



PUBLIC NOTICE

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AUCTION OF LICENSES IN THE 747-762 AND 777-792 MHz BANDS SCHEDULED FOR SEPTEMBER 6, 2000

COMMENT SOUGHT ON MODIFYING THE SIMULTANEOUS MULTIPLE ROUND AUCTION DESIGN TO ALLOW COMBINATORIAL (PACKAGE) BIDDING

Report No. AUC-00-31-G (Auction No. 31)

I. INTRODUCTION

In adopting the service rules for the 747-762 and 777-792 MHz bands, the Commission determined that combinatorial bidding procedures could have significant benefits for the auction of the licenses in these bands, but declined to employ this type of auction because the statutory deadline did not allow sufficient time to implement such a design.¹ However, in light of (1) the announced delay of the auction until September 6, 2000;² and (2) the continued progress in the design and testing of a combinatorial bidding system,³ as directed by Congress,⁴ the Wireless Telecommunications Bureau (“the Bureau”) now believes

¹ Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission’s Rules, WT Docket No. 99-168, *First Report and Order*, FCC 00-5 (rel. Jan. 7, 2000) at ¶ 124, 15 FCC Rcd 476, 526-27 (2000) (“700 MHz First Report & Order”).

² See Auction of Licenses for the 747-762 and 777-792 MHz Bands Postponed Until September 6, 2000, *Public Notice*, DA 00-942, (rel. May 2, 2000).

³ The progress the Bureau has made in designing and testing a combinatorial bidding system has been made possible only by the extraordinary work done by a number of people. The procedures we are proposing are based largely on a paper presented by Stanford University Professor Paul R. Milgrom at the Conference on Combinatorial Bidding jointly sponsored by the Federal Communications Commission, the Stanford Institute for Economic Policy Research and the National Science Foundation, that took place on May 5-7, 2000 at the Aspen Institute’s Wye River Conference Center. Paul R. Milgrom, *FCC-SIEPR-NSF, Wye Woods Conference: Lessons plus a Simple Proposal* (May 2000). This paper builds on ideas from many of the people who attended the conference. Some of the proposals we are considering are also importantly based on the reports by **Professor Charles R. Plott of the California Institute of Technology**, **Charles River Associates Incorporated**, **Market Design, Inc.**, and **Computerized Market Systems, Inc.** that were produced pursuant to contract with the FCC, and the Cybernomics, Inc. reports by Jeffrey Banks, David Porter, Stephen Rassenti and Vernon Smith that were also written pursuant to contract with the FCC. In addition, Professor John Ledyard of the California Institute of Technology has rendered invaluable assistance. These papers and reports, as well as

that sufficient time may exist to implement an auction design that allows for bids on combinations, or “packages,” of licenses. Therefore, if the Commission, in conjunction with other reconsideration issues now before it,⁵ determines that modifying the simultaneous multiple round auction design to allow combinatorial (“package”) bidding is feasible and appropriate for Auction No. 31, then the Bureau wants to be prepared to have a system and procedures in place to conduct package bidding.⁶ In this public notice, we seek comment on such procedures consistent with our authority under Part 1 of the Commission’s rules.⁷ Depending on the Commission’s actions and the comments we receive in response to this notice, we will, by a later public notice, either establish procedures as discussed here and use package bidding for Auction No. 31, or use the procedures that we already announced.⁸

With package bidding, bidders would not be restricted to placing bids on individual licenses, but would also be allowed to place all-or-nothing bids on packages of licenses. This approach would allow bidders to better express the value of any synergies (benefits from combining complementary items) that may exist among licenses, and to avoid *exposure problems* — the risks bidders face in trying to acquire efficient packages of licenses. For example, with package bidding a bidder desiring an aggregation of all six 20 MHz licenses in order to inaugurate a nationwide service could bid on the six licenses as a package and not face the risk of winning only some of the desired licenses and paying more than the bidder values those licenses by themselves (without the other licenses needed to provide nationwide coverage).

Allowing package bidding does, however, potentially introduce what is termed the *threshold problem* — the difficulty that multiple bidders desiring only the single licenses (or smaller packages) that constitute a package may have in outbidding a single bidder that is bidding for the entire package, even though the multiple bidders may value the sum of the parts more than the single bidder values the whole. Bidders for parts of a larger package each have an incentive to hold back in the hope that a bidder for another piece of the larger package will increase its bid sufficiently for the bids on the pieces collectively to beat the bid on the larger package. The procedures we propose to implement package bidding are designed to facilitate the emergence of bids that will overcome this problem.

