

File Number: 0155-EX-PL-2003  
Question 7: Purpose of Experiment

In the Commission's Report and Order (FCC 03-105) which terminated the proceeding for an Amateur Radio allocation at 135.7-137.8 kHz, and 160-190 kHz it was stated that there is potential for some limited operation in those bands under individual experimental licenses. This application requests facilities similar to those being considered in that rulemaking, with two objectives.

**Antennas:** Most commercial and amateur operation in this frequency range involves the use of "Marconi" transmitting antennas, i.e., loaded vertical conductors worked against ground. Commercial sites are kept free of large vegetation over a wide area to avoid dielectric losses. Such a luxury may not exist in amateur or intermittent commercial situations, and losses from objects such as trees can be considerable. Experimentation under Part 15 in the 160-190 kHz range has shown that vertical loop antennas are entirely practical for transmitting, and can use trees as supporting structures. The antenna size, transmitter power and transmitter location restrictions of Part 15 have placed severe limitations on these experiments. This present application requests facilities that will allow signal measurements at a considerable distance, as well as experimentation with higher power coupling methods.

**Low Data Rate Transmission:** Most amateur operation where the 136 kHz band is authorized has involved slow-speed Morse code (CW) transmission and DSP techniques for reception. Other possibilities have been lightly investigated, including binary phase shift keying (BPSK) and multitone frequency shift keying, both at low data rates. The applicant intends to use a variety of these modes, as well as assist in the development of newer variations that may permit long distance communication with greater data rates than those available by on-off keying. The higher ERP which would be authorized would permit reception at greater distances and under a greater variety of propagation conditions than would be possible within the Part 15 rules.

Data and observations collected during the proposed operation will be available via the Internet for the use of other experimenters.

Signed: John K. Andrews  
Date: July 25, 2003