EXHIBIT No. 2

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(a) Purpose: Experimentation and Research

A 600-meter (specifically 495–510 kHz) band experimental license under FCC Part 5 Rules will provide the amateur service a capability to explore and evaluate low frequency (LF) regional ground wave communication. Such communications are based upon groundwave propagation and are, therefore, not subject to interruption by solar storms or other events that disrupt the ionosphere. This frequency range also offers the opportunities for experimentation with antennas, propagation, modulation, and signal processing. The frequency band 495-510 kHz is recommended, as it is no longer used for maritime telegraphy in the western hemisphere; has not yet been claimed by another service; and is not used for power line communications.

(b) Characteristics, advantages, and uses:

An experimental frequency assignment at 600 meters (495-510 kHz) will offer a number of opportunities and capabilities for amateur exploration and testing, including;

• Potentially reliable regional ground-wave communications.

• Experimentation with antennas, propagation, modulation, and signal processing at low frequencies (LF).

(c) Experimentation

The 600-meter band will provide amateurs numerous opportunities for experimentation, including:

- electrically short antennas,
- ground-wave propagation,
- modulation techniques,
- signal processing, and
- digital techniques and protocols.

Operation on this band hopes to motivate experimenters to develop electrically short antennas that are efficient and transportable. It will provide the opportunity to experiment with both long-range ground-wave and D-layer propagation affects, neither of which is possible on higher frequency bands. The need for reliable digital communication on this band is expected to motivate experimentation not only with existing digital modes, but also modulation techniques such as minimum-shift keying (MSK), which is efficient both in the use of bandwidth and power.

Development of protocols for adaptation of data rates to the signal-to-noise ratios (S/N) will also be studied so that the emergency communication systems can move data faster when noise levels are low. The 600 meter band will also present new challenges for signal processing, including optimum non-linear processing of atmospheric noise and adaptive cancellation of man-made noise and interference.

(d) Potentially Reliable Emergency Communications via Ground Wave

Ground-wave (also called "surface-wave") propagation at low and medium frequencies may provide reliable communications over medium and long distances. The ground-wave signal propagates along the surface of the earth. Such communications is omni-directional and continuous and is therefore well-suited for "party-line" communication among all terminals in a network. Since the ground-wave signal is not dependent upon the ionosphere, communications based upon ground waves will not be interruptible by solar events (sunspots, solar storms, coronal mass ejection, etc.).

(e) Equipment

Commercially available amateur equipment is not capable of transmitting on 500 kHz. In general, the transformers used in the RF power amplifiers are too small to support signals below 1.7 MHz. As a result, a wide variety of transmitters will be used in this experiment. Some transmitters will be based upon state-of-the art switching-mode MOSFET power amplifiers, while others will be based upon surplus marine transmitters and vacuum-tube amplifiers. Signals will be produced by synthesizers and outputs will be filtered to produce clean, harmonic-free signals.