

# *APPLICATION FOR LICENSE*

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LPFM STATION  
WCXP-LP - CHICAGO, ILLINOIS  
FACILITY ID: 192383

CHICAGO INDEPENDENT RADIO PROJECT

SEPTEMBER 2017

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JEREMY RUCK & ASSOCIATES, INC.

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## **APPLICATION FOR LICENSE**

The following engineering statement has been prepared for **Chicago Independent Radio Project** ("CHIRP"), permittee of new low-power FM station WCXP-LP at Chicago, Illinois, and is in support of their application for license.<sup>1</sup> The file number of the most recent construction permit for WCXP-LP is BMPL-20170515AAJ. This application seeks to cover the construction authorized under that permit, which has been completed. That construction permit was a modification of the original proposed engineering. WCXP-LP has commenced operation under the provisions of automatic program test authority.

The facility as constructed complies with the terms of the construction permit. The permit as issued by the Commission, lists one special construction or restriction. CHIRP certifies that it will comply with this special condition, which requires coordination with all other users of the site to ensure workers and other personnel are not exposed to levels of radiofrequency radiation in excess of the applicable safety standards. Such coordination activities will include, but are not necessarily limited to, a reduction in transmitter power or cessation of operation.

The specified transmitter power output achieves the authorized effective radiated power. The authorized effective radiated power for WCXP-LP is 18 Watts. The antenna utilized by the facility is an Electronics Research, Inc. ("ERI") model LPX-1E. The manufacturer of this antenna has specified 0.461 as the power gain of this antenna. The input power to the antenna to achieve the authorized effective radiated power is 39.0 Watts.

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<sup>1</sup> The Facility ID for WCXP-LP at Chicago, Illinois is 192383.

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This antenna has a 1 5/8 inch EIA input flange. Ahead of the antenna is an adapter, which transforms from a female N-connector to this EIA line size. The adapter, from ERI, has a specified insertion loss of 0.3 dB. This corresponds to an efficiency of 99.31 percent. The input power to the adapter to achieve the authorized effective radiated power is 39.3 Watts.

Preceding this adapter is main run of transmission line, which consists of 55 feet of Times Microwave LMR-400 coaxial cable. The specified insertion loss of this cable is 1.3 dB per 100 feet of length at the frequency of operation. For the 55-foot length, the insertion loss is 0.715 dB, to which insertion loss of 0.06 dB for the connectors is added. The aggregate insertion loss for this assembly is therefore 0.775 dB, which corresponds to an efficiency of 83.66 percent. The input power to this cable to achieve the authorized effective radiated power is 47.0 Watts.

Ahead of the main run of transmission line is a Polyphaser IS-50UX-C0 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 48.1 Watts.

Between the Polyphaser and the transmitter is a second jumper, which consists of three feet of LMR-400. The insertion loss for this assembly, including the 0.06 dB contribution from the connectors, is 0.099 dB, which corresponds to an efficiency of 97.75 percent. The input power to this jumper to achieve the authorized effective radiated power is 49.2 Watts, which rounds to 49 Watts. The input to the jumper is the output of the transmitter, thus the specified transmitter power output achieves the authorized effective radiated power.

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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, 2017

**Jeremy D. Ruck, PE**  
**September 13, 2017**

**JEREMY RUCK & ASSOCIATES, INC.**

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