entities were not prejudiced by any lack of specificity regarding what rules the Commission might adopt in this proceeding.

7. Moreover, we note that we have attempted to balance the economic interests of small businesses with the public's great interest in access to E911 services when using interconnected VoIP services. The Order discusses how E911 service is critical to our nation's ability to respond to a host of crises and that the public has come to rely on the life-saving benefits of such services in emergency situations.[15] While the Commission sought comment on, and considered, ways that public safety could be protected through access to E911 services that are less burdensome to small businesses than the imposition of E911 obligations, the Commission concluded that it was important for *all* interconnected VoIP service providers to participate in protecting public safety. As SBA notes, many VoIP providers are likely to be small businesses.[16] SBA claims that "[t]hese small providers are developing a nascent technology and are especially vulnerable to disproportionate regulatory costs."[17] Nevertheless, as discussed in the Order, we believe it is reasonable to expect any business electing to interconnect with the PSTN to the extent required to provide interconnected VoIP service also to provide E911 service in order to protect the public interest.[18] Small businesses may still offer VoIP service without being subject to the rules adopted in today's Order by electing not to provide an *interconnected* VoIP service.[19] We therefore have provided alternatives for small entities.[20]

8. We disagree with Menard's contention that the Commission did not meet its obligations under the RFA because it failed to list as a significant alternative to the proposed rulemaking imposing economic regulation on the underlying facilities of cable carriers.[21] The rules we adopt today do apply to cable operators that provide interconnected VoIP service. Moreover, we reject the above contention as insufficient to achieve our goal of ensuring that users of interconnected VoIP service have access to E911, as well as rejecting it for the reasons already provided generally. As discussed in the Order, there currently is no way for portable VoIP providers reliably and automatically to provide location information to PSAPs without the customer's active cooperation.[22] Not only is the provider of an interconnected VoIP service the entity actively involved in routing the calls of users of interconnected VoIP service, but it is the entity that has the relationship with the customer who currently plays an essential role in providing accurate location information; hence, it is reasonable to impose E911 rules on that interconnected VoIP service provider. In addition, although the Commission determined that it was necessary to impose E911 obligations on all providers of interconnected VoIP service in order to ensure the ubiquitous availability of E911 service for users of interconnected VoIP service, the Commission minimized the burdens of this regulation by, for example, by requiring straightforward reporting

contention is incorrect. The Commission used the appropriate size standards for VoIP providers. In addition, the Commission did not adopt any special exemptions from the rules adopted today based on small business size standards, and therefore we are not obligated to obtain prior SBA approval as suggested by the VON Coalition.

[15] *See, e.g.*, Order, *supra*, at paras. 4-5.

[16] *See* SBA Comments at 4.

[17] *See id.*

[18] *See* Order, *supra*, at para. 23.

[19] *See id.* at Section III.A.

[20] *See* 5 U.S.C. § 604(a)(5).

[21] Menard Comments at 3. To the extent it is possible to interpret Menard's comments as suggesting that, in order to comply with section 603(c), the Commission must anticipate and discuss every theoretically possible alternative to the proposed rules that might accomplish the stated objectives and minimize any significant economic impact on small entities, we find that suggestion to be an unreasonable interpretation of the statute. 5 U.S.C. § 603(c).

[22] *See, e.g.*, Order, *supra*, at para. 46.

requirements and by setting reasonable timetables for implementation of the rules adopted today.[23] The Commission minimized the burdens of this regulation by not mandating any particular technical solution; interconnected VoIP providers may connect directly to the Wireline E911 Network, connect indirectly through a third party, such as a competitive local exchange carrier, or through any other solution that allows a provider to offer E911 service.[24]

9. We also disagree with Menard's contention that the Commission inappropriately failed to "weigh the impact on non-affiliated regional Internet Service Providers of the consequence for the removal of all forms of economic regulation for broadband services provided by incumbent carriers."[25] Today's Order does not remove "all forms of economic regulation for broadband services provided by incumbent carriers," and would be an inappropriate forum for reconsideration of any such decision the Commission has made in other proceedings.[26] The Commission reached its decision today in full awareness and consideration of the Commission's other rules and to that extent satisfied Menard's request and SBA's request to consider how the requirements imposed in today's Order overlap with other requirements imposed on small entities.[27]

10. Finally, we reject claims that the present proceeding is not the appropriate docket in which to address what E911 obligations should be imposed on providers of interconnected VoIP service. The Commission provided proper notice that these issues would be addressed in this proceeding, and in the *Vonage Order* made clear that questions regarding what regulatory obligations apply to providers of a type of interconnected VoIP service would be addressed in this proceeding.[28] Therefore, we do not accede to the preferences of some small businesses that the Commission resolve various other proceedings, including proceedings involving E911 requirements, prior to addressing issues in the *IP-Enabled Services* docket.[29] We reject Menard's claim that the Commission is using the present rulemaking as a way of by-passing its statutory obligations under section 10 of the Telecommunications Act of 1996 (section 10) because that statutory section is not applicable to the present situation.[30] Section 10 sets forth the Commission's obligation to forbear from existing regulation to a telecommunications carrier or a telecommunications service, or class of telecommunications carriers or telecommunications services, if certain criteria are satisfied.[31] Prior to today's Order, the Commission had not imposed E911 obligations on interconnected VoIP service providers. In addition, the Commission to date has not classified interconnected VoIP service as a telecommunications service.

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[23] *See* 5 U.S.C. § 603(c); Order, *supra*, at paras. 37, 50.

[24] *See* Order, *supra*, at para. 38.

[25] Menard Comments at 4.

[26] *See id.*

[27] *See* SBA Comments at 5 (noting that the Commission is considering in this and other proceedings such issues as disability access, intercarrier compensation and universal service obligations).

[28] *See Vonage Order*, 19 FCC Rcd at 22405, para. 2; *see also id.* at 22432, para. 44 (noting that the Commission might address 911 issues in the *IP-Enabled Services* proceeding "as soon as possible, perhaps even separately").

[29] SBA Comments at 5.

[30] 47 U.S.C. § 160.

[31] *See* 47 U.S.C. § 160.

C. *Description and Estimate of the Number of Small Entities to Which Rules Will Apply*

11. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules.[32] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[33] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[34] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[35]

12. *Small Businesses.* Nationwide, there are a total of approximately 22.4 million small businesses, according to SBA data.[36]

13. *Small Organizations.* Nationwide, there are approximately 1.6 million small organizations.[37]

14. *Small Governmental Jurisdictions.* The term "small governmental jurisdiction" is defined as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[38] As of 1997, there were approximately 87,453 governmental jurisdictions in the United States.[39] This number includes 39,044 county governments, municipalities, and townships, of which 37,546 (approximately 96.2%) have populations of fewer than 50,000, and of which 1,498 have populations of 50,000 or more. Thus, we estimate the number of small governmental jurisdictions overall to be 84,098 or fewer.

1. Telecommunications Service Entities

a. Wireline Carriers and Service Providers

15. We have included small incumbent local exchange carriers in this present RFA analysis. As noted above, a "small business" under the RFA is one that, *inter alia*, meets the pertinent small business size standard (*e.g.*, a telephone communications business having 1,500 or fewer employees), and "is not dominant in its field of operation."[40] The SBA's Office of Advocacy contends that, for RFA purposes, small incumbent local exchange carriers are not dominant in their field of operation because any such

[32] 5 U.S.C. §§ 603(b)(3), 604(a)(3).

[33] 5 U.S.C. § 601(6).

[34] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such terms which are appropriate to the activities of the agency and publishes such definitions(s) in the Federal Register."

[35] 15 U.S.C. § 632.

[36] *See* SBA, Programs and Services, SBA Pamphlet No. CO-0028, at page 40 (July 2002).

[37] Independent Sector, The New Nonprofit Almanac & Desk Reference (2002).

[38] 5 U.S.C. § 601(5).

[39] U.S. Census Bureau, Statistical Abstract of the United States: 2000, Section 9, pages 299-300, Tables 490 and 492.

[40] *Id.* § 632.

dominance is not "national" in scope.[41] We have therefore included small incumbent local exchange carriers in this RFA analysis, although we emphasize that this RFA action has no effect on Commission analyses and determinations in other, non-RFA contexts.

