

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

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FM Translator Station K287CM  
0.250 kW ERP / 105.3 MHz  
Troy, Missouri

KYRO Group, LLC

October 2019

## **APPLICATION FOR LICENSE**

The following engineering statement has been prepared for **KYRO Group, LLC** ("KYRO"), permittee of FM translator station K287CM at Troy, Missouri, and is in support of their application for license to cover the initial construction of that translator.<sup>1</sup> The initial construction was authorized under the current construction permit, which was assigned FCC File No. BMPFT-20190918AAC.

K287CM is authorized to operate with a maximum effective radiated power of 250 Watts at a center of radiation of 242 meters above mean sea level, 52 meters above ground, utilizing a non-directional antenna. 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 three special conditions or restrictions. KYRO is in compliance with these three conditions. Each condition will be specifically discussed in this engineering statement.

The first of the special conditions pertains to radiofrequency radiation safety at the site. Under this condition, KYRO 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. KYRO 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.

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<sup>1</sup> The Facility ID for K287CM at Troy, Missouri is 201712.

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The second special condition requires this application for license to be on file prior to the commencement of program tests. KYRO will commence operation following the submission of this license application. In advance of the submission of this application, KYRO has performed limited equipment tests.

The final special condition on the construction permit pertains to the construction permit for this facility, and its submission under the Commission's *AM Revitalization* filing window. KYRO is cognizant of the requirements of this condition, and will abide by the same.

The specified transmitter power achieves the authorized effective radiated power. The authorized antenna is a Nicom BKG77/1 single-bay, which has a manufacturer specified power gain of -3.03 dB, or 0.4977. The input power to the antenna to achieve the authorized effective radiated power is 502.3 Watts.

Preceding the antenna is the main run of transmission line. This run consists of 190 feet of Andrew/Commscope LDF5-50A, which is a semi-flexible foam-dielectric coaxial cable with a nominal diameter of 7/8 inches. The efficiency of the main run of line, based on manufacturer data, including connectors, 84.33 percent. The input power to the main run of transmission line to achieve the authorized effective radiated power is 595.6 Watts.

Ahead of the transmission line run is a Polyphaser lightning protection device. This device has a nominal insertion loss of 0.1 dB, which corresponds to an efficiency of 97.72 percent. The input power to the Polyphaser to achieve the authorized effective radiated power is 609.5 Watts.

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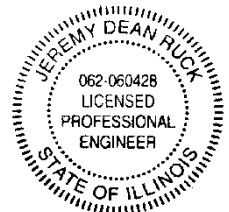
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Between the transmitter and the Polyphaser is a jumper cable, which consists of 3 feet of Andrew/Commscope FSJ4-50B semi-flexible coaxial cable with a one-half inch nominal diameter. The efficiency of this jumper cable, based on manufacturer data, is 97.72 percent. The input power to this jumper to achieve the authorized effective radiated power is 627.8 Watts, which rounds to 628 Watts. The input to this jumper is the transmitter output, 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.

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  
October 10, 2019

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