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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

FCC MAIL SERVICE  
FCC 94-97

MAY 4 3 1994

In the Matter of

Allocation of Spectrum Below  
5 GHz Transferred from  
Federal Government Use

ET Docket No. 94-32 ✓

#### NOTICE OF INQUIRY

Adopted: April 20, 1994

Released: May 4, 1994

Comment Date: June 15, 1994

Reply Comment Date: June 30, 1994

By the Commission:

#### I. INTRODUCTION

1. The purpose of this proceeding is to seek information on potential applications for 50 megahertz of spectrum that is being transferred immediately from Federal Government to private sector use as required by the Omnibus Budget Reconciliation Act of 1993. The spectrum identified for reallocation by the Department of Commerce is the 50 megahertz at the bands 2390-2400 MHz, 2402-2417 MHz, and 4660-4685 MHz. Our goal in this proceeding is to ensure that spectrum reallocated for private sector use will provide for the introduction of new services and the enhancement of existing services. These new and enhanced services will create new jobs, foster economic growth, and improve access to communications by industry and the American public.

#### II. BACKGROUND

2. The Omnibus Budget Reconciliation Act of 1993<sup>1</sup> (Reconciliation Act), which was signed into law on August 10, 1993, requires that the Secretary of Commerce identify 200 MHz of spectrum currently allocated for use by Federal Government

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<sup>1</sup> Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI, § 6001(a)(3), 107 Stat. 312 (approved August 10, 1993) (Reconciliation Act); see also H.R. Rep. No. 103-213, 103rd Cong., 1st Sess. (1993) (Conference Report).

agencies, for transfer to the FCC for use by the private sector.<sup>2</sup> All of the 200 megahertz of spectrum recommended for reallocation must be located below 5 gigahertz, with at least 100 megahertz of this being below 3 gigahertz.<sup>3</sup> The Reconciliation Act requires that the Secretary of Commerce issue a report within six months of the date of its enactment that makes a preliminary identification of reallocable bands of frequencies that meet criteria established by the Act.<sup>4</sup> The Reconciliation Act further

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<sup>2</sup> The Communications Act of 1934 authorized the FCC to assign frequencies to all radio stations in the United States except those belonging to the Federal Government. Section 305 of the Communications Act, 47 U.S.C. § 305, authorizes the President to assign frequencies to Federal Government stations. This authority has been delegated to the Assistant Secretary of Commerce for Communications and Information (who is also the Administrator of the National Telecommunications and Information Administration). See Pub. Law 102-538, 106 Stat. 3533 (1992).

<sup>3</sup> The Reconciliation Act permits up to 100 megahertz of the spectrum recommended for reallocation to be retained for some use by Federal Government stations (this would be considered "mixed use" spectrum) provided that the Government use is limited to substantially less than the potential use to be made by non-Government stations. Reconciliation Act § 113(b).

<sup>4</sup> In general, the Reconciliation Act requires the Department of Commerce to identify and recommend spectrum that: (1) is allocated for Federal Government use on a primary basis; (2) is not required for the present or identifiable future needs of the Federal Government; (3) can feasibly be made available for private sector use within the next 15 years; (4) if transferred, will not result in cost or loss of service that is excessive in relation to the benefits to the public that may be provided by non-Federal use; and (5) is most likely to have the greatest potential for productive uses and public benefits if allocated for non-Federal use. Reconciliation Act § 113(a). The Reconciliation Act also sets forth specific criteria to be considered in evaluating the effect of reallocation on Federal Government users, including assessing whether the needs of Federal Government users can be met by commercially available substitutes, new technologies, or nonradiating communications systems. In evaluating the potential usefulness of spectrum and the potential benefits to the public, the Commerce Department was directed to consider the proximity of other frequencies already assigned for commercial or other non-Federal use, and the activities of foreign governments in making frequencies available for experimentation or commercial use. The Reconciliation Act also directed the Commerce Department to consider the effect reallocation will have on use of the spectrum by amateur operators and to avoid excessive disruption of use of Federal

requires the Secretary of Commerce to identify 50 megahertz of the 200 megahertz of spectrum that can be made available for reallocation immediately upon issuance of the preliminary report.<sup>5</sup> At least one-half of the 50 megahertz identified for immediate reallocation must be below 3 gigahertz and all of it must be identified for exclusive non-Federal use. The President must withdraw the assignment to a Federal Government station of any frequency recommended for immediate reallocation within 6 months of release of the preliminary report so that the spectrum is then available for exclusive non-Federal use.<sup>6</sup>