In general, package bidding should be an improvement over our usual auction design when (1) there are strong complementarities among licenses for some bidders, and (2) the pattern of those complementarities is different for different bidders. Moreover, if some licenses are complements for some bidders and substitutes for other bidders, it might not be possible to achieve the most efficient assignments pricing each

the other papers presented at the conference, can be found at the Commission’s website on the conference, <http://combin.fcc.gov>.

⁴ See 47 U.S.C. 309(j)(3).

⁵ See, e.g., Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission’s Rules, WT Docket No. 99-168, Petition for Expedited Reconsideration of US West Wireless, LLC (Feb. 3, 2000) at 4.

⁶ Furthermore, the Commission’s rules generally provide authority to use a combinatorial auction design. See 47 C.F.R. §1.2103.

⁷ See 47 C.F.R. §§ 0.131, 0.331.

⁸ See Auction of Licenses in the 747-762 and 777-792 MHz Bands, Auction Notice and Filing Requirements for 12 Licenses in the 700 MHz Bands, Auction Scheduled for May 10, 2000, Minimum Opening Bids and Other Procedural Issues, *Public Notice*, 15 FCC Rcd 2921 (rel. Feb. 18, 2000), 65 Fed. Reg. 12251 (Mar. 8, 2000) (“*Auction No. 31 Procedures Public Notice*”).

license individually, as under our usual simultaneous multiple round auction design. The comments we previously received suggest this is the case for Auction No. 31, where some potential bidders have expressed the importance of acquiring a nationwide footprint, and others the importance of acquiring all 30 MHz in a region.⁹ Therefore, it is appropriate to consider package bidding for this auction.

We therefore propose to modify the simultaneous multiple round auction design that we previously adopted for Auction No. 31¹⁰ to allow for package bidding. Most of our auction rules and procedures would remain the same or be changed only slightly. For example, the Commission rules forbidding collusion among bidders would remain in full force.¹¹ The procedures regarding upfront payments, initial maximum eligibility, and bid activity would be modified to account for the ability of bidders to bid on both individual licenses and packages and some of the other intricacies of package bidding design. We propose for Auction No. 31 that we would use a two-round stopping rule with no proactive activity rule waivers allowed, instead of the one-round stopping rule with proactive waivers that we previously adopted. We also seek comment on changes to the rules regarding default payments so that the default payment owed after default on a package would be calculated based on the difference between the defaulted bid on the package and the subsequent bid(s) on the package or the licenses that make up the package.¹² Finally, we seek comment on some additional auction design issues, including a proposal that we permit bidders to use certain contingent bids known as “or” bids — for example, a bid of “\$10 for license A or \$20 for license B.”

II. AUCTION DESIGN AND PROCEDURES

A. Simultaneous Multiple Round with Package Bidding

The simultaneous multiple round with package bidding auction design would be a modification of the simultaneous multiple round auction design that we previously established for Auction No. 31,¹³ and would be used instead of the simultaneous multiple round auction design.¹⁴ Bidders would still be able to submit bids on individual licenses, as in our existing simultaneous multiple round auction design, but could also submit all-or-nothing bids on packages of licenses.

Specifically, bidders could place bids on nine packages:

- one *global package*, of all licenses in the auction (*i.e.*, 30 MHz nationwide),
- two *national packages*, of either all six 10 MHz licenses or all six 20 MHz licenses, and

⁹ *Auction No. 31 Procedures Public Notice*, 15 FCC Rcd at 2952-56.

¹⁰ *Auction No. 31 Procedures Public Notice*.

¹¹ 47 C.F.R. § 1.2105(c).

¹² *See* 47 C.F.R. § 1.2104. We note that the Commission sought comment on whether to apply or modify the Part 1, Subpart Q general competitive bidding procedures for the auction of licenses in these bands. *See* Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission’s Rules, WT Docket No. 99-168, *Notice of Proposed Rulemaking* at ¶ 83, 14 FCC Rcd 11006, 11047 (1999).

¹³ *Auction No. 31 Procedures Public Notice*.

¹⁴ To clarify our references, when we refer to “simultaneous multiple round” we mean without package bidding; when we refer to “package bidding” we mean simultaneous multiple round with package bidding.

- six *regional packages*, of both the 10 MHz license and the 20 MHz license in a region.

