



# Harvard-Smithsonian Center for Astrophysics

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February 16, 1993

Ms. Donna R. Searcy  
Secretary  
Federal Communications Commission  
1919 M Street, NW  
Washington, DC 20554

FCC MAIL ROOM

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

RE: RM 8165 (Arecibo Observatory)

Dear Ms. Searcy,

I write to support strongly the request by the Arecibo Observatory to obtain advance notice and enhanced protection from future installations of radio transmitters in its vicinity. Radio frequency interference is a rapidly growing problem that threatens to limit scientific discovery in the field of radio astronomy. Thus, it is extremely important that reasonable protection be afforded major observatories around the world.

The 1000-foot diameter radio telescope at Arecibo is the world's largest radio telescope operating in the centimeter wavelength band. Because of its tremendous collecting area, this telescope can detect faint radio emissions from planets, stars, and galaxies better than any other telescope. The Arecibo telescope has made many exciting discoveries, including binary pulsars, new sources of natural maser emission, and the emission from the hydrogen atom from galaxies nearly at the edge of the Universe.

Today, the observatory is at a critical stage of development. A great deal of time, effort, and money have been expended to upgrade the performance of the telescope. This upgrade promises to keep Arecibo at the forefront of radio astronomy for at least the next decade, provided that radio interference does not increase in its vicinity. Unfortunately, it only takes a minute amount of stray emission from man-made sources to overwhelm the feeble signals that arrive at the Earth after traversing truly astronomical distances.

The proposal for a Radio Astronomy Communications Zone seems a reasonable approach designed to balance the needs of astronomers with those who seek to use the airwaves for other purposes. It would provide a formal method of communication when proposals for new transmitters near the observatory are made. Often, small changes to broadcast systems can be made that do not significantly impact the broadcaster's ability to conduct his business, but that greatly decrease the levels of out of band transmissions in portions of the spectrum that are crucial for radio astronomy. The proposed amended rules, therefore, seem a balanced approach to better manage the limited resources in the radio band.

In summary, I strongly support the the passage of this amendment.

Sincerely,

*Irwin Shapiro/KE*

Professor Irwin Shapiro  
Director, Harvard-Smithsonian  
Center for Astrophysics