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

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In the Matter of)
)
Implementation of Section 6002(b) of the)
Omnibus Budget Reconciliation Act of 1993)
)
Annual Report and Analysis of Competitive)
Market Conditions With Respect to Commercial)
Mobile Services)
)

WT Docket No. 07-71
(Terminated)

TWELFTH REPORT

Adopted: January 28, 2008

Released: February 4, 2008

By the Commission: Chairman Martin, Commissioners Tate and McDowell issuing separate statements;
Commissioner Copps approving in part, concurring in part and issuing a statement.

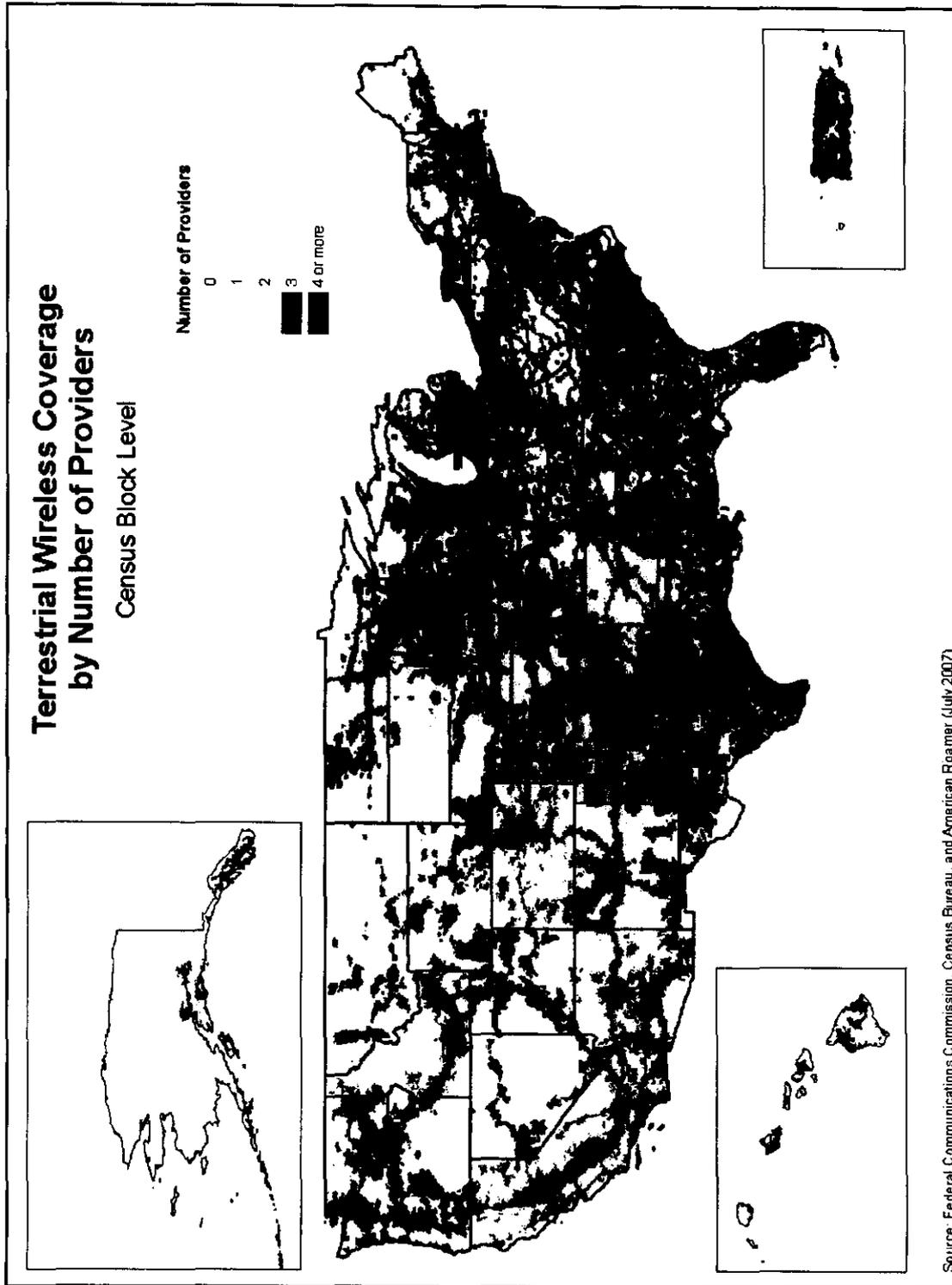
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Map 1: Mobile Telephone Competitors



I. EXECUTIVE SUMMARY

1. U.S. consumers continue to reap significant benefits – including low prices, new technologies, improved service quality, and choice among providers – from competition in the Commercial Mobile Radio Services (“CMRS”) marketplace, both terrestrial and satellite CMRS. (Unless specifically noted, discussions of mobile telephone, wireless, and CMRS services, providers, subscribers, and other metrics in the *Twelfth Report* refer to and include only terrestrial, rather than both terrestrial and satellite, services.) The metrics below indicate that there is effective competition in the CMRS market and demonstrate the increasingly significant role that wireless services play in the lives of American consumers. In particular, these metrics indicate that wireless technology is increasingly being used to provide a range of mobile broadband services.

2. The *Twelfth Report* relies on an additional data source allowing for a more granular and accurate analysis of mobile telephone service deployment and competition. This source is a set of maps available through a contract with American Roamer, which provide the detailed boundaries of the network coverage areas of every operational mobile telephone carrier in the United States. Using these maps, the Federal Communications Commission (“FCC” or “Commission”) has been able to estimate the percentage of the U.S. population covered by a certain number of providers and the percentage of the population covered by different types of network technologies, including mobile broadband technologies. The Commission is now able to base these estimates on census blocks, rather than counties. Because census blocks are much smaller than counties (there are 8 million census blocks versus 3,200 counties in the United States), this allows for a significantly more accurate and granular assessment.

Number of Providers & Network Deployment

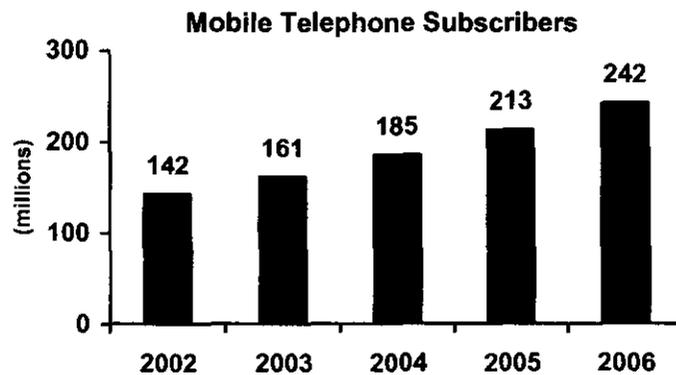
- Approximately 99.8 percent of the total U.S. population, have one or more different operators (cellular, PCS, and/or SMR) offering mobile telephone service in the census blocks in which they live.
- Approximately 99.3 percent of the U.S. population living in rural counties, or 60.6 million people, have one or more different operators offering mobile telephone service in the census blocks within the rural counties in which they live.
- More than 95 percent of the U.S. population lives in areas with at least three mobile telephone operators competing to offer service, and more than half of the population lives in areas with at least five competing operators.

Estimated Mobile Telephone Rollouts by Census Block					
Total Number of Providers in a block	Number of Blocks	POPs Contained in Those Blocks*	% of Total US POPs	Square Miles Contained in Those Blocks	% of Total US Square Miles
1 or More	8,126,003	284,743,328	99.8%	2,878,602	75.8%
2 or More	7,745,336	282,506,517	99.0%	2,327,573	61.3%
3 or More	6,732,406	272,480,505	95.5%	1,514,964	39.9%
4 or More	5,630,876	256,537,904	89.9%	931,285	24.5%
5 or More	3,579,328	162,065,639	56.8%	503,717	13.3%
6 or More	1,372,438	62,273,212	21.8%	176,124	4.6%
7 or More	233,959	10,206,476	3.6%	29,906	0.8%

*Based on Census 2000.

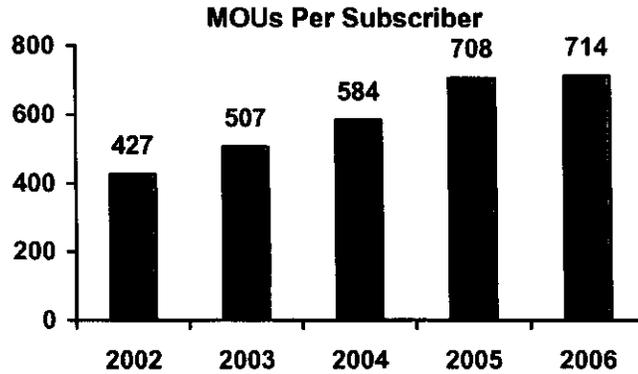
- An analysis of service provision by census block, including and excluding federal land, shows similar population coverage. By comparison, an examination of geographic coverage shows a higher percentage of geographic coverage when excluding federal lands. For example, approximately 76 percent of the total United States land area is covered by one or more providers, compared to approximately 85 percent of the land area when excluding federal land.
- Concentration in the U.S. mobile telephone market, as measured by the Herfindahl-Hirschman Index (“HHI”), declined from 2706 at the end of 2005 to 2674 at the end of 2006. No single competitor has a dominant share of the market.
- More than 150 companies identified themselves as terrestrial mobile wireless carriers in the FCC’s local competition and broadband data gathering program.
- In addition to facilities-based mobile telephone operators, the CMRS industry also includes mobile telephone resellers and Mobile Virtual Network Operators (“MVNOs”), mobile satellite service providers, and various broadband and narrowband data service providers.