16. *Incumbent Local Exchange Carriers (LECs).* Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent local exchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[42] According to Commission data,[43] 1,310 carriers have reported that they are engaged in the provision of incumbent local exchange services. Of these 1,310 carriers, an estimated 1,025 have 1,500 or fewer employees and 285 have more than 1,500 employees. Consequently, the Commission estimates that most providers of incumbent local exchange service are small businesses that may be affected by our action. In addition, limited preliminary census data for 2002 indicate that the total number of wired communications carriers increased approximately 34 percent from 1997 to 2002.[44]

17. *Competitive Local Exchange Carriers (CLECs), Competitive Access Providers (CAPs), "Shared-Tenant Service Providers," and "Other Local Service Providers."* Neither the Commission nor the SBA has developed a small business size standard specifically for these service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[45] According to Commission data,[46] 563 carriers have reported that they are engaged in the provision of either competitive access provider services or competitive local exchange carrier services. Of these 563 carriers, an estimated 472 have 1,500 or fewer employees and 91 have more than 1,500 employees. In addition, 14 carriers have reported that they are "Shared-Tenant Service Providers," and all 14 are estimated to have 1.500 or fewer employees. In addition, 37 carriers have reported that they are "Other Local Service Providers." Of the 37, an estimated 36 have 1,500 or fewer employees and one has more than 1,500 employees. Consequently, the Commission estimates that most providers of competitive local exchange service, competitive access providers, "Shared-Tenant Service Providers," and "Other Local Service Providers" are small entities that may be affected by our action. In addition, limited preliminary census data for

[41] Letter from Jere W. Glover, Chief Counsel for Advocacy, SBA, to William E. Kennard, Chairman, FCC (May 27, 1999). The Small Business Act contains a definition of "small-business concern," which the RFA incorporates into its own definition of "small business." *See* 15 U.S.C. § 632(a) (Small Business Act); 5 U.S.C. § 601(3) (RFA). SBA regulations interpret "small business concern" to include the concept of dominance on a national basis. *See* 13 C.F.R. § 121.102(b).

[42] 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

[43] FCC, Wireline Competition Bureau, Industry Analysis and Technology Division, "Trends in Telephone Service" at Table 5.3, page 5-5 (May 2004) ("Trends in Telephone Service"). This source uses data that are current as of October 22, 2003.

[44] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 513310 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" increased from 20,815 to 27, 891. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[45] 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

[46] "Trends in Telephone Service" at Table 5.3.

2002 indicate that the total number of wired communications carriers increased approximately 34 percent from 1997 to 2002.[47]

18. *Local Resellers.* The SBA has developed a small business size standard for the category of Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[48] According to Commission data,[49] 127 carriers have reported that they are engaged in the provision of local resale services. Of these, an estimated 121 have 1,500 or fewer employees and six have more than 1,500 employees. Consequently, the Commission estimates that the majority of local resellers are small entities that may be affected by our action.

19. *Toll Resellers.* The SBA has developed a small business size standard for the category of Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[50] According to Commission data,[51] 645 carriers have reported that they are engaged in the provision of toll resale services. Of these, an estimated 619 have 1,500 or fewer employees and 35 have more than 1,500 employees. Consequently, the Commission estimates that the majority of toll resellers are small entities that may be affected by our action.

20. *Payphone Service Providers (PSPs).* Neither the Commission nor the SBA has developed a small business size standard specifically for payphone services providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[52] According to Commission data,[53] 613 carriers have reported that they are engaged in the provision of payphone services. Of these, an estimated 609 have 1,500 or fewer employees and four have more than 1,500 employees. Consequently, the Commission estimates that the majority of payphone service providers are small entities that may be affected by our action. In addition, limited preliminary census data for 2002 indicate that the total number of wired communications carriers increased approximately 34 percent from 1997 to 2002.[54]

21. *Interexchange Carriers (IXCs).* Neither the Commission nor the SBA has developed a small business size standard specifically for providers of interexchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[55] According to Commission data,[56] 281 carriers have reported that they are engaged in the provision of interexchange service. Of these, an estimated 254 have 1,500 or fewer employees and 27 have more than 1,500 employees. Consequently, the Commission estimates that the majority of IXCs are small entities that may be affected by our action. In addition,

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[47] *See supra* note 44.

[48] 13 C.F.R. § 121.201, NAICS code 517310 (changed from 513330 in Oct. 2002).

[49] "Trends in Telephone Service" at Table 5.3.

[50] 13 C.F.R. § 121.201, NAICS code 517310 (changed from 513330 in Oct. 2002).

[51] "Trends in Telephone Service" at Table 5.3.

[52] 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

[53] "Trends in Telephone Service" at Table 5.3.

[54] *See supra* note 44.

[55] 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

[56] "Trends in Telephone Service" at Table 5.3.

limited preliminary census data for 2002 indicate that the total number of wired communications carriers increased approximately 34 percent from 1997 to 2002.[57]

22. *Operator Service Providers (OSPs).* Neither the Commission nor the SBA has developed a small business size standard specifically for operator service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[58] According to Commission data,[59] 21 carriers have reported that they are engaged in the provision of operator services. Of these, an estimated 20 have 1,500 or fewer employees and one has more than 1,500 employees. Consequently, the Commission estimates that the majority of OSPs are small entities that may be affected by our action. In addition, limited preliminary census data for 2002 indicate that the total number of wired communications carriers increased approximately 34 percent from 1997 to 2002.[60]

23. *Prepaid Calling Card Providers.* Neither the Commission nor the SBA has developed a small business size standard specifically for prepaid calling card providers. The appropriate size standard under SBA rules is for the category Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[61] According to Commission data,[62] 40 carriers have reported that they are engaged in the provision of prepaid calling cards. Of these, all are estimated to have 1,500 or fewer employees. Consequently, the Commission estimates that all or the majority of prepaid calling card providers are small entities that may be affected by our action.

24. *800 and 800-Like Service Subscribers.*[63] Neither the Commission nor the SBA has developed a small business size standard specifically for 800 and 800-like service ("toll free") subscribers. The appropriate size standard under SBA rules is for the category Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[64] The most reliable source of information regarding the number of these service subscribers appears to be data the Commission collects on the 800, 888, and 877 numbers in use.[65] According to our data, at the end of January, 1999, the number of 800 numbers assigned was 7,692,955; the number of 888 numbers assigned was 7,706,393; and the number of 877 numbers assigned was 1,946,538. We do not have data specifying the number of these subscribers that are not independently owned and operated or have more than 1,500 employees, and thus are unable at this time to estimate with greater precision the number of toll free subscribers that would qualify as small businesses under the SBA size standard. Consequently, we estimate that there are 7,692,955 or fewer small entity 800 subscribers; 7,706,393 or fewer small entity 888 subscribers; and 1,946,538 or fewer small entity 877 subscribers.

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[57] *See supra* note 44.

[58] 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

[59] "Trends in Telephone Service" at Table 5.3.

[60] *See supra* note 44.

[61] 13 C.F.R. § 121.201, NAICS code 517310 (changed from 513330 in Oct. 2002).

[62] "Trends in Telephone Service" at Table 5.3.

[63] We include all toll-free number subscribers in this category, including those for 888 numbers.

[64] 13 C.F.R. § 121.201, NAICS code 517310 (changed from 513330 in Oct. 2002).

[65] *See* FCC, Common Carrier Bureau, Industry Analysis Division, *Study on Telephone Trends*, Tables 21.2, 21.3, and 21.4 (Feb. 1999).

b. International Service Providers

25. The Commission has not developed a small business size standard specifically for providers of international service. The appropriate size standards under SBA rules are for the two broad categories of Satellite Telecommunications and Other Telecommunications. Under both categories, such a business is small if it has $12.5 million or less in average annual receipts.[66] For the first category of Satellite Telecommunications, Census Bureau data for 1997 show that there were a total of 324 firms that operated for the entire year.[67] Of this total, 273 firms had annual receipts of under $10 million, and an additional 24 firms had receipts of $10 million to $24,999,999. Thus, the majority of Satellite Telecommunications firms can be considered small.

26. The second category – Other Telecommunications – includes "establishments primarily engaged in ... providing satellite terminal stations and associated facilities operationally connected with one or more terrestrial communications systems and capable of transmitting telecommunications to or receiving telecommunications from satellite systems."[68] According to Census Bureau data for 1997, there were 439 firms in this category that operated for the entire year.[69] Of this total, 424 firms had annual receipts of $5 million to $9,999,999 and an additional six firms had annual receipts of $10 million to $24,999,990. Thus, under this second size standard, the majority of firms can be considered small.

c. Wireless Telecommunications Service Providers

27. Below, for those services subject to auctions, we note that, as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated.

28. *Wireless Service Providers.* The SBA has developed a small business size standard for wireless firms within the two broad economic census categories of "Paging"[70] and "Cellular and Other Wireless Telecommunications."[71] Under both SBA categories, a wireless business is small if it has 1,500 or fewer employees. For the census category of Paging, Census Bureau data for 1997 show that there were 1,320 firms in this category, total, that operated for the entire year.[72] Of this total, 1,303 firms had employment of 999 or fewer employees, and an additional 17 firms had employment of 1,000 employees or more.[73] Thus, under this category and associated small business size standard, the majority of firms can be considered small. For the census category Cellular and Other Wireless Telecommunications, Census

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[66] 13 C.F.R. § 121.201, NAICS codes 517410 and 517910 (changed from 513340 and 513390 in Oct. 2002).

