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

In the Matter of	)	
Fostering Innovation and Investment in the Wireless Communications Market	)	GN Docket No. 09-157
A National Broadband Plan for Our Future	)	GN Docket No. 09-51

COMMENTS OF COMCAST CORPORATION

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Comcast Corporation ("Comcast"), by its counsel, hereby submits comments in response to the Notice of Inquiry issued by the Federal Communications Commission ("FCC" or "Commission") in the above-captioned proceeding.[1/]

I. INTRODUCTION AND SUMMARY

As the Commission recently observed, the United States is "now in the midst of a transition from reliance on mobile voice services to increasing use of and reliance on mobile broadband services, which promise to connect American citizens in new and deeper ways."[2/] Comcast, already one of the nation's leading providers of wired broadband services, is enthusiastic about adding mobility to its data and Internet access products. Comcast has invested in and is partnering with Clearwire to provide broadband

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1/ *Fostering Innovation and Investment in the Wireless Communications Market*, GN Docket Number 09-157, Notice of Inquiry, FCC 09-66 (rel. Aug. 27, 2009).

2/ *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless including Commercial Mobile Services*, WT Docket No. 09-66, Notice of Inquiry, FCC 09-67, ¶ 2 (rel. Aug. 27, 2009).

wireless services utilizing Clearwire's spectrum and WiMax technology.[3/] Clearwire holds "significant spectrum" in the 2.5 GHz band for use in delivering wireless broadband services.[4/] In just the past few months, Comcast launched its High-Speed 2go wireless broadband service – described as "the first execution of [the] partnership between Comcast, Clearwire, and other companies that use the emerging WiMax high-speed mobile technology"[5/] – in Portland and Atlanta, with plans to offer the service in Chicago and Philadelphia later this year as part of a national rollout of high-speed wireless data services.[6/] Comcast is also a member of SpectrumCo, which holds 122 AWS licenses acquired in Auction 66.[7/]

Through its Clearwire and SpectrumCo investments, Comcast has sought to achieve efficient entry into the wireless marketplace in a manner that complements its existing suite of products. But any new facilities-based entrant in the wireless marketplace, particularly one with national aspirations, and regardless of resources, faces daunting entry barriers. It must obtain suitable spectrum, construct a network, and obtain roaming agreements with entrenched incumbents. Suitable spectrum is increasingly scarce, with the best, low frequency spectrum overwhelmingly in the hands of the largest

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3/ Comcast has an 8.5% ownership interest in Clearwire. Clearwire Corporation, Form 10-K Annual Report 2008, at 5 (filed Mar. 28, 2009).

4/ *Id*. at 7.

5/ Yinka Adegoke, *Comcast Rolls Out Wireless Web*, REUTERS, June 29, 2009, at http://www.reuters.com/article/technologyNews/idUSTRE55S50220090629.

6/ Press Release, Comcast Corporation, Comcast Begins National Rollout of High-Speed Wireless Data Service (June 29, 2009); Reuters, *Comcast Launches High-Speed Wireless Data Service in Atlanta*, July 28, 2009.

7 SpectrumCo is a Delaware limited liability company, managed by C Spectrum Investment, LLC, a subsidiary of Comcast Corporation. Class B equity owners of SpectrumCo are C Spectrum Investment, LLC; Time Warner Cable LLC, a subsidiary of Time Warner Inc.; and BHN Spectrum Investments, LLC, a subsidiary of Bright House Networks, LLC. *See* Clearwire Corporation, Form 10-K Annual Report 2008 (filed Mar. 28, 2009).

incumbent national carriers.[8/] Even for a competitor with the requisite spectrum, roaming agreements may be difficult or impossible to obtain in the absence of Commission recognition of a right to automatic home roaming and data roaming on reasonable terms.

Every new entrant also faces the considerable challenge of competing in a wireless marketplace that has come to be dominated by two firms, AT&T and Verizon. Together, these providers serve over 165 million wireless customers nationwide, with AT&T reporting 79.6 million customers and Verizon Wireless reporting about 87.7 million customers.[9/] By contrast, Sprint Nextel, the next largest wireless carrier, has fewer than half as many customers as AT&T or Verizon, with 39.4 million,[10/] while T-

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[8/] SpectrumCo holds just 20 MHz of spectrum in its license areas – a limiting factor for the provision of mobile broadband services.

