

APPLICATION FOR EXPERIMENTAL LICENSE

GIRD Systems, Inc. (“GIRD Systems”), pursuant to Part 5 of the rules and regulations of the Federal Communications Commission (“FCC” or Commission”), hereby requests a conventional experimental license for a period of two years to operate fixed experimental facilities in the 2 – 30 MHz band at temporary locations in the United States as set forth herein. The objective of these operations is to improve the reliability and predictability of HF communications, with the goal of developing waveform enhancements for both new and existing HF communications terminals. The technical details of the proposed operations are set forth in the preceding Form 442, as well as Exhibit B hereto for which confidential treatment is requested (see Exhibit C). For the reasons set forth herein, GIRD Systems respectfully submits that Commission approval of this application will serve the public interest, convenience and necessity.

Eligibility

The FCC may grant an experimental license to persons qualified to conduct “[e]xperimentations in scientific or technical radio research.”¹ GIRD Systems clearly satisfies this standard. GIRD Systems is a private scientific research and development firm with expertise in the areas of communications and electronic warfare. Its research team includes well-published PhD-level researchers and developers specializing in algorithm development, signal processing, waveform porting and hardware design that leverages the latest research and computing capabilities. Its primary customer base includes most of the major research branches within the U.S. Department of Defense, including: the U.S. Navy’s Space and Naval Warfare Systems Command (“SPAWAR”); the U.S. Air Force Research Lab; and the U.S. Army Communications Electronic Command (“CECOM”). It also collaborates and consults with some of the largest defense contractors in the industry.

Directional Antennas

GIRD intends to use directional antennas in connection with the proposed course of experimentation. The beamwidth of these antennas at the half-power point is between 70 and 77 degrees. Antennas will be rotated in the horizontal plane at various azimuths, with an orientation in the vertical plane of approximately 15 degrees from horizontal.

Antenna Heights

As indicated above, GIRD intends to operate fixed base stations at temporary fixed locations at various locations. GIRD anticipates that some of these operations will involve the temporary installation of antennas at heights more than 6 meters above ground level. These would include 75 foot fixed towers, as well as a rooftop installations (up to 90 feet above ground level).

¹ 47 C.F.R. §§ 5.3(a), 5.51.

Minimizing Interference Potential

GIRD Systems proposes to operate using maximum bandwidth of 50 kHz per channel. Operations will occur simultaneously, on multiple channels, for brief intervals of time, several times a day during sporadic, intermittent test periods, using the minimum amount of power required to achieve its testing objectives. The applicant will not occupy any channel for an extended period, but will limit its transmissions to the time necessary to gather operational data (*e.g.*, no more than approximately two or three minutes per transmission). Data gathered during each test period (expected to occur over several days) will be used to further revise and refine the waveform enhancements under development.

GIRD Systems understands that other stations may be licensed on the frequencies and in the areas where it proposes to operate, and very much desires to avoid causing them harmful interference. Accordingly, before commencing operations on any particular frequency, it will research the FCC's license records to identify unencumbered (or the least encumbered) spectrum in its area. It also will employ a "listen before talk" protocol before commencing transmissions, and will not operate on frequencies in use by other parties.

GIRD Systems will immediately suspend transmissions in the event of any actual or suspected interference being caused by its experimental operations. The point of contact for such notifications is as follows:

Application File Number: 0742-EX-CN-2018

Name of Contact Person: Ben Maxson, System Engineer, GIRD Systems, Inc.

Phone Number: 513-218-2900, Extension 121

E-Mail Address: BMaxson@girdsystems.com

Government Contract Information

The proposed experimental operations will be conducted in connection with the following government contracts:

Government Entity	Contract Number	Contact	Phone Number
U.S. Air Force	FA8726-17-C-0007	1 st Lt. Jazmin Furtado	781-225-4125
U.S. Army	W9124R-17-C-0013	Eusebio Lopez	928-328-6671