

TECHNICAL EXHIBIT APPLICATION FOR LICENSE

FM Translator Station K272GB
0.250 kW ERP / 102.3 MHz
Cedar Rapids, Iowa

KZIA, INC.

December 2019

APPLICATION FOR LICENSE

The following engineering statement has been prepared for **KZIA, Inc.** ("KZIA"), permittee of FM translator station K272GB at Cedar Rapids, Iowa, and is in support of their application for license to cover initial construction of that facility.¹ This application seeks to cover the initial construction of the facility, which was authorized most lately under FCC File No. BMPFT-20181003AJW.

Under that construction permit, K272GB is authorized to operate on FM channel 272 with a maximum effective radiated power of 250 Watts at a center of radiation of 388 meters above mean sea level, 140 meters above ground, utilizing a non-directional antenna. K272GB operates on a combined antenna system with co-located and co-owned FM translator station K298BM.² The construction of the facility pursuant to the terms of the construction permit has been completed.

The construction permit as issued by the Commission lists four (4) special conditions or restrictions. KZIA is in compliance with each of these conditions. All four conditions will be specifically discussed in this engineering statement.

The first special condition pertains to radiofrequency radiation safety at the transmitter site. Under this condition, KZIA 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. KZIA certifies that it will perform necessary coordination activities,

¹ The Facility ID for K272GB at Cedar Rapids, Iowa is 202139.

² The Facility ID for K298BM at Cedar Rapids, Iowa is 152290. K298BM was previously licensed under BLFT-20131209XVV. A construction permit under FCC File No. BPFT-20181003AJV was granted to KZIA for K298BM to change the antenna system to accommodate the addition of K272GB.

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

which may include, but are not necessarily limited to, a reduction in transmitter power or cessation of operation as necessary to protect workers and other personnel.

The second restriction requires that this application for license be on file prior to the commencement of program tests. KZIA will operate under the provisions of automatic program test authority upon submission of this license application.

The third special condition pertains to spurious emission testing due to the use of a combined antenna system at the site. These measurements were performed by the undersigned engineer on October 21, 2019, and demonstrate compliance with Sections 73.317(b)-(d) of the Commission's Rules. Similar measurements are to be submitted with the corresponding application for license for K298BM. In both cases, the same exhibit will be submitted as an amendment to both license applications.

The fourth and final special condition pertains to *AM Revitalization*. This special condition lists several restrictions. KZIA is cognizant of these restrictions, and will abide by them as required.

The specified transmitter power output achieves the authorized effective radiated power. The antenna authorized and used is a Bext TFC2K-4-HW. The specified power gain of this antenna is 1.349. The input power to the antenna to achieve the authorized effective radiated power is 185.3 Watts.

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

Preceding the antenna is the main run of transmission line, which consists of 518 feet of Andrew/Commscope AVA5-50FX. This is a foam dielectric semi-flexible coaxial cable with a nominal diameter of 7/8 inches. Manufacturer data for this run of cable indicates that the insertion loss is 1.854 dB, which corresponds to an efficiency of 65.25 percent. Input power to this run of line to achieve the authorized effective radiated power is 284.0 Watts.

Ahead of the main run of transmission line is the combiner. On site measured data indicates that the insertion loss of the combiner at the K272GB frequency of operation is 0.5242 dB, which is equivalent to an efficiency of 88.63 percent. The input power to the combiner to achieve the authorized effective radiated power is 320.5 Watts.

Between the transmitter and the combiner is a jumper cable consisting of six feet of Andrew/Commscope LDF4-50. The efficiency of this cable is 98.35 percent at the frequency of operation based on manufacturer data. The input power to the jumper to achieve the authorized effective radiated power is 325.8 Watts, which rounds to 326 Watts. The input to the jumper is the output of the transmitter, thus the specified transmitter power output achieves the authorized effective radiated power.

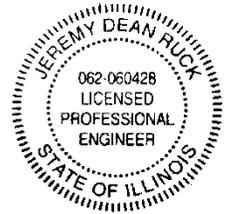
The facility utilizes a non-directional antenna. This antenna has been installed in accordance with the instructions of the manufacturer.

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

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, 2021

Jeremy D. Ruck, PE
December 15, 2019

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