

***COMPREHENSIVE TECHNICAL EXHIBIT  
APPLICATION FOR LICENSE***

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FM Translator Station K223CG  
0.062 kW ERP / 92.5 MHz  
Sand Springs, Oklahoma

Community Broadcasting, Inc.

September, 2014

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JEREMY RUCK & ASSOCIATES, INC.

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## **APPLICATION FOR LICENSE**

The following engineering statement has been prepared for **Community Broadcasting, Inc.** ("CBI"), permittee of FM translator station K223CG at Sand Springs, Oklahoma, and is in support of their application for license.<sup>1</sup> This license application is being submitted to cover initial construction of the facility authorized under FCC File No. BMPFT-20140506AAK.

K223CG is authorized to operate with an effective radiated power of 62 Watts circularly polarized at a center of radiation of 392 meters above mean sea level. This elevation corresponds to 202 meters above ground level at the K223CG site. The antenna utilized by the facility is a Shively Labs model 6812B-1. Construction of the facility pursuant to the terms of the underlying construction permit has been completed.

The construction permit as issued by the Commission listed two special conditions or restrictions. Both of these special conditions will be specifically discussed.

The first special condition pertains to the protection of workers and other personnel from exposure to radiofrequency radiation in excess of the applicable safety standards. Under this condition, CBI is required to coordinate with 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 undertake such coordination, and that coordination activities may include, but are not necessarily limited to a reduction in transmitter power output or cessation of operation.

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<sup>1</sup> The Facility ID for K223CG at Sand Springs, Oklahoma is 140436.

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The other special condition pertains to the commencement of operation of the translator. Under this condition, CBI is required to have this application on file prior to the commencement of program test operation. CBI has performed equipment tests, and will commence program test operation following the submission of this application for license.

The specified transmitter power output achieves the authorized effective radiated power. The antenna utilized by the facility is, as was previously discussed, a Shively Labs model 6812B-1. This particular antenna is comprised of a single bay. Shively specifies the power gain of this antenna as 0.46 in their public material. The input power to the antenna to achieve the authorized effective radiated power is 134.8 Watts.

Ahead of the antenna is the main run of transmission line. which consists of 200 feet of Andrew/Commscope LDF4-50 semi-flexible foam dielectric coaxial cable. This quantity of coax has an insertion loss of 1.30 dB by data from the manufacturer, which corresponds to an efficiency of 74.13 percent. The input power to the transmission line to achieve the authorized effective radiated power is 181.8 Watts.

The next component closer to the transmitter is the Polyphaser lightning suppression device. This component has a nominal insertion loss of 0.1 dB, which corresponds to an efficiency of 97.72 percent. The input to the Polyphaser to achieve the authorized effective radiated power is 186.1 Watts.

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Between the transmitter and the Polyphaser is a super-flexible jumper with length of ten feet. This jumper has an insertion loss of 0.13 dB, which corresponds to efficiency of 97.05 percent. The input power to this jumper to achieve the authorized effective radiated power is 191.7 Watts. This value rounds to 192 Watts, which is the specified effective radiated power.

The preceding statement has been prepared by me, or under my direction, and is true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature  
License Expires November 30, 2015

Jeremy D. Ruck, PE  
September 29, 2014

**JEREMY RUCK & ASSOCIATES, INC.**

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