[9/] Press Release, AT&T, Strong Wireless Growth, Continued Cost Discipline, Solid Free Cash Flow Highlight AT&T's Second-Quarter Results (July 23, 2009); Press Release, Verizon, Verizon Reports Revenue Growth and Continued Improvement in Cash Flow in 2Q (July 27, 2009). AT&T's and Verizon's market position has been strengthened by recent acquisitions. In the last two years, AT&T acquired Dobson Communications, previously the ninth largest carrier, and Edge Wireless, previously the twentieth largest, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless including Commercial Mobile Services*, WT Docket No. 09-66, Thirteenth Report, 24 FCC Rcd. 6185, Table A-4 (2009) ("*Thirteenth Competition Report*"), and is currently seeking approval for the acquisition of Centennial Communications, the tenth largest wireless carrier. *AT&T Inc. and Centennial Communications Corp. Seek FCC Consent to Transfer Control of Licenses, Leasing Arrangements, and Authorizations*, WT Docket No. 08-246, Public Notice, 23 FCC Rcd. 17966 (2008). In the same period, Verizon Wireless acquired Alltel, previously the fifth largest carrier, and Rural Cellular, previously the eleventh largest. *Thirteenth Competition Report*, Table A-4. AT&T is seeking to acquire a substantial portion of the Alltel assets the Justice Department and the FCC ordered divested as a result of the Verizon's acquisition of Alltel. *See* AT&T Inc. and Cellco Partnership d/b/a Verizon Wireless Seek FCC Consent to Assign or Transfer Control of Licenses and Authorizations and Modify a Spectrum Leasing Arrangement, WT Docket No. 09-104, Public Notice, 24 FCC Rcd. 8171 (2009). *See also, e.g.*, Marguerite Reardon, *AT&T and Verizon Swap Wireless Assets*, CNET NEWS, May 11, 2009 (reporting that AT&T "will pay $2.35 billion in cash to buy the bulk of the Alltel Wireless assets that Verizon Communications must divest as part of its acquisition of Alltel"), *at* http:/news.cnet.com/8301-1035_3-10237679-94.html.

[10/] Press Release, Sprint, Sprint Nextel Reports Second Quarter 2009 Results (July 29, 2009).

Mobile reports 33.5 million.[11/] Other wireless carriers are significantly smaller. MetroPCS, the fifth largest carrier, reports 6.3 million customers.[12/]

AT&T and Verizon not only have substantial "first mover" advantages, but they have also amassed prime spectrum in the 700 MHz and 800 MHz bands that, due to propagation characteristics, creates a significant economic advantage in the construction and deployment of broadband wireless networks. As the market leaders, moreover, they are best positioned to provide roaming to other wireless providers but have the least incentive to do so.

In combination, these factors create significant challenges for new entrants and threaten to diminish wireless investment and innovation. The Commission should examine these issues and consider appropriate policies to address them.

II. CHALLENGES TO WIRELESS INNOVATION AND INVESTMENT

A. Competition and Innovation in the Wireless Services Marketplace Will Require Expanded Access to High Quality Spectrum

As the Commission recently observed, "spectrum allocation and assignment has the potential to create a barrier to entry into markets for mobile communications services by limiting the amount of spectrum allocated" to various wireless services.[13/] To provide the additional spectrum needed to create and maintain a vibrantly competitive wireless marketplace, the Commission should undertake a review of all current allocations of spectrum below 3 GHz to determine what would be required to allocate additional

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11/ Press Release, T-Mobile, T-Mobile Reports Second Quarter 2009 Results (Aug. 6, 2009).

12/ Press Release, MetroPCS, MetroPCS Reports Second Quarter 2009 Results (Aug. 6, 2009).

13/ *Thirteenth Competition Report* ¶ 65.

spectrum to wireless broadband services.[14/] When undertaking this review, the Commission should bear two points in mind. First, new entrants require substantially larger blocks of spectrum than has typically been allocated in FCC auctions. Second, the Commission should take into consideration the fact that spectrum in lower bands (such as the 700 MHz band) has propagation characteristics that make it especially suitable for use by new entrants for wireless broadband services.

1. The Commission Should Review Current Allocations of Spectrum Below 3.0 GHz to Address Emerging Needs for Additional Spectrum for Wireless Broadband

New entrants in the wireless marketplace face demand for access to bandwidth intensive applications that require substantial swaths of spectrum and high speed. In the fourth quarter of 2008, smartphones capable of accessing Internet data constituted 23 percent of all wireless handsets sold and are predicted to be 40 percent of the market by 2010.[15/] Sales of netbooks – computers used to access wireless broadband services – are steadily increasing, with one major technology firm predicting that netbook sales would double in 2009.[16/] Active users of mobile Internet services were reported to be 40 million in mid-2008, twice the number using wireless Internet services just two years before.[17/]

14/ Comcast also supports the intent behind the recently-introduced House and Senate spectrum inventory bills. *See* H.R. 3125, 111th Cong., 1st Sess. (2009); S. 659, 111th Cong., 1st Sess. (2009). *See also* Chairman Waxman and Boucher Introduce Radio Spectrum Inventory Act, *at* http://waxman.house.gov/News/DocumentSingle.aspx? DocumentID=137686 (last visited Sept. 25, 2009); Kerry, Snowe Call for Inventory of Airwaves, *at* http://kerry.senate.gov/cfm/record.cfm?id=310100 (last visited Sept. 25, 2009).