[67] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 513340 (issued Oct. 2000).

[68] Office of Management and Budget, North American Industry Classification System 513 (1997) (NAICS code 513390, changed to 517910 in Oct. 2002).

[69] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 513390 (issued Oct. 2000).

[70] 13 C.F.R. § 121.201, NAICS code 513321 (changed to 517211 in October 2002).

[71] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[72] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513321 (issued October 2000).

[73] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

Bureau data for 1997 show that there were 977 firms in this category, total, that operated for the entire year.[74] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[75] Thus, under this second category and size standard, the majority of firms can, again, be considered small. In addition, limited preliminary census data for 2002 indicate that the total number of paging providers decreased approximately 51 percent from 1997 to 2002.[76] In addition, limited preliminary census data for 2002 indicate that the total number of cellular and other wireless telecommunications carriers increased approximately 321 percent from 1997 to 2002.[77]

29. *Cellular Licensees.* The SBA has developed a small business size standard for wireless firms within the broad economic census category "Cellular and Other Wireless Telecommunications."[78] Under this SBA category, a wireless business is small if it has 1,500 or fewer employees. For the census category Cellular and Other Wireless Telecommunications firms, Census Bureau data for 1997 show that there were 977 firms in this category, total, that operated for the entire year.[79] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[80] Thus, under this category and size standard, the great majority of firms can be considered small. Also, according to Commission data, 45 carriers reported that they were engaged in the provision of cellular service, Personal Communications Service (PCS), or Specialized Mobile Radio (SMR) Telephony services, which are placed together in the data.[81] We have estimated that 245 of these are small, under the SBA small business size standard.[82]

30. *Common Carrier Paging.* The SBA has developed a small business size standard for wireless firms within the broad economic census category, "Cellular and Other Wireless Telecommunications."[83] Under this SBA category, a wireless business is small if it has 1,500 or fewer employees. For the census

[74] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued October 2000).

[75] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

[76] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 513321 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" decreased from 3,427 to 1,664. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[77] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 513322 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" increased from 2,959 to 9,511. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[78] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[79] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued October 2000).

[80] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

[81] "Trends in Telephone Service" at Table 5.3.

[82] *Id.*

[83] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

category of Paging, Census Bureau data for 1997 show that there were 1,320 firms in this category, total, that operated for the entire year.[84] Of this total, 1,303 firms had employment of 999 or fewer employees, and an additional 17 firms had employment of 1,000 employees or more.[85] Thus, under this category and associated small business size standard, the majority of firms can be considered small. In the Paging *Third Report and Order*, we developed a small business size standard for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[86] A "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years. Additionally, a "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years.[87] The SBA has approved these small business size standards.[88] An auction of Metropolitan Economic Area licenses commenced on February 24, 2000, and closed on March 2, 2000.[89] Of the 985 licenses auctioned, 440 were sold. Fifty-seven companies claiming small business status won. Also, according to Commission data, 346 carriers reported that they were engaged in the provision of paging and messaging services.[90] Of those, we estimate that 341 are small, under the SBA-approved small business size standard.[91]

31. *Wireless Communications Services*. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission established small business size standards for the wireless communications services (WCS) auction. A "small business" is an entity with average gross revenues of $40 million for each of the three preceding years, and a "very small business" is an entity with average gross revenues of $15 million for each of the three preceding years. The SBA has approved these small business size standards.[92] The Commission auctioned geographic area licenses in the WCS service. In the auction, there were seven winning bidders that qualified as "very small business" entities, and one that qualified as a "small business" entity.

32. *Wireless Telephony*. Wireless telephony includes cellular, personal communications services (PCS), and specialized mobile radio (SMR) telephony carriers. As noted earlier, the SBA has developed a small business size standard for "Cellular and Other Wireless Telecommunications" services.[93] Under

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[84] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513321 (issued October 2000).

[85] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

[86] *Amendment of Part 90 of the Commission's Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service*, PR Docket No. 89-552, Third Report and Order and Fifth Notice of Proposed Rulemaking, 12 FCC Rcd 10943, 11068-70, paras. 291-295, 62 FR 16004 (Apr. 3, 1997).

[87] *See* Letter to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC, from A. Alvarez, Administrator, SBA (Dec. 2, 1998) (SBA Dec. 2, 1998 letter).

[88] *Revision of Part 22 and Part 90 of the Commission's Rules to Facilitate Future Development of Paging Systems*, Memorandum Opinion and Order on Reconsideration and Third Report and Order, 14 FCC Rcd 10030, paras. 98-107 (1999).

[89] *Id.* at 10085, para. 98.

[90] "Trends in Telephone Service" at Table 5.3.

[91] *Id.*

[92] SBA Dec. 2, 1998 letter.

[93] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

that SBA small business size standard, a business is small if it has 1,500 or fewer employees.[94] According to Commission data, 445 carriers reported that they were engaged in the provision of wireless telephony.[95] We have estimated that 245 of these are small under the SBA small business size standard.

33. *Broadband Personal Communications Service.* The broadband Personal Communications Service (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission defined "small entity" for Blocks C and F as an entity that has average gross revenues of $40 million or less in the three previous calendar years.[96] For Block F, an additional classification for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years."[97] These standards defining "small entity" in the context of broadband PCS auctions have been approved by the SBA.[98] No small businesses, within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that qualified as small entities in the Block C auctions. A total of 93 small and very small business bidders won approximately 40 percent of the 1,479 licenses for Blocks D, E, and F.[99] On March 23, 1999, the Commission re-auctioned 347 C, D, E, and F Block licenses. There were 48 small business winning bidders. On January 26, 2001, the Commission completed the auction of 422 C and F Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in this auction, 29 qualified as "small" or "very small" businesses. Subsequent events, concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant.

34. *Narrowband Personal Communications Services.* To date, two auctions of narrowband personal communications services (PCS) licenses have been conducted. For purposes of the two auctions that have already been held, "small businesses" were entities with average gross revenues for the prior three calendar years of $40 million or less. Through these auctions, the Commission has awarded a total of 41 licenses, out of which 11 were obtained by small businesses. To ensure meaningful participation of small business entities in future auctions, the Commission has adopted a two-tiered small business size standard in the *Narrowband PCS Second Report and Order.*[100] A "small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $40 million. A "very small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $15 million. The SBA has approved these small business size standards.[101] In the future, the Commission

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[94] *Id.*

[95] "Trends in Telephone Service" at Table 5.3.

[96] *See Amendment of Parts 20 and 24 of the Commission's Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap*, WT Docket No. 96-59, Report and Order, 11 FCC Rcd 7824, 61 FR 33859 (July 1, 1996) (*PCS Order*); *see also* 47 C.F.R. § 24.720(b).

[97] *See PCS Order*, 11 FCC Rcd 7824.

[98] *See, e.g., Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, PP Docket No. 93-253, Fifth Report and Order, 9 FCC Rcd 5332, 59 FR 37566 (July 22, 1994).

[99] FCC News, Broadband PCS, D, E and F Block Auction Closes, No. 71744 (rel. Jan. 14, 1997); *see also Amendment of the Commission's Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licenses*, WT Docket No. 97-82, Second Report and Order, 12 FCC Rcd 16436, 62 FR 55348 (Oct. 24, 1997).

[100] *Amendment of the Commission's Rules to Establish New Personal Communications Services, Narrowband PCS*, Docket No. ET 92-100, Docket No. PP 93-253, Second Report and Order and Second Further Notice of Proposed Rulemaking, 15 FCC Rcd 10456, 65 FR 35875 (June 6, 2000).

[101] *See* SBA Dec. 2, 1998 letter.

will auction 459 licenses to serve Metropolitan Trading Areas (MTAs) and 408 response channel licenses. There is also one megahertz of narrowband PCS spectrum that has been held in reserve and that the Commission has not yet decided to release for licensing. The Commission cannot predict accurately the number of licenses that will be awarded to small entities in future auctions. However, four of the 16 winning bidders in the two previous narrowband PCS auctions were small businesses, as that term was defined. The Commission assumes, for purposes of this analysis, that a large portion of the remaining narrowband PCS licenses will be awarded to small entities. The Commission also assumes that at least some small businesses will acquire narrowband PCS licenses by means of the Commission's partitioning and disaggregation rules.

