

National Aeronautics and  
Space Administration  
**Headquarters**  
Washington, DC 20546-0001

RECEIVED



107

FCC MAIL ROOM DOCKET FILE COPY ORIGINAL

APR 15 1997

Reply to Attn of:

MG

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, NW  
Washington, DC 20554

Dear Mr. Caton:

Enclosed are the National Aeronautics and Space Administration's comments associated with the Federal Communications Commission Docket ET96-102 Rulemaking proceeding.

Sincerely,

  
Wilbur C. Trafton  
Associate Administrator for  
Space Flight

Enclosure

No. of Copies rec'd 0  
LIT/ACODE

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of the Commission's Rules to	)	ET Docket No. 96-102
Provide for Operations of Unlicensed NII	)	RM-8648
Devices in the 5 GHz Frequency Range	)	RM-8653

**COMMENTS ON PETITIONS FOR RECONSIDERATION**

The WIRELESS INFORMATION NETWORKS FORUM (WINForum) and Apple Computer, Inc. (APPLE) have filed petitions dated March 3, 1997, for reconsideration of the recent Report and Order in the above referenced proceeding. The National Aeronautics and Space Administration (NASA) would like to file the following comments on those petitions for reconsideration.

Although three bands in the 5 GHz range are under consideration for use by Unlicensed-National Information Infrastructure (U-NII) devices, only the 5.25 - 5.35 GHz band is of concern to NASA and the remote sensing community it serves. This particular band has been granted, via footnote 713 in the regulations, a secondary allocation worldwide for use by radiolocation stations installed on spacecraft employed for the earth exploration satellite services (EESS). Several such instruments are being, or will be, flown on United States spacecraft and those of foreign nations with which we have established research partnerships. Examples of these instruments include synthetic aperture radars (SARs) flown by the European Space Agency on their Earth Resources Satellite-2 (ERS-2) and their upcoming ENVISAT, by the Canadian Space Agency on their RADARSAT-1 and planned RADARSAT-2, and by NASA on the Shuttle Radar Laboratory (SRL) and the upcoming Shuttle Radar Topographic Mission (SRTM). Also, radar altimeters are being flown on joint French-US missions (TOPEX-POSEIDON and the upcoming JASON-1). Studies have shown that U-NII devices meeting the emission limits proposed for the 5.25 - 5.35 GHz band in the Report and Order should not interfere with these spaceborne instruments.

After careful review, we support the petition for reconsideration and clarification filed by WINForum. Their comments are consistent with the needs of NASA and the customers it represents.

However, NASA, on behalf of its remote sensing community customers, must strongly object to point II ("The commission also promptly should consider whether to permit the use of more highly directional transmit antenna in the 5250-5350 MHz band.") of the APPLE petition. There are two major concerns:

First, APPLE proposes changing the character of the usage of this band. The Report and Order limited U-NII devices in the 5.15-5.25 GHz band to indoor use and encouraged out-of-doors users to use the 5.725-5.825 GHz band. The studies which showed compatibility between U-NII users and EESS users assumed that only one per cent of the U-NII devices were out-of-doors and that indoor operations afforded 20 dB of shielding between the two classes of users. APPLE intends to extend the use of this band to community networks. This change which would substantially increase the fraction of outdoor users far above our initial estimate and remove the shielding. The effective level of man-made noise would increase 10 to 20 dB.

Secondly, APPLE proposes increasing the effective isotropic radiated power (EIRP) above 1 watt when more directional antennas are used. The Report and Order proposed backing off 1 dB in power for each dB of gain above 6 dB. APPLE proposes a backoff of 1 dB in power for each 3 dB of antenna gain above 6 dB, and further does not propose an upper limit. Although these directional antennas presumably will not be aimed at spaceborne sensors, scattered and reflected signals remain major sources of interference to spaceborne sensors. No restrictions could be placed upon the users to preclude such scattering and reflections.

The combined effects of the above two concerns would be expected to eliminate the ability to observe major metropolitan areas and their surrounds in the 5.25-5.35 GHz band. One example is the Great Lakes areas, where the National Oceanographic and Atmospheric Administration monitors lake ice at the beginning and end of the shipping season. Interference to SAR observations around metropolitan areas such as Chicago and Detroit would hinder their services to the shipping industry and possibly endanger life and property. The alternative of coordinating operations between the two communities is impractical considering the nature of the U-NII users and unneeded considering the non-interference nature of these licenses.

#### CONCLUSION

For the reasons stated above, NASA supports the Petition for Reconsideration filed by WINForum, but respectfully requests the FCC to reject the recommendations from APPLE regarding the 5.25-5.35 GHz band since they could violate the non-interference requirements of U-NII licensing.

Respectfully submitted,

  
\_\_\_\_\_  
Wilbur C. Traffoy  
Associate Administrator for  
Space Flight  
National Aeronautics and Space Administration