We seek comment on this proposal. Furthermore, examples of these packages are illustrated in the following table. The global package consists of all twelve cells in the table. The two national packages are the two rows in the table. For example, the 10 MHz national package consists of all six 10 MHz licenses, as shown by the cells shaded with horizontal lines. The six regional packages are the six columns of the table. For example, the regional package for region two is shown by the cells shaded with vertical lines.

		Regions					
		1	2	3	4	5	6
10 MHz							
20 MHz							

In addition, we seek comment on whether the Commission should allow all possible packages composed of the twelve individual licenses? Should only certain additional packages be allowed, and if so, which ones?

B. Winning and Retained Bids

Some additional definitions are required to discuss package bidding. *Winning bids* in a package bidding auction are the set of bids on individual licenses and packages that maximizes revenue when the auction closes, assigning each license to only one party (a bidder or, in the case of unsold licenses, the FCC).¹⁵ *Provisional winning bids* are the set of bids that maximize revenue in a particular round (they would win if the auction were to close in that round), assigning each license to only one party (a bidder or the FCC).

Retained bids are bids kept in the system from one round to the next. They are used in calculating bidders' bidding activity for purposes of the activity rule (discussed further in "D. Activity Rules and Eligibility" below). Retained bids include the provisional winning bids, plus bids that have the potential to become provisional winning bids because of changes in other bids in subsequent rounds.¹⁶ Assuming that bids in the auction may only rise, bids that could never be winning bids are not retained.

¹⁵ If the auction closes with any license(s) unsold, those license(s) remain held by the FCC.

¹⁶ Suppose the bid for license A is \$10, the bid for license B bid is \$20, and the bid for package AB is \$35. The package bid of \$35 is greater than the sum of the bids on A and B (\$10+\$20=\$30), so the package bid is the provisional winning bid. However, the bids of \$10 and \$20 for licenses A and B are retained if they are the highest bids received on those licenses because both bids are *potential* winners. For example, even if the \$10 bid for license A is not increased, if in the next round a bid of \$30 is submitted for license B, then the sum of the bids for A and B (\$10+\$30=\$40) is greater than the package bid of \$35, and the retained bid of \$10 for license A is now a provisional winning bid.

Specifically, we propose to “retain”:

- a global package bid, if it is the provisional winner;
- a national package bid, if it would be part of the provisional winning set determined by limiting consideration to national packages and individual license bids, but excluding global and regional packages;
- a regional package bid, if it would be part of the provisional winning set, considering regional packages and individual license bids, but excluding global and national packages;
- an individual license bid, if it is the high bid for that license.

In other words, in a given round we would retain a bid (for the next round) if it is greater than the best combination of bids (new bids and bids retained from the previous round) that exactly cover the licenses in that bid.¹⁷

For the purposes of determining retained bids, licenses on which no bids have been submitted would be treated as if the minimum opening bid had been submitted. The Commission will resolve tie bids on the basis of the order in which the Commission receives bids. Bidding credits would be treated the same as in a simultaneous multiple round auction, where the gross high bids on licenses determine the winning bids. Thus, retained bids and winning bids would be determined based on gross bids. We seek comment on this proposal.

C. Upfront Payments and Initial Maximum Eligibility

As we have stated, the Bureau has delegated authority and discretion to determine an appropriate upfront payment for each license being auctioned.¹⁸ Upfront payments related to the specific spectrum subject to auction protect against frivolous or insincere bidding and provide the Commission with a source of funds from which to collect payments owed at the close of the auction.¹⁹

We propose no change in the upfront payments from those previously established for the individual licenses.²⁰ For a package, we propose that we would calculate the bidding units and associated upfront payment by adding together the bidding units and associated upfront payments of the individual licenses that make up the package. We list the bidding units and upfront payments for all licenses in Attachment A. We seek comment on this proposal.

¹⁷ If we adopt the proposal for “or” bids discussed below, this definition might no longer be equivalent since in determining which bids to retain it does not consider “or” links to licenses not covered by the bid.

¹⁸ See Amendment of Part 1 of the Commission’s Rules—Competitive Bidding Proceeding, WT Docket No. 97-82, *Order, Memorandum Opinion and Order and Notice of Proposed Rulemaking*, 12 FCC Rcd at 5697-98, ¶ 16 (1997); see also *700 MHz First Report & Order*, ¶ 149.

¹⁹ See Implementation of Section 309(j) of the Communications Act - Competitive Bidding, PP Docket No. 93-253, *Second Report and Order*, 9 FCC Rcd 2348, 2378-79, ¶¶ 171-176 (1994).