35. *220 MHz Radio Service – Phase I Licensees.* The 220 MHz service has both Phase I and Phase II licenses. Phase I licensing was conducted by lotteries in 1992 and 1993. There are approximately 1,515 such non-nationwide licensees and four nationwide licensees currently authorized to operate in the 220 MHz band. The Commission has not developed a small business size standard for small entities specifically applicable to such incumbent 220 MHz Phase I licensees. To estimate the number of such licensees that are small businesses, we apply the small business size standard under the SBA rules applicable to "Cellular and Other Wireless Telecommunications" companies. This category provides that a small business is a wireless company employing no more than 1,500 persons.[102] For the census category Cellular and Other Wireless Telecommunications, Census Bureau data for 1997 show that there were 977 firms in this category, total, that operated for the entire year.[103] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[104] Thus, under this second category and size standard, the majority of firms can, again, be considered small. Assuming this general ratio continues in the context of Phase I 220 MHz licensees, the Commission estimates that nearly all such licensees are small businesses under the SBA's small business size standard. In addition, limited preliminary census data for 2002 indicate that the total number of cellular and other wireless telecommunications carriers increased approximately 321 percent from 1997 to 2002.[105]

36. *220 MHz Radio Service – Phase II Licensees.* The 220 MHz service has both Phase I and Phase II licenses. The Phase II 220 MHz service is a new service, and is subject to spectrum auctions. In the *220 MHz Third Report and Order*, we adopted a small business size standard for "small" and "very small" businesses for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[106] This small business size standard indicates that a "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years.[107] A "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that do not exceed $3 million for

[102] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[103] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued October 2000).

[104] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

[105] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 513322 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" increased from 2,959 to 9,511. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[106] *220 MHz Third Report and Order*, 12 FCC Rcd 10943, 11068-70, paras. 291-295 (1997).

[107] *Id.* at 11068, para. 291.

the preceding three years. The SBA has approved these small business size standards.[108] Auctions of Phase II licenses commenced on September 15, 1998, and closed on October 22, 1998.[109] In the first auction, 908 licenses were auctioned in three different-sized geographic areas: three nationwide licenses, 30 Regional Economic Area Group (EAG) Licenses, and 875 Economic Area (EA) Licenses. Of the 908 licenses auctioned, 693 were sold.[110] Thirty-nine small businesses won licenses in the first 220 MHz auction. The second auction included 225 licenses: 216 EA licenses and 9 EAG licenses. Fourteen companies claiming small business status won 158 licenses.[111]

37. *800 MHz and 900 MHz Specialized Mobile Radio Licenses.* The Commission awards "small entity" and "very small entity" bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than $15 million in each of the three previous calendar years, or that had revenues of no more than $3 million in each of the previous calendar years, respectively.[112] These bidding credits apply to SMR providers in the 800 MHz and 900 MHz bands that either hold geographic area licenses or have obtained extended implementation authorizations. The Commission does not know how many firms provide 800 MHz or 900 MHz geographic area SMR service pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than $15 million. One firm has over $15 million in revenues. The Commission assumes, for purposes here, that all of the remaining existing extended implementation authorizations are held by small entities, as that term is defined by the SBA. The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz SMR bands. There were 60 winning bidders that qualified as small or very small entities in the 900 MHz SMR auctions. Of the 1,020 licenses won in the 900 MHz auction, bidders qualifying as small or very small entities won 263 licenses. In the 800 MHz auction, 38 of the 524 licenses won were won by small and very small entities.

38. *700 MHz Guard Band Licensees.* In the *700 MHz Guard Band Order*, we adopted a small business size standard for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[113] A "small business" as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years. Additionally, a "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years. An auction of 52 Major Economic Area (MEA) licenses commenced on September 6, 2000, and closed on September 21, 2000.[114] Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13,

[108] *See* Letter to D. Phythyon, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from A. Alvarez, Administrator, Small Business Administration (Jan. 6, 1998).

[109] *See generally* Public Notice, "220 MHz Service Auction Closes," 14 FCC Rcd 605 (1998).

[110] *See, e.g.*, Public Notice, "FCC Announces It is Prepared to Grant 654 Phase II 220 MHz Licenses After Final Payment is Made," 14 FCC Rcd 1085 (1999).

[111] Public Notice, "Phase II 220 MHz Service Spectrum Auction Closes," 14 FCC Rcd 11218 (1999).

[112] 47 C.F.R. § 90.814(b)(1).

[113] *See Service Rules for the 746-764 MHz Bands, and Revisions to part 27 of the Commission's Rules*, WT Docket No. 99-168, Second Report and Order, 65 FR 17599 (Apr. 4, 2000).

[114] *See generally* Public Notice, "220 MHz Service Auction Closes," Report No. WT 98-36 (Oct. 23, 1998).

2001 and closed on February 21, 2001. *All eight of the licenses auctioned were sold to three bidders.* One of these bidders was a small business that won a total of two licenses.[115]

39. *Rural Radiotelephone Service.* The Commission has not adopted a size standard for small businesses specific to the Rural Radiotelephone Service.[116] A significant subset of the Rural Radiotelephone Service is the Basic Exchange Telephone Radio System (BETRS).[117] The Commission uses the SBA's small business size standard applicable to "Cellular and Other Wireless Telecommunications," *i.e.*, an entity employing no more than 1,500 persons.[118] There are approximately 1,000 licensees in the Rural Radiotelephone Service, and the Commission estimates that there are 1,000 or fewer small entity licensees in the Rural Radiotelephone Service that may be affected by the rules and policies adopted herein.

40. *Air-Ground Radiotelephone Service.* The Commission has not adopted a small business size standard specific to the Air-Ground Radiotelephone Service.[119] We will use SBA's small business size standard applicable to "Cellular and Other Wireless Telecommunications," *i.e.*, an entity employing no more than 1,500 persons.[120] There are approximately 100 licensees in the Air-Ground Radiotelephone Service, and we estimate that almost all of them qualify as small under the SBA small business size standard.

41. *Aviation and Marine Radio Services.* Small businesses in the aviation and marine radio services use a very high frequency (VHF) marine or aircraft radio and, as appropriate, an emergency position-indicating radio beacon (and/or radar) or an emergency locator transmitter. The Commission has not developed a small business size standard specifically applicable to these small businesses. For purposes of this analysis, the Commission uses the SBA small business size standard for the category "Cellular and Other Telecommunications," which is 1,500 or fewer employees.[121] Most applicants for recreational licenses are individuals. Approximately 581,000 ship station licensees and 131,000 aircraft station licensees operate domestically and are not subject to the radio carriage requirements of any statute or treaty. For purposes of our evaluations in this analysis, we estimate that there are up to approximately 712,000 licensees that are small businesses (or individuals) under the SBA standard. In addition, between December 3, 1998 and December 14, 1998, the Commission held an auction of 42 VHF Public Coast licenses in the 157.1875-157.4500 MHz (ship transmit) and 161.775-162.0125 MHz (coast transmit) bands. For purposes of the auction, the Commission defined a "small" business as an entity that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed $15 million dollars. In addition, a "very small" business is one that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed $3 million dollars.[122] There are approximately 10,672 licensees in the Marine Coast Service, and the Commission estimates that almost all of them qualify as "small" businesses under the above special small business size standards.

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[115] Public Notice, "700 MHz Guard Band Auction Closes," DA 01-478 (rel. Feb. 22, 2001).

[116] The service is defined in section 22.99 of the Commission's Rules, 47 C.F.R. § 22.99.

[117] BETRS is defined in sections 22.757 and 22.759 of the Commission's Rules, 47 C.F.R. §§ 22.757 and 22.759.

[118] 13 C.F.R. § 121.201, NAICS code 517212.

[119] The service is defined in section 22.99 of the Commission's Rules, 47 C.F.R. § 22.99.

[120] 13 C.F.R. § 121.201, NAICS codes 517212.

[121] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[122] *Amendment of the Commission's Rules Concerning Maritime Communications*, PR Docket No. 92-257, Third Report and Order and Memorandum Opinion and Order, 13 FCC Rcd 19853 (1998).

42. *Fixed Microwave Services.* Fixed microwave services include common carrier,[123] private operational-fixed,[124] and broadcast auxiliary radio services.[125] At present, there are approximately 22,015 common carrier fixed licensees and 61,670 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services. The Commission has not created a size standard for a small business specifically with respect to fixed microwave services. For purposes of this analysis, the Commission uses the SBA small business size standard for the category "Cellular and Other Telecommunications," which is 1,500 or fewer employees.[126] The Commission does not have data specifying the number of these licensees that have more than 1,500 employees, and thus is unable at this time to estimate with greater precision the number of fixed microwave service licensees that would qualify as small business concerns under the SBA's small business size standard. Consequently, the Commission estimates that there are up to 22,015 common carrier fixed licensees and up to 61,670 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services that may be small and may be affected by the rules and policies adopted herein. We noted, however, that the common carrier microwave fixed licensee category includes some large entities.