15/ Rysavy Research, *Mobile Broadband Spectrum Demand*, at 8 (Dec. 2008) ("Rysavy Report"), *available at* http://www.rysavy.com/papers.hyml.

16/ Kevin Kelleher, *Intel Sees Netbook Sales Doubling in 2009*, GIGAOM.COM, Apr. 14, 2009, *at* http://gigaom.com/2009/04/14/intel-sees-netbooks-sales-doubling-in-2009/. *See also Netbooks Will Drive Future Uptake of Mobile Broadband Services, Pyramid Research Finds*, REUTERS, May 21, 2009, *available at* http://www.reuters.com/article/pressRelease/idUS185039+21-May-2009+PRN20090521 ("Increased sales of netbooks over the next three to five years will result in higher demand for mobile broadband services."); Sara B. Caldwell,

New applications such as mobile video services require increasing amounts of spectrum. For example, "watching a YouTube video on a mobile phone or laptop consumes almost one hundred times the data bandwidth of a voice conversation."[18/] Downloading a 5 megabyte file over a wireless broadband connection transmits the same amount of data through the network as would be used in a one-hour phone conversation.[19/] The information garnered in the Commission's broadband workshops and from other sources led Blair Levin, the FCC's Omnibus Broadband Initiative Executive Director, to conclude that "[t]he demand curves from uses like smartphones suggest [demand for spectrum is] going to increase dramatically."[20/]

Scarcity of spectrum acutely affects the ability of companies to enter the wireless market and compete with incumbent carriers. AT&T and Verizon in particular have over the years amassed substantial amounts of spectrum, much of it in the lower bands that, as explained below, are in many ways the best suited for wireless broadband services.[21/]

AT&T Rolls Out Wireless Netbook Lineup, DIGITAL JOURNAL, May 19, 2009, *at* http://www.digitaljournal.com/article/272820 ("Netbook sales are steadily increasing, with worldwide shipments expected to reach 22 million by end 2009.").

17/ Rysavy Report at 6.

18/ *Id*.

19/ *Id*.

20/ John Poirer, *Key U.S. Broadband Official: More Spectrum Needed*, REUTERS, Sept. 2, 2009, *available at* http://www.reuters.com/article/technologyNews/idUSTRE5815BI20090902.

21/ *See* Section II.A.2, *infra* (discussing the service and economic characteristics of 700 MHz and other spectrum). Verizon Wireless and AT&T already hold much of the valuable lower band spectrum from purchases made in the 1970s and 1980s. Andrzej Skrzypacz and Robert Wilson, *The Design of the 700 MHz Auction: An Opportunity to Promote Competition and Public Safety*, at 2 (May 23, 2007), attached as an exhibit to *Service Rules for the 698-746, 747-762, and 777-792 MHz Bands*, WT Docket No. 06-150, Initial Comments of Frontline Wireless, LLC (filed May 23, 2007). They were the most significant purchasers of valuable 700 MHz spectrum in the Commission's 2008 auction. *Auction of 700 MHz Band Licenses Closes, Winning Bidders Announced for Auction 73*, Public Notice, 23 FCC Rcd. 4572, App. B (rel. Mar. 20, 2008). Verizon won both the sole available national license and 11 of the 12 local licenses in the 700 MHz C Block, described as "likely to be used for wireless data." *Verizon Wins 700 MHz*

New entrants seeking to provide facilities-based competitive services have been relegated to fighting for insufficiently sized blocks of spectrum or using unlicensed spectrum.

To address the growing scarcity of licensed spectrum below 3 GHz and to facilitate competitive entry, Comcast urges the Commission to initiate a careful review of spectrum allocations below 3 GHz,[22/] identifying unused and suboptimally-used spectrum that can be repurposed to meet the burgeoning need for wireless broadband spectrum.[23/] Several European countries are well ahead of the U.S. in identifying large blocks of

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National License, More, ELECTRONISTA, Mar. 20, 2008, *at* http://www.electronista.com/articles/08/03/20/verizon.700mhz.wins/. *See also*, Anne Broache, *Verizon's Spectrum Plans: Speedier Wireless Broadband*, CNET NEWS, Apr. 4, 2008 (quoting Verizon Wireless CEO Lowell McAdam as saying, "With the 700 MHz C block, we're in a premier position to provide the fastest [network] and most complete footprint across the country"), *at* http://news.cnet.com/8301-10784_3-9911450-7.html. As one news report noted, "The licenses supply the company with coverage across all of the US and would allow it to launch any future service with few gaps in its network." *700 MHz Auction Winners Finally Talking*, DSLREPORTS.COM, Apr. 4, 2008, *at* http://www.dslreports.com/shownews/700Mhz-Auction-Winners-Finally-Talking-93295.

