UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and Information Administration
Washington, D.C. 20230

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Mr. Dale Hatfield, Chief
Office of Engineering and Technology
Federal Communications Commission
2000 M Street N.W.
Washington, DC 20554

Re: Amendment to Parts 2, 15, and 97 of the Commission's Rules To Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications, et al.
ET Docket No. 94-124, RM-8308, RM-8784, WT Docket No. 98-136, *and* IB Docket No. 97-95

Dear Mr. Hatfield:

The National Telecommunications and Information Administration (NTIA) submits this letter regarding the Memorandum Opinion and Order on Reconsideration and Notice of Proposed Rulemaking (*Notice*) in the above-referenced proceedings.

The spectrum above 40 GHz has been used by the Federal Government for experimental and operational systems for several years. However, other than Federal satellite systems and radio astronomy observatories, there are relatively few operational government systems in these bands at present. However, in the future, these bands will support advanced spectrum-dependent defense, and other Federal radiocommunications systems. We believe that the government and non-government sharing of co-equal bands above 30 GHz is one of the critical spectrum management issues that must be addressed now, since this issue will arise often in the future as technology permits economical radio operation in the higher bands.

As the *Notice* correctly points out, bidders for licenses in the 47 GHz band will want some assurance as to the usability of the licenses that they will bid on. On the other hand, Federal agencies are still in the planning phases regarding how future Federal requirements will be satisfied after area-wide licenses for high-density systems have been issued by the Commission.

When choosing between sharing and band segmentation, we believe that, in general, sharing between Federal and non-federal users in co-equal bands is the better choice, because of the increased flexibility this offers to all users. However, if NTIA or the Federal Communications Commission (Commission) grants assignments for wide-area systems with which sharing is

difficult, band reallocation may become the more acceptable choice. Since the Commission proposes to allow any operation consistent with the National Table of Frequency Allocations, it is premature to ascertain at this time whether sharing will be feasible. In the case of co-equally shared bands, the current practice is for the Commission to submit non-government frequency requests to the Interdepartment Radio Advisory Committee's Frequency Assignment Subcommittee. Upon approval, these assignments will then be entered into the Government Master File, along with Federal frequency assignments. We would expect this practice to continue absent any reallocation.

There is a general requirement of about one gigahertz of spectrum in the 40 GHz range to satisfy the spectrum requirements for additional Federal systems. The Federal agencies have no operational frequency assignments in the 47.2-48.2 GHz band at present, but may have future requirements for fixed or mobile services. Similarly, we note there are no Commission service rules for the 42.5-43.5 GHz at this time. In order to assure commercial bidders that the 47 GHz band will remain usable over the license areas, and to accommodate future Federal requirements above 40 GHz, NTIA suggests that the 47.2-48.2 GHz band be reallocated for exclusive non-government use, and the 42.5-43.5 GHz band be reallocated for exclusive government use. This will allow full freedom for commercial operators in the 47 GHz band. Similarly, Federal operations in the 42.5-43.5 GHz band, including radio astronomy, will be protected from future commercial operations, and will allow this spectrum to be used to accommodate future Federal requirements that cannot be satisfied in the 38 GHz bands, and any possible future expansion of Federal satellite systems currently operating in the 43.5-45.5 GHz band.

We recognize that reallocation of the 42.5-43.5 GHz band is not included in the 47 GHz Rulemaking, but could be part of the larger Rulemaking being considered by the Commission under the *V-Band Notice*[1].

It is probable that Federal agencies will have future requirements for use of commercial services in the 47 GHz band. In that case, for economic and other reasons pertaining to national security, it would be appropriate for the Commission's Rules to permit Federal ownership of stations when used with a commercial service, either fixed or mobile, and with equal status and obligations of non-government users.

Pending reallocation of the band, all operational Federal frequency assignments in the 47.2-48.2 GHz band existing as of the date of licensing the winners of the competitive bidding would be protected. When the band is reallocated to non-government use, Federal frequency assignments in that band will revert to a secondary status, and Federal agencies will be

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[1] Federal Communications Commission, Notice of Proposed Rulemaking ,Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz, and 48.2-50.2 GHz Frequency Bands, Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz (Frequency Bands) for Government Operations, IB Docket No. 97-95, hereinafter *V-Band Notice*.

encouraged to use commercial service providers as an alternate to government-owned and operated systems in the band, whenever feasible.