²⁰ *Auction No. 31 Procedures Public Notice*, 15 FCC Rcd at 2942-43.

We also propose no change in our procedure for determining initial maximum eligibility from the procedure already established for Auction No. 31. Thus, the amount of the upfront payment submitted by a bidder will determine the initial maximum eligibility (as measured in bidding units) for each bidder. Upfront payments will not be attributed to specific licenses or packages, but instead will be translated into bidding units to define a bidder's initial maximum eligibility, which cannot be increased during the auction. The maximum eligibility will determine the licenses and packages on which a bidder may bid in each round of the auction. Thus, in calculating its upfront payment amount, an applicant must determine its *maximum* desired activity (*see* "E. Activity Rules and Eligibility" below) in any single round, and submit an upfront payment covering that number of bidding units.

Bidders might desire sufficient eligibility in order to afford themselves the flexibility to be active simultaneously on various packages and subsets thereof. If a bidder submitted an upfront payment for the total number of bidding units associated with all 12 licenses, the bidder would not, for example, have enough eligibility to be active simultaneously on a global package and other licenses. The bidder might want to do this, for example, if it held a retained bid on some individual licenses and then decided to bid for the global package. If, however, as proposed below in "E. Activity Rules and Eligibility," we modify the activity rule to account for mutually exclusive bids, bidders would never need to purchase more eligibility than the total bidding units associated with all licenses.

D. Minimum Accepted Bids and Bid Increments

We propose that for a bid to be accepted in any round it must be x% greater than the minimum amount to have become a retained bid in the previous round, where the Bureau will specify the value of x. In the case of an individual license bid the minimum accepted bid is analogous to that in a simultaneous multiple round auction. It must be x% greater than the highest bid for that license in previous rounds.²¹ We propose to set the minimum increment for a license or package initially at five percent. The Commission retains discretion to vary the minimum bid increments in each round of the auction by announcement prior to each round.

To simplify our procedures, we propose to treat minimum opening bids as retained bids after the first round of the auction. Thus, for example, after the first round a bid on an individual license with no initial bids would be required to exceed the minimum opening bid by x percent.

We also seek comment on other methods for calculating the minimum accepted bid. One possibility is to determine the bid increment as the maximum of (a) the increment as calculated above and (b) an increment based on the total revenue (the provisional winning bids) in the previous round. The total minimum bid increment would be allocated among individual licenses in proportion to their bidding units. That is, the *per bidding unit increment* would be determined as a percentage of the provisional winning total revenue times the share of total bidding units associated with the licenses contained in the bid.

For example, suppose the provisional winning total revenue in the previous round is \$1,000 and percentage increment is 5%, so the total increment to be allocated among individual licenses is \$50. A 20 MHz EAG license has 28 million bidding units, which is one-ninth of the total bidding units. Thus, under this approach the increment on such a license would \$5.56, or the amount calculated in the previous paragraph, whichever is greater. One potential benefit of this approach is to help overcome the *threshold problem* —

²¹ If the proposal for "or" bids, as discussed below in "III. A. "Or" Bids," is adopted, it may not be sufficient to consider only bids on that individual license in determining the minimum amount to have become a retained bid in the previous round.

the difficulty smaller bidders face coordinating increases in bids on individual licenses or small packages to beat bids for larger packages of licenses — by moving up the prices more quickly for apparently undervalued properties.

Another possibility is to determine the minimum accepted bid by allocating the total amount needed to beat the provisional winners.²² Under this approach, each license is assigned a price so that the sum of the prices adds up to the provisional winning total revenue. Package prices are equal to the sum of the prices of the individual licenses in the package. The minimum acceptable bid would be a fixed percentage greater than the assigned price of the license or package.²³

As has become standard in our auctions, we also propose that we would use “click box” bidding. Specifically, for Auction No. 31 we would allow package bids to increase by one increment in each round, while bids on individual licenses could increase by one to nine increments. This limitation is designed to prevent bids on packages from rising too quickly for bidders on individual licenses to overcome the threshold problem. We seek comment on this proposal. Should we allow package bids to increase by greater than one increment in each round?