43. *Offshore Radiotelephone Service.* This service operates on several UHF television broadcast channels that are not used for television broadcasting in the coastal areas of states bordering the Gulf of Mexico.[127] There are presently approximately 55 licensees in this service. We are unable to estimate at this time the number of licensees that would qualify as small under the SBA's small business size standard for "Cellular and Other Wireless Telecommunications" services.[128] Under that SBA small business size standard, a business is small if it has 1,500 or fewer employees.[129]

44. *39 GHz Service.* The Commission created a special small business size standard for 39 GHz licenses – an entity that has average gross revenues of $40 million or less in the three previous calendar years.[130] An additional size standard for "very small business" is: an entity that, together with affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[131] The SBA has approved these small business size standards.[132] The auction of the 2,173 39 GHz licenses

[123] *See* 47 C.F.R. §§ 101 *et seq.* (formerly, Part 21 of the Commission's Rules) for common carrier fixed microwave services (except Multipoint Distribution Service).

[124] Persons eligible under parts 80 and 90 of the Commission's Rules can use Private Operational-Fixed Microwave services. *See* 47 C.F.R. Parts 80 and 90. Stations in this service are called operational-fixed to distinguish them from common carrier and public fixed stations. Only the licensee may use the operational-fixed station, and only for communications related to the licensee's commercial, industrial, or safety operations.

[125] Auxiliary Microwave Service is governed by Part 74 of Title 47 of the Commission's rules. *See* 47 C.F.R. Part 74. This service is available to licensees of broadcast stations and to broadcast and cable network entities. Broadcast auxiliary microwave stations are used for relaying broadcast television signals from the studio to the transmitter, or between two points such as a main studio and an auxiliary studio. The service also includes mobile television pickups, which relay signals from a remote location back to the studio.

[126] 13 C.F.R. § 121.201, NAICS code 517212.

[127] This service is governed by Subpart I of Part 22 of the Commission's rules. *See* 47 C.F.R. §§ 22.1001-22.1037.

[128] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[129] *Id.*

[130] *See Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands*, ET Docket No. 95-183, Report and Order, 63 Fed. Reg. 6079 (Feb. 6, 1998).

[131] *Id.*

[132] *See* Letter to Kathleen O'Brien Ham, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC, from Aida Alvarez, Administrator, SBA (Feb. 4, 1998).

began on April 12, 2000 and closed on May 8, 2000. The 18 bidders who claimed small business status won 849 licenses. Consequently, the Commission estimates that 18 or fewer 39 GHz licensees are small entities that may be affected by the rules and polices adopted herein.

45. *Multipoint Distribution Service, Multichannel Multipoint Distribution Service, and ITFS.* Multichannel Multipoint Distribution Service (MMDS) systems, often referred to as "wireless cable," transmit video programming to subscribers using the microwave frequencies of the Multipoint Distribution Service (MDS) and Instructional Television Fixed Service (ITFS).[133] In connection with the 1996 MDS auction, the Commission established a small business size standard as an entity that had annual average gross revenues of less than $40 million in the previous three calendar years.[134] The MDS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas (BTAs). Of the 67 auction winners, 61 met the definition of a small business. MDS also includes licensees of stations authorized prior to the auction. In addition, the SBA has developed a small business size standard for Cable and Other Program Distribution, which includes all such companies generating $12.5 million or less in annual receipts.[135] According to Census Bureau data for 1997, there were a total of 1,311 firms in this category, total, that had operated for the entire year.[136] Of this total, 1,180 firms had annual receipts of under $10 million and an additional 52 firms had receipts of $10 million or more but less than $25 million. Consequently, we estimate that the majority of providers in this service category are small businesses that may be affected by the rules and policies adopted herein. This SBA small business size standard also appears applicable to ITFS. There are presently 2,032 ITFS licensees. All but 100 of these licenses are held by educational institutions. Educational institutions are included in this analysis as small entities.[137] Thus, we tentatively conclude that at least 1,932 licensees are small businesses.

46. *Local Multipoint Distribution Service.* Local Multipoint Distribution Service (LMDS) is a fixed broadband point-to-multipoint microwave service that provides for two-way video telecommunications.[138] The auction of the 1,030 Local Multipoint Distribution Service (LMDS) licenses began on February 18, 1998 and closed on March 25, 1998. The Commission established a small business size standard for LMDS licenses as an entity that has average gross revenues of less than $40 million in the three previous calendar years.[139] An additional small business size standard for "very small business" was added as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[140] The SBA has approved these small business

[133] *Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, MM Docket No. 94-131 and PP Docket No. 93-253, Report and Order, 10 FCC Rcd 9589, 9593, para. 7 (1995).

[134] 47 C.F.R. § 21.961(b)(1).

[135] 13 C.F.R. § 121.201, NAICS code 513220 (changed to 517510 in October 2002).

[136] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)", Table 4, NAICS code 513220 (issued October 2000).

[137] In addition, the term "small entity" within SBREFA applies to small organizations (nonprofits) and to small governmental jurisdictions (cities, counties, towns, townships, villages, school districts, and special districts with populations of less than 50,000). 5 U.S.C. §§ 601(4)-(6). We do not collect annual revenue data on ITFS licensees.

[138] *See Local Multipoint Distribution Service*, Second Report and Order, 12 FCC Rcd 12545 (1997).

[139] *Id.*

[140] *See id.*

size standards in the context of LMDS auctions.[141] There were 93 winning bidders that qualified as small entities in the LMDS auctions. A total of 93 small and very small business bidders won approximately 277 A Block licenses and 387 B Block licenses. On March 27, 1999, the Commission re-auctioned 161 licenses; there were 40 winning bidders. Based on this information, we conclude that the number of small LMDS licenses consists of the 93 winning bidders in the first auction and the 40 winning bidders in the re-auction, for a total of 133 small entity LMDS providers.

47. *218-219 MHz Service.* The first auction of 218-219 MHz spectrum resulted in 170 entities winning licenses for 594 Metropolitan Statistical Area (MSA) licenses. Of the 594 licenses, 557 were won by entities qualifying as a small business. For that auction, the small business size standard was an entity that, together with its affiliates, has no more than a $6 million net worth and, after federal income taxes (excluding any carry over losses), has no more than $2 million in annual profits each year for the previous two years.[142] In the *218-219 MHz Report and Order and Memorandum Opinion and Order*, we established a small business size standard for a "small business" as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and their affiliates, has average annual gross revenues not to exceed $15 million for the preceding three years.[143] A "very small business" is defined as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and its affiliates, has average annual gross revenues not to exceed $3 million for the preceding three years.[144] We cannot estimate, however, the number of licenses that will be won by entities qualifying as small or very small businesses under our rules in future auctions of 218-219 MHz spectrum.

48. *24 GHz – Incumbent Licensees.* This analysis may affect incumbent licensees who were relocated to the 24 GHz band from the 18 GHz band, and applicants who wish to provide services in the 24 GHz band. The applicable SBA small business size standard is that of "Cellular and Other Wireless Telecommunications" companies. This category provides that such a company is small if it employs no more than 1,500 persons.[145] According to Census Bureau data for 1997, there were 977 firms in this category, total, that operated for the entire year.[146] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[147] Thus, under this size standard, the great majority of firms can be considered small. These broader census data notwithstanding, we believe that there are only two licensees in the 24 GHz band that were relocated from the 18 GHz band, Teligent[148] and TRW, Inc. It is our understanding that Teligent and its related

[141] *See* Letter to Dan Phythyon, Chief, Wireless Telecommunications Bureau, FCC, from Aida Alvarez, Administrator, SBA (Jan. 6, 1998).

[142] *Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, PP Docket No. 93-253, Fourth Report and Order, 59 Fed. Reg. 24947 (May 13, 1994).

[143] *Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service*, WT Docket No. 98-169, Report and Order and Memorandum Opinion and Order, 64 Fed. Reg. 59656 (Nov. 3, 1999).

[144] *Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service*, WT Docket No. 98-169, Report and Order and Memorandum Opinion and Order, 64 Fed. Reg. 59656 (Nov. 3, 1999).

[145] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[146] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Employment Size of Firms Subject to Federal Income Tax: 1997," Table 5, NAICS code 513322 (issued Oct. 2000).

[147] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1,000 employees or more."

[148] Teligent acquired the DEMS licenses of FirstMark, the only licensee other than TRW in the 24 GHz band whose license has been modified to require relocation to the 24 GHz band.

companies have less than 1,500 employees, though this may change in the future. TRW is not a small entity. Thus, only one incumbent licensee in the 24 GHz band is a small business entity.

49. *24 GHz – Future Licensees.* With respect to new applicants in the 24 GHz band, the small business size standard for "small business" is an entity that, together with controlling interests and affiliates, has average annual gross revenues for the three preceding years not in excess of $15 million.[149] "Very small business" in the 24 GHz band is an entity that, together with controlling interests and affiliates, has average gross revenues not exceeding $3 million for the preceding three years.[150] The SBA has approved these small business size standards.[151] These size standards will apply to the future auction, if held.