3. In compliance with the provisions of the Reconciliation Act, on February 10, 1994, the Department of Commerce released its report making a preliminary identification of spectrum identified for reallocation.<sup>7</sup> The frequency bands that Commerce has identified for reallocation are listed in Appendix A. Interested parties have 90 days from the release of the Commerce Report, until May 11, 1994, to file comments with the Secretary of Commerce. Commerce must provide the Commission with those comments, after which, the Commission is required to submit to Commerce within 90 days an analysis of those comments together with any other comments and recommendations it deems appropriate. By February 10, 1995, the Secretary of Commerce is required to submit to the President and Congress a final report identifying and recommending the spectrum for reallocation.<sup>8</sup> The Reconciliation Act also requires that, by February 10, 1995, the Commission allocate, and propose regulations to assign, the 50 megahertz of spectrum that is immediately available.<sup>9</sup>

### III. DISCUSSION

4. The Department of Commerce has identified 50 megahertz at 2390-2400 MHz, 2402-2417 MHz, and 4660-4685 MHz for immediate reallocation from use by the Federal Government to use by the

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Government frequencies by amateur radio licensees.  
Reconciliation Act § 113(c).

<sup>5</sup> Reconciliation Act § 113(e)(2)(A).

<sup>6</sup> i.e., by August 10, 1994. See Reconciliation Act § 114(a)(1).

<sup>7</sup> Preliminary Spectrum Reallocation Report, U.S. Department of Commerce, NTIA Special Publication 94-27, February, 1994 (Commerce Report).

<sup>8</sup> See Reconciliation Act § 113.

<sup>9</sup> Reconciliation Act § 115(a).

private sector. Suitable spectrum reallocated for private sector use will go far, if used wisely, to relieve spectrum congestion and provide for new technologies and services. The reallocation of spectrum to private sector use will permit the continued growth and development of advanced communications, creating new high technology jobs and economic growth. Advances in communications will also contribute to the development of the national information infrastructure which will provide American industry and consumers access to rapid and flexible information networks essential to competition in the global market. Accordingly, we seek comment as to the services to which this spectrum should be allocated and on specific rules for use of this spectrum to ensure that this spectrum is used to its maximum potential in achieving these goals.

5. **2390-2400 MHz** This band has been allocated to the government radiolocation service and has been used primarily by the military for radar testing systems and for air-to-ground telemetry systems.<sup>10</sup> This band is currently allocated on a secondary basis for the amateur service. Internationally this band is allocated in Region 2 on a primary basis for the fixed, mobile, and radiolocation services, and on a secondary basis for the amateur service.<sup>11</sup> Although the Department of Commerce has identified this band for immediate reallocation, it expresses concern over the effect of non-Federal use on sensitive Federal operations using adjacent channels. The National Astronomy and Ionospheric Center operates a planetary research radar at Arecibo, Puerto Rico at 2380 MHz. In order to protect adjacent channel operations, the Department of Commerce notes that it may be necessary to place certain limitations on the use of 2390-2400 MHz, as follows:

- 1) The band should not be used for airborne or space-to-Earth links;
- 2) Restrictions on terrestrial operations in the vicinity of the Puerto Rico planetary research radar facility may be necessary.<sup>12</sup>

6. **2402-2417 MHz** As with the 2390-2400 MHz band, this band has been allocated on a primary basis to the government radiolocation service and has been used mainly by the military for radar testing. The band is currently allocated for use by industrial, scientific, and medical (ISM) applications<sup>13</sup> and, on a secondary basis, for use by the amateur service; it is also

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<sup>10</sup> See Commerce Report, section 4 at 14-16.

