Dear Sir or Madam,

Please accept this comment on spectrum policy, ET Docket No. 02-135, for the Spectrum Policy Task Force.

I am Associate Director and Senior Scientist of the Long-Term Ecological Research (LTER) Network Office at the University of New Mexico. I appreciate this opportunity to discuss how current spectrum policy affects LTER scientists, students, and other field biologists as they pursue their studies of ecological patterns and processes. My comments are particularly relevant to questions 3b and 5 in the Public Notice released 6 June 2002.

The LTER program is a 24-site network that extends from the Arctic (2 sites in Alaska) to Antarctica (2 sites) and includes Puerto Rico plus 19 sites in the continental United States. More than 1200 scientists and students participate in LTER research and much of what we know about long-term ecological patterns and processes comes from LTER science. In particular, LTER science has provided the data and information that have been instrumental in understanding: (1) the environmental impacts of floods, hurricanes, fires, and other natural disasters; (2) the environmental causes associated with Hanta virus outbreaks and Lymes Disease; (3) factors associated with invasions of exotic species; and (4) how long-term weather patterns like the El Nino Southern Oscillation affect ecosystem productivity.

Most of the LTER sites, with the primary exception of two urban sites in Baltimore and Phoenix, are located in rural environments where travel is logistically difficult and expensive and, sometimes, dangerous. Consequently, LTER scientists have begun to increasingly rely on spread spectrum radios for communicating with remote instruments in the field. These remote instruments include weather stations, lake and ocean buoys, and stream and water chemistry gauges. The data are transferred from the remote sites to universities and field stations using unlicensed Part 15 rule radios operating in the 915mhz and 2.4ghz bands. Under current rules these radios are extremely limited in power, thereby severely restricting the areas that can be wirelessly instrumented. This problem is exacerbated because of the fact that so many of our field sites occur in forested areas. Work-around solutions are extremely expensive (involving relay stations and antenna installation), exceeding field station and university budgets. As a result, most LTER data are still collected manually by students and scientists, or not collected at all because of logistical constraints.

The current power limitation greatly restricts our ability to monitor environmental conditions in remote locations. LTER scientists view the current power requirements as being unnecessarily stringent and enormously costly to the public—via expensive manual data collection by scientists and students and the critical data that are not collected because of cost and logistical constraints.

Some minor changes in FCC policy would facilitate the work by LTER and other scientists. First, we recommend that the power maxima be significantly increased in

remote areas, allowing scientists to better instrument remote sites. Second, field scientists require increased access to lower frequencies in the unlicensed spread spectrum bands, enabling better communication (i.e., longer range) with instruments in vegetated areas.

Scientists, students, decision-makers, resource managers, and the general public increasingly are requiring and demanding real-time or near real-time access to environmental data. The recent flooding in Texas and fires in Arizona, Colorado, and New Mexico illustrate our increased dependence on real-time environmental data for forecasting. Ecologists and earth scientists are on the cusp of being able to comprehensively instrument the environment—air, soil, trees, and animals. Such real-time data will enable us to better understand the environment and to tease out principles of sustainability. However, such understanding will only come if we have the means to access the requisite data. On behalf of the LTER Network Office and the 24 research sites that we support, I urge you to re-consider the current FCC policies that impinge on our ability to perform science and meet the needs of policy-makers, resource managers and the general public.

Thank you for consideration of these comments.

Sincerely,

William K. Michener, Ph.D
Associate Director and Senior Scientist, LTER Network Office