Likewise, AT&T announced that with the addition of spectrum won at the 700 MHz auction, it had "enough spectrum to reach 87 percent of the total U.S. population, and 100% of the nation's largest cities." *700 MHz Auction Winners Finally Talking*, DSLREPORTS.COM, *supra*. Even before the auction, AT&T had obtained a significant additional aggregation of prime 700 MHz spectrum through its purchase of Aloha Partners in 2007. *Thirteenth Competition Report* ¶ 55. The Aloha Partners spectrum covered 196 million people in 281 markets, including 72 of the top 100 major metropolitan areas in the U.S., and all of the top 10 markets. *Id*. The acquisition added 12 megahertz of spectrum to AT&T's holdings. *Id*. Additionally, as noted above, AT&T seeks to acquire much of the divested Alltel assets, which also includes valuable spectrum, *see* note 9, *supra*, and the company is also reportedly planning to purchase twenty-four 700 MHz licenses in Washington and Oregon currently held by Vulcan Spectrum, *see* P. Goldstein, *Paul Allen Selling 700 MHz Spectrum to AT&T*, FIERCE WIRELESS, Sept. 17, 2009, *at* http://www.fiercewireless.com/story/paul-allen-selling-700-mhz-spectrum-t/2009-09-17.

22/ The 3 GHz level is suggested because, as explained below, spectrum below that level is generally considered suitable for mobility use.

23/ The Commission has taken a welcome first step in addressing this issue by seeking comment in a new notice of inquiry aimed at addressing "the fundamental question of whether current spectrum allocations, including but not limited to the prime bands below 3.7 GHz, are adequate to support near- and longer term demands of wireless broadband." *See Comment Sought on Spectrum for Broadband*, Public Notice, DA 09-2100 (rel. Sept. 24, 2009).

spectrum to use for wireless services.[24/] For example, Germany has identified 340 MHz of spectrum for wireless network access, and the United Kingdom has set plans to allocate 400 MHz of additional spectrum for wireless services.[25/] In undertaking its analysis of available spectrum, the Commission should not only identify substantial swaths of spectrum, but should also afford new entrants the opportunity to obtain large blocks of spectrum required to compete with incumbents in the provision of wireless broadband services.[26/]

Finally, to ensure that consumers will enjoy reliable, interference-free wireless broadband service, this spectrum should be made available for the most part on a licensed basis. The Commission has allocated ample unlicensed spectrum to determine its efficacy in expanding wireless broadband. For example, the Commission made available through its recent "white spaces" order substantial spectrum on an unlicensed basis.[27/] The Commission adopted rules "to allow unlicensed radio transmitters to operate in the broadcast television spectrum at locations where that spectrum is not being used by licensed services, . . . [to] make a significant amount of spectrum available for new and innovative products and services, including [wireless] broadband data [services]."[28/] This

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24/ *See, e.g.*, *A National Broadband Plan for Our Future*, GN Docket No. 09-51, Comments of T-Mobile USA, Inc., at 15-16 (filed June 8, 2009).

25/ *See id*. at 15.

26/ While a bidder could try to aggregate smaller spectrum blocks during an auction, and many have done so successfully in previous auctions, there is always a risk that a spectrum aggregation strategy could fail. Unlike traditional voice services, spectrum demand for broadband services is such that failure to obtain the sufficient amount of spectrum during an auction could stop a potential new entrant even before it gets started. Thus smaller spectrum blocks raise the barriers of entry and increase the cost and risk of entering the wireless space.

27/ *Unlicensed Operation in the TV Broadcast Bands*, ET Docket No. 04-186, Second Report and Order and Memorandum Opinion and Order, 23 FCC Rcd. 16807, ¶ 148 (2008) ("*White Spaces Order*").

28/ *Id*. ¶ 1.

extensive allocation should be sufficient to determine whether the aspirations of proponents of unlicensed spectrum will be realized.[29/] By and large, future spectrum allocations should be made on a licensed basis to provide for the improved quality of service that generally comes with licensed spectrum.