E. Activity Rules and Eligibility

In order to ensure that the auction closes within a reasonable period of time, an activity rule requires bidders to bid actively on a percentage of their maximum bidding eligibility during each round of the auction rather than waiting until the end of the auction to participate. A bidder that does not satisfy the activity rule will either lose bidding eligibility in the next round or use an activity rule waiver

In the context of package bidding, a bid would be considered “active” if it is either a retained bid from the previous round or is an accepted bid in the current round. Absent overlapping bids and “or” bids, a bidder’s “activity” is the sum of the bidding units associated with the licenses on which the bidder is active.²⁴ To account for the possibility of overlapping bids and “or” bids, which can not simultaneously be part of the winning set, we propose to measure a bidder’s activity in a round as the *maximum* number of bidding units associated with bids that could simultaneously be in a provisional winning set. In other words, a bidder’s activity in a round is the number of bidding units associated with the set of the bidder’s retained bids from the previous round and the bidder’s acceptable bids in the current round that maximizes the number bidding units without provisionally assigning the bidder any bids that cannot simultaneously be part of a provisional winning set. We seek comment on this proposal.

²² DeMartini, Christine, Anthony M. Kwasnica, John O. Ledyard, and David Porter, “A New and Improved Design for Multi-Object Iterative Auctions,” Social Science Working Paper No. 1054, November 1998, revised March 1999. Available at <http://masada.hss.caltech.edu/~jledyard/Ledyard.html>.

²³ For example, if the provisional winning set consists of bids totaling \$100, then each license in the auction would be assigned a price so that the prices of all the licenses add up to \$100. If these prices are assigned in a manner consistent with the relative values of the minimum opening bids, each of the six 10 MHz licenses would be assigned one-eighteenth of the total, or \$5.56, and each of the six 20 MHz licenses would be assigned one-ninth of the total, or \$11.11. Using a five percent increment, the minimum acceptable bid in the next round on an individual 10 MHz or 20 MHz license would be \$5.84 or \$11.67, respectively.

²⁴ An example of an overlapping bid would be a global package bid and any other bid. “Or” bids are discussed below in “III. A. “Or” Bids.”

As we have already established for Auction No. 31 using the simultaneous multiple round auction design, we propose that no bidder's total activity in a given round may exceed its current eligibility. Initial eligibility is determined by upfront payments, as discussed above in "C. Upfront Payments and Initial Maximum Eligibility." In the context of package bidding for Auction No. 31, we propose that in each round of the auction a bidder desiring to maintain its current eligibility would be required to be active on licenses encompassing at least 50 percent of its current eligibility. For a bidder that failed to meet the activity requirement in a given round, we would reduce the bidder's eligibility for the next round to two times its activity in the current round. Thus, a bidder's eligibility in the current round is either twice its activity in the previous round or its eligibility in the previous round, whichever would be less:²⁵

$$\text{Eligibility}(t) = \text{Min} (\text{Eligibility}(t-1), 2 * \text{Activity}(t-1))$$

We seek comment on this proposal and on variations. For example, should we instead adopt multiple stages with increasing activity requirements as we established for Auction No. 31 using a simultaneous multiple round auction design? We also seek comment on whether, for greater transparency and computational simplicity, the Bureau should limit the total number of bids made by any bidder, and, if so, what limits should be established.

F. Activity Rule Waivers and Reducing Eligibility

We propose to retain the procedures regarding activity rule waivers and reducing eligibility that we previously established for Auction No. 31²⁶ with one exception. As described below, we propose not to allow bidders to submit proactive waivers.

Use of an activity rule waiver preserves the bidder's current bidding eligibility despite the bidder's activity in the current round being below the required minimum level. An activity rule waiver applies to an entire round of bidding and not to a particular license or package. Activity rule waivers are principally a mechanism for auction participants to avoid the loss of auction eligibility in the event that exigent circumstances prevent them from placing a bid in a particular round.

The FCC auction system assumes that bidders with insufficient activity would prefer to use an activity rule waiver (if available) rather than lose bidding eligibility. Therefore, the system will automatically apply a waiver (known as an "automatic waiver") at the end of any bidding period where a bidder's activity level is below the minimum required unless: (1) there are no activity rule waivers available; or (2) the bidder overrides the automatic application of a waiver by reducing eligibility, thereby meeting the minimum requirement. An automatic waiver invoked in a round in which there are no new acceptable bids will not keep the auction open.

A bidder with insufficient activity may wish to reduce its bidding eligibility rather than use an activity rule waiver. If so, the bidder must affirmatively override the automatic waiver mechanism during the bidding period by using the reduce eligibility function in the software. In this case, the bidder's eligibility is permanently reduced to bring the bidder into compliance with the activity rules as described above. Once eligibility has been reduced, a bidder will not be permitted to regain its lost bidding eligibility.