The Commission should remain aware of a joint Federal Aviation Administration/ Department of Defense/Industry program that is currently underway to develop and test "synthetic vision" systems intended for use in the airport environment during poor visibility. These systems are being developed in the frequency range around 94 GHz. NTIA has commented in the past on the potential for the second harmonic of systems in the 46-47.5 GHz band to cause interference to this aviation system. Therefore, it seems appropriate for High Altitude Platform stations to transmit in the lower part of the band and receive in the upper part of the band to minimize interference to space and airborne systems receiving in the 94 GHz band. Such an arrangement would also be the preferred one for the protection of radio astronomy operations.

The National Science Foundation is concerned about the impact that the proposed out-of-band emission limits may have on the ability of radio astronomy observatories built and sponsored by the Federal Government to continue observations in the 42.5-43.5 GHz and 48.94-49.04 GHz primary radio astronomy bands. Both of these bands are heavily used at several U.S. sites and at one site in Mexico (The Large Millimeter Telescope -LMT- is jointly built by U.S. and Mexican institutions). The list of these sites is enclosed.

NTIA notes that 1997 World Radiocommunication Conference (WRC-97) Resolution 122 specifically notes that "technical studies are required in order to ascertain the extent to which sharing [of the 47 GHz band] is feasible between [HAPs and other services] and to ascertain the requirements to protect radio astronomy services in the adjacent bands from spurious emissions....", and it requests the ITU-R to urgently carry out studies "on the appropriate technical sharing criteria" for users of the band and Radio Astronomers, with a view towards further action by WRC-99 (now WRC-00). The protection criteria for radioastronomical measurements in these bands is -227dB(W/(m^2 Hz)) (Rec. ITU-R RA.769-1). NTIA therefore requests that High Altitude Platform stations be required to meet the above limit at radio astronomy sites to protect Federal Government radio astronomy observations pending the results of the above studies.

We look forward to further discussions with the Commission staff on these and other issues regarding the spectrum above 40 GHz.

Sincerely,

William T. Hatch

William T. Hatch
Acting Associate Administrator
for Spectrum Management

Enclosure

Enclosure

Radio Observatories in the United States and Possessions
Operating in the 42.5 GHz and 48.94-49.04 GHz Bands

Note that this list includes all U.S. sites, not only those supported by the Federal Government

SITE	LATITUDE	LONGITUDE
Goldstone, CA	35° 14' 50" N	116° 47' 40" W
Green Bank, WV	38° 25' 59" N	79° 50' 24" W
Socorro, NM	34° 4' 44" N	107° 37' 06" W
St. Croix, VI	17° 45' 24" N	64° 35' 01" W
Hancock, NH	42° 56' 01" N	71° 59' 12" W
North Liberty, IO	41° 46' 17" N	91° 34' 27" W
Ft. Davis, TX	30° 38' 06" N	103° 56' 41" W
Los Alamos, NM	35° 46' 31" N	106° 14' 44" W
Pie Town, NM	34° 18' 04" N	108° 07' 09" W
Kitt Peak, AZ	31° 57' 23" N	111° 36' 45" W
Owens Valley, CA	37° 13' 54" N	118° 16' 37" W
Brewster, WA	48° 07' 52" N	119° 41' 00" W
Mauna Kea, HI	19° 48' 05" N	155° 27' 19" W
Kitt Peak, AZ	31° 57' 10" N	111° 36' 50" W
Amherst, MA	42° 23' 33" N	72° 20' 40" W
Owens Valley, CA	37° 13' 54" N	118° 17' 36" W
Hat Creek, CA	40° 49' 04" N	121° 28' 24" W
Westford, MA	42° 37' 23" N	71° 29' 19" W
Mauna Kea, HI	19° 49' 33" N	155° 28' 20" W