

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

FM Translator Station K233CZ
0.099 kW ERP / 94.5 MHz
Jackson, Wyoming

Community Broadcasting, Inc.

October, 2017

APPLICATION FOR LICENSE

The following engineering statement has been prepared for **Community Broadcasting, Inc.** ("CBI"), licensee of FM translator station K233CZ at Jackson, Wyoming, and is in support of their application for license to cover authorized modifications to the licensed facility.¹ The file number of the construction permit for which this application for license is being filed is BPFT-20170811ABJ.

K233CZ is authorized to operate with a maximum effective radiated power of 99 Watts, vertically polarized, at a center of radiation of 2436 meters above mean sea level, 8 meters above ground, utilizing a directional antenna. 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. CBI is in compliance with each of these special conditions. The compliance with each of the conditions will be specifically discussed.

The first of the special conditions pertains to radiofrequency radiation safety at the site. 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 necessary coordination activities under this condition, which may include, but are not necessarily limited to, a reduction in transmitter power or cessation of operation.

¹ The Facility ID for K233CZ at Jackson, Wyoming is 141128.

The second special condition requires this license application to be on file prior to the commencement of program tests. Upon submission of this application for license, CBI will commence program test operations of the facility. Prior to the submission of this application, CBI has conducted limited equipment tests.

The specified transmitter power output achieves the authorized effective radiated power. The power gain of the antenna, as specified by the manufacturer, is 1.26, which corresponds to 1 dBd. The input power to the antenna to achieve the authorized effective radiated power of 99 Watts is 78.6 Watts.

Ahead of the antenna is the main run of transmission line, which consists of 150 feet of Andrew/Commscope LDF4-50A semi-flexible foam-dielectric coaxial cable with a nominal diameter of one-half inch. The insertion loss of this length of line is 0.99 dB, which corresponds to an efficiency of 79.62 percent. The input power to the main run of transmission line to achieve the authorized effective radiated power is 98.7 Watts.

The system includes a Polyphaser lightning protection device. This device is in line immediately preceding the main transmission line run, and has an insertion loss of 0.1 dB. This value corresponds to an efficiency of 97.72 percent. The input power to the Polyphaser to achieve the authorized effective radiated power is 101 Watts.

Preceding the Polyphaser device is a coaxial cable jumper, six-feet in length that is also comprised of LDF4-50A cable. This length of transmission line has an insertion loss of 0.07 dB,

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

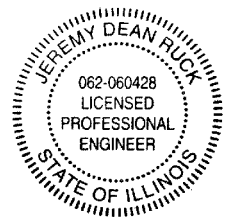
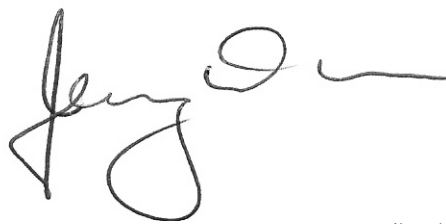
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Fax: 855.332.9537
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which corresponds to an efficiency of 98.40 percent. The input power to this jumper to achieve the authorized effective radiated power is 102.6 Watts.

The input to the jumper is located at the output of the transmitter. The calculated input power to the line is rounded to 103 Watts. Thus, it is demonstrated that the specified transmitter power output achieves the authorized effective radiated power.

The facility utilizes an off-the-shelf directional antenna. This antenna has been installed in accordance with the instructions of the manufacturer. Additionally, the orientation of the antenna is 0 degrees true. The antenna is properly oriented at this azimuth in accordance with the construction permit.

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, 2019

Jeremy D. Ruck, PE
October 20, 2017

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

Tel: 309.647.1200
Fax: 855.332.9537
jeremyruck.com