2. Propagation Characteristics of Spectrum in Lower Bands Makes It Especially Suitable and Cost-Effective for Wireless Broadband

Not all spectrum is created equal. Spectrum in lower bands possesses propagation characteristics that make it much more cost-effective to deploy a broadband wireless network. The point can be illustrated by comparing spectrum in the recently auctioned 700 MHz band, which was overwhelmingly won by AT&T and Verizon, with the characteristics of spectrum in higher bands.

The ability of wireless signals broadcast in the 700 MHz band to penetrate buildings is well recognized.[30/] Perhaps less well understood, but more significant from the vantage point of a new entrant seeking to compete against Verizon and AT&T, is that lower frequency spectrum can transmit more bandwidth over longer distances than higher

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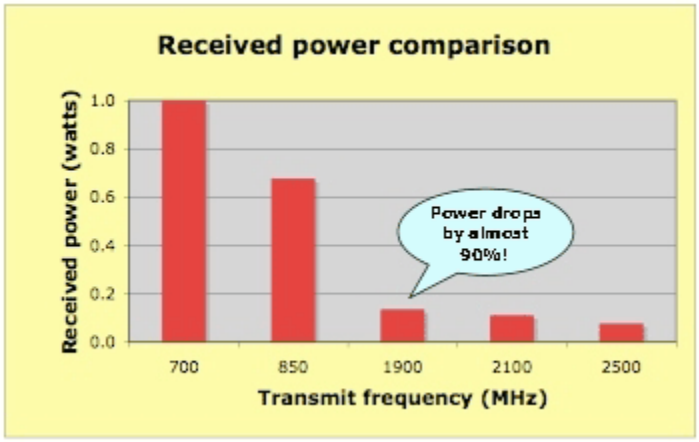
29/ *See, e.g., Unlicensed Operation in the TV Broadcast Bands*, ET Docket No. 04-186, Comments of Dell, Google, Hewlett-Packard, Intel, Microsoft, and Philips, at ii (filed Jan. 31, 2007) ("This ["white spaces"] decision was a crucial first step towards providing broadband access to millions of Americans and enabling a wide range of innovative wireless devices and services which are not practical at higher frequencies."); *White Spaces Order*, Statement of Chairman Kevin J. Martin ("I fully expect that everything from enhanced home broadband networks, to intelligent peer-to-peer devices, and even small communications networks will come into being in TV 'white spaces.'"); *White Spaces Order*, Statement of Commissioner Jonathan S. Adelstein ("Because we are a nation of innovators and entrepreneurs, the Commission's decision to open fallow spectrum to new uses will give our country an opportunity to reclaim its place as a world leader in broadband deployment."); *White Spaces Order*, Statement of Commissioner Michael J. Copps (declaring that the new white spaces rules "should be of enormous benefit in solving the broadband deficit in many rural areas").

30/ Robert X. Cringely, *Everything You Always Wanted to Know about the 700-MHz Auction but Were Afraid to Ask*, POPULAR MECHANICS, Jan. 24, 2008, *available at* http://www.popularmechanics.com/technology/industry/4246037.html.

frequencies.[31/] This means that each cell site transmitting in the lower frequencies can cover a much larger area. Hence, fewer cell sites need to be constructed, translating directly into lower capital costs – an advantage that now lies inordinately with AT&T and Verizon because of their accumulated spectrum holdings (including cellular licenses which were granted for free before auctions were utilized).

The key advantage of low frequency signals is that, other things being equal, they can transmit greater power over a greater distance than higher frequency signals.[32/] For example, the power that a device like a smartphone or a netbook receives from a signal in the 700 MHz band can be ten times greater than the power received from a similarly-located signal transmitted at the 1900 MHz frequency commonly used for PCS service. AWS spectrum at 2.1 GHz transmits even less power over the same distance. The following chart illustrates the point:

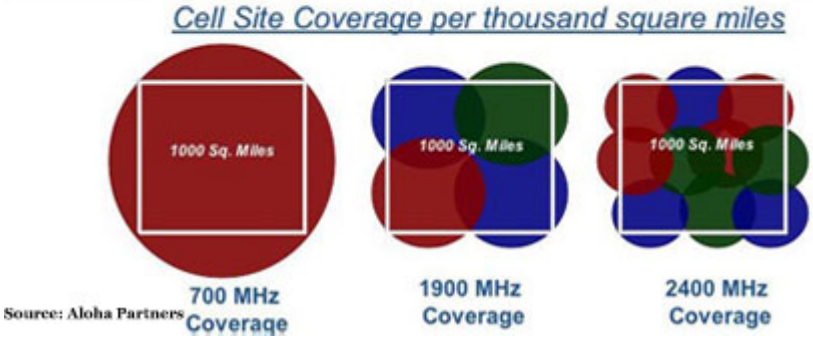


31/ Marguerite Reardon, *Assessing Success in the FCC's 700 MHz Auction*, CNET NEWS, Mar. 19, 2008 ("Some experts believe the [700 MHz spectrum is ideal for offering robust, affordable wireless broadband services."), *at* http://news.cnet.com/8301-10784_3-9897722-7.html.

