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1 Introduction

Our previous submission in response to the Report and Order and Further Notice of Proposed Rule Making (FCC 07-72, 27 April 2007) presented economic analysis that supports Frontline's proposal that a national license for the E Block of the 700 MHz band should mandate open access. Open access means that

- (1) wholesale contracting is transparent and nondiscriminatory, and
- (2) there is neither exclusion nor discrimination among devices and communications that conform to the licensee's published standards and operating protocols.

The motivation is straightforward. Extending to the wireless sphere the huge gains to communication and commerce of the wireline Internet will greatly benefit the American public. The creation of the Wireless Internet requires an open network comparable to the wireline network that has made the Internet so beneficial. The 700 MHz auction is the Commission's main opportunity to give the public the full benefits of wireless services from competitive providers of digital telephony, internet connections, and broadband.

This paper extends the economic analysis by addressing claims from opponents of this open access proposal. We argue that the current state of the wireless market, and the potential for improving consumer welfare, justify the following conclusions:

- Open access for the E Block is necessary and will improve the efficiency of the auction outcome. Further, it is essential to address open access in this proceeding. The open-access and wholesale provisions for the E Block are narrowly-tailored remedies and fully consistent with the Commission's goals.
- There is an important market failure in auctions with dominant incumbents. Auction rules that level the playing field between incumbents and new entrants are necessary to assure efficient assignment of the licenses. In particular, the previous AWS auction of high-frequency spectrum was not comparable to the upcoming 700 MHz auction of low-frequency spectrum. If the AWS auction rules are used for the 700 MHz auction then incumbents can block entry and consolidate their dominant positions.

In the next section we justify these conclusions in the context of our replies to others' comments.

¹ This paper was funded by Frontline Wireless, LLC. The curriculum vita of Peter Cramton is attached as Exhibit A; Curriculum vitae of Andrzej Skrzypacz and Robert Wilson were attached to our comments, "Report of Andrzej Skrzypacz and Robert Wilson" filed with Comments of Frontline Wireless, 23 May 2007.

2 Responses to open access opponents' claims

This section explains why the points listed in the Introduction are true, contrary to claims made by some opponents of the open access proposal. It also explains why opposition serves the narrow interests of incumbents rather than the public welfare.

2.1 *The open-access requirement on the E Block is necessary to obtain an efficient auction outcome*

As we explained in detail in our previous comments, the wireless market is highly concentrated and on a path towards even greater concentration that could eventually justify antitrust actions. Indeed, the concentration level is well above levels that normally trigger antitrust scrutiny in merger situations were it not for the FCC's pre-emption of regulation in communication industries. Such concentration can harm consumers in general, and it is especially noxious when incumbent firms can stifle innovative entry straightforwardly in auctions conducted by the FCC. Their exclusions of roaming and selected devices and communications could be interpreted as vertical foreclosure.

Two firms, Verizon and AT&T, now control much of the access to the low-frequency spectrum in the 800 MHz range. Low-frequency spectrum is necessary for low-cost nationwide coverage and robust service. It allows these two firms to charge higher prices and yet have lower churn rates and a higher share of new subscriptions. The financial interests of these two companies are to exclude access by any provider of retail wireless services that might capture market share by competing against their own retail arms and dependent affiliates.

The Wireless Internet can be a source of great benefits to customers. It will greatly improve the efficiency of the markets for communication services, which is the most important policy goal of the Commission. The benefits are likely to accrue mostly to consumers and reduce incumbents' profits. Therefore, the Commission cannot realistically hope that any incumbent will create the Wireless Internet on its own initiative. Hence the Commission must act in the interest of the consumers to designate the E Block for open access and to sell the right to build and operate it to the highest bidder.

Consumer welfare has been enhanced by the introduction and expansion of mobile wireless services. But the absolute level of consumers' gain is not the appropriate metric—instead it should be measured against the gain in consumer welfare that is possible. The introduction of additional competition—competition engendered by an open access E block—can accelerate and magnify the gains in consumer welfare from wireless services. It is this opportunity that the Commission risks missing were it to allow the incumbents to forestall entry in the 700 MHz auction.

2.2 *There is an important market failure in spectrum auctions with dominant incumbents*

Some opponents of open access argue that selling a license with no restrictions to the highest bidder should result in the most efficient assignment of the spectrum.² Subject to various qualifiers, this view can sometimes be a valid guide when all potential bidders are on equal

² For example, see "Comments of Verizon Wireless" pages 51-53, or "Reply Comments of AT&T Inc." Section IV.

footing. But it is severely wrong when some bidders are new entrants and some are incumbents motivated to protect their market shares.

The reason is that entrants and incumbents have very different motives. A new entrant's incentive is to maximize its profits from the license alone, while an incumbent maximizes the sum of its profits from the combination of its existing licenses and new licenses. When its existing profits would be threatened by a new entrant, an incumbent is willing to pay more for a new license to prevent competition than any entrant would pay for the license.