2. Cable and OVS Operators

50. *Cable and Other Program Distribution.* This category includes cable systems operators, closed circuit television services, direct broadcast satellite services, multipoint distribution systems, satellite master antenna systems, and subscription television services. The SBA has developed small business size standard for this census category, which includes all such companies generating $12.5 million or less in revenue annually.[152] According to Census Bureau data for 1997, there were a total of 1,311 firms in this category, total, that had operated for the entire year.[153] Of this total, 1,180 firms had annual receipts of under $10 million and an additional 52 firms had receipts of $10 million or more but less than $25 million. Consequently, the Commission estimates that the majority of providers in this service category are small businesses that may be affected by the rules and policies adopted herein.

51. *Cable System Operators (Rate Regulation Standard).* The Commission has developed its own small business size standard for cable system operators, for purposes of rate regulation. Under the Commission's rules, a "small cable company" is one serving fewer than 400,000 subscribers nationwide.[154] The most recent estimates indicate that there were 1,439 cable operators who qualified as small cable system operators at the end of 1995.[155] Since then, some of those companies may have grown to serve over 400,000 subscribers, and others may have been involved in transactions that caused them to be combined with other cable operators. Consequently, the Commission estimates that there are now fewer than 1,439 small entity cable system operators that may be affected by the rules and policies adopted herein.

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[149] *Amendments to Parts 1,2, 87 and 101 of the Commission's Rules to License Fixed Services at 24 GHz*, Report and Order, 15 FCC Rcd 16934, 16967 (2000); *see also* 47 C.F.R. § 101.538(a)(2).

[150] *Amendments to Parts 1,2, 87 and 101 of the Commission's Rules to License Fixed Services at 24 GHz*, Report and Order, 15 FCC Rcd 16934, 16967 (2000); *see also* 47 C.F.R. § 101.538(a)(1).

[151] *See* Letter to Margaret W. Wiener, Deputy Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC, from Gary M. Jackson, Assistant Administrator, SBA (July 28, 2000).

[152] 13 C.F.R. § 121.201, North American Industry Classification System (NAICS) code 513220 (changed to 517510 in October 2002).

[153] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 513220 (issued October 2000).

[154] 47 C.F.R. § 76.901(e). The Commission developed this definition based on its determination that a small cable system operator is one with annual revenues of $100 million or less. *Implementation of Sections of the 1992 Cable Act: Rate Regulation,* Sixth Report and Order and Eleventh Order on Reconsideration, 10 FCC Rcd 7393 (1995), 60 FR 10534 (Feb. 27, 1995).

[155] Paul Kagan Associates, Inc., *Cable TV Investor*, February 29, 1996 (based on figures for December 30, 1995).

52. *Cable System Operators (Telecom Act Standard).* The Communications Act of 1934, as amended, also contains a size standard for small cable system operators, which is "a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1 percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed $250,000,000."[156] The Commission has determined that there are 67,700,000 subscribers in the United States.[157] Therefore, an operator serving fewer than 677,000 subscribers shall be deemed a small operator, if its annual revenues, when combined with the total annual revenues of all its affiliates, do not exceed $250 million in the aggregate.[158] Based on available data, the Commission estimates that the number of cable operators serving 677,000 subscribers or fewer, totals 1,450.[159] The Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed $250 million,[160] and therefore are unable, at this time, to estimate more accurately the number of cable system operators that would qualify as small cable operators under the size standard contained in the Communications Act of 1934.

53. *Open Video Services.* Open Video Service (OVS) systems provide subscription services.[161] The SBA has created a small business size standard for Cable and Other Program Distribution.[162] This standard provides that a small entity is one with $12.5 million or less in annual receipts. The Commission has certified approximately 25 OVS operators to serve 75 areas, and some of these are currently providing service.[163] Affiliates of Residential Communications Network, Inc. (RCN) received approval to operate OVS systems in New York City, Boston, Washington, D.C., and other areas. RCN has sufficient revenues to assure that they do not qualify as a small business entity. Little financial information is available for the other entities that are authorized to provide OVS and are not yet operational. Given that some entities authorized to provide OVS service have not yet begun to generate revenues, the Commission concludes that up to 24 OVS operators (those remaining) might qualify as small businesses that may be affected by the rules and policies adopted herein.

3. Internet Service Providers

54. *Internet Service Providers.* The SBA has developed a small business size standard for Internet Service Providers (ISPs). ISPs "provide clients access to the Internet and generally provide related services such as web hosting, web page designing, and hardware or software consulting related to Internet connectivity."[164] Under the SBA size standard, such a business is small if it has average annual

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[156] 47 U.S.C. § 543(m)(2).

[157] *See FCC Announces New Subscriber Count for the Definition of Small Cable Operator*, Public Notice DA 01-158 (Jan. 24, 2001).

[158] 47 C.F.R. § 76.901(f).

[159] *See FCC Announces New Subscriber Count for the Definition of Small Cable Operators*, Public Notice, DA 01-0158 (rel. Jan. 24, 2001).

[160] The Commission does receive such information on a case-by-case basis if a cable operator appeals a local franchise authority's finding that the operator does not qualify as a small cable operator pursuant to § 76.901(f) of the Commission's rules. *See* 47 C.F.R. § 76.909(b).

[161] *See* 47 U.S.C. § 573.

[162] 13 C.F.R. § 121.201, NAICS code 513220 (changed to 517510 in October 2002).

[163] *See* <http://www.fcc.gov/csb/ovs/csovscer.html> (current as of March 2002).

[164] U.S. Census Bureau, "2002 NAICS Definitions: 518111 Internet Service Providers" (Feb. 2004) <www.census.gov>.

receipts of $21 million or less.[165] According to Census Bureau data for 1997, there were 2,751 firms in this category that operated for the entire year.[166] Of these, 2,659 firms had annual receipts of under $10 million, and an additional 67 firms had receipts of between $10 million and $24, 999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action. In addition, limited preliminary census data for 2002 indicate that the total number of internet service providers increased approximately five percent from 1997 to 2002.[167]

4. Other Internet-Related Entities

55. *Web Search Portals.* Our action pertains to VoIP services, which could be provided by entities that provide other services such as email, online gaming, web browsing, video conferencing, instant messaging, and other, similar IP-enabled services. The Commission has not adopted a size standard for entities that create or provide these types of services or applications. However, the census bureau has identified firms that "operate web sites that use a search engine to generate and maintain extensive databases of Internet addresses and content in an easily searchable format. Web search portals often provide additional Internet services, such as e-mail, connections to other web sites, auctions, news, and other limited content, and serve as a home base for Internet users."[168] The SBA has developed a small business size standard for this category; that size standard is $6 million or less in average annual receipts.[169] According to Census Bureau data for 1997, there were 195 firms in this category that operated for the entire year.[170] Of these, 172 had annual receipts of under $5 million, and an additional nine firms had receipts of between $5 million and $9,999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action.

56. *Data Processing, Hosting, and Related Services.* Entities in this category "primarily ... provid[e] infrastructure for hosting or data processing services."[171] The SBA has developed a small business size standard for this category; that size standard is $21 million or less in average annual receipts.[172] According to Census Bureau data for 1997, there were 3,700 firms in this category that

[165] 13 C.F.R. § 121.201, NAICS code 518111 (changed from previous code 514191, "On-Line Information Services," in Oct. 2002).

[166] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 514191 (issued Oct. 2000).

[167] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 514191 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" increased from 4,165 to 4,394. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[168] U.S. Census Bureau, "2002 NAICS Definitions: 518112 Web Search Portals" (Feb. 2004) <www.census.gov>.

[169] 13 C.F.R. § 121.201, NAICS code 518112 (changed from 514199 in Oct. 2002).

[170] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 514199 (issued Oct. 2000). This category was created for the 2002 Economic Census by taking a portion of the superseded 1997 category, "All Other Information Services," NAICS code 514199. The data cited in the text above are derived from the superseded category.

[171] U.S. Census Bureau, "2002 NAICS Definitions: 518210 Data Processing, Hosting, and Related Services" (Feb. 2004) <www.census.gov>.

[172] 13 C.F.R. § 121.201, NAICS code 518210 (changed from 514210 in Oct. 2002).

operated for the entire year.[173] Of these, 3,477 had annual receipts of under $10 million, and an additional 108 firms had receipts of between $10 million and $24,999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action.

57. *All Other Information Services.* "This industry comprises establishments primarily engaged in providing other information services (except new syndicates and libraries and archives)."[174] Our action pertains to VoIP services, which could be provided by entities that provide other services such as email, online gaming, web browsing, video conferencing, instant messaging, and other, similar IP-enabled services. The SBA has developed a small business size standard for this category; that size standard is $6 million or less in average annual receipts.[175] According to Census Bureau data for 1997, there were 195 firms in this category that operated for the entire year.[176] Of these, 172 had annual receipts of under $5 million, and an additional nine firms had receipts of between $5 million and $9,999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action.

