

**Before the**  
**Subcommittee on Communications and Technology**  
**United States House of Representatives**

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

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**SUMMARY OF MAJOR POINTS.** Using voluntary incentive auctions, the FCC could free up much-needed additional spectrum for mobile broadband use by inducing incumbent licensees to relinquish their spectrum for a share of the ultimate auction proceeds.

**The U.S. is facing a severe mobile broadband spectrum shortfall.** New technology and investment can help meet the burgeoning increases in mobile data demand, but the allocation of additional spectrum should play a vital role in relieving congestion and promoting prosperity, jobs, and innovation.

**Voluntary incentive auctions would help address this spectrum shortfall.** The voluntary nature of the process ensures incumbents who choose to sell and mobile broadband operators who choose to buy spectrum both would be better off. Taxpayers will benefit because incentive auctions – by reducing transactions costs and holdout problems – can produce valuable cleared spectrum. The gains to society and the economy from lower prices, more minutes of use, less congestion, and new more valuable services would be in the hundreds of billions of dollars.

**Incentive auctions can be prudently implemented on broadcasting spectrum now.** Over the air TV broadcasting would remain available to those consumers who rely on it. The costs of broadcasters whose channels are changed (*i.e.*, repacked) would be covered. But, making repacking voluntary would give many broadcasters “hold-out” power – leaving little, if any, money for the U.S. Treasury. Inventorying spectrum and using incentive auctions can and should proceed in parallel. Finally, the bidding process can be kept competitive to ensure that broadcasters do not earn unreasonable windfalls.

**Intel urges the members of this Subcommittee and Congress to pass legislation this year to give the FCC broad authority to conduct voluntary incentive auctions.**

## **Introduction**

I am Peter K. Pitsch, director of Intel's global spectrum and communications policy efforts. Intel is the world's largest semiconductor manufacturer and a world leader in computing innovation. We design and build the essential technologies that serve as the foundation for the world's computing devices. We strive to accelerate the convergence of computing and communications through silicon-based integration.

Prior to joining Intel twelve years ago, I worked on telecommunications policy issues at the FCC from 1981 to 1989 as chief of staff to Chairman Dennis Patrick and as chief of policy and planning for Chairman Mark Fowler and in private practice from 1989 to 1998. In total I have worked on spectrum and other telecommunications policy issues for nearly 30 years.

It is an honor to appear before this Subcommittee to testify on the benefits of granting the FCC legislative authority to conduct incentive auctions. Intel strongly supports passage of legislation giving the Federal Communications Commission broad legislative authority to conduct incentive auctions. Intel, along with Alcatel Lucent, Apple, Cisco, Ericsson, Nokia, Qualcomm and Research in Motion, formed the High Tech Spectrum Coalition (HTSC) to advocate specifically for enactment of such legislation.

Using voluntary incentive auctions, the FCC could free up much-needed additional spectrum for mobile broadband use by inducing incumbent licensees to relinquish their spectrum for a share of the proceeds generated from the auction of the cleared spectrum. The benefits to U.S. consumers and taxpayers from making this additional spectrum available for mobile broadband use would be enormous.

Today I wish to make three points:

- The U.S. is facing a severe mobile broadband spectrum shortfall.
- Voluntary incentive auctions would help address this spectrum shortfall.
- Incentive auctions can be prudently implemented on broadcasting spectrum now.

**The U.S. is facing a severe mobile broadband spectrum shortfall.**

Mobile data demand is burgeoning. Private and FCC analyses predict that mobile data traffic will increase 25 to 40 times in the next four years.<sup>1</sup> These projections are consistent with Intel’s experience. Smart phones, tablets and notebooks are accessing much more video. 61M Americans now have smart phones ... and that number is growing fast.<sup>2</sup>

New technology and investment can help, but the allocation of additional spectrum should play a vital role in relieving congestion and promoting prosperity, jobs, and innovation. The pace of improvements in radio technology, while impressive, will not keep pace with the

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<sup>1</sup> The Yankee Group estimates that mobile data traffic will increase 25 times by 2014. Yankee Group, *Spectrum-Rich Players Are in the Driver’s Seat for Mobile Broadband Economics*, June 2009. Cisco estimates that such traffic will increase 40 times over the same 4 year period [from .09 exabytes/month in 2009 to 3.6 exabytes/month by 2014]. See Cisco, “Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010-2015,” white paper, February 2011, downloaded on March 18, 2011 from: <http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/whitepaper> The FCC projects that 2014 demand will be 35 times greater than that of 2009. See “Mobile Broadband: The Benefits of Additional Spectrum,” FCC Staff Technical Working Paper, October 2010, Federal Communications Commission, Washington, DC, p.9.

