

Critical Need for Additional Spectrum to Meet Growing Consumer Demand for Mobile Services

Mary N. Dillon
President and Chief Executive Officer
United States Cellular Corporation

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“Using Spectrum to Advance Public Safety, Promote Broadband, Create Jobs and
Reduce the Deficit”

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INTRODUCTION

Chairman Walden, Ranking Member Eshoo, and members of the Committee, it is a pleasure to appear before you today. My name is Mary N. Dillon and I am President and Chief Executive Officer of United States Cellular Corporation. Today's topic is one of great importance to the wireless industry and wireless consumers, as well as to jobs and growth across all sectors of the U.S. economy.

U.S. Cellular is the sixth largest mobile operator in the U.S., serving over 6 million customers in rural, suburban, and urban markets in twenty-six states. We are members of the Rural Cellular Association as well as CTIA – The Wireless Association. We provide award-winning call quality and customer service. U.S. Cellular was rated the best cellphone service provider by Consumer Reports in January 2011¹, and has received numerous J.D. Power awards over the last five years.²

U.S. Cellular's networks serve the needs of consumers, businesses and public safety agencies. Our commitment to meeting customers' needs includes the on-going deployment of cell towers and advanced technologies to provide voice and broadband services to many unserved and underserved areas. Our aggressive investment in third-generation broadband networks already reaches about 98 percent of our customers. Our customers demand a high-quality mobile service for business and personal communications, and our wireless services provide critical infrastructure for jobs and economic growth in all types of communities.

¹ Consumer Reports, "Consumer Reports cell-service ratings: AT&T is the worst carrier," ConsumerReports.org (Dec. 6, 2010).

² J.D. Power, "U.S. 2011 Wireless Call Quality Performance Study – Volume 1: Overall Wireless Call Quality Momentum Halts Due to Shifts in Wireless Call and Data Usage Patterns," JDPower.com (Mar. 3, 2011) ([JDPower 2011](http://JDPower.com)).

Like other wireless carriers, U.S. Cellular needs and seeks to acquire additional spectrum to facilitate its deployment of fourth-generation broadband services and to meet the rapidly growing demand for wireless services.

CONSUMERS DEMAND MORE BROADBAND WIRELESS SERVICES, REQUIRING MORE NETWORK CAPACITY

Throughout its brief 25-year history, the wireless industry has been able to provide consumers and businesses with an ever-evolving, expanding array of innovative products and services. Carriers initially offered only voice communications, but now provide a wide range of broadband services, including high-speed data, video, and Internet services. What was once a novel, niche offering for only the most sophisticated users has become an essential service that vast numbers of consumers have come to depend upon in their daily lives for business as well as personal communications.

The range of new mobile services is huge and the growth in demand for these mobile services is breath-taking. In 2010, mobile data traffic nearly tripled, for the third year in a row.³ And yet, the emergence and penetration of mobile data usage is still at an early stage; Cisco forecasts that the volume will grow 21-fold from 2010 to 2015.⁴ Consumers' skyrocketing uses of innovative mobile services are creating economic growth and jobs. As FCC Chairman Genachowski recently highlighted in speaking to the CTIA annual convention, the number of mobile applications downloaded grew to 5

³ Cisco, "VNI Mobile U.S. Fast Facts" (Mar. 2011).

⁴ Id.

billion in 2010 from just 300 million in 2009; and mobile online shopping brought in nearly \$4 billion in revenue in 2010, up from \$1.4 billion in the prior year.⁵

Think about your own experience. I venture to say that virtually everyone in this room today now relies on one or even several mobile devices including a smartphone, tablet, or other mobile technologies every day, even every hour – both for business and personal communications. In fact, mobile data devices are arguably the most important consumer products that exist today. To help you understand the explosion of mobile data traffic, let's look closer at smartphones and tablets. Smartphones generate 24 times more traffic than a basic wireless handset, and consumers are rapidly shifting to these devices.⁶ In 2010, smartphones accounted for 35 percent of all handset connections, and average data traffic per smartphone doubled during that year.⁷ Smartphone sales in the U.S. are expected to increase by 42% this year.⁸ Tablets, the fastest-growing category of devices, average about 122 times the mobile data traffic of a basic handset, and analysts project sales of 55 million tablets this year.⁹

Demand for these products and services will continue to increase at an accelerating rate. U.S. Cellular and other carriers want to ensure that wireless networks will be able to meet consumers' and businesses' growing needs for high-speed, reliable and ubiquitous access to data, other information and an expanding universe of applications.

