

EXHIBIT 1

This exhibit is provided to satisfy item 12 of FCC Form 442 and is divided into sections as follows:

- A) PROPOSED PROGRAM OF RESEARCH AND EXPERIMENTATION
 - B) DESCRIPTION OF THE EQUIPMENT AND THEORY OF OPERATION.
 - C) SPECIFIC OBJECTIVES SOUGHT TO BE ACCOMPLISHED
 - D) HOW THE PROGRAM WILL ENHANCE THE RADIO ART
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A) PROPOSED PROGRAM OF RESEARCH AND EXPERIMENTATION

It is proposed that field strength tests be performed on a new concept antenna. First, tests will be performed on a conventional 65-foot tall antenna with radials, whose characteristics are well documented, to allow determination of the ground characteristics in the area. These tests will be followed by tests using the new antenna, thus allowing determination of the true performance of the new antenna. Additional details will be found in an attachment entitled "TECHNICAL EXHIBIT". The end result will be a relative "efficiency" measurement of the new antenna.

B) DESCRIPTION OF THE EQUIPMENT AND THEORY OF OPERATION.

The equipment to be tested is a new concept antenna displayed in the photographs. It has been named the EH Antenna to signify that the E and H fields are developed in the antenna simultaneously and in the proper relationship to satisfy the Poynting Theorem. This is the most important development in the history of antennas since Hertz discovered the concept of periodic waves that led to resonant antennas. International patents are pending for this new concept.

Visualize the antenna being constructed of two elements with natural capacity between those elements, and the elements are symmetrical in the azimuth plane. If a RF voltage is applied between the two elements, a vertical electric (E) field will be developed. Current will also flow through the natural capacitor (between the 2 elements) This current will develop a horizontal circular



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magnetic (H) field that exists in the space between the two cones. All criteria to satisfy the Poynting Theorem is present except - - Unfortunately, due to the fact that current through a capacitor is phase advanced relative to the applied voltage, the E and H fields are out of phase. However, by shifting the phase of the current (delayed by 90 degrees) prior to application to the antenna, the E and H fields within the antenna can be aligned in time phase and radiation will occur. If the phasing network also provides impedance matching, the value of the radiation resistance of the antenna can be transformed to be the same as the transmitter/receiver source impedance. When this occurs, maximum power transfer occurs and the result is a very effective antenna.

Among the major parameters that define the EH Antenna is very small size (only 7 feet in diameter (1% of a wavelength) at the high end of the AM broadcast band), offers exceptional efficiency, and provides antenna pattern gain in the elevation plane. These antennas can be used in arrays to develop desired antenna patterns more easily than conventional antennas due negligible E and H field coupling between elements in the array.

Since the E and H fields are essentially confined within the antenna, EMI is virtually eliminated. The fact that the fields are contained is evidenced by the fact that external E field noise is many dB less on this antenna than a conventional Hertz antenna when used as a receiving antenna.

Elimination of large E and H fields allows the antenna to be located in areas near sensitive equipments and personnel, unlike existing antenna designs. Further, since the antenna is a "dipole" it does not require radials. Thus it is well suited for location on top of building in the center of population areas.

SAFETY NOTE: Since it is a "dipole", the EH Antenna needs to be elevated above ground. Initial tests will be conducted with the antenna mounted on a 30-foot tower. The elements of the antenna are insulated from the tower to prevent conduction current in the tower; thus there are no RF voltages on the tower itself. The height prevents personnel from being in the radiation area. In addition, the antenna is located in a Pecan orchard; thus only those persons performing the test will have access to the area.



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The first picture in this exhibit is the antenna being assembled. Note that the antenna elements are two cones. The actual radiation occurs in the vicinity of the apex of the cones, allowing the remaining cone area to enhance the antenna pattern gain in the same manner as a microwave horn. The second picture includes the phasing/matching network mounted under the antenna. When the antenna is complete, protection cones are affixed to the top and bottom of the antenna to prevent weather, birds and other flying things from affecting the antenna, and to provide structural enhancement. The third picture is the actual configuration that will be used for the tests. The other antennas in the area will be "detuned" by removing the phasing/matching network to prevent any effect on the antenna pattern. For additional technical information on the antenna, please see my web site at www.netcommander.com/home/w5qjr-/

C) SPECIFIC OBJECTIVES SOUGHT TO BE ACCOMPLISHED.

The objective of the test program is to measure the performance parameters of the antenna at broadcast frequencies in accordance with standard FCC procedures. While it is believed that the EH Antenna has exceptional performance, it can only be proven by actual field testing.

D) HOW THE PROGRAM WILL ENHANCE THE RADIO ART

Based on tests performed on scale antennas on Amateur Radio frequencies, it is believed that the test program will reveal a revolutionary antenna that has the following advantages for AM Broadcast: The small size of the EH Antenna, the elimination of the need for ground radials, and the fact that the E and H field are virtually contained within the antenna will allow locating the EH Antenna in places that are advantageous to the Broadcaster. Further, since the antenna can be located where desired, there are significant economic advantages to the Broadcaster in comparison to conventional Hertz antennas.