<sup>2</sup> Remarks of Chairman Julius Genachowski, Federal Communications Commission, FCC Spectrum Summit, “Unleashing America’s Invisible Infrastructure,” Washington, D.C., October 21, 2010. Moreover, the percentage of Americans age 12 and older who have a smartphone has more than doubled in the past year, from 14 percent to 31 percent of the population according to a new national survey. *Arbitron Inc./Edison Research, The Infinite Dial 2011: Navigating Digital Platforms* (rel. April 5, 2011), available online at [http://www.edisonresearch.com/home/archives/2011/04/the\\_infinite\\_dial\\_2011.php](http://www.edisonresearch.com/home/archives/2011/04/the_infinite_dial_2011.php)

increase in mobile data demand. Nor will off loading to WiFi networks, splitting cells and other such techniques solve the problem.<sup>3</sup>

All available alternative ways of freeing up more spectrum for mobile broadband use should be considered. In addition to incentive auctions, reforming the Commercial Spectrum Enhancement Act to give federal government users more tools to clear spectrum, giving private users more flexibility to innovate and change use, and inventorying existing uses should be considered.

But, it is important to recognize that the FCC's "command & control" administrative process for reallocating spectrum does not work well. The "low hanging" spectrum bands suitable for mobile use already have been reallocated. And even in easier situations, the administrative reallocation process can be extraordinarily slow and inefficient. For example, the 20-year cellular delay cost U.S. society tens of billions of dollars.<sup>4</sup>

### **Incentive auctions would help address the mobile spectrum shortfall.**

Voluntary incentive auctions would help address our nation's spectrum shortfall in a way that is beneficial to incumbent and new spectrum users, taxpayers, and consumers and society. First, the voluntary nature of the process ensures incumbents who choose to sell and mobile broadband operators who choose to buy spectrum both would be better off. This point bears

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<sup>3</sup> "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." *Rysavy Research, The Spectrum Imperative: Mobile Broadband Spectrum and its Impact for U.S. Consumers and the Economy, An Engineering Analysis*, at 4 (March 16, 2011), available online at <http://www.mobilefuture.org/page/-/rysavy-spectrum-effects-301611.pdf>

<sup>4</sup> Jeffrey H. Rohlfs, Charles L. Jackson & Tracey E. Kelly, n/e/r/a, "Estimate of the Loss to the United States caused by the FCC's Delay in Licensing Cellular Telecommunications," at 1, November 8, 1991 (revised).

emphasis: incentive auctions will reallocate spectrum only when the parties to the transactions view the spectrum's new use as more highly valued than its existing use.<sup>5</sup>

Second, taxpayers will benefit because incentive auctions – by reducing transactions costs and holdout problems – can produce valuable cleared spectrum. Much of the revenue raised from auctioning this spectrum would go to the U.S. Treasury. For instance, economist Coleman Bazelon and engineer Chuck Jackson, in analysis underway for HTSC, conservatively estimate taxpayer gains from using incentive auctions to clear 120 MHz of broadcast spectrum to be in excess of \$20 billion.

Most importantly, the gains to consumers and society from lower prices, more minutes of use, less congestion, and new more valuable services would be enormous and dwarf the gains to incumbents, broadband operators, and taxpayers. Economists Thomas Hazlett and Roberto Munoz estimate that these consumer gains would likely be ten times greater than the private and taxpayer gains.<sup>6</sup> Thus, the net gain to consumers from clearing 120 MHz of broadcast spectrum would be in the hundreds of billions of dollars. Lastly, U.S. policy leadership in the mobile broadband sector could provide a global competitive advantage for American jobs and

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<sup>5</sup> See Letter by 112 economists to President Barack Obama, Stanford Institute for Economic Policy Research, April 6, 2011.

<sup>6</sup> Thomas W. Hazlett & Roberto E. Muñoz, *A Welfare Analysis of Spectrum Allocation Policies*, RAND Journal of Economics, Vol. 40, No. 3 (Autumn 2009), , at 425 (available online at <http://mason.gmu.edu/~thazlett/pubs/Hazlett.Munoz.RandJournalofEconomics.pdf>). “Empirical research undertaken a decade ago found the annual consumer surplus associated with U.S. cellular telephone licenses (issued in the 1980s) at least 10 times as large as annual producers' surplus (Hausman, 1997; Rosston, 2001). Today, U.S. wireless phone market data yield an annual consumer surplus estimate of at least \$150 billion. The total revenue obtained from selling all wireless licenses (not just for mobile telephony) is just \$53 billion. Given that the latter is a present value and the former an annual flow, these data suggest that the ratio (CS to PS) is much above an order of magnitude.”

innovation. Conversely, if our broadband networks are congested or service prices are high, the creation of innovative new services will be stymied and American workers and consumers would be denied valuable services.

