

NATIONAL SCIENCE FOUNDATION
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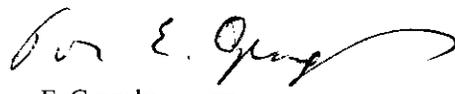
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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Ms. Magalie Roman Salas
Office of the Secretary
Federal Communications Commission
445 12th Street, S.W., Room TW-A325
Washington, D.C. 20554

Dear Ms. Salas:

Enclosed please find an original and four copies of the comments of the National Science Foundation in the matter of Review of Quiet Zones Application Procedures, WT Docket no. 01-319.1

Sincerely yours,



Tomas E. Gergely
Electromagnetic Spectrum Manager
Division of Astronomical Sciences

Enclosures

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Before the
Federal Communications Commission
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
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COMMENTS OF THE
NATIONAL SCIENCE FOUNDATION

The National Science Foundation hereby submits its comments in response to the Notice of Proposed Rulemaking ("NPRM") released on November 21, 2001.

Preliminary Statement

The National Science Foundation (NSF) is an independent agency of the Federal Government whose mission is to promote and advance scientific progress in the United States. NSF does this primarily by sponsoring scientific and engineering research and by supporting selected activities in science and engineering education.

NSF's interest in this NPRM stems from its responsibilities as the lead Federal Agency for the support of ground-based astronomy, in particular ground-based radio astronomy, in the U.S. NSF is the major source of operating and construction funds for U.S. radio astronomy facilities. This unique support has deep historical roots, which extend back almost half a century. As a result of this long-running support, the U.S. is preeminent in the field of radio astronomy, and its instruments are generally unequaled anywhere. Government investment in radio astronomy facilities is estimated to exceed \$ 0.5B; operational funds expended in support of these facilities by NSF in FY 01 were approximately \$ 50M.

In particular, NSF supports the radio astronomy facilities protected by two of the "Quiet Zones" that are the subject of the present NPRM: 1) the National Radio Quiet Zone (NRQZ) that has protected radio telescopes located at the National Radio Astronomy Observatory's (NRAO) Green Bank site for nearly half a century, and that currently protects the recently completed Robert C. Byrd Green Bank Telescope (GBT), and 2) the Puerto Rico Coordination Zone (PRCZ), that protects the Arecibo telescope. The 100-m diameter GBT, one of the facilities of the NRAO, operated for NSF through a cooperative agreement with Associated Universities, Inc. (AUI), is the world's largest

fully steerable radio telescope. The 305-m Arecibo telescope of the National Astronomy and Ionosphere Center (NAIC), that is operated for NSF through a cooperative agreement by Cornell University, is the world's largest and most sensitive single dish radio telescope. These telescopes constitute a substantial fraction of NSF's investment in radio astronomy. The GBT was completed last year and the Arecibo telescope was also upgraded recently at considerable cost. NSF is greatly interested in full exploitation of the scientific capabilities of these instruments. Both telescopes are open to qualified scientists worldwide; observing time on these facilities is allocated solely on the basis of scientific merit.

Importance of Quiet Zones for U.S. Radio Astronomy

The NRQZ was established by joint action of the Interdepartment Radio Advisory Committee (IRAC) and the Federal Communications Commission (FCC) in 1958, for the protection of the NRAO radio telescopes located near Green Bank, WV, and the US Navy facilities located near Sugar Grove, WV. During the nearly half a century of its existence the NRQZ did provide significant protection to the Observatory, allowing astronomers to work in a low radio frequency interference (RFI) environment that is significantly better than what can be found at most radio astronomy sites around the world. An important consideration in selecting Green Bank for the location of the GBT, NRAO's newest telescope dedicated in August 2000, was the protection from interference afforded by the NRQZ. Likewise, the PRCZ resulted in a much better controlled RFI environment, providing a substantial benefit to the Arecibo Observatory since it was established by the FCC in 1997. As the variety of radio services, as well as the number of transmitters increases even at relatively uninhabited locations such as Green Bank, the Quiet Zones become increasingly important for astronomical research, and NSF believes that preserving their integrity is critically important for the health of ground-based radio astronomy in the U.S. and worldwide.

In fact, the importance of the Quiet Zones for the radio astronomy facilities that they are intended to protect can hardly be exaggerated. The Arecibo telescope and the GBT are the two highest sensitivity radio telescopes operating today at short centimeter wavelengths worldwide. Because of their enormous collecting areas they permit the observation of many faint radio sources that cannot be studied with any other instrument. Both facilities are in great demand, not only by U.S. astronomers, but also by numerous members of the worldwide astronomical community. Any worsening in observing conditions at these sites would, therefore, have a severe impact on worldwide radio astronomy capabilities.