Subscribers



- At the end of 2006, there were 241.8 million mobile telephone subscribers in the United States, up from 213 million at the end of 2005.
- The additional 28.8 million subscribers represent the largest absolute yearly increase in the number of subscribers ever.
- The nationwide mobile penetration rate at year end 2006 rose to approximately 80 percent of the approximately 300 million people in the United States.

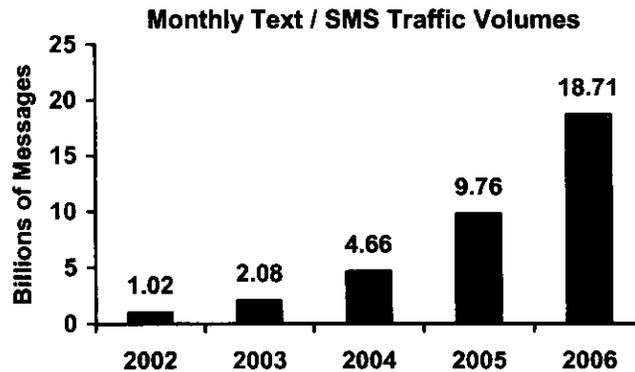
Usage



Voice:

- Average minutes-of-use per subscriber per month (“MOUs”) rose to about 714 minutes in the second half of 2006, up from 708 minutes in the same period of 2005.

Text Messaging:

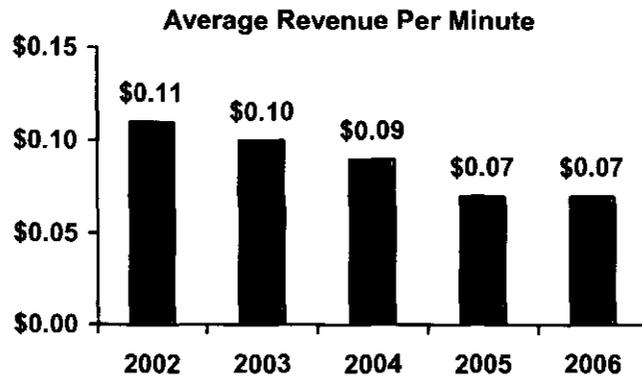


- The monthly volume of text messaging traffic grew to 18.7 billion messages during December 2006, up from 9.8 billion messages during December 2005 and the 4.7 billion messages during December 2004.

Other Data Services:

- The volume of photo messaging and other types of multimedia messaging traffic more than doubled in the past year, rising from 1.1 billion messages in 2005 to 2.7 billion messages in 2006.
- An estimated 10.7 percent of U.S. mobile telephone subscribers browsed the mobile Web for news and information in the three-month period ending May 31, 2007, up from 9.9 percent in the first quarter of 2006.

Prices



- On average U.S. mobile subscribers paid about \$0.07 per minute for mobile voice calls in December 2006 based on an estimate of average revenue per minute (“RPM”).
- After declining 85 percent from \$0.47 in December 1994 to \$0.07 in December 2005, RPM in December 2006 was unchanged from the previous year.
- The *Twelfth Report* includes an analysis “Voice RPM,” which excludes that portion of Average Revenue Per Minute (“ARPU”) generated by data services, for the first time. While overall RPM remained unchanged during 2006, voice RPM declined 5 percent.
- The percentage of the major U.S. operators’ customers who subscribe to prepaid plans rose from 13 percent at the end of 2005 to roughly 15 percent at the end of 2006.

New Technologies and Services

- During 2006 and 2007, wireless providers have continued to deploy mobile broadband networks, such as CDMA EV-DO and WCDMA/HSDPA, which allow typical downstream data transfer speeds of 400-800 kbps.
 - Approximately 82 percent of the U.S. population lives in census blocks with at least one mobile broadband provider.
 - The two nationwide CDMA operators are upgrading their EV-DO networks with EV-DO Revision A (“Rev. A”), which increases average downstream speeds to 600 kbps-1.4 Mbps and significantly improves average uplink speeds to 350-800 kbps.
 - EV-DO/EV-DO Rev. A networks cover 82 percent of the U.S. population, based on census blocks, and WCDMA/HSDPA networks cover 43 percent.
 - As of December 31, 2006, 21.9 million mobile wireless devices capable of accessing the Internet at broadband speeds were in use in the United States, versus 3.1 million at the end of 2005.
- New and innovative mobile services and devices launched during the past year include:
 - A live mobile TV service launched by Verizon Wireless using Qualcomm’s MediaFLO network.
 - The Apple iPhone, launched by AT&T in June 2007, combines the communications functions of a cellphone with the music and video features of an iPod and a web-browser that makes it easy for users to browse and navigate the entire Web.
 - Location-based services for mobile devices that rely on global positioning system

(“GPS”) technology, including search services that help shoppers locate products and businesses, and a service that enables users to track the locations of friends.

Auctions & New Entry

- In the FCC’s 2006 Advanced Wireless Services (“AWS”) auction, a new entrant acquired spectrum licenses covering approximately 275 million people, giving it a near-nationwide spectrum footprint.
- Several smaller, incumbent regional operators acquired AWS licenses that will enable them to expand their coverage and gain entry into new regional markets.
- One of the four nationwide mobile operators increased its spectrum holdings in existing markets, giving it the additional bandwidth needed to launch a mobile broadband network to compete with the broadband services offered by rival providers.
- More than half of the winning bidders in the AWS auction were designated entities, and those entities won 20 percent of all the licenses sold.
- Eighty-four megahertz of spectrum is made available in the 700 MHz band, including 62 megahertz that will be auctioned in Auction 73, scheduled to begin January 24, 2008. The remaining 22 megahertz of spectrum has already been auctioned and licensed.
- With the addition of spectrum made available in the AWS and Lower 700 MHz auctions, there are now 12 different companies that hold wireless licenses that cover more than 1 million square miles of the United States and can be used to provide CMRS. Of these, four hold spectrum licenses covering the entire land area, and thus population, of the United States, with a fifth holding spectrum licenses covering virtually the entire population of the United States.

Churn

- Most mobile telephone providers report churn rates between 1.5 percent and 3.0 percent per month.
- Approximately 10.3 million wireless subscribers ported their phone number to another wireless carrier during 2006, slightly lower than 10.6 million who ported their phone numbers during 2005.

Service Quality

- The J.D. Power and Associates 2007 Wireless Call Quality Performance Study (Volume 2), released in September 2007, found that the number of reported wireless call quality problems declined for a third consecutive reporting period, reaching the lowest levels in the five-year history of the study.
- The number of customer-reported call quality problems is 15 problems per 100 calls, down 29 percent from the same interviewing period in 2006 (21 problems per 100 calls).

International Comparisons

- The U.S. mobile penetration rate is now, for the first time, on par with those in Japan and part of Western Europe.

- U.S. mobile subscribers lead the world in average voice usage by a wide margin, with Western European subscribers averaging 150 minutes and Japanese subscribers averaging 145 minutes, compared to an average of over 700 minutes in the U.S.
- The percentage of mobile subscribers who use their cellphones for web browsing was slightly higher in the United States than in Western Europe, and there were broad similarities in the types of information accessed by American and Western European mobile subscribers.
- Mobile calls were significantly less expensive on a per minute basis in the United States than in Western Europe (where RPM averaged \$0.20 in the last quarter of 2006) and Japan (\$0.26).

Wireless-Wireline Competition

- During the second half of 2006, 11.8 percent of U.S. adults lived in households with only wireless phones, up from 7.8 percent in the second half of 2005, and triple the percentage (3.5 percent) in the second half of 2003.
- As of the same period, one in four adults aged 18-24 years lived in households with only wireless telephones, and nearly 30 percent of adults aged 25-29 years lived in wireless-only households.

Wireless-Wireline Convergence

- The past year saw the increased availability of mobile handsets with Wi-Fi data service capability, including the iPhone, T-Mobile's Dash™ and Wing™ handsets, and Sprint Nextel's Mogul™ device.
- T-Mobile and Cincinnati Bell launched dual-mode cellular-Wi-Fi handsets designed to make voice calls on cellular GSM networks and at Wi-Fi hot spots (both home and public) using voice-over-Wi-Fi technology, with seamless handoff between the two types of networks. These add-on services improve indoor coverage and allow consumers to avoid using their monthly cellular airtime minutes while at home.