- To gain market share, an entrant prices services on its newly acquired spectrum to undercut the incumbents' prices. Customers benefit from this downward pressure on prices due to increased competition. To gain further market share, a new entrant also wants to offer technical innovations valued by customers.
- In contrast, an incumbent realizes that any competing service offered on the new spectrum steals business from its existing retail service plans. Hence it has muted incentives to offer lower prices or new technologies that compete with its existing offerings. To prevent losing business to new competitors and being forced to reduce prices, an incumbent is willing to pay a premium to acquire the spectrum—and the larger its current market share, the larger is the premium it is willing to pay. It is crucial to realize that under these circumstances, even though an incumbent values winning the license more than an entrant does, that additional valuation does not represent true value added, but rather the incremental value of thwarting competition from entrants.

This is why allowing bidders with large market shares to compete on equal terms with entrants yields an allocation that is distorted away from an efficient allocation. Equal competition among unequal bidders is biased toward those with market shares to protect. The resulting allocation is inefficient in that it displaces entrants who could otherwise have invigorated competition and thus lowered prices to consumers.

2.3 Auction rules that level the field between incumbents and new entrants are necessary to assure the most efficient assignment of licenses

To enable an efficient assignment of the new spectrum, the Commission cannot take a hands-off approach to the design of the service and auction rules. In the early spectrum auctions a spectrum cap prevented each cellular duopolist from obtaining additional licenses in its cellular regions. Comparable intervention is needed now to prevent the current low-frequency carriers from capturing the 700 MHz spectrum to solidify their dominant positions. Because the spectrum cap that the FCC established before the PCS auctions was removed, the chief remaining instruments available now focus on exclusion of the 800 MHz licensees and/or bidding credits for small businesses. Measures of this kind are necessary lest the 800 MHz duopoly is extended to the 700 MHz spectrum to fully and permanently consolidate their dominance. By enabling entrants to compete effectively in the auction, bidding credits for small businesses encourage an assignment of the licenses that is more efficient and ultimately more beneficial to consumers.

This conclusion accords with the argument for restrictions on the E Block license. Nondiscriminatory wholesale contracts for open access to the E Block licensee's network level the field for regional licensees and retailers who compete in retail markets with the retail arms of the incumbents' nationwide vertically integrated proprietary networks.

2.4 It is important to create the Wireless Internet now, not in separate proceedings after the auction

Some parties want the open access and *Carterfone* issues to be addressed in other proceedings, and thus they argue that Commission should not address them separately for this auction.³ We disagree: it is essential to address open access and other provisions of the E Block license in this proceeding.

The Commission cannot readily impose open access on selected licenses after the license assignment and the licenses' prices have been previously determined by an auction process conducted without the bidders' knowing the service rules that will ultimately prevail. A decision before the auction allows the two business models (open-access and proprietary vertically integrated networks) to compete in the auction and subsequently to co-exist and compete for customers. It is better policy to establish the licenses' specifications before the auction, to allow firms competing in the auction to assess their valuations without uncertainty about the future outcomes of additional proceedings.

2.5 The AWS auction is not an appropriate analogy for the upcoming 700 MHz auction, and it did not perform as well as some commenters argue

Dr. Hazlett in his paper "Competition, Auction Receipts and Economic Welfare" submitted on behalf of Verizon in response to the Notice states that the recent AWS auction attracted competitive bidding and no anti-competitive behavior by the incumbents. His supposition that there is an analogy between the AWS auction and the 700 MHz auction is incorrect. The AWS auction allocated very different spectrum—high-frequency spectrum that is not economical for development of a robust nationwide network that could compete with the coverage of existing networks in the 800 MHz band. The AWS auction did not allow any entrant to challenge the position of AT&T and Verizon as the two leading firms with the requisite low-frequency spectrum that is necessary for developing nationwide products. Nor did it create a major threat to the duopoly rents that they earn from their exclusive holds on licenses for low-frequency spectrum.

The situation is very different in the upcoming auction of 700 MHz spectrum. The 700 MHz auction is not "just another auction". It will assign spectrum with physical properties greatly superior to the PCS and AWS spectrum, and indeed, directly comparable to the incumbents' 800 MHz spectrum. The 700 MHz auction is a unique opportunity to prevent entrenchment of the dominant positions of the current incumbents. The FCC should ensure that new entrants have a chance to pursue their business plans and that the "incumbent bias" of auctions described in Section 2.2 does not yield an inefficient allocation of this precious spectrum.