²⁵ But see the discussion of activity rule waivers in "F. Activity Rule Waivers and Reducing Eligibility."

²⁶ *Auction No. 31 Procedures Public Notice*, 15 FCC Rcd at 2943-44.

We previously concluded that for Auction No. 31 using a simultaneous multiple round design, a bidder may proactively use an activity rule waiver as a means to keep the auction open without placing a bid.²⁷ As described in “H. Stopping Rule” below, however, we are proposing to use a two-round simultaneous stopping rule for Auction No. 31 should we use package bidding. This means that all licenses remain open until the second consecutive round in which no new acceptable bids are received. After the second consecutive such round, bidding closes simultaneously on all licenses. With this stopping rule the auction could not close by surprise. Thus, we believe that bidders no longer need proactive activity rule waivers in order for the auction to reach an economically efficient outcome. Moreover, there is some concern that allowing proactive waivers when there is a two-round stopping rule might, in some circumstances, introduce opportunities for strategic behavior that may reduce the efficiency of the auction. Accordingly, we now propose not to allow bidders to submit proactive waivers in the context of package bidding for Auction No. 31. We seek comment on this proposal.

We further propose that each bidder in Auction No. 31 be provided with five activity rule waivers (the same number we previously adopted)²⁸ that may be used at the bidder’s discretion during the course of the auction as set forth above. We seek comment on this proposal.

G. Bid Removal and Bid Withdrawal

Should we implement package bidding for Auction No. 31, we propose to retain the bid removal procedures that we previously established.²⁹ Before the close of a bidding period, a bidder has the option of removing any bids placed in that round. By using the remove bid function in the software, a bidder may effectively “unsubmit” any bid placed within that round. This is not the same as withdrawing a high bid, which, in our simultaneous multiple round auction system, can occur in rounds subsequent to the round in which the high bid was placed. A bidder removing a bid placed in the same round is not subject to withdrawal payments.³⁰ Once a round closes, a bidder may no longer remove a bid.

We propose to modify the bid withdrawal rules to not allow bidders to withdraw provisional winning bids from previous rounds if we use package bidding for Auction No. 31. Additionally, the previously announced special 30 MHz nationwide bid withdrawal procedure would no longer apply.³¹ Thus, bidders will be obligated for all bids they submit. If a bid is declared the winner and the bidder does not pay the amount due, it is liable for a default payment as set forth in the Commission’s Rules.³² With the implementation of package bidding, bidders should not face exposure risks as they might in a simultaneous multiple round auction design. Bid withdrawal was designed to allow bidders to back out of failed aggregations — to avoid winning some licenses that are worth little to them without the others they need to implement their business plan. Therefore, to the extent that bids are allowed on all packages of licenses with significant complementarities, the use of withdrawals to mitigate such risk is no longer necessary. While there is no offsetting benefit, there is still the potential harm from allowing withdrawals.

²⁷ *Auction No. 31 Procedures Public Notice*, 15 FCC Rcd at 2943-44.

²⁸ *Auction No. 31 Procedures Public Notice*, 15 FCC Rcd at 2943.

²⁹ *Auction No. 31 Procedures Public Notice*, 15 FCC Rcd at 4951-52.

³⁰ *See* 47 CFR § 1.2104(g).

³¹ *Auction No. 31 Procedures Public Notice*, 15 FCC Rcd at 2952-56.

³² *See* 47 C.F.R. § 1.2104(g).

Withdrawals may be used strategically to provide incorrect price signals during the auction and lead other bidders to place inefficient bids. Also, when withdrawals are permitted, one can not ensure that the auction will proceed at an acceptable pace. Moreover, the harm associated with withdrawals is likely to be more severe in auctions with package bidding since a single withdrawal can affect the entire provisional winning set. We seek comment on this proposal.

H. Stopping Rule

Under a package bidding design, we propose to modify the stopping rule we previously adopted for Auction No. 31. Instead of a one-round simultaneous stopping rule with the use of proactive waivers, we now propose to employ a two-round simultaneous stopping rule approach. The Bureau has discretion “to establish stopping rules before or during multiple round auctions in order to terminate the auction within a reasonable time.”³³ A two-round simultaneous stopping rule means that all licenses remain open until two consecutive rounds have occurred in which no new acceptable bids are received. After the second consecutive such round, bidding closes simultaneously on all licenses. Thus, unless circumstances dictate otherwise, bidding would remain open on all licenses until bidding stops on every license. We seek comment on this proposal.

