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The FCC's 700 MHz Auction

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The May 2001 SIEPR policy brief, "The Future of Wireless," discusses the possibility of reassigning spectrum from broadcast television to higher-value uses. That day appears to have arrived: On January 24, 2008, the FCC will begin what may be its last major spectrum auction for many years. The spectrum that it will auction is currently used for UHF television channels 51 – 69. With the impending transition to digital broadcasts for over-the-air television, analog broadcast television signals are scheduled to terminate on February 18, 2009, and the new licensees from the 2008 auction can then make full use of that spectrum. The new digital signals are concentrated in the lower UHF and VHF channels, freeing

up this "beachfront" 700 MHz spectrum that can be used for mobile voice, video and data. The 700 MHz spectrum is valuable because the signals using those frequencies travel relatively long distances and can provide "in-building" coverage with a fraction of the cell sites necessary at higher frequencies. Hopefully, this auction will lead to better coverage, quality and innovation for wireless services without higher prices.

Many of the FCC's decisions leading up to this auction could have an impact on the resulting competitiveness of the wireless sector. Currently, most consumers choose among four major wireless providers in most areas of the country: Verizon,

continued on inside...

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We have provided auction advice to Frontline Wireless, a potential new entrant, in connection with the 700 MHz auction.

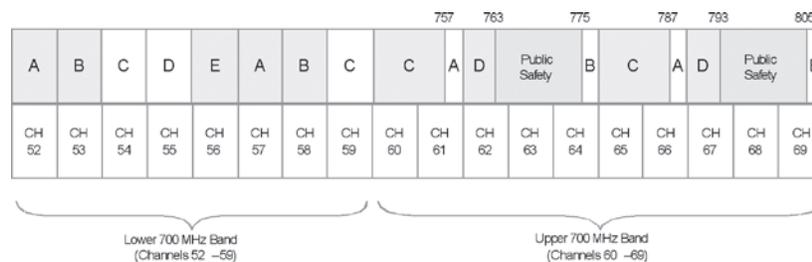
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AT&T, T-Mobile and Sprint. Verizon and AT&T have most of the original cellular licenses that were awarded for free in the 1980s prior to auctions. These cellular licenses are in the 800 MHz range and have very good propagation characteristics. In the 1990s, Sprint and T-Mobile bought spectrum in the 1,900 MHz (1.9 GHz) range which has less good propagation so

that coverage requires more cell sites and costs more. Mostly as a result of these differences AT&T and Verizon networks have a coverage advantage. In turn, since customers value more and more universal coverage, the better coverage is considered one of the main reasons that Verizon and AT&T have been adding customers while Sprint has recently been losing customers.

Despite the billions of dollars that will be raised, the 700 MHz auction does not guarantee new entry and additional competition. Both Verizon and AT&T, for example, have two reasons to buy spectrum. First, they could buy more spectrum and use it to provide additional services and higher-quality services. The value to these companies depends on their current spectrum holdings and expected demand for spectrum-based services in the future. Second, to the extent that they have economic “rents” to protect from their positions as holders of prime spectrum, each has an incentive to forestall new entry and would be willing to pay a “blocking premium” to maintain these rents.

Figure 1: Auction Band Plan



Note: Unshaded blocks have already been assigned.

Band	Frequency Block	Bandwidth	Geographic Area Type	Number of Licenses	Reserve Price (millions)
Lower 700 MHz	A	12 MHz	EA	176	\$1,807
Lower 700 MHz	B	12 MHz	CMA	734	\$1,374
Lower 700 MHz	E	6 MHz	EA	176	\$904
Upper 700 MHz	C	22 MHz	REAG	12	\$4,638
Upper 700 MHz	D	10 MHz	Nationwide	1	\$1,330
Auction Total		62 MHz		1,099	\$10,053

(EA – “Economic Area”; CMA – “Cellular Market Area”; REAG – “Regional Economic Area Grouping”)



The FCC imposed several conditions on the upcoming auction. Some of these were intended to facilitate new entry; some were intended to facilitate public safety; and the intent of some is not clear.

Openness and Competition

Figure 1 shows the licenses that will be auctioned. For one of the spectrum blocks, the upper 700 MHz “C Block,” the FCC mandated that any licensee have “no blocking” and “no locking” provisions for its use of the spectrum. The provisions were intended to allow consumers to use whatever equipment they wanted rather than having to rely on the wireless providers to approve specific devices. Frontline Wireless and Google as well as other companies pushed the FCC to adopt even more openness requirements—but without success. It is not clear what impact the FCC’s openness requirements will have because a future FCC will decide how to interpret and enforce them. The future FCC decisions will depend on the presidential election and subsequent nominees to the FCC. In

addition, the FCC decisions will be subject to court oversight as Verizon and a trade association, CTIA, filed suit against the FCC’s openness provisions. However, should Google be the high bidder at the auction, it could impose its desired openness regime, independent of FCC and court decisions. This may help with the recently announced Google phone (discussed below).

Perhaps for the future of the wireless market more important than the openness requirement is the possibility for a strong new entrant. Two provisions in the FCC’s rules are geared toward making it more attractive for a new entrant to bid in the auction. First, the FCC adopted a “package bid” for the upper 700 MHz C Block so that a bidder can put in a bid to buy licenses that cover the entire country instead of having to put together a set of individual licenses and risk not getting them all. SIEPR and the FCC have held three conferences to explore how to implement package bidding for spectrum auctions and the FCC is using that knowledge in this auction. Package bidding is particularly beneficial for a new entrant that would like to have nationwide coverage. If

a service provider has coverage for most but not all of the country, it might be at a serious competitive disadvantage. For example, DirecTV and EchoStar (Dish Network), the two direct broadcast satellite providers, bid together in an FCC auction last year that did not have package bidding and they dropped out of the auction very early, most probably because they did not want to get caught with licenses covering only a portion of the country. Package bidding solves this problem.