<sup>11</sup> See Table of Frequency Allocations, 47 C.F.R. § 2.106.

<sup>12</sup> Commerce Report, section 4 at 14-17.

<sup>13</sup> The allocation to ISM covers the band 2400-2500 MHz.

available for use by Part 15 equipment.<sup>14</sup> Internationally this band is allocated in Region 2 for ISM applications, for the fixed, mobile, and radiolocation services on a primary basis, and for the amateur service on a secondary basis. Radio services operating within this band must accept harmful interference which may be caused by ISM applications.<sup>15</sup> ISM equipment operating in this band includes a large number of microwave ovens commonly used in households. Because microwave oven usage is generally centered at 2450 MHz, the Department of Commerce has attempted to minimize the potential for interference caused by microwave oven operations by identifying for reallocation frequencies removed from 2450 MHz.

7. The 2390-2400 MHz and 2402-2417 MHz bands are in the 2300-2450 MHz range referred to as the 13 cm band by the amateur service community. Within this range, the amateur service is currently allocated a total of 70 MHz on a secondary basis. The Department of Commerce has identified 35 MHz of this spectrum for reallocation (25 MHz available immediately). The Department of Commerce expects that the amateur service community can satisfy the majority of its spectrum requirements in the remaining 35 MHz.<sup>16</sup> It also believes that current use of the 13 cm band by amateur stations is light compared to use of bands lower in the spectrum, but notes that use may increase for amateur-satellite, high-speed computer data links, amateur TV, and other wide-band applications. The Department of Commerce states that it excluded the 2400-2402 MHz band from consideration for reallocation in

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<sup>14</sup> In the First Report and Order, Gen Docket No. 81-413, adopted May 9, 1985, 101 FCC 2d, 419, the Commission adopted rules permitting development and use of spread spectrum systems under Part 15 of the Rules in the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz with up to 1 watt transmitter output power. In 1990, to further encourage the development and implementation of this "exciting new family of technologies" the Commission modified Part 90 of its rules to maximize the flexibility of spread spectrum devices operating under Part 15 of the Rules. The majority of spread spectrum devices today operate in the 902-928 MHz band and provide a wide variety of communications services as well as services such as automated meter reading, inventory control, package tracking and shipping control, alarm devices, local area networks, and cordless phones. Recently, however, spread spectrum equipment including wireless local area networks, a wireless intercom headset, and a cordless phone have been approved for use in the 2400-2483.5 MHz band and it is likely that use of this band by spread spectrum devices will increase.

<sup>15</sup> See Table of Frequency Allocations, 47 C.F.R. § 2.106.

<sup>16</sup> Commerce Report, section 5 at 11-12.

order to protect existing amateur-satellite operations.

8. **4660-4685 MHz** This spectrum is a portion of the 4500-4800 MHz band, which has been used for a variety of Federal fixed and mobile applications throughout the United States.<sup>17</sup> This band is also allocated on a primary basis for the non-government fixed-satellite service space-to-earth links, with use limited to international inter-continental systems.<sup>18</sup> However, there is currently no non-Government use of this band. Internationally this band is allocated in Region 2 on a primary basis for fixed, fixed-satellite, and mobile services.<sup>19</sup> Additionally, an agreement with Canada requires that certain United States terrestrial line of sight and troposcatter systems be coordinated with Canada. This agreement does permit use of this band by airborne or other mobile stations but requires that such stations protect Canadian systems.<sup>20</sup>

9. **Inquiry** We seek comment on the usefulness of these bands for private sector use. Specifically, we request comment on the following issues.

- a) Does the spectrum identified for immediate reallocation have potential for promoting economic growth and competition and enhancing access to services when used in the private sector and, if not, why? What would be the most appropriate non-Federal uses of these bands? Commenters should describe services envisioned for these bands, including appropriate standards and operating rules.<sup>21</sup>

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<sup>17</sup> Department of Commerce report, section 4 at 31-32.

<sup>18</sup> The fixed-satellite service has also been subject to case-by-case electromagnetic compatibility analyses. See Table of Frequency Allocations, 47 C.F.R. § 2.106.