32/ Paul DeBeasi, *700 MHz -- Why Is It So Valuable?*, SEARCHMOBILECOMPUTING.COM, March 7, 2008, *at* http://searchmobilecomputing.techtarget.com/tip/0,289483,sid40_gci1303990,00.html#. The chart that follows is drawn from this article.

The more power that a mobile device receives, the more bits of information the cell site can transmit to the device and over longer distances.[33/] As illustrated in the following table, some estimates suggest that one tower transmitting at 700 MHz can cover the same geographic area for which 10 cell sites would be needed at 2.4 GHZ.[34/]

	700 MHz Propagation	1900 MHz Propagation	2400 MHz Propagation
Total Network cost @$150k/cell	$150,000	$600,000	$1,500,000
Network Cost per Customer	$180	$725	$1820
# Mos. to Network Cost Breakeven	9 Months	36 Months	91 Months



Comcast's internal studies reached similar conclusions. For example, the studies showed that the power needed to transmit at a 1 Mbps data rate over a wireless broadband network will be effective over a distance of 2.2 miles using 700 MHz spectrum, but will be limited to an effective distance of only 0.6 miles in spectrum above 2 GHz. Comcast's studies conservatively estimated that capital expenditures associated with building a wireless broadband system using AWS spectrum would be 35 percent greater than deploying the same system using 700 MHz spectrum, because of the need to deploy

33/ *Id.*

significantly more cell towers to provide the same service. Analysts have also reported a 35% "propagation premium" in valuing spectrum in the 700 MHz range. One reported that Aloha partners had estimated that 700 MHz networks would likely benefit from a 65 percent cell site radius improvement over 1.7 GHz networks.[35/]

In light of the foregoing, it is not surprising that then-FCC Chairman Kevin Martin told reporters at the close of the FCC's recent 700 MHz auction that it was the most successful auction the agency has ever conducted.[36/] "Even with open platform and aggressive build-out obligations [attached to the 700 MHz licenses]," Chairman Martin said, "each of these [700 MHz] blocks sold for more than AWS-1 blocks with comparable bandwidth and license areas."[37/]

The characteristics of lower band spectrum provide AT&T and Verizon, the predominant licensees in this band, with substantial advantages in building out next generation, high-speed wireless networks. In the spectrum inventory, the Commission should place special emphasis on identifying lower band spectrum that is more advantageous for wireless broadband use and determining how to make it available in the marketplace in ways that promote wireless broadband competition from new entrants.

[34/] Om Malik, *700 MHz Explained in 10 Steps*, GIGAOM, Mar. 14, 2007, *at* http://gigaom.com/2007/03/14/700mhz-explained/. The table and illustration that follows are drawn from this article.

[35/] Lehman Brothers, *Google Inc. Company Update, What if Google Wins 700 MHz Spectrum?*, at 4 (Jan. 15, 2008).

[36/] *See* Reardon, *Assessing Success in the FCC's 700 MHz Auction*, note 31, *supra*.

[37/] *Id*. (quoting then-FCC Chairman Kevin Martin).

B. Access to Automatic Data and Home Roaming Will Promote Competition

The importance of automatic home and data roaming has been amply demonstrated in numerous comments to the Commission, including those of SpectrumCo. Comcast refers the Commission to SpectrumCo's filings on this matter.[38/] Comcast concurs in SpectrumCo's request to reconsider the Commission's decision to exclude home roaming from the automatic roaming obligation and to clarify that automatic roaming applies to data services. Comcast's comments here seek to emphasize the detrimental effect that the Commission's exclusion of home and data roaming from automatic roaming rights has on competition – and hence on investment and innovation.

The Commission has long recognized that roaming rights are pivotal to competition. It has, therefore, coupled rights for spectrum access with access to the right to roaming that incumbent carriers typically provide each other. During the PCS auction in 1996, for example, the Commission stated "that the availability of roaming on broadband wireless networks is important to the development of nationwide, ubiquitous, and competitive wireless voice telecommunications."[39/] The Commission recognized that new entrants would be harmed by the lack of access to roaming because "during the period in which broadband [PCS] systems are being built, market forces alone may not be

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[38/] *See Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers*, WT Docket No. 05-265, Petition for Reconsideration of SpectrumCo LLC (filed Oct. 1, 2007) ("SpectrumCo Petition for Reconsideration"); *id*., Comments of SpectrumCo LLC (filed Oct. 29, 2007) ("SpectrumCo Roaming Comments"); *id*., Reply Comments of SpectrumCo LLC in Support of Petitions for Reconsideration (filed Nov. 16, 2007).