Mobile Satellite Services

- At the end of 2006, there were approximately 1.1 million mobile satellite service ("MSS") subscribers in the United States, a 27 percent increase over year-end 2005.
- Currently, there are five MSS operators that provide voice and/or data service in the U.S. The voice providers include Globalstar, Inmarsat, Iridium and MSV. In addition, Orbcomm provides data-only services.
- Two other companies, ICO and TerreStar, have been authorized to provide service in the 2 GHz band. They are planning to launch satellites in late 2007 and 2008, respectively.
- MSS providers are introducing innovative pricing plans such as Globalstar's five-year unlimited monthly talking plan, starting at \$49.99 per month, decreasing to \$39.99 in year two and \$29.99 for years three through five.
- In 2003, the Commission permitted MSS licensees to provide an Ancillary Terrestrial Component ("ATC") to their satellite systems to assist their signals when not in line-of-sight. The satellite industry is optimistic about the potential positive effects of the ATC order

commenting that:

- MSS/ATC providers will offer user equipment that resembles traditional mobile consumer devices, they will be able to take better advantage of economies of scale for equipment, making it possible for them to offer high quality voice, broadband, and other services to their subscribers at prices that more closely approximate those of cellular and PCS operators.

II. INTRODUCTION

A. Background

3. In 1993, Congress created the statutory classification of Commercial Mobile Services¹ to promote the consistent regulation of mobile radio services that are similar in nature.² At the same time, Congress established the promotion of competition as a fundamental goal for CMRS policy formation and regulation. To measure progress toward this goal, Congress required the Commission to submit annual reports that analyze competitive conditions in the industry.³ This report is the twelfth of the Commission's annual reports⁴ on the state of CMRS competition.⁵ The report is retrospective, focusing

¹ Commercial Mobile Services came to be known as the Commercial Mobile Radio Services, or "CMRS." CMRS includes a large number of terrestrial services and some mobile satellite services. See 47 C.F.R. § 20.9(10).

² The Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI, § 6002(b), amending the Communications Act of 1934 and codified at 47 U.S.C. § 332(c). As in the past, this report bases its analysis on a consumer-oriented view of wireless services by focusing on specific product categories, regardless of their regulatory classification. In some cases, this includes an analysis of offerings outside the umbrella of "services" specifically designated by the Commission as CMRS. However, because providers of these other services can compete with CMRS providers, the Commission believes that it is important to consider them in the analysis. As the Commission said, paraphrasing the Department of Justice/Federal Trade Commission guidelines on merger review, "When one product is a reasonable substitute for the other in the eyes of consumers, it is to be included in the relevant product market even though the products themselves are not identical." Application of Echostar Communications Corporation, General Motors Corporation, and Hughes Electronics Corporation (Transferors) and Echostar Communications Corporation (Transferee), *Hearing Designation Order*, 17 FCC Rcd 20559, 20606 (2002).

³ 47 U.S.C. § 332(c)(1)(C).

⁴ See Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *First Report*, 10 FCC Rcd 8844 (1995) ("*First Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Second Report*, 12 FCC Rcd 11266 (1997) ("*Second Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Third Report*, 13 FCC Rcd 19746 (1998) ("*Third Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Fourth Report*, 14 FCC Rcd 10145 (1999) ("*Fourth Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Fifth Report*, 15 FCC Rcd 17660 (2000) ("*Fifth Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Sixth Report*, 16 FCC Rcd 13350 (2001) ("*Sixth Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Seventh Report*, 17 FCC Rcd 12985 (2002) ("*Seventh Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Eighth Report*, 18 FCC Rcd 14783 (2003) ("*Eighth Report*"); Implementation of Section 6002(b) of the Omnibus Budget (continued....)

on conditions prevailing in the CMRS marketplace as of the end of the 2006 calendar year and major events in the 2007 calendar year.

4. The statute requiring the annual report on CMRS competition states,

The Commission shall review competitive market conditions with respect to commercial mobile services and shall include in its annual report an analysis of those conditions. Such analysis shall include an identification of the number of competitors in various commercial mobile services, an analysis of whether or not there is effective competition, an analysis of whether any of such competitors have a dominant share of the market for such services, and a statement of whether additional providers or classes of providers in those services would be likely to enhance competition.⁶

5. With the *Twelfth Report*, we continue to comply with each of the four statutory requirements for analyzing competitive market conditions with respect to commercial mobile services. As in previous reports, we base our analysis of competitive market conditions on a range of standard indicators commonly used for the assessment of effective competition. Since the *Ninth Report*, we have organized the presentation of the various indicators to conform to a framework that groups such indicators into four distinct categories (A) Market Structure, (B) Provider Conduct, (C) Consumer Behavior, and (D) Market Performance.⁷ This framework provides a systematic approach to addressing the four statutory requirements. For example, Section III on market structure identifies the number of competitors in various commercial mobile services, and it also uses subscriber market shares to measure concentration in mobile telephone markets. In addition, Section III tracks the entry of additional providers or classes of providers in commercial mobile services, and more generally provides an analysis of the conditions affecting the ability of additional providers or classes of providers to enter the market for commercial mobile services. As stated in earlier reports, the framework proceeds from the premise that indicators of market structure such as the number of competitors and their market shares are not, by themselves, a sufficient basis for determining whether there is effective competition, and whether any of the competitors have a dominant share of the market for commercial mobile services. Rather, we make these determinations based on an analysis of both the structural and the behavioral characteristics of the CMRS marketplace.

B. Structure of Report

6. As noted above, the structure of the *Twelfth Report* conforms to a framework that groups

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Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Ninth Report*, 19 FCC Rcd 20597 (2004) ("*Ninth Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Tenth Report*, 20 FCC Rcd 15908 (2005) ("*Tenth Report*"); Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Eleventh Report*, 21 FCC Rcd 10947 (2006) ("*Eleventh Report*"). The reports can also be found on the FCC's web site at <<http://wireless.fcc.gov/cmrsreports.html>>.

⁵ This report, like the others before it, discusses CMRS as a whole because Congress called on the Commission to report on "competitive market conditions with respect to commercial mobile services." 47 U.S.C. § 332(c)(1)(C). Any individual proceeding in which the Commission defines relevant product and geographic markets, such as an application for approval of a license transfer, may present facts pointing to narrower or broader markets than any used, suggested, or implied in this report.

⁶ 47 U.S.C. § 332 (c)(1)(C).

⁷ *Ninth Report*, at 20602-20603 and 20607.

the indicators of competitive market conditions into four distinct categories (A) Market Structure; (B) Provider Conduct; (C) Consumer Behavior; and (D) Market Performance. The final section – on market performance – evaluates the outcomes of competitive conditions in the CMRS industry from the consumer’s point of view, focusing on the benefits to consumers of competition such as lower prices, higher consumption, and better quality. In contrast, the sections on market structure, provider conduct, and consumer behavior examine the various structural and behavioral determinants of such market outcomes.

7. In using this framework to analyze competitive market conditions with respect to CMRS, we have integrated the discussion and analysis of mobile voice and mobile data services within each of the four categories of indicators. Many mobile voice operators also offer mobile data services using the same spectrum, network facilities, and customer equipment. Furthermore, many U.S. mobile providers have integrated the marketing of mobile voice and data services. For these reasons, we find it reasonable to analyze competitive conditions with respect to these services together.⁸

8. In previous reports, we also identified, and distinguished from such integrated mobile operators, mobile data providers that offer only mobile data services, instead of both voice and data services, including those providers that offer such data-only services on networks distinct from those traditionally used to provide mobile voice. Such providers were termed “data-only providers.” In this report, we have divided the providers formerly included in this category into two separate groups: broadband data providers and narrowband data providers. The first group comprises providers other than mobile telephone operators that offer portable or mobile wireless broadband Internet access and other broadband services, and the second group encompasses providers that offer messaging and other narrowband mobile data services, such as paging and telemetry services, to enterprise customers. In addition, for the first time in this report we identify a new category of service provider, called mobile video providers, which operate networks dedicated to delivering one-way, IP-based, broadcast or multicast video programming to mobile telephone customers.

9. As in previous reports, the *Twelfth Report* includes an analysis of wireless-to-wireline competition. However, since such “intermodal” competition is distinct from “intra-modal” competition among the various wireless providers, we have placed our analysis of wireless-to-wireline competition in a separate section on intermodal issues (Section VII), following the sections on market structure, provider conduct, consumer behavior and market performance within the CMRS industry. In addition to the analysis of wireless-to-wireline competition, Section VII also provides a brief discussion of Wireless Local Area Networks and Wireless-Wireline Convergence. Although both CMRS and WLAN services are wireless services, WLAN services are based on a different wireless technology and spectrum model than CMRS, and they have the potential to act as a substitute as well as a complement to data services offered over mobile telephone networks.

