

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

**FM Translator Station W292DJ
0.250 kW ERP / 106.3 MHz
Lake Bluff, Illinois**

MB Capital Management, LLC

December, 2014

APPLICATION FOR LICENSE

The following engineering statement has been prepared for **MB Capital Management, LLC** ("MB"), licensee of FM translator station W292DJ at Lake Bluff, Illinois, and is in support of their application for license.¹ This application for license is being submitted to cover changes to the translator authorized under FCC File No. BPFT-20130103AAF.

The specified construction permit authorizes W292DJ to operate with an effective radiated power of 250 Watts at a center of radiation of 332 meters above mean sea level. This elevation corresponds to a center of radiation of 116 meters above ground. The antenna utilized by the facility is an Electronics Research, Inc. (ERI) LPX-3E-HW directional array. This antenna has three bays spaced one-half wavelength apart, and is 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 lists two special conditions or restrictions. Each of these conditions will be specifically discussed.

The first condition on the construction permit notes that the applicant proposes the rebroadcast of the HD Channel 3 of the primary station. The primary station for the facility continues to be WOJO(FM) at Evanston, Illinois.²

The second condition on the construction permit pertains to radiofrequency radiation safety at the transmitter site. MB certifies that it will coordinate with all other users of the site to ensure

¹ The Facility ID for W292DJ at Lake Bluff, Illinois is 141545.

² The Facility ID for WOJO(FM) at Evanston, Illinois is 67073.

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that workers and other personnel are not exposed to levels of radiofrequency radiation in excess of the applicable safety standards. Such coordination will include, but is not necessarily limited to, a reduction in transmitter power output or cessation of operation.

The specified transmitter power output achieves the authorized effective radiated power. The antenna utilized by the facility is specified by the manufacturer as having a power gain of 1.440. To achieve the authorized effective radiated power of 250 Watts, the necessary input power to the antenna is 173.6 Watts.

Ahead of the antenna is the main run of transmission line, which consists of 483 feet of Andrew/Commscope HJ5-50 air-dielectric semi-flexible coaxial cable with a nominal diameter of 7/8 inches. This run of transmission line, per data from the manufacturer, has an efficiency of 64.94 percent. The input power to the transmission line to achieve the authorized effective radiated power is 267.3 Watts.

Ahead of the main run of transmission line is one of two short jumper cables. This cable consists of six feet of Andrew/Commscope FSJ4-50B coax. The manufacturer data for this jumper indicates an efficiency of 97.79 percent at the frequency of operation. The input power to this jumper to achieve the authorized effective radiated power is 273.4 Watts.

Ahead of this jumper is a Shively four pole bandpass filter, which has an insertion loss of 1.5815 dB. This insertion loss corresponds to an efficiency of 69.48 percent. The input power to the filter to achieve the authorized effective radiated power is 393.5 Watts.

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The final component in the transmission line system is the second jumper, which runs between the transmitter output and the input to the filter. This jumper is identical to the first jumper, and has an efficiency of 97.79 percent. The required input power to this jumper to achieve the authorized effective radiated power is 402.4 Watts. The input to this jumper is located at the output of the transmitter, thus the specified transmitter power output achieves the authorized 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
December 30, 2014

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