The Bureau also seeks comment on a modified version of the two-round simultaneous stopping rule for use if we implement package bidding. The modified two-round simultaneous stopping rule would close the auction for all licenses after the second consecutive round in which no bidder submits a new acceptable bid on any license on which it is not the provisional winning bidder. Thus, absent any other bidding activity, a bidder placing a new bid on a license for which it is the provisional winning bidder would not keep the auction open under this modified rule.

As before, we propose that the Bureau retain the discretion to keep an auction open even if no new acceptable bids are submitted. The activity rule will apply as usual, and a bidder with insufficient activity will either lose bidding eligibility or use a remaining activity rule waiver. We also propose that the Bureau reserve the right to declare that the auction will end after a specified number of additional rounds (“special stopping rule”). The Bureau proposes to exercise this option only in certain circumstances, such as, for example, where the auction is proceeding very slowly, there is minimal overall bidding activity, or it appears likely that the auction will not close within a reasonable period of time. Before exercising this option, the Bureau is likely to attempt to increase the pace of the auction by, for example, increasing the number of bidding rounds per day, and/or increasing the amount of the minimum bid increments for the limited number of licenses where there is still a high level of bidding activity. We seek comment on these proposals.

I. Reserve Price or Minimum Opening Bid

We propose no change in the minimum opening bids from those we previously adopted for the individual licenses.³⁴ For a package, we propose to calculate the minimum opening bid by adding together the minimum opening bids of the individual licenses that make up the package. We list the proposed minimum opening bids for all licenses in Attachment A. We seek comment on this proposal.

³³ See 47 C.F.R. § 1.2104(e).

³⁴ *Auction No. 31 Procedures Public Notice*, 15 FCC Rcd at 2947-49.

The Balanced Budget Act calls upon the Commission to prescribe methods by which a reasonable reserve price will be required or a minimum opening bid established when FCC licenses are subject to auction (*i.e.*, because the Commission has accepted mutually exclusive applications for those licenses), unless the Commission determines that a reserve price or minimum bid is not in the public interest.³⁵ Consistent with this mandate, the Commission has directed the Bureau to seek comment on the use of a minimum opening bid and/or reserve price prior to the start of each auction.³⁶

Normally, a reserve price is an absolute minimum price below which an item will not be sold in a given auction. Reserve prices can be either published or unpublished. A minimum opening bid, on the other hand, is the minimum bid price set at the beginning of the auction below which *no bids* are accepted. It is generally used to accelerate the competitive bidding process. Also, in a minimum opening bid scenario, the auctioneer generally has the discretion to lower the amount later in the auction. It is also possible for the minimum opening bid and the reserve price to be the same amount.

In light of the Balanced Budget Act, the Bureau decided to establish minimum opening bids for Auction No. 31. The Bureau believes a minimum opening bid, which has been utilized in other auctions, is an effective bidding tool.³⁷ A minimum opening bid, rather than a reserve price, will help to regulate the pace of the auction and provides flexibility.

J. Round Structure

We propose no changes to the round structure and procedures from those we have already adopted for Auction No. 31.³⁸ The Commission would use an automated auction system to conduct the package bidding auction format for Auction No. 31. The initial bidding schedule will be announced in a public notice to be released at least one week before the start of the auction, and will be included in the registration mailings. The package bidding format will consist of sequential bidding rounds, each followed by the release of round results. Multiple bidding rounds may be conducted in a single day. Details regarding the location and format of round results will be included in the same public notice.

The Bureau has discretion to change the bidding schedule in order to foster an auction pace that reasonably balances speed with the bidders' need to study round results and adjust their bidding strategies. The Bureau may increase or decrease the amount of time for the bidding rounds and review periods, or the number of rounds per day, depending upon the bidding activity level and other factors.

³⁵ See Balanced Budget Act of 1997, Pub. L. 105-33, 111 Stat. 251, Sec. 3002(a) (1997). The Commission's authority to establish a reserve price or minimum opening bid is set forth in 47 C.F.R. § 1.2104(c) and (d).

³⁶ See Amendment of Part 1 of the Commission's Rules--Competitive Bidding Procedures, WT Docket No. 97-82, *Third Report and Order and Second Further Notice of Proposed Rule Making*, 13 FCC Rcd at 454-455, ¶ 141 (1998) ("Part 1 Third Report and Order").