10. In previous reports, we integrated the discussion and analysis of the terrestrial mobile services sector and the mobile satellite services sector within each of the four categories of indicators. By contrast, in the *Twelfth Report*, we have provided a more detailed discussion and analysis of the mobile satellite services sector and placed it in a separate section (Section VIII) of the report.

III. MOBILE TELECOMMUNICATIONS MARKET STRUCTURE

11. The analysis in this section covers two distinct aspects of mobile telecommunications

⁸ Although we integrate the analysis of mobile voice and data service providers, we define separate product markets for mobile voice services and mobile data services. See Section III.A, Services and Product Market Definition, *infra*. Accordingly, our integration of the analysis of mobile voice and data services in the context of this report should not be taken as an indication that the Commission will consider mobile voice and data services as belonging in the same product market in a different context.

market structure. The first is the current level of horizontal concentration as reflected in the number of providers competing in the various mobile service markets and their respective market shares. The second is the ease or difficulty of entry into the various mobile service markets, with particular emphasis on the way spectrum allocation and availability affect entry conditions and barriers to entry.

12. As background to the discussion of horizontal concentration and entry conditions, Sections III.A and III.B provide an overview of the various types of CMRS services and service providers. Following the analysis of the current level of horizontal concentration in Section III.C, Section III.D examines recent or impending transactions that affect, or have the potential to affect, the level of horizontal concentration. Section III.E examines entry conditions and provides an overview of the different frequency bands that can be used to provide CMRS. The final section, III.F, addresses structural differences between rural and non-rural mobile telecommunications markets in the United States.

A. Services and Product Market Definition

13. Since CMRS encompasses a variety of terrestrial and satellite services, an important initial step in analyzing the structure of the mobile telecommunications market is to define the relevant product market for each of these services. The basic economic principle for defining the scope of the relevant product market is to include two mobile services in the same product market if they are essentially interchangeable from the perspective of most consumers – that is, if consumers view them as close substitutes. For the purposes of this report, relatively narrow product market definitions will be used, with a separate product market identified for each of the following services: interconnected mobile voice; mobile data; and mobile satellite service. However, the identification of separate markets for each service in the context of this report does not preclude the possibility that, in a different context, the Commission may find that two or more of these services belong in the same product market. The Commission may also find that certain types of mobile voice or data services (for example, nationwide calling plans, paging services) constitute a separate relevant product market, or that consumer demand for bundled packages of interconnected mobile voice and mobile data services make it appropriate to define one or more separate markets for bundled mobile services.

14. This report defines the mobile telephone sector to include all operators that offer commercially available, interconnected mobile voice services. These operators provide access to the public switched telephone network (“PSTN”) via mobile communication devices employing radiowave technology to transmit calls. As discussed below, providers using cellular radiotelephone, broadband Personal Communications Services (“PCS”), and Specialized Mobile Radio (“SMR”) licenses currently account for most of this sector.⁹

15. For purposes of this report, mobile data service is considered to be the delivery of non-voice information to a mobile device. This includes two-way mobile data services that involve not only the ability to receive non-voice information on an end-user device but also to send it from an end-user device to another mobile or landline device using wireless technology. The mobile data services currently available include paging, text messaging, multimedia messaging services (“MMS”) such as exchanging digital photos, information alerts, entertainment applications such as ringtones and games, video and music downloading, web browsing, email, access to files stored on corporate servers, and wireless telemetry.¹⁰

16. Any mobile satellite service (“MSS”) that involves the provision of CMRS directly to

⁹ See 47 C.F.R. §§ 22.900, 24.200, 90.601.

¹⁰ Wireless telemetry is the use of wireless technology to monitor mobile or fixed equipment in a remote location, such as the remote monitoring of utility meters by utility and energy companies. See *Eighth Report*, at 14864-14865.

end users is by statutory definition CMRS.¹¹ Current MSS applications rely on satellite connectivity to provide an array of voice and data applications, including voice telephony, Internet, two-way messaging, fax, and dispatch radio services. Satellite CMRS operators are able to provide service in many areas that are not served by terrestrial CMRS providers. As the Satellite Industry Association (“SIA”) commented, “MSS carriers [...] provide] what is often the only means by which customers in rural and remote areas can obtain voice, broadband, and other wireless services.”¹² While terrestrial and satellite CMRS operators provide wireless mobile voice and data connectivity, the *Satellite Flexibility Order* noted in 2003 that, since terrestrial CMRS and MSS are expected to have different prices, coverage, product acceptance and distribution, the two services appear, at best, to be imperfect substitutes for one another that would be operating in predominately different market segments.¹³

17. In addition, the Commission permits MSS providers in the L-band, Big LEO, and 2 GHz frequency bands to provide an ancillary terrestrial component (“ATC”) to their satellite systems, provided that the MSS operator: (1) has launched and operates its own satellite facilities; (2) provides substantial satellite service to the public; (3) provides integrated ATC; (4) observes existing satellite geographic coverage requirements; and (5) limits ATC operations only to the authorized satellite footprint.¹⁴ The Commission has granted two applications to add ATC to MSS satellite offerings, to Mobile Satellite Ventures (“MSV”) in the L-Band and to Globalstar in the Big LEO frequency bands.¹⁵ The satellite industry is optimistic about the potential positive effects of the ATC Order. Comments filed jointly by five satellite companies stated that “[o]nce deployed, MSS/ATC systems will dramatically enhance MSS carriers’ service offerings and expand their customer base.”¹⁶ In addition, the commenters stated that “...some MSS/ATC operators will be able to offer smaller, less expensive handsets comparable to those offered by terrestrial providers.”¹⁷

B. Overview of Service Providers

1. Facilities-Based Mobile Telephone Providers

18. As of year-end 2006, there were four mobile telephone operators in the United States that analysts typically describe as “nationwide”: AT&T Inc. (“AT&T”) (formerly known as Cingular

¹¹ 47 C.F.R. § 20.9(10). This rule section also contains an exception for “mobile satellite licensees and other entities that sell or lease space segment capacity, to the extent that it does not provide commercial radio service directly to end users.” The exception permits such entities to provide space segment capacity to commercial mobile radio service providers on a non-common carrier basis, if authorized by the Commission.

¹² See Comments of the Satellite Industry Association, *PN Comments*, at 3 (filed May 7, 2007) (“SIA Comments”).

¹³ See Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, *Report and Order and Notice of Proposed Rulemaking*, 18 FCC Rcd 1962, at 1984 (“*Satellite Flexibility Order*”), modified sua sponte, *Order on Reconsideration*, 18 FCC Rcd 13590 (2003), on reconsideration, *Memorandum Opinion and Order and Second Order on Reconsideration*, 20 FCC Rcd 4616 (2005), further recon pending.

¹⁴ See *Satellite Flexibility Order*, at 1964.

¹⁵ Mobile Satellite Ventures Subsidiary LLC, *Order and Authorization*, 19 FCC Rcd 22144 (Int’l Bur. 2004); Globalstar LLC, *Order and Authorization*, 21 FCC Rcd 398 (Int’l Bur. 2006).

¹⁶ See, Comments of the Mobile Satellite Service Providers (“MSS Providers”) (ICO, MSV, Inmarsat, Globalstar, TerreStar) at 7 (filed May 7, 2007).

¹⁷ See, MSS Providers Comments, at 10.

Wireless),¹⁸ Sprint Nextel Corp. (“Sprint Nextel”),¹⁹ T-Mobile USA (“T-Mobile”),²⁰ and Verizon Wireless, LLC (“Verizon Wireless”).²¹ When an operator is described as being nationwide, it does not necessarily mean that the operator’s license areas, service areas, or pricing plans cover the entire land area of the United States. The four mobile telephone carriers that analyst reports typically describe as nationwide all offer facilities-based service in at least some portion of the western, mid-western, and eastern United States. A map of the combined coverage areas of these four operators can be found in Appendix B. In addition, each of the four national operators has networks covering at least 235 million people (out of 303 million),²² while the next largest provider covers fewer than 80 million people.²³ In addition to the nationwide operators, there are a number of large regional players, including: Alltel Corp. (“Alltel”),²⁴ which covers 79 million POPs; Leap Wireless (“Leap”), which covers 48 million POPs; and United States Cellular Corp. (“US Cellular”), which covers 41 million POPs.²⁵ Moreover, many regional and smaller providers are able to offer pricing plans with nationwide coverage through roaming agreements with other providers.

¹⁸ Cingular Wireless had been a joint venture of AT&T and BellSouth Corporation (“BellSouth”). On December 29, 2006, AT&T merged with BellSouth. With the BellSouth acquisition, AT&T thereby acquired BellSouth’s 40 percent economic interest in AT&T Mobility LLC (“AT&T Mobility”), formerly Cingular Wireless LLC, resulting in 100 percent ownership of AT&T Mobility. In 2007, AT&T began rebranding its wireless operations from Cingular to AT&T. AT&T, Inc., SEC Form 10-K, Feb. 26, 2007, at 1.