<sup>19</sup> See Table of Frequency Allocations, 47 C.F.R. § 2.106. Use of the fixed-satellite service (space-to-earth) at 4500-4800 MHz is subject to an allotment plan contained at Appendix 30B of the international Radio Regulations.

<sup>20</sup> See Sharing Arrangement Between the Department of Communications of Canada and the National Telecommunications and Information Administration of the United States Concerning the Use of the Band 4400-5000 MHz, signed August 29, 1986.

<sup>21</sup> We are including for consideration in this proceeding a Petition for Rule Making, filed December 23, 1993, by the Coalition of Private Users of Emerging Multimedia Technologies (COPE). COPE is a group consisting of a broad range of private land mobile users and user associations, such as the American Petroleum Institute, the Association of Public-Safety

- b) What, if any, restrictions should be placed on uses of these bands, including any restrictions that may be necessary to protect operations on adjacent or harmonically-related spectrum? In considering the use of the 2390-2400 MHz band, commenters should discuss the necessity of the limitations suggested by the Department of Commerce for non-Federal use of this band.<sup>22</sup> Commenters should also consider the effect that such restrictions will have on competition and on access to new services.
- c) Will the recommended reallocation avoid excessive disruption of existing use of Federal Government frequencies by amateur service licensees? Is the 2 megahertz segment at 2400-2402 MHz that the Department of Commerce excluded from consideration for reallocation sufficient to avoid disrupting existing amateur-satellite operations?
- d) Will new non-Federal services in these bands be able to share the spectrum with existing services, especially with amateur operations in the 2390-2400 MHz and 2402-2417 MHz bands, and with the fixed-satellite service in the 4660-4685 MHz band?<sup>23</sup> If yes, what are appropriate technical sharing criteria? What should be the relative status of users? What effect will existing users have on competition and on access to new services?
- e) Will non-Federal users be able to effectively use the 2402-2417 MHz band, considering its allocation for use by ISM equipment, and especially considering that a large number of

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Communication Officials-International, Inc., the National Association of Business and Educational Radio, Inc., and the Utilities Telecommunications Council. In its petition, COPE argues that a need exists for an allocation of 75 megahertz of spectrum below 3 GHz for the development of an "Advanced Private Land Mobile Communications Service", which would accommodate the needs of private land mobile radio user communities for new operations such as advanced wireless imaging and decision processing/remote file access systems. COPE specifically suggests that spectrum be reallocated from the Federal Government, and it states that the most likely source of spectrum to accommodate private emerging technology needs lies in the spectrum to be reallocated under the requirements of the Reconciliation Act.

<sup>22</sup> See para. 5 supra.

<sup>23</sup> Since 4660-4685 MHz will no longer be available for Federal Government use, is it necessary to continue the requirement for case-by-case electromagnetic compatibility analyses for fixed-satellite operations in the band?

microwave ovens operate in this band? Further, what will be the impact upon use of this band by Part 15 devices? What effect will existing services have on the potential for competition and access to new services? What effect will new services have on competition and access to existing services?

- f) The Reconciliation Act has reaffirmed the on-going responsibility of the Commission to consider the spectrum and interoperability needs of the public safety community when making spectrum allocation decisions.<sup>24</sup> We request comment on the utility for public safety communications systems of the spectrum identified for immediate reallocation, including comment on the degree to which the proposed spectrum could help increase the ability of all public safety workers to communicate with each other.
- g) In its preliminary report, the Department of Commerce notes that Congress directed the NTIA and FCC to carefully consider the need for interference-free radio spectrum for use by biomedical telemetry devices.<sup>25</sup> Is the spectrum identified for immediate reallocation suitable for such devices? If yes, should special accommodation be made for them?
- h) We note that the preliminary report identifies additional spectrum in close proximity to these bands that would become available later. Specifically, the 2300-2310 MHz band, which could be paired with 2390-2400 MHz, is slated to become available in 2 years and the 4635-4660 MHz band, which could be combined with 4660-4685 MHz, is slated to become available in 3 years. We request comment on whether it would be advantageous to delay licensing some of the 50 megahertz of immediately available spectrum so that in a few