Consumers use and enjoy mobile broadband technologies and services without thinking about what needs to go into the carriers' networks to support them. While the

⁵ FCC Chairman Julius Genachowski, "Remarks as prepared for delivery: CTIA Wireless 2011" at 5 (Mar. 22, 20110).

⁶ Id.

⁷ Cisco, supra.

⁸ <http://www.gartner.com/it/page.jsp?id=1550814>

⁹ Genachowski, supra, at 4-5.

future holds great promise for the industry, and, in turn, for innovation and job creation, there are headwinds threatening growth and the ability to service demand that need to be addressed by Congress to ensure that this promise is fully realized. Despite heavy investments in networks by carriers, and advances in technologies for devices and network infrastructure to support broadband services, there is one key element of wireless networks that is in critically short supply -- spectrum.

MORE SPECTRUM FOR WIRELESS CARRIERS THROUGH INCENTIVE AUCTIONS OF UNDERUTILIZED BROADCASTER SPECTRUM

The focus of this hearing, “spectrum,” raises several of the most important issues confronting the wireless telecommunications sector today – in reality, these are key issues confronting all sectors of the nation’s economy and society in all communities. There are three issues I highlight for you that merit your time and action if the industry is to achieve its potential over the next few years. Those issues are:

- 1) The critical need for additional spectrum to meet growing consumer demand for mobile services;
- 2) The need to provide a nationwide interoperable mobile broadband public safety communications network; and,
- 3) The rules that should govern spectrum usage going forward.

Of these topics, I believe the most important is the increasing demand for mobile services. In short, to meet this demand, more spectrum must be made available.

There is widespread agreement among carriers, the high-tech community, and the government that we are facing a severe spectrum shortage in the next few years. Here are a few examples.

First, the FCC's National Broadband Plan (released in March 2010) points to the growing demand for mobile broadband services and recommends that the federal government make 500 megahertz of spectrum newly available for broadband within ten years, of which 300 megahertz should be made available for mobile uses within five years. "More efficient allocation and assignment of spectrum will reduce deployment costs, drive investment and benefit consumers through better performance and lower prices."¹⁰ Without prompt actions to make more spectrum available, the shortage will increase despite the fact that new fourth-generation technologies are more spectrum efficient.

Second, it has been reported that the consumer benefits from freeing up spectrum for mobile broadband could reach \$300 billion.¹¹

Third, the Consumer Electronics Association (CEA) and other representatives of technology companies strongly support increasing spectrum for broadband services based upon the increasing demand they see in the business and consumer marketplace for their devices and services. In February 2011, CEA (promoting growth in the \$186 billion U.S. consumer electronics industry) stated: "Our nation's global competitiveness depends on broadband and ensuring that our finite spectrum is allocated to the most efficient and economically beneficial wireless services.... CEA and its members look forward to expanding wireless broadband, and in particular advancing the President's

¹⁰ FCC, National Broadband Plan: Connecting America at XII (Mar. 2010).

¹¹ Genachowski, supra, at 9.

call for incentive auctions to redeploy underused broadcast spectrum for wireless broadband while reducing the federal deficit.”¹² Similarly, the Information Technology Industry Council said: “Making additional spectrum available for commercial services as called for in the National Broadband Plan is going to be critical in creating jobs, driving innovation, and cultivating the technologies of the future.”¹³

Fourth, and this is a key point that is frequently omitted from discussions about the availability of spectrum, international comparisons demonstrate that the United States uses wireless spectrum more intensively than other major industrialized nations, but lags in identifying new spectrum for mobile broadband services. The United States has more wireless subscribers served per megahertz of spectrum allocated (a measure of efficient use of spectrum), and has by far the highest average consumers’ minutes of use per month. Yet, while the United States struggles to make significant additional spectrum available for wireless broadband services, in recent years, Japan has identified 400 MHz of new spectrum for auction; Germany 350 MHz; the UK 355 MHz; and each of France, Italy, Canada and Spain more than 250 MHz.¹⁴

There is widespread public support for freeing additional spectrum for commercial mobile uses. A recent nationwide consumer survey commissioned by U.S. Cellular shows that nearly 60 percent of the American public supports making more spectrum available for wireless carriers.