¹⁹ Sprint Nextel was created by the merger of Sprint Corp. (“Sprint”) and Nextel Communications, Inc. (“Nextel”). See *Tenth Report*, at 15931.

²⁰ T-Mobile USA is a wholly-owned subsidiary of Deutsche Telekom AG (“Deutsche Telekom”).

²¹ Verizon Wireless is a joint venture of Verizon Communications, Inc. (“Verizon”) and Vodafone Group PLC (“Vodafone”). Verizon owns 55 percent of Verizon Wireless, and Vodafone owns 45 percent. See Verizon Communications, Inc., SEC Form 10-K, Mar. 14, 2006, at 11.

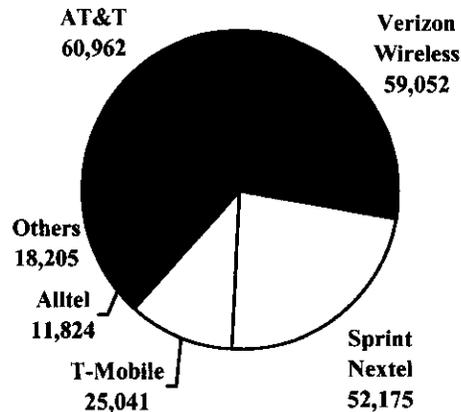
²² As a general matter, we use the most recent relevant data available. For purposes of calculating numbers on broader geographic bases, such as nationally and for Economic Areas, we use U.S. Census Bureau estimates as of July 1, 2006. See note 525. For purposes of calculating the extent of service provision using census blocks, we use 2000 Census population figures because that is the Census Bureau’s most recent data about population at the census block level.

²³ John C. Hodulik, *et al.*, *Wireless 411*, UBS Warburg, Equity Research, Mar. 19, 2007, at 20 (“4Q06 Wireless 411”).

²⁴ Due to its sizeable customer base and extensive geographic (but limited population) coverage, some analysts refer to Alltel as a “super-regional.” Ric Prentis and Eric Mallis, *Leap Wireless International*, Raymond James, Equity Research, Apr. 3, 2006, at 23 (“Alltel is a super-regional operator given its large customer base and geographical footprint, but it does not have enough licenses in Top 50 markets to be considered a national operator”). In addition, Alltel has a very low roaming rate with Verizon Wireless which allows it to offer customers attractive national rate plans. Phil Cusick and Richard Choe, *Wireless 101: A U.S. Wireless Industry Primer*, Bear Stearns, Equity Research, June 2005, at 60. One analyst reports that “Alltel believes customers view their business as ‘national’ because of their national roaming agreement with Verizon.” Simon Flannery and Jessica Yau, *Alltel Corporation, Conference Takeaways: On Track with Western Deal*, Morgan Stanley, Equity Research, May 5, 2005, at 1.

²⁵ Number of covered pops from *4Q06 Wireless 411*, at 20.

Chart 1: YE2006 Mobile Telephone Subscribers by Company
(in thousands, not representative of market share in any particular market)²⁶



19. Because the four nationwide mobile telephone operators, as well as the large regional and numerous other smaller operators, have different geographic footprints, they do not all compete head-to-head in each and every region and locality of the country. As a result, we define the scope of geographic markets on a regional or local basis. For example, Section III.C.1 below identifies the number of mobile telephone competitors on both a census block and county-by-county basis.

20. Facilities-based mobile telephone providers currently offer circuit-switched commercial mobile voice services that are interconnected with the PSTN. In addition, many of these providers offer a range of mobile data services and applications, as described in Section IV.B.6, Mobile Data Services and Applications, *infra*. Some of these services and applications connect to the PSTN, while many rely on IP-based, packet-switched networks. Furthermore, the broadband data, narrowband data, and mobile video providers described below offer additional mobile data services and applications, some of which compete with and some of which complement those offered by mobile telephone operators.

2. Resale/MVNO Providers

21. Resellers purchase airtime from facilities-based providers and resell service to the public for profit.²⁷ Many resellers today are often referred to as MVNOs (Mobile Virtual Network Operators). One commenter argued that “[MVNOs] present even more competition to traditional facilities-based

²⁶ Companies with publicly-available subscriber counts. See Appendix A, Table A-4: Top 20 Mobile Telephone Operators by Subscribers.. Total subscribers based on Table A-4.

²⁷ Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, *First Report and Order*, 11 FCC Rcd 18455, 18457 (1996). See, also, Implementation of the Commercial Spectrum Enhancement Act and Modernization of the Commission’s Competitive Bidding Rules and Procedures, *Second Report and Order and Second Further Notice of Proposed Rule Making*, 21 FCC Rcd 4753 (2006) (“*Designated Entity Second Report*”); *Order on Reconsideration of the Second Report and Order*, 21 FCC Rcd 6703 (2006) (“*Designated Entity Order on Reconsideration*”) (The Commission recently adopted rules to limit the award of designated entity benefits to any applicant or licensee that has “impermissible material relationships” or an “attributable material relationship” created by certain agreements with one or more other entities for the lease or resale (including under a wholesale arrangement) of its spectrum capacity.).

carriers. MVNOs target niche markets by packaging resold airtime with demographic-specific content and features. . . . MVNOs distinguish themselves via content, but like facilities-based providers, they experiment with a number of business models, such as pre-paid and unlimited plans, some even provide ways for customers to support their favorite charity through monthly usage while receiving information about the cause.”²⁸ According to information provided to the FCC in its ongoing local competition and broadband data gathering program, the resale sector accounted for 7 percent of all mobile telephone subscribers, or 15 million subscribers, at the end of June 2006.²⁹ Similarly, one analyst estimated that there were 15.1 million wireless subscribers receiving service from a resale provider at the end of 2006, up from 13.4 million customers at the end of 2005.³⁰

22. One analyst estimated that there were more than 50 MVNOs operating in 2006.³¹ TracFone Wireless Inc., which serves more than 8 million customers with prepaid offerings,³² is the largest, independent³³ reseller of wireless service. Virgin Mobile USA (“Virgin Mobile”), a joint venture between Sprint Nextel and Richard Branson’s Virgin Group, LLC, which targets its prepaid offerings at the youth market, now serves almost 4.6 million subscribers.³⁴ Other MVNOs include: Airlink Mobile, AirVoice Wireless, Azteca Mobile, Beyond Wireless / Cbeyond, DEXA Wireless, Excel Wireless, Firefly Mobile, GSR Mobile, Helio, kajeet, Jitterbug, Liberty Wireless, Movida, Omni Prepaid, PowerNet Mobile, Primus Mobile, Qwest, STI Mobile, TuYo Mobile, Working Assets Wireless, 7-Eleven Speak Out, and 9278 Mobile.³⁵ As discussed above, many of these companies are targeting specific demographic groups – such as specific age groups (kajeet, Virgin Mobile, Jitterbug) and certain ethnicities (Movida, Azteca Mobile).³⁶

23. Other groups are targeting “micro-niches.” One company, Sonopia Corp. (“Sonopia”), has helped nearly 900 organizations to create their own service, with relevant features, news, and content for members of their respective groups.³⁷ The company helps each organization design custom phones based on existing handset models from major manufacturers, and it helps the groups lease network access

²⁸ CTIA-The Wireless Association, *Comments*, at 14 (filed May 7, 2007) (“*CTIA 2007 NOI Comments*”).

²⁹ See Appendix A, Table A-2, *infra*. Number of resale subscribers calculated from information in table.

³⁰ *4Q06 Wireless 411*, at 3; *Eleventh Report*, at 10960.

³¹ Jeff Smith, *You-ser Friendly: Small Providers Personalize Cell-Phone Market*, ROCKY MOUNTAIN NEWS, Mar. 12, 2007 (citing the Yankee Group).

³² TracFone Wireless, *Comments*, at 2 (filed May 7, 2007) (“*TracFone Wireless 2007 NOI Comments*”).

³³ That is, without an equity interest from a facilities-based wireless carrier.

³⁴ Virgin Mobile, SEC Form S-1 (filed Jun. 18, 2007), at 1. Sprint Nextel also targets the teenage market through a subsidiary with its iDEN-based push-to-talk product, using an alternative prepaid brand, “Boost Mobile.” See *Ninth Report*, at 20615, for more history on the venture. Boost Mobile had 4 million customers at the end of 2006. Sprint Nextel, *Investor Quarterly Update: Fourth Quarter 2006 Results*, News Release, Feb. 28, 2007.

³⁵ *CTIA 2007 NOI Comments*, at 13 (referencing Thomas Winter Aabo, US MOBILE VIRTUAL NETWORK OPERATORS 2007: THE DEFINITIVE GUIDE AND CRITICAL ANALYSIS OF THE US MVNO MARKET, Mind Commerce (March 2007)); Jason Armstrong, et al., *MVNOs---The Story So Far*, Americas Telecom Weekly, Goldman Sachs, Equity Research, Sept. 8, 2006, at 1-2.

