

# *APPLICATION FOR LICENSE*

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NCE FM STATION KASD  
RAPID CITY, SOUTH DAKOTA  
FACILITY ID: 88804 / BPED-20170608ABE

COMMUNITY BROADCASTING, INC.

MAY, 2018

## **APPLICATION FOR LICENSE**

The following engineering statement and attached exhibits have been prepared for **Community Broadcasting, Inc.** ("CBI"), licensee of NCE FM station KASD at Rapid City, South Dakota, and are in support of their application for license.<sup>1</sup> This application seeks to cover the modification to licensed facility authorized under FCC File No. BPED-20170608ABE.

The facility as authorized, and constructed, operates on FM Channel 212 as a class A facility with a maximum effective radiated power of 3.0 kW at a center of radiation of 133 meters above average terrain. This elevation corresponds to a center of radiation of 1231 meters above mean sea level, or 79 meters above ground. The facility utilizes an Electronics Research, Inc. ("ERI") model LPX-3E antenna. This is a non-directional antenna comprised of three sections spaced one wavelength apart. No beamtilt is employed by KASD. The facility has been constructed fully in accordance with the terms of the construction permit.

The main studio complies with the provisions of Section 73.1125 of the Commission's Rules. The construction permit for which this application is being filed discusses the previous main studio rule waiver granted to CBI prior to the change in Section 73.1125. CBI maintains toll-free telephone access to the main studio located in St. Louis, Missouri, and thus complies with Section 73.1125 of the Commission's Rules as it is currently written.

The specified transmitter power output achieves the authorized effective radiated power. The maximum effective radiated power authorized is 3.0 kW. The antenna utilized by the facility is

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<sup>1</sup> The Facility ID for KASD at Rapid City, South Dakota is 88804.

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an ERI model LPX-3E as previously stated. This antenna has a power gain of 1.5588, as is specified by the manufacturer. The input power to the antenna to achieve the authorized effective radiated power is 1.924 kW.

Preceding the antenna is an adapter from the 1 5/8" EIA antenna input to the 7/16 DIN connector on the transmission line. This adapter has an insertion loss of 0.02 dB, which corresponds to an efficiency of 99.54 percent. The input power to the adapter to achieve the authorized effective radiated power is 1.934 kW.

Ahead of this adapter is the main run of transmission line consisting of 298 feet of RFS LFC78-50JA semi-flexible foam-dielectric coaxial cable with a nominal diameter of 7/8 inches. Through linear interpolation of manufacturer specified data, the insertion loss of this cable is 0.3489 dB per 100 feet of length, or 1.040 dB total. Including the two connectors at 0.02 dB each, the aggregate insertion loss of the main run of transmission line is 1.08 dB, which corresponds to an insertion loss of 77.98 percent. The input power to the main run of transmission line to achieve the authorized effective radiated power is 2.48 kW.

Between the main run of transmission line and the transmitter output is a superflexible jumper cable six feet in length. This cable has a nominal diameter of one-half inch. The efficiency of this jumper is 97.95 percent. The input power to the jumper to achieve the authorized effective radiated power is 2.53 kW. The input to the jumper is the output of the transmitter, thus the specified transmitter power output achieves the authorized effective radiated power.

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As previously stated, the facility was constructed in accordance with the terms of the underlying construction permit. The construction permit, as issued by the Commission, lists two (2) special conditions or restrictions. Each of the special conditions will be addressed in this technical exhibit.

The first of the special conditions pertains to the granted waiver of Section 73.1125 of the Commission's Rules. This waiver was granted before the Commission changed the provisions of that section. Since CBI maintains toll-free telephone access to its main studios at KSIV-FM in St. Louis, Missouri, KASD complies with the current wording of Section 73.1125 eliminating the necessity of a waiver of that section, and thereby making the first special condition on the construction permit moot.

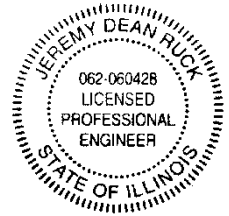
The second special condition pertains to radiofrequency radiation safety at the site. Under this condition CBI is required to coordinate with all other users of the site to ensure that workers and other personnel are not exposed to levels of radiofrequency radiation in excess of the applicable safety standards. CBI certifies that it will coordinate as necessary with all other site users. Coordination measures will include, but are not necessarily limited to, a reduction in transmitter power, or cessation of operation.

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The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature  
License Expires November 30, 2019

Jeremy D. Ruck, PE  
May 24, 2018

**JEREMY RUCK & ASSOCIATES, INC.**

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