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<sup>24</sup> The Reconciliation Act requires that the FCC, by February 1995, complete a study of current and future spectrum needs of public safety agencies through the year 2010 and develop a specific plan to satisfy those needs. Reconciliation Act at § 6002(a). The Act also requires that, at least biannually, the Chairman of the FCC and the Assistant Secretary of Commerce shall meet to conduct joint spectrum planning with respect to, among other issues, the future spectrum requirements for public safety agencies and spectrum allocation actions necessary to accommodate those needs. Id. at § 112.

<sup>25</sup> Commerce Report, section 5 at 12-13.

years larger blocks of spectrum could be made available.<sup>26</sup>

Responses should be as complete as possible and commenters should provide support for their position. This Commission has established the goal of creating a national information infrastructure that will provide access to all as a means of boosting productivity, creating jobs, educating children, and improving the provision of health care. In discussing uses for the spectrum to be reallocated, parties should discuss the contribution that a proposed service can make toward meeting this goal, especially in meeting public interest concerns, such as extending service to unserved or undeserved communities or extending educational opportunities and medical services. They should also discuss the growth potential for the Nation's economy offered by the proposed services. For example, what would be the amount and nature of investment in the national information infrastructure and what employment opportunities would be created as a result of introducing a proposed service?

10. We emphasize that this Inquiry is focusing on uses for the three bands available for immediate reallocation and, except where noted, commenters should limit their consideration to these bands. Use of the remaining spectrum identified by the Department of Commerce for delayed reallocation will be considered by the Commission at a later date. However, we encourage interested parties to participate in the Department of Commerce's process to make a final identification of spectrum for reallocation by filing comments with the Department.<sup>27</sup>

#### IV. PROCEDURAL MATTERS

##### Comment Dates

11. Pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415 and 1.419, interested parties may file comments on or before June 15, 1994, and reply comments on or before June 30, 1994. To file formally in this proceeding, you must file an original and four copies of all comments, reply comments, and supporting comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original plus nine copies. You should

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<sup>26</sup> Commenters should take into consideration that the Reconciliation Act requires the Commission to issue licenses pursuant to competitive bidding authority for at least 10 megahertz of transferred spectrum not later than 5 years after its date of enactment. Reconciliation Act § 6002(a), codified as 47 U.S.C. § 309(j)(9).

<sup>27</sup> See para. 3 supra.

send comments and reply comments to Office of the Secretary, Federal Communications Commission, Washington, DC 20554. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center, Room 239, 1919 M Street, N.W., Washington, DC 20554.

Ordering Clause

12. Authority for issuance of this Notice of Inquiry is contained in Sections 4(i), 303(g), 303(r), 332(a), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(g), 303(r), 332(a), and 403.

Contact Person

13. For further information concerning this proceeding, contact Steve Sharkey, Office of Engineering and Technology, (202) 653-8151.

FEDERAL COMMUNICATIONS COMMISSION

*William F. Caton*  
William F. Caton  
Acting Secretary

## Appendix A

### NTIA Preliminary Spectrum Reallocation Plan

Bands Identified for Reallocation	Reallocation Status	Reallocation Schedule
1390-1400 MHz	Exclusive	January 1999
1427-1432 MHz	Exclusive	January 1999*
1670-1675 MHz	Mixed	January 1999**
1710-1755 MHz	Mixed	January 2004
2300-2310 MHz	Exclusive	January 1996
<del>2390-2400 MHz</del>	<del>Exclusive</del>	<del>Immediate</del>
<del>2402-2417 MHz</del>	<del>Exclusive</del>	<del>Immediate</del>
3650-3700 MHz	Mixed	January 1999
4635-4660 MHz	Exclusive	January 1997*
<del>4660-4685 MHz</del>	<del>Exclusive</del>	<del>Immediate</del>

\* Protection for a limited number of facilities would be required for an additional period of time.

\*\* Limited immediate use of this spectrum would be considered.