¹² Consumer Electronics Association, “CEA Applauds President Obama’s Focus on Wireless Spectrum” (Feb. 10, 2011).

¹³ Information Technology Industry Council, “Technology Industry Launches High Tech Spectrum Coalition” (Sept. 23, 2010).

¹⁴ Data compiled by CTIA – The Wireless Association; Letter from CTIA – The Wireless Association and Consumer Electronics Association to Senators Rockefeller and Hutchison and Representatives Upton and Waxman (Mar. 17, 2011).

In a recent speech to the CTIA convention, Chairman Genachowski referred to spectrum as “our invisible infrastructure...the oxygen that sustains our mobile communications.”¹⁵ He’s right about that assessment. Without additional spectrum becoming available, consumers’ wireless experiences will suffer. As the leader of a company that consistently wins awards for its high quality network and overall consumer satisfaction, I shudder to think about the consequences of severe congestion where video freezes, calls are dropped, congestion pricing becomes a common offering, and surfing the web turns into an unbearable crawl.

Consumers have been experiencing the adverse effects of demand for mobile services challenging or even outstripping wireless network capacity. Consider first the quality of voice calls. According to semi-annual studies by J.D. Power, voice call quality (measured by the incidence of problems in seven areas, including dropped calls, static/interference, and failed call connection on the first try) steadily improved from 2003 through 2009. However, the recent growth in demand for mobile services, particularly mobile data and video traffic, halted this trend. The most recent study found that average problem rates for users of traditional handsets rose by 2 problems per 100 calls in just six months. On average, wireless customers in the Washington, D.C. metro area experienced 18 problems per 100 voice calls, and nationwide smartphone customers experienced 13 problems per 100 voice calls.¹⁶

As for wireless data performance problems, data service quality issues include slow downloads and Internet searches as well as unavailable and dropped connections.

¹⁵ Genachowski, supra, at 5.

¹⁶ JDPower 2011, supra; J.D. Power, “2010 U.S. Wireless Call Quality Performance Study – Vol. 2,” JDPower.com (Sept. 9, 2010).

iPhone customers generated a tremendous surge in traffic. Network congestion led to strong consumer concern with network quality.¹⁷ Moreover, slow, unreliable data services threaten to choke off new mobile applications, including machine-to-machine communications that could increase economic productivity and energy efficiency. One recent engineering analysis of mobile broadband by Rysavy Research concluded: “While carriers will attempt to alleviate congestion in the short-term by offloading traffic using femtocells and picocells, mobile innovation will falter without access to the substantial additional spectrum that American consumers and businesses will soon need, and the consequences of inaction for the nation are unacceptable.”¹⁸

Without more spectrum, innovation and competitiveness in areas such as health care, education, and small business will be impeded. That is why Congressional action here is crucial. Also remember that it will take years following the passage of legislation before auctions are completed, spectrum cleared and services deployed. That’s why Congress must act now.

So what should Congress do? The most efficient way to meet this rising demand is to give the FCC the authority to conduct incentive auctions for whatever underutilized broadcaster spectrum may be identified. Doing so will improve services, unlock innovation, and generate significant funds that Congress can determine how best to utilize.

¹⁷ Consumer Reports, supra.

¹⁸ Rysavy Research, “The Spectrum Imperative: Mobile Broadband Spectrum and its Impacts for U.S. Consumers and the Economy – An Engineering Analysis” at 4 (Mar. 16, 2011).

RULES FOR SPECTRUM AUCTIONS, PUBLIC SAFETY, INTERCONNECTION AND UNIVERSAL SERVICE FUND

The most effective way to maximize the value of licensed spectrum is to structure auctions in small area blocks rather than national or mega-regional swaths. Auction structures providing for national or mega-region licenses preclude U.S. Cellular and other smaller carriers from being able to bid or compete effectively and win in such auctions. That in turn significantly reduces the revenues such auctions could generate.

