

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of)	
)	
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands)	WT Docket No. 06-150
)	
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
)	

**COMMENTS OF FRONTLINE WIRELESS, LLC
ON GOOGLE’S AUCTION FILING**

Frontline Wireless, LLC (“Frontline”) commends Google Inc. (“Google”) for bringing its entrepreneurial spirit and technological savvy to this proceeding by stressing the urgent need for the Commission to adopt pro-competitive auction and service rules that will remove barriers to entry in the wireless and broadband marketplaces.¹ Google’s contribution to the record is noteworthy for bringing new ideas to the long-standing problem of the spectrally inefficient hoarding or warehousing of spectrum. Google is right: the 700 MHz spectrum is too important to the future of broadband in this country to go unused. Warehousing spectrum may

¹ See Letter from Richard S. Whitt, Google, Inc. to Marlene H. Dortch, Secretary, FCC, May 21, 2007 (“Google Ex Parte”); Comments of Google, Inc., May 23, 2007 (“Google Comments”). See also John Markoff, *Google Proposes Innovation in Radio Spectrum Auction*, The New York Times, May 22, 2007.

be a sensible business strategy for dominant firms, but it certainly does not serve the public to whom the spectrum resource belongs.

As discussed in more detail below, the service rules proposed in this proceeding by Frontline provide the Commission with an unprecedented opportunity to bring the online innovators of today and tomorrow into the spectrum marketplace. Specifically, Frontline proposes that the E Block licensee offer at least twenty-five percent of its average commercial network capacity in open active auctions, which would include, although not be limited to, Google's brilliant idea.

***The Sale of Commercial Network Capacity
in Open Active Auctions Will Reduce Barriers to Competition***

Google's comments highlight the critical importance of encouraging competition, entrepreneurship and innovation from the use of the 700 MHz spectrum.² As Google explains in discussing the consolidated state of the broadband market:

The greater challenge [Google faces] is . . . universal accessibility. Like other Internet-based companies, Google relies on the communications infrastructure provided by underlying carriers in order to reach our ultimate end users. In particular, in the United States, the telephone companies and cable companies control the only means of broadband access to Google's customers.³

To lower the ever-increasing barriers to competition and innovation identified by Google and others, Frontline has urged the Commission to allocate the 10 MHz-wide E Block in the upper 700 MHz band for wholesale, open-access use, with twenty-five percent of the

² Frontline has extensively documented the concentrated nature of the wireless and broadband markets. *See, e.g.*, Comments of Frontline Wireless, Inc., at 9, May 23, 2007 ("Frontline Comments") (describing the rapid consolidation of the wireless industry that has fundamentally and structurally altered the competitive landscape of the late 1990s by removing both national and mid-sized competitors from the market).

³ Google Comments at 2.

licensee's commercial capacity dedicated to open active auctions. This auction service would be "open" in the sense that all interested parties could participate via an online auction interface, and "active" in the sense of a continuous auction of network services. Frontline agrees with Google that by setting network prices competitively and transparently based on supply and demand at any given time, such auction mechanisms "provide more efficient utilization of spectrum, making it available for myriad users and uses."⁴

This commitment to open active auctions, sparked by Google's idea and made manifest by Google's innovative notion, is a logical way to assure that wholesale open access will work in real time and in real experience. With an open auction, buyers can see each others' prices, can be confident that pricing is fair and non-discriminatory, and can be assured that their need for capacity as they build retail businesses will be met by a national provider of roaming.

***Open Active Auctions by the E Block Licensee
Will Thwart Anticompetitive Spectrum Hoarding***

In auctions of scarce but essential assets of any kind, certain buyers will have a powerful incentive to hoard the asset so as to obtain pricing power, as new entrants are shut out of the market without the essential asset. This last important auction of spectrum raises the hoarding problem in a dramatic and critical fashion.

The consolidation of the wireless industry into two leading firms, Verizon and AT&T, is crystal clear. Those firms, by gift from the U.S. Government and merger and auction, have acquired substantial blocks of spectrum – and of course at the present time do not use at any one point anything close to the full range of their airwaves. If they were to add to their hoard by acquiring all the 700 MHz spectrum, their existing power over retail prices would rise

⁴ Google *Ex Parte* at 4.

substantially, and the inevitable results would be anticompetitive pricing, reduced choice, shrunken opportunities for innovation, and foreclosure of market access for new hardware and software solutions. By contrast, an open active auction of new spectrum used by a new network, such as Frontline proposes, is a crucial protection against these public policy calamities.