Moreover, the view that the AWS auction was a boon for competition is not correct. In reality, the participation of one new entrant with a nationwide strategy was hampered by the auction rules. The DBS bidders dropped out of the auction when the total of the prices for nationwide coverage by aggregating smaller blocks was evidently well below their willingness to pay. We say this based on the DBS bidders' actual bids for large regional licenses, which might also have reflected discounts from their willingness to pay for nationwide coverage because of exposure risk (as we explained in our previous filing). It is impossible to say whether the DBS

³ For example, see "Reply Comments of CTIA—The Wireless Association" (filed on 4 June 2007), Section V.

bidders would have been successful with different auction rules, but one can say that the AWS auction rules frustrated the participation of this potential nationwide entrant.

Given that vastly more is at stake for AT&T and Verizon in the auction of the 700MHz spectrum, it is clear that if the Commission does not level the playing field then these two firms will have both incentive and ability to discourage new competition in wireless markets at the national level.

2.6 *The open access provisions for the E Block are narrowly tailored remedies, fully consistent with the Commission's goals*

Some parties before the Commission argue that the open-access provisions are heavy-handed regulation and contrary to the Commission's goals. We disagree with both parts of this statement. Rather than being heavy-handed, the proposal asks for a modest restriction on a single 10 MHz block out of the 78 MHz of spectrum licensed for commercial use in the 700 MHz band and no restrictions on the other low-frequency CMRS spectrum. This restriction is no more than minimally necessary to assure open access on nondiscriminatory terms. Without it America will likely never see open access.

Any decision the Commission makes about the service and auction rules is ultimately a decision about the structure of the market for decades to come. Extreme concentration of the low-frequency spectrum in the hands of two firms sets the stage for continued domination by these two companies, unless the FCC takes action now.

Imposing modest restrictions on the E Block license is much less intrusive than the two main alternatives: a) endorsing continued domination of the low-frequency spectrum by Verizon and AT&T's vertically integrated proprietary networks, or b) requiring open access on all spectrum by requiring mandatory roaming at regulated rates. The provisions of the E Block license are confined to the minimal requirements for open access on nondiscriminatory terms. This is the least intrusive of the ways the Commission can establish an infrastructure for wireless communication that is not controlled and manipulated by firms with a chokehold on nearly every aspect of America's digital technology.

The Commission's goal is to allocate spectrum, a very scarce and valuable resource, to its highest and best use as measured by the public welfare. This outcome will not be achieved by selling the 700 MHz spectrum without restrictions to the 800 MHz incumbents, whose high valuations stem from their incentives to protect their current profits by stifling competition rather than creating value added for the public.

Lastly, we add that the effect on the Treasury's revenue of the E Block provisions is much less than the incumbents argue in their comments, and under some scenarios may generate higher bids. Establishment of the Wireless Internet will make all the regional licenses more valuable and hence it will increase the revenue from auctioning other blocks. Further, if the Commission chooses to take no action and adopts rules that perpetuate the incumbents' dominant positions, then the auction will likely be over before it starts—if potential bidders expect the incumbents to win then there will be little competition and low revenue for the Treasury. Evidence from many European countries has shown clearly that auction prices were much lower when incumbents could acquire all 3G licenses than when the auction rules guaranteed a level field for new entry.⁴

⁴ See for example Paul Klemperer "Auctions: Theory and Practice" Chapter D, Princeton University Press, 2004.

Given the dramatic evidence from Europe's sad experience, there is no excuse for repeating such a mistake in the upcoming auction of 700 MHz spectrum. Importantly, similar rules worked well in some countries' auctions and terribly in others' auctions—what did matter was the incumbents' ability in the auction to dwarf competition from potential entrants. The erroneous expectation that the same rules—closely comparable to those for the FCC's auction of PCS spectrum—will work well for many different auctions with differing competitive environments, was a major mistake in the designs used in Europe. In several countries the unexpectedly small revenues brought dismay at the relevant Treasury departments.

3 Conclusion

We see the Commission having three main alternatives: a) do nothing and thus continue the dominance of the vertically integrated incumbents, b) enforce open access on all spectrum by imposing service rules requiring nondiscriminatory terms for roaming on all spectrum, or c) establish an open-access license on a slice of the 700 MHz spectrum to create room for both business structures to co-exist and to compete for customers on price, quality and variety.

We stress that the last alternative is available only now, in the band plan, service rules, and auction design for the licenses to be sold in the upcoming auction of 700 MHz spectrum. It is also the propitious moment for extending to wireless services the advantages of the Internet. We believe that the dire situation implied by (a) and the heavy-handed intervention implied by (b) can be avoided with minimal intervention by the Commission. Applying pro-competitive open access rules to just a single slice of the 700 MHz spectrum leaves most of the spectrum available for other business plans. The E Block license provides the nation a minimal public infrastructure for wireless communication, one comparable to the wireline Internet that has yielded vast benefits.

If an open access license is not created then thereafter the FCC will be limited to forcing selected license owners to open access to retail entry. Doubtlessly the vertically integrated networks will offer solutions for many retail customers, but we emphasize that competition from new retail providers using the open access network will force incumbents to improve their services and lower prices.