Any legislation to authorize auctions must ensure that as many companies as possible can effectively bid and win licenses. More licensees mean more competitors in the marketplace, greater innovation and customer satisfaction, and, in a positive case of synergy, increased revenues to the Treasury.

As part of the goal of effective allocations of spectrum for mobile broadband uses, we must determine how best to provide public safety agencies with networks that meet their needs. Since 2007, U.S. Cellular has been actively engaged in the debate over what to do with the 700 MHz D block spectrum. We believe there are three policy principles that Congress should consider and that can be accommodated simultaneously in one set of rules.

- First and foremost, a national interoperable broadband network should be rapidly deployed meeting public safety's technical and availability requirements;
- Second, there should be opportunities to expand competitive broadband services subject to the needs of public safety, such as access to additional capacity in the case of emergencies; and
- Third, the first two policy considerations must ensure there is an efficient use of public resources and taxpayer dollars.

Importantly, the needs of public safety and commercial users for additional spectrum and cost-effective networks are mutually assisting, not inherently conflicting.

In testimony before House subcommittees on two prior occasions, U.S. Cellular supported the approach of a regional public-private partnership model.¹⁹ We also supported the recommendation in the FCC's National Broadband Plan for a commercial auction of the D block. While we can see ways where, with proper legislative safeguards, a proposal to reallocate the spectrum to public safety could succeed, we still believe a public-private partnership model has merit. An arrangement in which commercial operators construct and operate the shared network at their expense and then work in partnership with regional public safety governing bodies to ensure interoperability and prioritization of use for the first responder community represents a unique and fiscally sound middle ground solution.

Finally, we need to update the rules that govern the use of spectrum with regard to interoperability and ubiquitous availability of mobile services. In order to maximize consumer benefits, auctions must be structured to guarantee that services deployed over newly available spectrum are capable of being utilized with maximum efficiency.

Legislation should mandate that carriers be required to deploy networks and services that are interoperable across the industry. If interoperability is not addressed, consumers (including public safety) will be unable to seamlessly roam on other networks and consumers will be unable to take handsets to other carriers if they choose

¹⁹ LeRoy T. Carlson, Jr., "Area Licensing: A Solution for the Public/Commercial Partnership in the 700 MHz D Block," Testimony before the House Committee on Homeland Security, Subcommittee on Emergency Communications, Preparedness and Response (Sept. 16, 2008); Joseph R. Hanley, Testimony before the House Subcommittee on Communications, Technology and the Internet (June 17, 2010).

to switch providers. Requiring interoperability will also have the benefits of fostering greater competition, reducing the prices of handsets and devices, and ensuring there is consumer choice in the marketplace.

As the Committee focuses on mechanisms to facilitate deployment of broadband services to consumers, please don't lose sight of the fact that there are consumers who live in rural areas that are non-economic to serve and, therefore, need some form of assistance. Today, that assistance is met through the Universal Service Fund, which I know needs to be updated and made to be more efficient. While this issue is not the central focus of this hearing, it does relate to spectrum policy as wireless carriers are going to continue to be challenged to build out and manage operations and maintenance in these areas. How Congress and the FCC handle the wireless portion of that program will have serious ramifications and I look forward to talking with you further about those concerns.

As an advocate for mobility on this panel, I urge you to ensure that consumers in the most rural portions of this country have access to the same kinds and quality of mobile voice and broadband services as those in urban areas. That was the standard called for in the 1996 Act and I see no reason that it should not be a goal today. As you and the FCC consider reforming USF, remember there are rural areas today where calls drop, access is very limited, and dead zones are commonly known throughout the local community. Despite what some of the largest carriers might advertise or tell you, their networks do not completely cover the nation. Mobile services are not available nationwide, and for these rural areas USF support is essential to finishing the job of a truly ubiquitous network.

CONCLUSION

In closing, let me reiterate my strong support for adoption of incentive auction legislation to increase the spectrum available for commercial mobile services. I also reiterate my desire that we solve the public safety debate as part of expanding the spectrum available for commercial mobile services, through a public-private partnership for the D block.

Thank you for the opportunity to testify today and I look forward to answering any questions you may have for me.