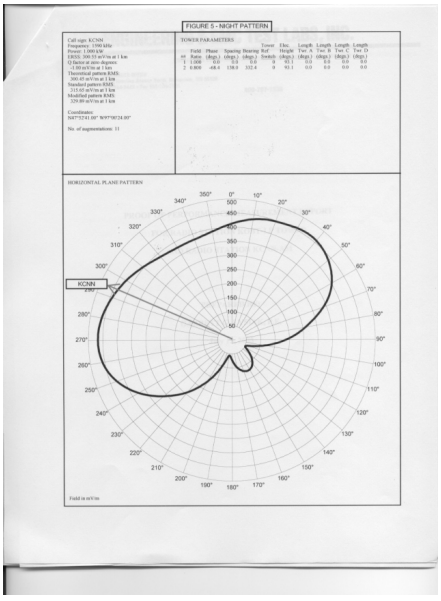


FIGURE 5 - NIGHT PATTERN