

## **ENGINEERING STATEMENT**

The following engineering statement has been prepared for Emmis Radio License, LLC ("Emmis"), licensee of KNOU, Channel 242C1, Facility ID No. 27022, licensed to St. Louis, Missouri, and are in support of their application for license to cover FCC construction permit BPH-20120228ACX.

Under that application, Emmis sought authorization to modify the geographic coordinates associated with KNOU. In addition to the change in the geographic coordinates, modification of the elevation data associated with the facility was also requested. The request to modify the license was filed with the Commission on FCC Form 301 since the variance in location was 3.7 seconds of latitude and 1.5 seconds of longitude. The ASR coordinates in NAD83 datum are 38-34-27.9 North and 90-19-31.9 West. Conversion and rounding brings them to 38-34-28 North and 90-19-32 West (NAD 27). The effective radiated power has been increased from 80 kW to 92 kW. KNOU will continue to operate under the FCC's Section 73.215 contour protection rules.

The currently licensed center of radiation above ground level is 325 meters, which remained unchanged. The center of radiation relative to mean sea level changed to 462.2 meters due to the surveyed site elevation of 137.2 meters AMSL. These values derive a center of radiation above average terrain of 309.0 meters through the use of a 30-second linearly interpolated terrain database. No change in the antenna type was proposed. It should therefore be noted that with the exception of the increase in effective radiated power, no actual physical changes in the facility were requested or made. Rather, all changes were simply corrections to data to bring values into agreement with each other.

The main studio for the facility continues to comply with the provisions of Section 73.1125 of the Commission's Rules. The main studio is located within the principal community coverage contour of the facility.

The specified transmitter power output of 31.30 kW will achieve the authorized effective radiated power of 92 kW. The antenna system is a "master" antenna system used by several stations within the St. Louis market. A combiner system is utilized to allow all stations to use the antenna system simultaneously.

At the KNOU frequency of operation, the insertion loss of the combiner is 0.4093 dB, or is 91.01 percent efficient. Therefore the resulting power at the output of the combiner is 28.486 kW. The manager of the site and manufacturer of the antenna system have provided Emmis with data stating that

the loss of the transmission line at their frequency is 0.59 dB. This corresponds to a transmission line efficiency of 87.31 percent. The overall efficiency of the combiner and transmission line is 79.45 percent. Therefore the antenna input power is 24.87 kW. The gain of the antenna at the KNOU frequency of operation is 3.70, which results in an ERP of 92.0 kW. Thus it is demonstrated that the authorized ERP is achieved by the specified transmitter power output.

The facility was constructed in accordance with the terms of the construction permit, although no actual physical changes to the facility or plant were made. Rather as previously discussed, the authorized changes were simply "on paper" to bring associated values into agreement with each other

The underlying construction permit specified six special conditions which will be addressed here.

1. Emmis certifies that in coordination with other users of the site, it will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.
2. Emmis acknowledges that this is a Section 73.215 contour protection grant.
3. See the attached Spurious Emissions Report.
4. Emmis acknowledges that the automatic program test provisions of 47 C.F.R. Section 73.1620 do not apply in this case.
5. See the attached Radio Frequency Field Test Measurement Report.
6. All required documentation demonstrating compliance with the special operating conditions are being submitted with this FCC Form 302.

The preceding statement has been prepared by me and is true and accurate to the best of my knowledge.



Donald Lynch  
Horizon Broadcast Solutions, LLC