[39/] *Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services*, CC Docket No. 94-54, Second Report and Order and Third Notice of Proposed Rulemaking, 11 FCC Rcd. 9464, ¶ 2 (1996) ("*1996 Roaming Order*").

sufficient to cause roaming to become widely available."[40/]

The Commission reversed this longstanding policy in its *2007 Roaming Order* by excluding "home" roaming and data roaming from the automatic roaming obligation.[41/] Home roaming refers to roaming rights in areas where licensees hold licenses or spectrum usage rights. The home roaming exclusion adversely affects those entities that have made investments in spectrum and intend to build out their own networks. These potential facilities-based competitors are most likely to experience discriminatory roaming practices by incumbent carriers fearing new competition.

A new entrant, particularly one intending to establish a national footprint, must have the ability to offer its customers seamless roaming as it builds out its network. It is simply impossible, however, to build out a nationwide network overnight – it literally takes years for even the best capitalized companies. Moreover, the need to clear certain spectrum, such as the AWS spectrum, of incumbents before a license can be used creates delays outside of the new licensee's control. Incumbent clearing is an inconsistent process that could be accomplished quickly in one market and take years in another, hamstringing the ability of a new licensee to build its network.

[40/] *Id*. In the early years of cellular service licensing, the FCC enforced a so-called "head start" policy that permitted cellular licensees to prohibit resale of their services by facilities-based competitors in areas where the competitor also held a cellular license. The policy, based on "concern that a licensee . . . would serve much of its licensed area by using its competitor's facilities rather than building out its own network," was eliminated by the Commission in 1996, upon recognition that "the exception [was] no longer necessary to serve its intended purpose, and that its elimination will promote procompetitive goals, as well as maintain parity among competing providers." *Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services*, CC Docket No. 94-54, First Report and Order, 11 FCC Rcd. 18455, ¶ 30 (1996).

[41/] *Reexamination of Roaming Obligations of Commercial Radio Service Providers, Report and Order and Further Notice of Proposed Rulemaking*, 22 FCC Rcd 15817 (2007) ("*2007 Roaming Order").*

Customers nevertheless expect ubiquitous coverage from a wireless provider, and they expect to have this coverage from the moment they begin using a new carrier's services. Consumers will not care that it takes time to build out markets. Thus, as SpectrumCo stated in its comments, the home roaming exception "has effectively created a regime whereby new entrants will have to build out to all parts of their license areas before they can serve anybody, if they wish to sell a geographically ubiquitous service."[42/]

Arguments that automatic home roaming creates a disincentive to build out networks and encourages piggy-backing or free-riding are wholly misplaced.[43/] There is no free-riding since incumbents are paid for the roaming services they offer and, by definition, home roaming only applies where a new entrant has already made substantial investment in obtaining licenses and, as a result, has an incentive to build out its network. The new entrant does not need the additional "incentive" of denial of home roaming rights to force it to build. Moreover, roaming rates are subject to the Communications Act's "just and reasonable" standard which can be applied consistent with the Commission's stated goals of promoting facilities-based wireless competition and preventing free-riding.

The Commission's decision to exclude automatic roaming for wireless data services should also be revisited. The Commission drew no distinctions between

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42/ SpectrumCo Petition for Reconsideration at 13.

43/ *See, e.g.*, *Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers, Automatic and Manual Roaming Obligations Pertaining to Commercial Mobile Radio Services*, WT Docket No. 05-265, Verizon Wireless Comments at 17-18 (filed Nov. 28, 2005); *id*., Verizon Wireless Reply Comments at 19-23 (filed Jan. 26, 2006); *id*., Opposition of Verizon Wireless at 4-8 (filed Nov. 6, 2007); *id*., AT&T Opposition to Petition for Reconsideration at 3-8 (filed Nov. 6, 2007).

different types of roaming in its 1996 Roaming Order. Excluding data roaming now, when use of wireless data services is exploding, defies consumer expectations. Consumers will expect to be able to use devices designed for data services everywhere, just as with mobile voice services.[44/]

The predominance of AT&T and Verizon in the wireless marketplace provides additional justification to extend automatic roaming to data services. Given their nationwide footprint, these carriers have far less need for roaming at this stage of their development than new entrants and have the leverage necessary to obtain reasonable access to the roaming that they do require. For the same reason, they have little incentive to enter into reasonable roaming arrangements with new competitors and new entrants have little leverage with which to bargain.[45/]