The second feature of the auction that could benefit entrants is anonymous bidding. In almost all past FCC auctions, at the end of each round, the FCC revealed all of the bidders’ bids. In this auction, the FCC will reveal only the amount of the bids and not who placed those bids. This could take away a strategy that incumbents might otherwise employ to target new entrants and ensure that a competitive package of spectrum licenses would be expensive. The real fear of such a strategy is that it need never be employed – simply the threat of making licenses expensive deters bidding by new entrants in the first place, so the threat allows entry deterrence

at very low cost, hurting both customers and government revenues. The problem for auction watchers is that anonymous bidding will make it difficult to follow what is going on from the limited amount of information that will be released during the auction. Not until after the auction closes will we know what really happened in the auction since only then will the FCC release all bidding information. The anonymity will also make it harder for bidders to coordinate on how to “split licenses.” Signaling intentions via bids during the auction (beyond sincere bidding on licenses that one wants to buy) will be almost impossible.

Twists in the Auction

There are at least two new features of the upcoming auction that could lead to inefficient license assignment. First, the FCC set reserve prices for each block of spectrum to be sold (see Figure 1). If a block does not receive bids that meet the reserve price, the FCC plans to hold a re-auction with the same bidders, after changing some of the constraints on the licenses that comprise that block (reducing build-out requirements

on blocks A, B and E and redesigning the C Block by splitting it into smaller licenses and removing the openness provisions). The prospect of a re-auction could cause bidders to hold back in the first auction in the hope that they can get the license in the second auction without the openness requirements, or with reduced build-out requirements.

The FCC set very aggressive reserve prices, close to the expected value of the spectrum. Such high reserve prices are unprecedented in FCC auctions and generally not a good way to set a reserve price. Because the reserve prices are so high, and some of the blocks are made up of multiple (up to 734) licenses, there could be a large “free-rider” problem with bidders hoping that others will increase their bids so the block will top the reserve.

The established way to set a reserve is to ensure that there is competition in the auction and then set a modest reserve price – on the order of 20 to 25 percent of the expected value – or even better to base it on the opportunity cost of using the spectrum. Moreover, it makes sense to set reserve

prices license-by-license and not at the semi-aggregate block-level. The FCC set reserve prices based on the opportunity cost of the spectrum in its Advanced Wireless Service (AWS) auction last year and raised \$14 billion. The high reserve prices in the upcoming auction risk having firms not participate at all and lead to unused or underutilized spectrum. The unpaired E Block is especially unlikely to meet its reserve price as it faces the free-rider problem, and the FCC did not provide any discount for the smaller amount of spectrum or unpaired nature of the spectrum, both of which should reduce the value of the license. It is also possible that the E Block (and other blocks) will not meet the reserve price in the re-auction. The FCC has not said what it would do in that case.

The second twist in the auction is the pairing of one of the commercial blocks (the D Block) with the adjacent public safety spectrum. The D Block license is nationwide and has a requirement to negotiate with the public safety representatives and to come to a deal where the D Block licensee builds a

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network that basically includes the public safety system. The network has to be built to public safety standards, and public safety can in times of emergency use some of the D Block spectrum. In exchange, the D Block licensee can use the public safety spectrum when it is not being used and also, presumably, pays less for the license. The real twist is that should the D Block licensee not be able to come to terms with the public safety representatives, it has to forfeit 10 percent of its bid. Given the reserve price of \$1.3 billion, this amounts to more than \$130 million. Obviously, this threat will affect the terms of the negotiation with public safety. The public safety representatives know they can threaten the D Block licensee with a loss of \$130 million, so they can demand a great deal for themselves; however, potential D Block licensees will consider this potential holdup in making their bids in the auction.

Recent News Affecting the Auction

Auctions are often won before they take place – through

rules and through deals in advance of the auction. Recently, AT&T announced that it was buying spectrum in the 700 MHz band from Aloha for \$2.5 billion. This was about 12 MHz of spectrum covering about three-fourths of the country. Most of these licenses were lower 700 MHz C Block licenses that were auctioned several years ago, before it was known when the television broadcasters would vacate. As a result, it has no build-out requirements. In addition, it allows both high-power and low-power operation.

Consequently, AT&T has guaranteed itself access to prime spectrum – and made it more difficult and risky for other players interested in the lower 700 MHz band. As discussed above, AT&T has two reasons for acquiring this spectrum: for its own positive use and to prevent competitors from accessing it. In this case, control of the lower C Block not only allows it to control that spectrum but the possibility that AT&T could use it at high power makes the adjacent spectrum (the lower B Block) worth less because of potential interference. Competitors

should realize this in advance of the auction and, as a result, be willing to bid less for those licenses, making it easier for AT&T to acquire them to prevent new entry on adjacent bands.

Finally, there has been a lot of news recently about a “Google phone.” Google has developed an open mobile operating system that will allow third-party developers to add new features and functionality. The promise and threat of the Google phone, announced just before the filing date for the auction does not seem coincidental; Google’s potential participation in the auction may have made existing wireless operators more likely to strike a deal with Google in an effort to make Google less likely to bid in the auction. Google itself probably realized this and took that into account when it was developing its overall wireless strategy. Whether the deals with Sprint and T-Mobile will cause Google to reassess its desires to bid in the auction will be revealed along with the rest of the results of the auction in March or May of next year.

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