³⁶ *Id.*; Derek Baine, *Sprint Expands Hispanic Presence*, KAGAN WIRELESS TELECOM INVESTOR, at 5; Kim Hart, *From Three Dads, a Kid-Oriented Cellphone Service*, THE WASHINGTON POST, Apr. 2, 2007, at D02.

³⁷ Amol Sharma, *Now Everybody Can Be a Cellphone Company*, WALL STREET JOURNAL, May 7, 2007, at B1.

to carry phone calls and data.³⁸ Sonopia also manages monthly billing and customer service, though each organization's name is what appears on the customers' bill.³⁹ Many micro-niche MVNOs, such as Cancer Survivors Mobile (support for those affected by the disease) and Long Island Ducks (for fans of the minor league baseball team) are not looking to make large profits; instead, most of the groups use the service as a self-sustaining way to promote themselves or their causes and keep members or customers engaged.⁴⁰

24. Certain MVNOs have been unsuccessful in competing in the CMRS industry over the past year. Mobile ESPN, an MVNO focused on sports content, shut down less than a year after its start due to its lack of success in attracting customers.⁴¹ Amp'd Mobile, with around 200,000 subscribers, ceased operations in July 2007 after filing for Chapter 11 bankruptcy protection in June 2006 and failing to raise additional funding in time to meet debt payments.⁴² In September 2007, Disney Mobile announced it was shutting down and will cease wireless operations effective December 31, 2007.⁴³ According to Steve Wadsworth, Walt Disney Internet Group president, "The MVNO model has proven, as we've seen with other companies this past year, to be a difficult proposition in the hyper-competitive U.S. mobile phone market."⁴⁴

3. Broadband Data Providers

25. In addition to the voice and data services offered by mobile telephone providers, other providers offer or plan to offer mobile or portable wireless broadband services using Broadband Radio Service/Educational Broadband Service ("BRS/EBS") or Wireless Communications Systems ("WCS") spectrum.

26. Clearwire Corporation ("Clearwire") offers portable wireless high-speed Internet access and Voice-over-Internet Protocol ("VoIP") services to consumers using spectrum in the 2.5 GHz BRS/EBS band. As of June 2007, the company had launched broadband service in 39 markets, mainly smaller towns and cities, covering approximately 10 million people in portions of 13 U.S. states.⁴⁵ In addition, several small wireless broadband providers use BRS/EBS spectrum licenses to offer fixed or portable wireless broadband services. These providers include, for example, Solo Direct Connect in Quad-Cities, IA; Plateau Telecommunications in New Mexico and Texas; Info-Link.net in west central Minnesota; Evertek in Iowa; SpeedNet in Michigan; Gryphon Wireless in Kearny, NE; W.A.T.C.H. TV in Lima, OH; BeamSpeed in Yuma, AZ; and Digital Bridge Communications in Rexburg, ID. AT&T is using its 2.3 GHz WCS spectrum licenses to offer fixed wireless broadband Internet access service in

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ Tim Horan, *Daily Datetimes*, CIBC WORLD MARKETS, Sept. 29, 2006.

⁴² Li Yuan, *Amp'd Mobile Files Chapter 11*, WALL STREET JOURNAL, June 4, 2007, at A8; Eric Zeman, *It's Over. Amp'd To Sell Assets, Cease Operations*, INFORMATIONWEEK, Jul. 23, 2007.

⁴³ Merissa Marr, *Disney Will Shut Down Cellphone Service*, WALL STREET JOURNAL, Sept. 28, 2007; Disney Mobile (visited Oct. 1, 2007) <<http://disneymobile.go.com/home/homepage.html>>.

⁴⁴ COMMUNICATIONS DAILY, Oct. 1, 2007, at 11.

⁴⁵ *Richmond First in Virginia to Experience Clearwire Wireless Broadband Service*, News Release, Clearwire, June 5, 2007. See Section IV.B.1.e, Background on Network Design and Technology Broadband Data Networks and Technology Deployment, *infra*, for a more detailed discussion of Clearwire's service and technology.

eight U.S. markets, including Juneau, AK.⁴⁶

4. Mobile Video Providers

27. Certain wireless licensees have been developing and launching networks dedicated to delivering one-way, IP-based, broadcast or multicast video programming to mobile telephone customers. Because these networks are unidirectional (downlink only), the video services are sold to end users through mobile telephone operators and rely on the mobile telephone operators' networks for any uplink communications. In addition, as currently offered, subscribers must use a device that is compatible with the mobile television network in order to receive programming.

28. Qualcomm Incorporated ("Qualcomm")'s MediaFLO service uses Lower 700 MHz spectrum and video multicasting technology to provide linear video programming, in which the same program content being aired on cable and broadcast television networks is aired on the mobile video network, as well as programming from channels exclusive to MediaFLO.⁴⁷ Verizon Wireless began offering the MediaFLO video service in 33 cities during the first half of 2007, branded as V CAST MobileTV.⁴⁸ Eight television channels are available with the service, including NBC2Go, NBCNews2Go, CBSMobile, Comedy Central, ESPN MobileTV, FoxMobile, MTV, and Nickelodeon.⁴⁹ Verizon Wireless plans to expand V CAST MobileTV to 120 cities by the end of 2007.⁵⁰ In October 2007, AT&T announced that it plans to offer the MediaFLO service to its customers in early 2008.⁵¹

29. Crown Castle International ("Crown Castle") has been running trials of a mobile television service through its Modeo subsidiary. After testing the service in Pittsburgh, Pennsylvania for three years, Modeo began offering a beta trial of its mobile television service in January 2007 for 138 users in New York City.⁵² Modeo's service uses the DVB-H (Digital Video Broadcast – Handset) mobile video technology standard and Crown Castle's spectrum license in the 1670-1675 MHz band.⁵³ The service allows subscribers to access linear television programming from six channels, including Fox

⁴⁶ *AT&T Alascom Delivers New Broadband Internet Choice for Juneau*, News Release, AT&T, Aug. 6, 2007; Kelly Hill, *Big Players Have Big Plans for WiMAX*, RCR WIRELESS NEWS, Oct. 24, 2007 (citing AT&T spokeswoman Jenny Parker). The company has conducted trials or limited deployments of WiMAX or other fixed wireless broadband technologies in a total of 22 markets. *Id.* See also, Section IV.B.1.e, Broadband Data Networks and Technology Deployment, *infra*.

⁴⁷ *Verizon Wireless Lifts Curtain on V CAST Mobile TV; True Broadcast Quality, the Best of TV*, News Release, Verizon Wireless, Jan. 7, 2007. The linear programming available on MediaFLO will have a slight delay and in some cases different commercials from the programming being aired on the television networks.

⁴⁸ Verizon Wireless, *V-Cast MobileTV* (visited July 16, 2007) <<http://www.verizonwireless.com/mobiletv>>.

⁴⁹ *Id.*; *Verizon Wireless and MediaFLO USA Serve Up a Summer of Sports for V CAST Mobile TV Customers*, News Release, Verizon Wireless, July 2, 2007.

⁵⁰ Marguerite Reardon, *Verizon CEO: No need for iPhone killer*, CNET NEWS, June 20, 2007.

⁵¹ Matt Kapko, *AT&T Pushes Back TV Rollout*, RCR WIRELESS NEWS, Oct. 26, 2007.

⁵² *Modeo Launches Live Mobile TV Beta Service in Nation's Largest Metro Area*, News Release, Modeo, Jan. 8, 2007; Modeo, *Modeo Update*, Presentation at NAB 2007, Apr. 17, 2007, available at http://www.modeo.com/NAB_Pres_041707.pdf.

⁵³ See Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, MB Docket No. 05-255, *Twelfth Report*, 21 FCC Rcd 2503 at ¶ 230 (2006); Letter from Ari Q. Fitzgerald, Counsel to Crown Castle International Corp., to Marlene H. Dortch, Secretary, FCC, Attachment (Presentation to the FCC on the Use of the 1670-1675 MHz Band) at 3 (Sept. 28, 2006).

News, CNBC, and The Discovery Channel.⁵⁴ In July 2007, Crown Castle announced that it was transferring its Modeo subsidiary to a venture formed by Telcom Ventures, LLC and Columbia Capital, LLC.⁵⁵ The new venture will run the Modeo service and manage its assets, and Crown Castle will act as a preferred provider of tower infrastructure. Crown Castle also announced in July 2007 that it had entered into a long-term agreement to lease all of the spectrum from its 1670-1675 MHz license, which is used to provide the Modeo service, to this new venture.⁵⁶

30. Aloha Partners, L.P. (“Aloha”), a major holder of spectrum in the lower 700 MHz band, had also been conducting trials of a mobile television service, HiWire, based on DVB-H technology.⁵⁷ However, in October 2007, Aloha announced that it plans to sell its 700 MHz spectrum licenses to AT&T for \$2.5 billion.⁵⁸

5. Narrowband Data Providers

31. Several wireless data providers offer messaging and other narrowband mobile data services to enterprise customers using paging and narrowband PCS networks and spectrum. For instance, USA Mobility is the largest U.S. paging company and offers traditional paging and two-way messaging, among other wireless services, to enterprise customers.⁵⁹ In addition, Space Data Corp (“Space Data”) provides commercial telemetry services across the south-central United States to energy and other industrial companies.⁶⁰

6. Mobile Satellite Providers

32. As discussed in detail in Section VIII of this report, the commercial MSS industry in the United States is currently comprised of five service providers operating in MSS-designated frequency bands, with satellite platforms of differing orbital configurations, and offering multiple products including voice and data services in fixed and mobile environments to a variety of terminal types. The five MSS providers are Globalstar, Inmarsat plc (“Inmarsat”), Iridium Satellite LLC (“Iridium”), MSV, and Orbcomm Inc. (“Orbcomm”).

