Joseph Lazio
6108 Redwood Lane
Alexandria, VA 22310-2933
jlazio@patriot.net

July 5, 2002

Paul Kolodzy, Ph.D.
Spectrum Policy Task Force
Federal Communications Commission
445 12th Street SW
TW-A325
Washington, DC 20554

Re: ET Docket No. 02-135

Dear Dr. Kolodzy:

I am writing in response to ET Docket No. 02-135 and the questions raised therein regarding the FCC's radio spectrum policies. My comments concern the existing allocations for radio astronomy and fall into the categories of "Market-oriented Allocation and Assignment Policies" and "Interference Protection." The existing radio astronomy allocations serve a number of purposes and in formulating any new policies the FCC should maintain the existing limits and protections both on in-band and out-of-band transmissions in the radio astronomy allocations.

Perhaps first and foremost, the radio astronomy allocations provide a means to train the next generation of scientists and engineers. Celestial sources are incredibly faint in comparison to terrestrial emitters. Thus, detection and study of celestial sources can be difficult and requires innovative new technology and techniques. Students who develop or learn these new technologies and techniques often find that they can apply their skills to other problems as well. For instance, many of my fellow graduate students are not radio astronomers today but work in the defense/aerospace, financial, or computer industries. Their use of the radio spectrum during their days as graduate students has enabled them to increase the productivity of the companies for which they work today. In this respect, the radio astronomy allocations in the spectrum can be viewed as a future investment. Successful companies take a small fraction of their profits and invest them into research to improve their existing products or to develop new ones. In the same manner, the radio astronomy allocations provide for the next generation of scientists and engineers.

Radio astronomy also has an impressive history of spawning new technologies or practices. To take just one example, the entire field of remote sensing sprung from radio astronomy. Whereas radio astronomy looks up, remote sensing looks down. Remote sensing is of increasing importance in a wide variety of industries; examples include defense, agriculture, and mineral exploration. Again, reserving a small section of the spectrum for radio astronomy for future innovations is a reasonable investment (and one that would pay dividends for many remote sensing applications as well).

A secondary economic benefit of the radio astronomy allocations is to the tourism industry of various states. In an effort to minimize interference from terrestrial transmitters, major radio astronomy facilities are located in remote locations. Nonetheless, all of the major radio astronomy facilities in the US host large numbers of tourists and visitors every year. For instance, the Very Large Array of the National Radio Astronomy Observatory is located approximately two hours southwest of Albuquerque, yet in a typical year it hosts over 50,000 visitors from around the world. Similar situations exist for other major radio astronomical facilities across the country.

In it also worth keeping in mind the extensive investment that the US Government has made in radio astronomical facilities. Major radio astronomical facilities have at least a $400M investment in infrastructure alone, mostly from the National Science Foundation. Combined with investments in smaller facilities and associated costs, the total US Government investment in radio astronomy could exceed $0.5 *billion*, primarily from the NSF but with contributions from NASA and the Department of Defense. Ensuring that that investment is not wasted or overwhelmed by terrestrial interference is important.

Turning to the policy aspects of the radio spectrum, in Chairman Powell's charge to the Spectrum Policy Task Force he indicates that any new policies must allow for flexibility. This notion of flexibility should also apply to the FCC itself in that the FCC should not adopt "one size fits all" policies for all users of the radio spectrum. I have directed my comments toward the radio astronomy allocations. There are other passive users of the radio spectrum who require similar restraints on in-band and out-of-band transmissions in order to conduct radio remote sensing and the like. Forcing all passive and active users of the radio spectrum to adhere to the same policies will be detrimental to at least the passive users and may, in the long run, be detrimental to the active users as well.

Finally, it is also worth keeping in mind the modest scope of the radio astronomy allocations. In the congested part of the spectrum between 10 and 3000 MHz, the total radio astronomy allocation (both primary and secondary) is less than 100 MHz or about 3% of the total spectrum. It does not seem like this small amount is an unreasonable reserve given its educational, scientific, and other benefits.

Sincerely,

Joseph Lazio