

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

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**FM Translator Station W291BT  
0.038 kW ERP / 106.1 MHz  
Jasper, Alabama**

**Glen Iris Baptist School**

**August 2018**

## **APPLICATION FOR LICENSE**

The following engineering statement has been prepared for **Glen Iris Baptist School** ("Glen Iris"), licensee of FM translator station W291BT as Jasper, Alabama, and is in support of their application for license to cover modification of that facility.<sup>1</sup> The file number of the most recent construction permit for the facility is BPFT-20180403AAY. This construction permit authorized a small relocation of the facility.

W291BT is authorized to operate with a maximum effective radiated power of 38 Watts at a center of radiation of 169 meters above mean sea level, 12 meters above ground level, utilizing a non-directional single-bay 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. Glen Iris is in compliance with both of these conditions.

The first of the special conditions pertains to radiofrequency radiation safety at the site. Under this condition, Glen Iris 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. Glen Iris 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 W291BT at Jasper, Alabama is 140355.

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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, Glen Iris will commence program test operation of the facility.

The specified transmitter power output achieves the authorized effective radiated power. The manufacturer specified power gain for the authorized antenna is 0.46. This results in an antenna input power of 82.6 Watts to achieve the authorized effective radiated power.

Preceding the antenna is a jumper comprised of four feet of Andrew/Commscope FSJ4-50B superflexible coaxial cable with a 1/2 inch diameter. Manufacturer data for this jumper indicates an efficiency of 98.17 percent. The input power to the jumper to achieve the authorized effective radiated power is 84.1 Watts.

Ahead of this jumper is the main run of transmission line. This line consists of 111 feet of RFS LCF78-50J. This is a semi-flexible foam-dielectric coaxial cable with a nominal diameter of 7/8 inch. Based on manufacturer data, including the connectors, the efficiency of this run of transmission line is 90.26 percent. The input power to this main run of transmission line is 93.2 Watts.

Preceding the main run of coaxial cable is a jumper consisting of RG-8 coaxial cable two feet in length. This jumper has an efficiency of 99.20 percent. The necessary input power to this jumper to achieve the authorized effective radiated power is 94.0 Watts.

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Ahead of this jumper is a Polyphaser lightning protection device. This device has a nominal insertion loss of 0.1 dB, which corresponds to an efficiency of 99.20 percent. The necessary input power to the Polyphaser to achieve the authorized effective radiated power is 96.1 Watts.

Between the transmitter and the Polyphaser is an RG-8 jumper identical to that previously described. The efficiency of this jumper is also 99.20 percent. The input power to this jumper, which is also the output power of the transmitter is 96.9 Watts, which rounds to 97 Watts. Thus, the specified transmitter power output achieves the authorized effective radiated power.

As previously stated, the facility utilizes a non-directional antenna. The antenna utilized was 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, 2019

Jeremy D. Ruck, PE  
August 9, 2018

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