C. Horizontal Concentration

33. The level of market concentration generally depends on both the number of competing

⁵⁴ *Modeo Launches Live Mobile TV Beta Service in Nation's Largest Metro Area*, News Release, Modeo, Jan. 8, 2007; Modeo, *Modeo Update*, Presentation at NAB 2007, Apr. 17, 2007, available at http://www.modeo.com/NAB_Pres_041707.pdf.

⁵⁵ *Crown Castle Announces Long-Term Modeo Spectrum Lease*, News Release, Crown Castle, July 23, 2007; *Crown Castle International Reports Second Quarter 2007 Results and Increases Full Year 2007 Outlook*, News Release, Crown Castle, July 31, 2007.

⁵⁶ *Crown Castle Announces Long-Term Modeo Spectrum Lease*, News Release, Crown Castle, July 23, 2007; ULS Lease ID L000002305; ULS Application File No. 0003108073. Horizon Wi-Com also holds an interest in the entity leasing the 1670-1675 MHz spectrum. See ULS Lease ID L000002305.

⁵⁷ *Modeo Tests Live Cellular TV Service in New York City*, AP, Jan. 9, 2007; Joni Morse, *Modeo Flips on Live TV in NYC*, WIRELESS WEEK, Jan. 8, 2007.

⁵⁸ Steven Russolillo and Jeffry Bartash, *AT&T Grabs More Cellphone Spectrum*, THE WALL STREET JOURNAL, Oct. 10, 2007, at B6.

⁵⁹ USA Mobility, *Wireless Messaging – Products and Services* (visited July 11, 2007) <<http://www.usamobility.com/products/messaging/>>; *Tenth Report*, at 15923.

⁶⁰ Space Data Corp., *Overview of SkySite Network* (visited July 11, 2007) <<http://www.spacedata.net/technology.htm>>; *Tenth Report*, at 15923.

providers per market and the distribution of their respective market shares. Thus, market concentration can result from both a relatively small number of providers competing in the relevant market and a relatively high degree of inequality in the distribution of market shares among incumbent providers. In conjunction with entry conditions and the way providers and consumers behave and interact, market concentration affects the likelihood that a single provider unilaterally, or a small group of providers through coordinated action, could successfully exercise market power.

34. The basic economic principle for defining the scope of the relevant geographic market is to include customers facing the choice of similar competitive alternatives in the same geographic market. Because U.S. mobile telephone providers have different-sized geographic footprints, any individual mobile provider does not compete with all other mobile providers in each and every part of the country. This suggests that the relevant geographic market for mobile telephone services is narrower than the entire nation. An attempt to measure concentration in mobile telephone services at the national level would understate the actual level of market concentration because the underlying geographic market definition would be too broad. At the same time, defining the appropriate regional or local geographic market for mobile telephone services is a highly complex exercise due to various factors, including the relatively large number of licensed providers, the variety of geographic schemes used to license different spectrum bands, the wide variation in providers' geographic footprints, and the difficulty of collecting accurate information on the geographic coverage each mobile operator provides in its license areas. To simplify the measurement task, in this report we base our analysis of market concentration on uniform geographic areas that may be broader or narrower than the relevant geographic market. In particular, we estimate the number of competitors per market based on both census blocks and counties, and we provide concentration measures at the level of Economic Areas ("EAs").

1. Number of Mobile Telephone Competitors

a. Census Block Analysis

35. In this report, we further refine our analysis of competition in the mobile telephone sector, compared to previous reports, by compiling a list of census blocks with some level of coverage by mobile telephone providers. This analysis is performed through a contract with American Roamer, an independent consulting firm that tracks service provision for mobile voice and mobile data services.⁶¹ Under the American Roamer contract, in this report we are able to estimate the extent to which each facilities-based provider operates in the more than 8 million census blocks, compared to just the roughly 3,200 counties in previous reports.⁶² Moreover, a census block is the smallest geographic entity for which the Census Bureau tabulates decennial census data.⁶³

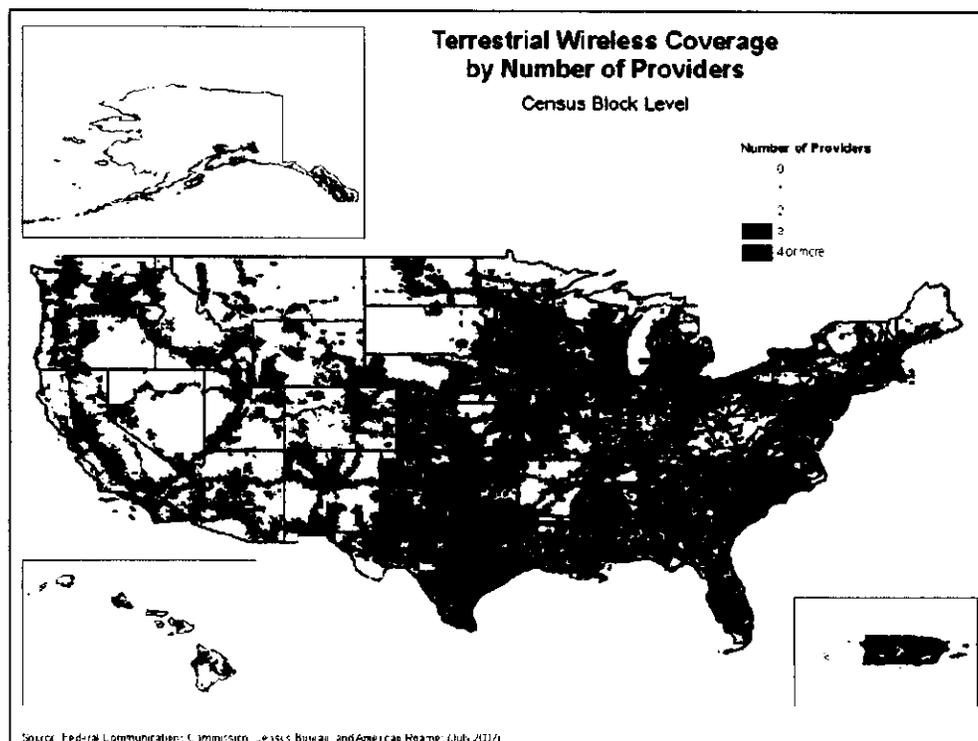
⁶¹ See www.americanroamer.com. American Roamer began in 1985 as the original vendor of custom printed roaming guides for cellular carriers, but has since evolved into a provider of data and mapping for the wireless industry in North America. American Roamer's product is unique in that it includes detailed coverage polygons of every operational terrestrial mobile telephone voice carrier in the United States, regardless of spectrum bands. In addition to public sources, American Roamer works directly with many carriers to develop its coverage maps.

⁶² There are roughly 30,000 5-digit area ZIP code areas in the United States. U.S. ZIP Code Areas 2004, Geographic Data Technology, Inc., ESRI.

⁶³ *Glossary Of Basic Geographic And Related Terms - Census 2000*, U.S. CENSUS BUREAU (visited Sept. 4, 2007) <<http://www.census.gov/geo/www/tiger/glossary.html#glossary>>. Many blocks correspond to individual city blocks bounded by streets, but blocks--especially in rural areas--may include many square miles and may have some boundaries that are not streets. The Census Bureau established blocks covering the entire nation for the first time in 1990. Previous censuses back to 1940 had blocks established only for part of the nation. Over 8 million blocks are identified for Census 2000. *Question and Answer Center*, U.S. CENSUS BUREAU (visited Sept. 4, 2007) <<http://www.census.gov/>>. The mean size of a census block is .0460 square miles, and its median size is 0.016 square miles with a range of 0.0000001 to 8,081 square miles; its mean population is 34.3 people, while its median (continued....)

36. By utilizing such a small area to analyze coverage, this method addresses the issue of the over-counting of population and geographic area inherent in a county-by-county analysis.⁶⁴ Many census blocks cover areas as small as an individual city block, and generally contain significantly fewer than 3000 people.⁶⁵ As discussed later, however, the differences in population coverage using these two methodologies are not substantial. The map below shows mobile telephone competition throughout the United States. More detailed regional maps are available in Appendix B.