Where spectrum is plentiful, auctions should create opportunities for entry. But the Government has little or no spectrum left to sell after the pending 700 MHz auction. Moreover, the existing spectrum holders, especially Verizon and AT&T, have not shown any willingness to sell (or resell) the spectrum they have. Indeed, their strategies have been to acquire more, not less, spectrum even while one supposes that they are using less and less of their capacity in their actual businesses, especially in the wake of the recent AWS spectrum acquisitions. The new bottleneck for spectrum use – and the new bottleneck for innovation – is the hoarding by auction winners who have the incentive to simply put any new spectrum into their warehouse. Frontline’s proposal to require the E Block licensee to sell at least a quarter of its commercial capacity in on-line, open active auctions is in effect a guarantee that no one who wins the E Block license will join the ranks of hoarders seeking pricing power by withholding capacity from the market in the classic move of any monopolist.

Meanwhile, the E Block represents only one-sixth of the spectrum to be auctioned but it will provide entrepreneurs and inventors with access to a nationwide broadband licensee fully motivated to sell wireless network services to innovators like Google. In contrast, the retail incumbents who control the wireless market today have a rational incentive to *refuse* such access whenever it could compete with their own (or their wireline affiliates’) myriad retail offerings.⁵

⁵ Comments of Vanu, Inc., at 4-5, May 23, 2007 (“Vanu Comments”) (noting the anti-competitive restrictions placed on modern wireless devices and technology by incumbent carriers (continued...))

To provide a safeguard against monopoly practices, Frontline’s plan for the E Block should be adopted, including the Google-sparked idea of requiring at least twenty-five percent of commercial capacity for the new E Block network to be sold in open active auctions.

The E Block Licensee Will Have Incentive to Continually Improve and Enhance the Open Active Auction Service

There are many iterations of open active auctions by which the E Block licensee could efficiently auction its network services. Google, for example, cites real-time auctions based upon the successful model it uses to sell search-based advertisements.⁶ In a real-time auction, nearly every second a “smart” (*i.e.*, software defined) device would select and pay for use of a given network (*e.g.*, 700 MHz, 1.7/2.1 GHz, 2.5 GHz) based upon the prevailing auction price. This idea will necessitate software innovation in handsets. It would also benefit from software-defined radio on the network side, so that a given network can be open to multiple protocols and multiple spectrum licenses.

On the topic of real-time auctions, the comments of Vanu, Inc. (“Vanu”) illuminate the fascinating possibilities.⁷ As Vanu explains, when handsets can select among competing networks and negotiate through software the terms of access, service quality and price, the beneficiaries will be all consumers, because choice will be maximized. In addition, with such innovative mechanisms for maximizing spectral efficiency, the United States can become the center of wireless innovation worldwide, as opposed to watching that role move to

and explaining that “[o]pen access will allow consumers and businesses to use networks in the manner that is best suited for each business and consumers”).

⁶ Google Comments at 3-4.

⁷ Vanu Comments at 3-4.

Europe or Asia.⁸ For Americans what is at stake is economic growth and job creation in high-paid new categories.

Frontline would try the Google, dynamic auction technique if it won the E Block. It would also conduct online auctions similar to those run by Expedia.com and Travelocity, where users can make reservations for any time and place. Just as airplane seats are wasted if not used, airwaves are gone forever if not used in a given second. Thus, to maximize use, just as Expedia sells seats on line Frontline would sell bandwidth on line. Frontline also would encourage its users to sell and resell capacity on line, as eBay facilitates sale and resale of goods. Of course, the open active auction service also could be used by retail customers who are otherwise locked into long-term contracts – they could enter this “spot” market and get the service they need, and only the service they need.

Notably, as a wholesale provider seeking to maximize use of its commercial network capacity, the E Block licensee will have every incentive to implement the above-described and other mechanisms if there is a market and supporting technology for them. These incentives also ensure that the specific open active auction mechanisms deployed by the E Block licensee can adapt and be enhanced to meet changing market demands. Accordingly, the Commission need not try to predict in its rules which auction mechanisms, the ones described above or not yet invented, will be most efficient. Whether they take the form of real-time, futures, or other auction mechanisms, the licensee’s open active auctions will maximize spectral efficiency and reduce barriers to entry in the wireless and broadband marketplaces.

⁸ *Id.* at 6 (describing software-defined technology that “relies on American based technology companies to compete with radio access systems that increasingly are available predominantly from foreign based telecommunication equipment manufacturers”).

CONCLUSION

Google's comments are an important contribution to the record because they emphasize the dire need for market-oriented mechanisms that will open competition in the consolidated wireless and broadband markets. Frontline's plan provides the formula to achieve that goal via a 10 MHz E Block that will offer an open access wholesale network to all comers, with at least twenty-five percent of that network's commercial capacity sold via a robust open active auction. In finalizing its service rules for the 700 MHz auction, the Commission must not miss this opportunity to put critical spectrum to competitive use.

Respectfully submitted,



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