[44/] Granting an automatic roaming right for data services is well within the Commission's authority and does not require the Commission to decide whether high-speed data roaming is either a commercial mobile service or an information service. Under Section 303(r) of the Communications Act and other provisions of Title III, the Commission "has plenary subject matter jurisdiction over the management and use of radio spectrum." SpectrumCo Roaming Comments at 15. The Commission also possesses and has used its ancillary jurisdiction under Title I to extend regulation to services that are information services or that, like voice over Internet protocol ("VoIP"), remain unclassified. Ancillary jurisdiction under both Title I and Title III can be similarly used to require automatic data roaming, even without classifying the service, similar to what the Commission has done in extending various obligations to interconnected VoIP providers. A data roaming requirement would clearly be ancillary to the Commission's statutory mandated responsibilities for the use of the radio spectrum and to the extent it "gives end users access to a foreign network in order to communicate messages of their own choosing," would be ancillary to sections 201(b) and 202(a) of the Communications Act. *1996 Roaming Order* ¶ 10. For a more complete discussion of the basis for Commission authority to require automatic data roaming, see SpectrumCo Roaming Comments at 11-20.

[45/] The incentive to utilize these advantages to thwart entry by Comcast and other cable companies into the wireless marketplace is heightened by the increasingly intense competition between cable companies and telephone companies over the "triple play" of voice, video and broadband Internet access – with mobility soon to become the fourth leg in a "quad play." As Comcast begins to expand into wireless services, AT&T and Verizon would naturally seek to use of their ability to preserve their existing advantage in having established, nationwide wireless offerings that they can bundle with their wireline and video services.

C. Access to Utility Poles at Reasonable Rates Will Promote Competition

Given the increasingly difficult political and practical hurdles to erecting stand-alone wireless towers, access to utility poles is increasingly important for the rapid deployment of new and advanced wireless networks. The problem was stated succinctly by CTIA:

> [W]ireless providers face considerable regulatory, technical, and environmental hurdles when meeting the demands for improved and expanded network capacity and coverage. Carriers endure extensive delays, inflated costs and difficulties in obtaining approval for new tower structures. These challenges seriously constrain the ability of wireless providers to effectively compete in the marketplace, address coverage gaps and increase capacity to meet consumer demands. With zoning restrictions, lack of other suitable structures, and spectrum-related challenges, electric utility poles are fast becoming the structures of last resort that are necessary for wireless carriers to achieve ubiquitous coverage.[46/]

Access to utility poles is particularly critical for new entrants seeking to rapidly build out broadband wireless networks. Numerous antenna sites must be deployed to achieve high throughput, particularly in urban or residential areas where building new towers may be most problematic. And, as noted above, providers relegated to higher spectrum bands will have to construct more sites to achieve the same coverage as would be available using lower band spectrum.

Although the right of wireless providers to place their communications equipment on utility poles has been affirmed by the Commission and the courts,[47/] many utilities still

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[46/] *Implementation of Section 224 of the Act; Amendment of the Commission's Rules and Policies Governing Pole Attachments*, WC Docket No. 07-245, Comments of CTIA -- The Wireless Association, at 4 (filed Mar. 7, 2008) ("CTIA Pole Attachment Comments").

[47/] *Implementation of Section 703(e) of the Telecommunications Act of 1996, Amendment of the Commission's Rules and Policies Governing Pole Attachments*, CS Docket No. 97-151, Report and Order, 13 FCC Rcd. 6777, ¶¶ 39-41 (1998); *Nat'l Cable & Telecomm. Ass'n v. Gulf Power Co.*, 534 U.S. 327 (2002).

refuse to provide timely or fairly priced access, creating an unlawful and unnecessary barrier to entry. The Commission should thus affirm that broadband providers have access rights to utility poles on reasonable, non-discriminatory terms. The Commission should also consider clarifying that wireless providers may place appropriate equipment on pole tops and cable strands.[48/] In this regard, the Commission should take into account new, more efficient pole attachment arrangements.

48/ *See e.g.* CTIA Pole Attachment Comments at 11-13.

III. CONCLUSION

Comcast appreciates the opportunity to address these critical issues. As explained above, for competition and innovation in the wireless marketplace to be maintained in the face of rapidly expanding demands for wireless (and specifically wireless broadband) services, the Commission must expeditiously address important issues such as spectrum availability, automatic data roaming and home roaming, and pole attachment rates and availability. The future of a vibrant wireless services marketplace will benefit from the Commission's careful attention to these issues.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I, Ernest C. Cooper, hereby certify that on this 30th day of September 2009, the foregoing document, Comments of Comcast Corporation, was filed electronically through the FCC's Electronic Comments Filing System (ECFS) and copies were served on the following as indicated:

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