58. *Internet Publishing and Broadcasting.* "This industry comprises establishments engaged in publishing and/or broadcasting content on the Internet exclusively. These establishments do not provide traditional (non-Internet) versions of the content that they publish or broadcast."[177] The SBA has developed a small business size standard for this new (2002) census category; that size standard is 500 or fewer employees.[178] To assess the prevalence of small entities in this category, we will use 1997 Census Bureau data for a relevant, now-superseded census category, "All Other Information Services." The SBA small business size standard for that prior category was $6 million or less in average annual receipts. According to Census Bureau data for 1997, there were 195 firms in the prior category that operated for the entire year.[179] Of these, 172 had annual receipts of under $5 million, and an additional nine firms had receipts of between $5 million and $9,999,999. Consequently, we estimate that the majority of these firms in this current category are small entities that may be affected by our action.

59. *Software Publishers.* These companies may design, develop or publish software and may provide other support services to software purchasers, such as providing documentation or assisting in installation. The companies may also design software to meet the needs of specific users. The SBA has developed a small business size standard of $[illegible] million or less in average annual receipts for all of the following pertinent categories: Software Publishers, Custom Computer Programming Services, and Other Computer Related Services.[180] For Software Publishers, Census Bureau data for 1997 indicate that

[173] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 514210 (issued Oct. 2000).

[174] U.S. Census Bureau, "2002 NAICS Definitions: 519190 All Other Information Services" (Feb. 2004) <www.census.gov>.

[175] 13 C.F.R. § 121.201, NAICS code 519190 (changed from 514199 in Oct. 2002).

[176] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 514199 (issued Oct. 2000). This category was created for the 2002 Economic Census by taking a portion of the superseded 1997 category, "All Other Information Services," NAICS code 514199. The data cited in the text above are derived from the superseded category.

[177] U.S. Census Bureau, "2002 NAICS Definitions: 516110 Internet Publishing and Broadcasting" (Feb. 2004) <www.census.gov>.

[178] 13 C.F.R. § 121.201, NAICS code 516110 (derived from 514199 and other 1997 codes).

[179] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 514199 (issued Oct. 2000). This category was created for the 2002 Economic Census by taking portions of numerous 1997 categories.

[180] 13 C.F.R. § 121.201, NAICS codes 511210, 541511, and 541519.

there were 8,188 firms in the category that operated for the entire year.[181] Of these, 7,633 had annual receipts under $10 million, and an additional 289 firms had receipts of between $10 million and $24,999,999. For providers of Custom Computer Programming Services, the Census Bureau data indicate that there were 19,334 firms that operated for the entire year.[182] Of these, 18,786 had annual receipts of under $10 million, and an additional 352 firms had receipts of between $10 million and $24,999,999. For providers of Other Computer Related Services, the Census Bureau data indicate that there were 5,524 firms that operated for the entire year.[183] Of these, 5,484 had annual receipts of under $10 million, and an additional 28 firms had receipts of between $10 million and $24,999,999. Consequently, we estimate that the majority of the firms in each of these three categories are small entities that may be affected by our action.

5. Equipment Manufacturers

60. The equipment manufacturers described in this section are merely indirectly affected by our current action, and therefore are not formally a part of this RFA analysis. We have included them, however, to broaden the record in this proceeding and to alert them to our decisions.

61. *Wireless Communications Equipment Manufacturers*. The SBA has established a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. Examples of products in this category include "transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment"[184] and may include other devices that transmit and receive IP-enabled services, such as personal digital assistants (PDAs). Under the SBA size standard, firms are considered small if they have 750 or fewer employees.[185] According to Census Bureau data for 1997, there were 1,215 establishments[186] in this category that operated for the entire year.[187] Of those, there were 1,150 that had employment of under 500, and an additional 37 that had employment of 500 to 999. The percentage of wireless equipment manufacturers in this category was approximately 61.35%,[188] so we estimate that the number of wireless equipment manufacturers with

[181] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 511210 (issued Oct. 2000).

[182] U.S. Census Bureau, 1997 Economic Census, Subject Series: Professional, Scientific, and Technical Services, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4a, NAICS code 541511 (issued Oct. 2000).

[183] U.S. Census Bureau, 1997 Economic Census, Subject Series: Professional, Scientific, and Technical Services, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4a, NAICS code 541519 (issued Oct. 2000).

[184] Office of Management and Budget, North American Industry Classification System 308-09 (1997) (NAICS code 334220).

[185] 13 C.F.R. § 121.201, NAICS code 334220.

[186] The number of "establishments" is a less helpful indicator of small business prevalence in this context than would be the number of "firms" or "companies," because the latter take into account the concept of common ownership or control. Any single physical location for an entity is an establishment, even though that location may be owned by a different establishment. Thus, the numbers given may reflect inflated numbers of businesses in this category, including the numbers of small businesses. In this category, the Census breaks-out data for firms or companies only to give the total number of such entities for 1997, which were 1,089.

[187] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Industry Statistics by Employment Size," Table 4, NAICS code 334220 (issued Aug. 1999).

[188] *Id.* at Table 5.

employment of under 500 was actually closer to 706, with and additional 23 establishments having employment of between 500 and 999. Consequently, we estimate that the majority of wireless communications equipment manufacturers are small entities that may be affected by our action.

62. *Telephone Apparatus Manufacturing.* This category "comprises establishments primarily engaged primarily in manufacturing wire telephone and data communications equipment."[189] Examples of pertinent products are "central office switching equipment, cordless telephones (except cellular), PBX equipment, telephones, telephone answering machines, and data communications equipment, such as bridges, routers, and gateways."[190] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[191] According to Census Bureau data for 1997, there were 598 establishments in this category that operated for the entire year.[192] Of these, 574 had employment of under 1,000, and an additional 17 establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

63. *Electronic Computer Manufacturing.* This category "comprises establishments primarily engaged in manufacturing and/or assembling electronic computers, such as mainframes, personal computers, workstations, laptops, and computer servers."[193] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[194] According to Census Bureau data for 1997, there were 563 establishments in this category that operated for the entire year.[195] Of these, 544 had employment of under 1,000, and an additional 11 establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

64. *Computer Terminal Manufacturing.* "Computer terminals are input/output devices that connect with a central computer for processing."[196] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[197] According to Census Bureau data for 1997, there were 142 establishments in this category that operated for the entire year, and all of the establishments had employment of under 1,000.[198] Consequently, we estimate that the majority or all of these establishments are small entities that may be affected by our action.

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[189] Office of Management and Budget, North American Industry Classification System 308 (1997) (NAICS code 334210).

[190] *Id.*

[191] 13 C.F.R. § 121.201, NAICS code 334210.

[192] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Telephone Apparatus Manufacturing," Table 4, NAICS code 334210 (issued Sept. 1999).

[193] Office of Management and Budget, North American Industry Classification System 306 (1997) (NAICS code 334111).

[194] 13 C.F.R. § 121.201, NAICS code 334111.

[195] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electronic Computer Manufacturing," Table 4, NAICS code 334111 (issued Aug. 1999).

[196] Office of Management and Budget, North American Industry Classification System 307 (1997) (NAICS code 334113).

[197] 13 C.F.R. § 121.201, NAICS code 334113.

[198] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Computer Terminal Manufacturing," Table 4, NAICS code 334113 (issued Aug. 1999).

65. *Other Computer Peripheral Equipment Manufacturing.* Examples of peripheral equipment in this category include keyboards, mouse devices, monitors, and scanners.[199] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[200] According to Census Bureau data for 1997, there were 1061 establishments in this category that operated for the entire year.[201] Of these, 1,046 had employment of under 1,000, and an additional six establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

66. *Fiber Optic Cable Manufacturing.* These establishments manufacture "insulated fiber-optic cable from purchased fiber-optic strand."[202] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[203] According to Census Bureau data for 1997, there were 38 establishments in this category that operated for the entire year.[204] Of these, 37 had employment of under 1,000, and one establishment had employment of 1,000 to 2,499. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

67. *Other Communication and Energy Wire Manufacturing.* These establishments manufacture "insulated wire and cable of nonferrous metals from purchased wire."[205] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[206] According to Census Bureau data for 1997, there were 275 establishments in this category that operated for the entire year.[207] Of these, 271 had employment of under 1,000, and four establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority or all of these establishments are small entities that may be affected by our action.

68. *Audio and Video Equipment Manufacturing.* These establishments manufacture "electronic audio and video equipment for home entertainment, motor vehicle, public address and musical instrument amplifications."[208] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 750 or fewer employees.[209] According to Census Bureau data for

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[199] Office of Management and Budget, North American Industry Classification System 307-08 (1997) (NAICS code 334119).