Potential Improvements in Current Procedures

NSF agrees with the FCC's statement (at par. 5 of the NPRM) that current procedures have been generally effective in protecting the Green Bank and Arecibo radio telescopes, and believes that they also generally satisfy the needs of applicants for services in areas affected by the Quiet Zones. Nevertheless, NSF believes that some improvements to the current procedures are possible.

As a general comment, in a number of instances when systems are authorized in geographical areas, current FCC rules fail to reference the Quiet Zones, giving rise to confusion about coordination requirements. For example the Quiet Zone rules clearly affect the services governed by the Part 90 rules. Nevertheless Part 90 consistently omits referencing the Quiet Zones or Section 1.924,

resulting in a certain amount of confusion and lack of uniformity in the application of the rules. NSF believes that the observatories protected by the Quiet Zones would benefit from cross-referencing the Quiet Zone rules in Part 90. A similar comment applies to Part 73. In the case of the services covered by Part 90, it could be also helpful to clarify who is responsible for contacting the Quiet Zone entity: the service provider or the frequency coordinator. NSF believes that the frequency coordinators are best qualified to deal with coordination issues, but in any case, clarification of the rules and establishing uniform procedures could be helpful.

An issue that has arisen on a few occasions, and that NSF believes may be helpful to clarify, would be for the Commission to state if the 20-day comment and objection period in Section 1.924(a)(3) of the rules refers to working or calendar days.

NSF supports the Commission's proposal that Part 101 applicants be allowed to initiate operations in a Quiet Zone upon submission to the Commission of documentation of written consent from the Quiet Zone entity. NSF also supports expediting the processing of applications of wireless operators by the FCC, as soon as written consent by the Quiet Zone entity is provided by the applicant to the Commission. NSF does not believe that there is any benefit to the Quiet Zone entities from delaying processing of applications or, in the case of Part 101 applicants, from delaying initiation of operations, for whatever time may remain in the 20-day comment period. On the other hand, NSF opposes the beginning of any operations by Part 101 applicants in advance of obtaining written consent from the affected Quiet Zone entity. Once service starts, experience shows that pressure is brought to bear by the operator or its subscribers, as either of them may already have made a considerable investment in equipment, to continue provision of the service even if the Quiet Zone entity is adversely affected.

Experience shows that the earlier interested parties get in touch with the Quiet Zone entity and begin the coordination process, the faster potential problems can be spotted and resolved. Early contacts and notification are helpful in avoiding parties spending substantial amounts on equipment or, in some cases site development, only to find out that the particular site or equipment doesn't meet Quiet Zone requirements, or that it is difficult or impossible to coordinate. When parties lock themselves into such a situation and when coordination proves to be difficult once the investment has been made, the project may have to be abandoned or redefined at substantial expense to the party seeking approval. On the other hand, when contacts are made early on, mutually agreeable and satisfactory solutions can be worked out in most situations. NSF therefore supports and encourages allowing parties seeking a new or modified license to notify and get in touch with the interested Quiet Zone entity early. NSF does not believe that there is a need to delay such contacts until the party seeking a license is filing, or has already filed, an application with the Commission. A 30 to 60 day period before an FCC filing should be a sufficient advance notification period and would, at the same time serve to avoid overburdening Quiet Zone entities with work related to advance coordination of systems that for some reason fail to advance to the point of an FCC filing.

Finally, NSF strongly opposes eliminating cross-references to section 1.924 in other FCC rules, e.g. those in sections 90.655, 95.45, 101.1009, 101.1329, or in any other that may currently cross-reference it. Quite understandably, most applicants are likely to read only those rules that refer to the service they are planning. Thus, deleting section 1.924 from other rules would make it easy to overlook Quiet Zone requirements. As already noted, retrofitting systems to satisfy Quiet Zone

requirements may be laborious and costly. On the other hand, when Quiet Zone requirements are planned for early in the process, the cost of meeting them may be minimal.

NSF, and the Quiet Zone entities it manages, are committed to reviewing and handling applications within the NRQZ and the PRCZ expeditiously and efficiently. NSF appreciates the FCC's recognition of the critical importance of the Quiet Zones for the U.S. scientific enterprise, expressed over time through many of the Commission's actions, and explicitly in the present NPRM.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Rita Colwell", written over a horizontal dashed line.

Rita Colwell
Director
NATIONAL SCIENCE FOUNDATION