**Incentive auctions can be prudently implemented on broadcasting spectrum now.**

Intel believes that a prime candidate for use of voluntary incentive auction authority should be 120 MHz of the spectrum band currently being used for over the air television broadcasting. Four main objections have been raised: (1) consumers would lose access to over the air TV broadcasting, (2) channel moving or repacking would harm broadcasters who choose not to participate in the auction, (3) the use of incentive auctions should be postponed until a spectrum inventory is complete, and (4) broadcasters would earn a windfall. These objections are either misplaced or wrong.

First, over the air TV broadcasting would remain available to those consumers who rely on it. As we discovered in preparation for the DTV Transition, most (roughly 90% of) U.S. households currently receive their TV broadcast content from cable and satellite operators; less than 10% of US households rely exclusively on over the air TV broadcasting. Moreover, analysis underway by Bazelon and Jackson shows that many full power TV stations would continue to operate. And their estimates are conservative, because they do not factor in those stations that would choose to continue over the air operation by moving to the VHF band or by sharing a channel with another station.

Second, broadcasters whose channels are changed (*i.e.*, repacked) would be kept whole and there will be ample funds to cover their costs. The Bazelon/Jackson analysis will show that the costs of repacking these broadcasters are relatively small—less than \$900,000 per full power

station on average and under one billion dollars in total. They also will find that there is sufficient tower space to ensure that repacked broadcasters could continue to serve their current coverage areas.

But, it is critical to note that the repacking process should not be made voluntary. The FCC already has authority to mandate that a particular broadcaster move channels, *e.g.* from channel 39 to channel 29. This repacking authority is necessary in order for the FCC to clear and then auction large contiguous blocks of spectrum (as opposed to smaller “swiss cheese” blocks) which are most efficient for mobile broadband use. Making repacking voluntary would give many broadcasters “hold-out” power. In that case clearing large contiguous bands would require that these broadcasters agree on how to exercise their hold out power. Even if they do agree, they would capture virtually all of the auction revenues raised by reallocating spectrum from TV broadcast to mobile broadband use – leaving little, if any, money for the U.S. Treasury.

Third, the spectrum inventory process should not delay the use of voluntary incentive auctions on this band. While Intel supports inventorying current spectrum use, this exercise should not delay the expeditious adoption of legislation granting the FCC incentive auction authority. Again, given the voluntary nature of incentive auctions, they will only reallocate spectrum when the new mobile broadband use is more highly valued by the marketplace than the spectrum’s existing use. So there is no need to delay the use of incentive auctions; in fact, the cost to consumers of delaying such reallocations would be enormous—in the billions of dollars. Inventorying spectrum and using incentive auctions can and should proceed in parallel.

Fourth, the bidding process can be kept competitive to ensure that broadcasters do not earn unreasonable windfalls. It will be important for the Commission to impose strong anti-collusion rules, as they have done in the past. Also, the FCC should have the flexibility to

reduce the amount of spectrum cleared nationally or in a particular market below 120 MHz if they believe broadcasters' bids are too high. If bidders put in a bid for more than they are willing to accept, they may find that their offer is rejected, but the price paid to an accepted bidder is higher than the price they would have been willing to accept. The prospect of this happening should help keep the bidding process competitive. Using these and other auction design tools, the FCC should be able to ensure that broadcasters who choose to relinquish their spectrum licenses would receive auction proceeds reasonably related the enterprise value of a broadcasting operation.

Some commentators object to broadcasters receiving any inducement to relinquish their spectrum. It is important to stress, however, that revenues shared with incumbents should not be regarded as windfalls if the alternative is administrative gridlock. Under current spectrum allocations there are numerous instances of inefficient spectrum use that the administrative process is ill-equipped to change. As a result, consumers and society are currently suffering a significant windfall loss because large blocks of spectrum are allocated to lower value uses. Rather than creating a windfall for incumbents, this new auction tool would create a tremendous gain for consumers and society.

## **Conclusion**

Intel urges the members of this Subcommittee and Congress to act expeditiously to give the FCC broad authority to conduct voluntary incentive auctions. Such legislation represents one of the most important opportunities to free up much-needed additional spectrum for mobile broadband and to reform the spectrum allocation process. The benefits to U.S. consumers, taxpayers and society would be enormous.

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