Map 2: Mobile Telephone Competitors⁶⁶



37. According to our analysis of American Roamer's July 2007 coverage data of mobile telephone providers, 280 million people, or 99.8 percent of the total U.S. population, have one or more different operators (cellular, PCS, and/or digital SMR) offering mobile telephone service in the census blocks in which they live. These blocks make up 76 percent of the total land area of the United States

(Continued from previous page)

population is 8.0 people, with a range of 0 to 23,373 people. FCC analysis based on Census 2000 "Summary File 1 (SF 1)," available at <<http://www.census.gov/Press-Release/www/2001/sumfile1.html>>.

⁶⁴ For example, county populations can reach up to one million people, as in the county of Los Angeles.

⁶⁵ The next level above census blocks in the geographic hierarchy, census block groups - which are clusters of census blocks - generally contain between 600 and 3,000 people, with an optimum size of 1,500 people. *Appendix A: Census 2000 Geographic Terms and Concepts*, Reference Resources for Understanding Census Bureau Geography, U.S. CENSUS BUREAU (visited Jun. 22, 2007) <<http://www.census.gov/geo/www/tiger/glossry2.pdf>>, at A8.

⁶⁶ A larger version of this map may be found in Appendix B.

(including Alaska), reflecting the nation's uneven population distribution.⁶⁷ As one analyst noted: "U.S. carriers have a much more challenging environment in which to build networks. Population density is a mere 50 POPs per square mile compared to an average of 290 per mile in Europe and 370-400 per mile in major European markets like the U.K. and Germany."⁶⁸ Based on our definition of rural, roughly 61 million people, or 21 percent of the US population,⁶⁹ live in rural counties. These counties comprise 3.1 million square miles, or 86 percent of the geographic area of the U.S.⁷⁰ In sum, approximately 79 percent of the U.S. population lives on 14 percent of the land, while 21 percent live on the remaining 86 percent of the land.

38. The following table contains more detailed findings regarding population and geographic coverage.

**Table 1: Estimated Mobile Telephone Rollouts
by Census Block**

Total Number of Providers in a block	Number of Blocks	POPs Contained in Those Blocks	% of Total US POPs	Square Miles Contained in Those Blocks	% of Total US Square Miles
Total for US	8,262,363	285,230,516	100%	3,799,408	100%
1 or More	8,126,003	284,743,328	99.8%	2,878,602	75.8%
2 or More	7,745,336	282,506,517	99.0%	2,327,573	61.3%
3 or More	6,732,406	272,480,505	95.5%	1,514,964	39.9%
4 or More	5,630,876	256,537,904	89.9%	931,285	24.5%
5 or More	3,579,328	162,065,639	56.8%	503,717	13.3%
6 or More	1,372,438	62,273,212	21.8%	176,124	4.6%
7 or More	233,959	10,206,476	3.6%	29,906	0.8%

Source: Federal Communications Commission estimates based on data supplied by American Roamer, July 2007.

Notes: POPs are from the 2000 Census, and square miles include the United States and Puerto Rico.

39. As seen in the table, 273 million people, or approximately 96 percent of the total U.S. population, have three or more different operators offering mobile telephone service in the census blocks in which they live, while roughly 257 million people, or 90 percent of the U.S. population, live in census blocks with four or more mobile telephone operators competing to offer service.

40. In order to give some additional perspective on geographic coverage, we have also analyzed service provision by census block excluding lands owned or administered by the Federal Government. As the Commission has recognized, "[i]n many locations, covering certain government land may be impractical, because these lands are subject to restrictions that prevent a licensee from providing service or make provision of service extremely difficult. We also note that government lands often

⁶⁷ *Id.* Alaska is approximately 572,000 square miles (land area), while the entire United States is 3,537,000 square miles (land area). US Census Bureau, *State & County QuickFacts* (visited Nov. 7, 2007) <<http://quickfacts.census.gov/qfd/states/02000.html>>.

⁶⁸ Timothy Horan, *et al.*, *U.S. Wireless On Track To Deliver Solid Financial Results*, CIBC World Markets, Equity Research, Sept. 21, 2006, at 21.

⁶⁹ Including the populations of Puerto Rico and the Virgin Islands.

⁷⁰ Including the populations of Puerto Rico and the Virgin Islands.

include only very small portions of the population in a license area.”⁷¹ The land area of the United States is approximately 3.6 million square miles, while the area of Federal lands is approximately 1.0 million square miles, or 28 percent of the total land area of the United States. A map of showing Federal lands, with American Indian Reservations and Alaska Native Village Statistical Areas, can be found in Appendix B.

**Table 2: Estimated Mobile Telephone Rollouts Excluding Federal Land⁷²
by Census Block**

Total Number of Providers in a block	Number of Blocks	POPs Contained in Those Blocks	% of Total US POPs Excl. Those on Federal Land	Square Miles Contained in Those Blocks	% of Total US Square Miles Excl. Federal Land
Total for US	7,794,199	280,371,248	100%	2,652,534	100%
1 or More	7,712,011	279,977,515	99.9%	2,261,787	85.3%
2 or More	7,424,597	278,027,099	99.2%	1,946,674	73.4%
3 or More	6,531,770	268,649,436	95.8%	1,341,793	50.6%
4 or More	5,504,786	253,339,635	90.4%	850,768	32.1%
5 or More	3,517,710	160,199,736	57.1%	468,588	17.7%
6 or More	1,348,839	61,444,550	21.9%	164,232	6.2%
7 or More	231,031	10,042,664	3.6%	27,919	1.1%

Source: Federal Communications Commission estimates based on data supplied by American Roamer, July 2007.
Notes: POPs are from the 2000 Census, and square miles include the United States and Puerto Rico.

41. An analysis of service provision by census block, including and excluding federal land, shows similar population coverage. By comparison, an examination of geographic coverage shows a higher percentage of geographic coverage when excluding federal lands. For example, approximately 40 percent of the total United States land area is covered by three or more providers, compared to approximately 50 percent of the land area when excluding federal land. In addition, approximately 25 percent of the total United States land area has access to four or more providers compared to approximately 32 percent, when excluding federal land.

⁷¹ Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, WT Docket No. 06-150, Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Section 68.4(a) of the Commission's Rules Governing Hearing Aid-Compatible Telephones, WT Docket No. 01-309, Biennial Regulatory Review -- Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services, WT Docket 03-264, Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules, WT Docket No. 06-169, Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, PS Docket No. 06-229, Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Second Report and Order*, 22 FCC Rcd 15289 (2007) ("*700 MHz Second Report and Order*"), at ¶ 160.

⁷² In this analysis, federal lands consist of lands owned or administered by the Federal Government, including the Bureau of Land Management, the Bureau of Reclamation, the U.S. Department of Agriculture Forest Service, the Department of Defense, the U.S. Fish and Wildlife Service, the National Park Service, the Tennessee Valley Authority, and other agencies. Only areas of one square mile (640 acres) or more are included. See Federal Lands of the United States, NationalAtlas.gov (visited Nov. 15, 2007) <<http://www.nationalatlas.gov/mld/fedlanp.html>><<http://www.nationalatlas.gov/>>.

b. County Analysis

42. In addition to the analysis of service provision by census blocks introduced in the preceding section, in this section we present the results of the Commission's analysis of service provision on a county-by-county basis used in previous reports to document long-term service provision trends. The analysis of service provision by counties is based on publicly available sources of information released by the operators such as news releases, filings with the SEC, coverage maps available on operators' Internet sites, and information filed publicly⁷³ with the Commission in proceedings or with applications.

43. The following table shows the results of our county-by-county analysis of publicly-available coverage data of mobile telephone providers.

**Table 3: Estimated Mobile Telephone Rollouts
by County**

Total Number of Providers in a County	Number of Counties	POPs Contained in Those Counties (1)	% of Total US POPs (2)	Square Miles Contained in Those Counties	% of Total US Square Miles
3 or More	2677	279,681,886	98.0%	2,470,221	68.5%
4 or More	2082	267,037,332	93.6%	1,799,560	49.9%
5 or More	1228	168,495,386	59.1%	970,078	26.9%
6 or More	443	56,978,626	20.0%	311,350	8.6%
7 or More	67	7,063,895	2.5%	41,111	1.1%

Source: Federal Communications Commission estimates based on publicly available information.

Notes: POPs are from the 2000 Census, and the square miles include the United States and Puerto Rico.

44. As of July 2007, 280 million people, or 98 percent of the total U.S. population, have three or more different operators (cellular, PCS, and/or digital SMR) offering mobile telephone service in the counties in which they live. Roughly 267 million people, or 94 percent of the U.S. population, live in counties with four or more mobile telephone operators competing to offer service.

45. As shown by the table below, these percentages are mostly unchanged from the *Eleventh Report*, with the exception of the percent of the U.S. population living in counties with five or more mobile telephone operators, which grew by 16 percent in the past year.

⁷³ This data is not based on information that is subject to a protective order.