[200] 13 C.F.R. § 121.201, NAICS code 334119.

[201] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Other Computer Peripheral Equipment Manufacturing," Table 4, NAICS code 334119 (issued Aug. 1999).

[202] Office of Management and Budget, North American Industry Classification System 330 (1997) (NAICS code 335921).

[203] 13 C.F.R. § 121.201, NAICS code 335921.

[204] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Fiber Optic Cable Manufacturing," Table 4, NAICS code 335921 (issued Nov. 1999).

[205] Office of Management and Budget, North American Industry Classification System 331 (1997) (NAICS code 335929).

[206] 13 C.F.R. § 121.201, NAICS code 335929.

[207] U.S. Census Bureau, 1997 Economic Census. Industry Series: Manufacturing, "Other Communication and Energy Wire Manufacturing," Table 4, NAICS code 335929 (issued Nov. 1999).

[208] U.S. Census Bureau, "2002 NAICS Definitions: 334310 Audio and Video Equipment Manufacturing" (Feb. 2004) <www.census.gov>.

[209] 13 C.F.R. § 121.201, NAICS code 334310.

1997, there were 554 establishments in this category that operated for the entire year.[210] Of these, 542 had employment of under 500, and nine establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

69. *Electron Tube Manufacturing.* These establishments are "primarily engaged in manufacturing electron tubes and parts (except glass blanks)."[211] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 750 or fewer employees.[212] According to Census Bureau data for 1997, there were 158 establishments in this category that operated for the entire year.[213] Of these, 148 had employment of under 500, and three establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

70. *Bare Printed Circuit Board Manufacturing.* These establishments are "primarily engaged in manufacturing bare (i.e., rigid or flexible) printed circuit boards without mounted electronic components."[214] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[215] According to Census Bureau data for 1997, there were 1,389 establishments in this category that operated for the entire year.[216] Of these, 1,369 had employment of under 500, and 16 establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

71. *Semiconductor and Related Device Manufacturing.* These establishments manufacture "computer storage devices that allow the storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media."[217] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[218] According to Census Bureau data for 1997, there were 1,082 establishments in this category that operated for the entire year.[219] Of these, 987 had employment of under 500, and 52 establishments had employment of 500 to 999.

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[210] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Audio and Video Equipment Manufacturing," Table 4, NAICS code 334310 (issued Aug. 1999).

[211] U.S. Census Bureau, "2002 NAICS Definitions: 334411 Electron Tube Manufacturing" (Feb. 2004) <www.census.gov>.

[212] 13 C.F.R. § 121.201, NAICS code 334411.

[213] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electron Tube Manufacturing," Table 4, NAICS code 334411 (issued July 1999).

[214] U.S. Census Bureau, "2002 NAICS Definitions: 334412 Bare Printed Circuit Board Manufacturing" (Feb. 2004) <www.census.gov>.

[215] 13 C.F.R. § 121.201, NAICS code 334412.

[216] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Bare Printed Circuit Board Manufacturing," Table 4, NAICS code 334412 (issued Aug. 1999).

[217] U.S. Census Bureau, "2002 NAICS Definitions: 334413 Semiconductor and Related Device Manufacturing" (Feb. 2004) <www.census.gov>.

[218] 13 C.F.R. § 121.201, NAICS code 334413.

[219] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Semiconductor and Related Device Manufacturing ," Table 4, NAICS code 334413 (issued July 1999).

72. *Electronic Capacitor Manufacturing.* These establishments manufacture "electronic fixed and variable capacitors and condensers."[220] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[221] According to Census Bureau data for 1997, there were 128 establishments in this category that operated for the entire year.[222] Of these, 121 had employment of under 500, and four establishments had employment of 500 to 999.

73. *Electronic Resistor Manufacturing.* These establishments manufacture "electronic resistors, such as fixed and variable resistors, resistor networks, thermistors, and varistors."[223] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[224] According to Census Bureau data for 1997, there were 118 establishments in this category that operated for the entire year.[225] Of these, 113 had employment of under 500, and 5 establishments had employment of 500 to 999.

74. *Electronic Coil, Transformer, and Other Inductor Manufacturing.* These establishments manufacture "electronic inductors, such as coils and transformers."[226] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[227] According to Census Bureau data for 1997, there were 448 establishments in this category that operated for the entire year.[228] Of these, 446 had employment of under 500, and two establishments had employment of 500 to 999.

75. *Electronic Connector Manufacturing.* These establishments manufacture "electronic connectors, such as coaxial, cylindrical, rack and panel, pin and sleeve, printed circuit and fiber optic."[229] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[230] According to Census Bureau data for 1997, there were 347 establishments in this category that operated for the entire year.[231] Of these, 332 had employment of under 500, and 12 establishments had employment of 500 to 999.

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[220] U.S. Census Bureau, "2002 NAICS Definitions: 334414 Electronic Capacitor Manufacturing" (Feb. 2004) <www.census.gov>.

[221] 13 C.F.R. § 121.201, NAICS code 334414.

[222] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electronic Capacitor Manufacturing," Table 4, NAICS code 334414 (issued July 1999).

[223] U.S. Census Bureau, "2002 NAICS Definitions: 334415 Electronic Resistor Manufacturing" (Feb. 2004) <www.census.gov>.

[224] 13 C.F.R. § 121.201, NAICS code 334415.

[225] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electronic Resistor Manufacturing," Table 4, NAICS code 334415 (issued Aug. 1999).

[226] U.S. Census Bureau, "2002 NAICS Definitions: 334416 Electronic Coil, Transformer, and Other Inductor Manufacturing" (Feb. 2004) <www.census.gov>.

[227] 13 C.F.R. § 121.201, NAICS code 334416.

[228] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electronic Coil, Transformer, and Other Inductor Manufacturing," Table 4, NAICS code 334416 (issued Aug. 1999).

[229] U.S. Census Bureau, "2002 NAICS Definitions: 334417 Electronic Connector Manufacturing" (Feb. 2004) <www.census.gov>.

[230] 13 C.F.R. § 121.201, NAICS code 334417.

[231] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electronic Connector Manufacturing," Table 4, NAICS code 334417 (issued July 1999).

76. *Printed Circuit Assembly (Electronic Assembly) Manufacturing.* These are establishments "primarily engaged in loading components onto printed circuit boards or who manufacture and ship loaded printed circuit boards."[232] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[233] According to Census Bureau data for 1997, there were 714 establishments in this category that operated for the entire year.[234] Of these, 673 had employment of under 500, and 24 establishments had employment of 500 to 999.

77. *Other Electronic Component Manufacturing.* These are establishments "primarily engaged in loading components onto printed circuit boards or who manufacture and ship loaded printed circuit boards."[235] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[236] According to Census Bureau data for 1997, there were 1,835 establishments in this category that operated for the entire year.[237] Of these, 1,814 had employment of under 500, and 18 establishments had employment of 500 to 999.

78. *Computer Storage Device Manufacturing.* These establishments manufacture "computer storage devices that allow the storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media."[238] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[239] According to Census Bureau data for 1997, there were 209 establishments in this category that operated for the entire year.[240] Of these, 197 had employment of under 500, and eight establishments had employment of 500 to 999

D. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements

79. We are requiring interconnected VoIP service providers to collect certain information and take other actions to comply with our rules requiring interconnected VoIP service providers to supply E911 capabilities to their customers. The Order requires collection of information in four instances. First, interconnected VoIP providers must obtain from each customer, prior to the initiation of service, the physical location at which the service will first be utilized, and must provide customers a way to update this information (*i.e.*, the "Registered Location").[241] Second, interconnected VoIP providers must place the Registered Location information for their customers into, or make that information available through,

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[232] U.S. Census Bureau, "2002 NAICS Definitions: 334418 Printed Circuit Assembly (Electronic Assembly) Manufacturing" (Feb. 2004) <www.census.gov>.

[233] 13 C.F.R. § 121.201, NAICS code 334418.

[234] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Printed Circuit Assembly (Electronic Assembly) Manufacturing," Table 4, NAICS code 334418 (issued Sept. 1999).

[235] U.S. Census Bureau, "2002 NAICS Definitions: 334419 Other Electronic Component Manufacturing" (Feb. 2004) <www.census.gov>.

[236] 13 C.F.R. § 121.201, NAICS code 334419.

[237] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Other Electronic Component Manufacturing," Table 4, NAICS code 334419 (issued Aug. 1999).

[238] U.S. Census Bureau, "2002 NAICS Definitions: 334112 Computer Storage Device Manufacturing" (Feb. 2004) <www.census.gov>.

[239] 13 C.F.R. § 121.201, NAICS code 334112.

[240] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Computer Storage Device Manufacturing," Table 4, NAICS code 334112 (issued July 1999).

[241] The term "Registered Location" is defined in the Order, *supra*, at para. 46.