³⁷ See, e.g., Auction of 800 MHz SMR Upper 10 MHz Band, Minimum Opening Bids or Reserve Prices, DA 97-2147, *Order*, 12 FCC Rcd 16354 (1997); Auction of the Phase II 220 MHz Service Licenses, Auction Notice and Filing Requirements for 908 Licenses Consisting of Economic Area (EA), Economic Area Grouping (EAG), and Nationwide Licenses, Scheduled for September 15, 1998, Minimum Opening Bids and Other Procedural Issues, *Public Notice*, 13 FCC Rcd 16445 (1998).

³⁸ *Auction No. 31 Procedures Public Notice*, 15 FCC Rcd at 2947.

K. Information Relating to Auction Delay, Suspension or Cancellation

We propose no change to the procedures regarding auction delay, suspension, or cancellation from those we have already adopted for Auction No. 31. By public notice or by announcement during the auction, the Bureau may delay, suspend or cancel the auction in the event of natural disaster, technical obstacle, evidence of an auction security breach, unlawful bidding activity, administrative or weather necessity, or for any other reason that affects the fair and competitive conduct of competitive bidding.³⁹ In such cases, the Bureau, in its sole discretion, may elect to: resume the auction starting from the beginning of the current round; resume the auction starting from some previous round; or cancel the auction in its entirety. Network interruption may cause the Bureau to delay or suspend the auction. We emphasize that exercise of this authority is solely within the discretion of the Bureau, and its use is not intended to be a substitute for situations in which bidders may wish to apply their activity rule waivers.

L. Default

Under the Commission's Rules, if a bidder defaults, we may auction a new license for the spectrum.⁴⁰ The defaulting bidder is also liable for a payment.⁴¹ Applying these rules to this auction, if a bidder defaults on a package bid, we would auction all of the licenses making up the package on which the party has defaulted. We would do this even if, under the combinatorial auction rules, a different set of packages would have won had the defaulting bidder not bid. For example, if the winning set of bids contains a 20 MHz nationwide package and a 10 MHz nationwide package, and the 20 MHz winner then defaults, we would auction only the six licenses making up the nationwide 20 MHz package. The 10 MHz package would be unaffected. We would take this approach even if, had the 20 MHz winner not submitted its winning bid, the winning set of licenses would not have been a nationwide 20 MHz package and a nationwide 10 MHz package but rather the six 30 MHz regional packages. We seek comment on this proposal.

To calculate the payment due upon default under package bidding, we seek comment on modifications to the default rules as follows. For defaulted package bids, payments will be calculated on a bid-by-bid basis, rather than on a license-by-license basis. The base payment due will be equal to the difference between the amount bid for the package and the amount of the subsequent winning bid for the same package or the aggregate of the subsequent winning bids for the licenses that make up the package. As is true for individual licenses, if a bidder defaults on two or more packages, the default payment due for each defaulted package will be calculated separately and will not be offset against one another. In other words, if one package is subsequently auctioned for more than the original package bid amount and the other package subsequently is auctioned for less, the excess bid price from the first package can not be used to reduce the amount owed on the second package. The additional payment will remain equal to three percent of the subsequent winning bid(s) or the defaulting bidder's bid, whichever is less. We seek comment on this proposed change to the Commission's rules.

Two examples will illustrate how this rule would work.

³⁹ See 47 C.F.R. § 1.2104(i).

⁴⁰ See 47 C.F.R. § 1.2109(b), (c). Although our presumption is in favor of holding a new auction when a bidder defaults, we also have the option, in our discretion, to offer the license(s) to the other highest bidders (in descending order) at their final bids.

⁴¹ See 47 C.F.R. § 1.2014(g)(2).

Example 1: A bidder wins the 10 MHz nationwide package with a bid of \$500 million and defaults. The Commission offers the six licenses that make up the 10 MHz package at a new auction, where they are won with bids of \$70 million, \$70 million, \$80 million, \$80 million, \$90 million and \$90 million. The total amount received in the second auction is \$480 million. The defaulting bidder is responsible for a total of \$34.4 million consisting of \$20 million (the difference between its original bid and the total of the subsequent winning bids) plus \$14.4 million (3% of the subsequent winning bids).

Example 2: A bidder wins two regional packages with bids of \$250 million each and defaults. The Commission offers the four licenses that make up the two regional packages at a new auction, where they are again won as packages at bids of \$200 million and \$300 million, respectively. The defaulting bidder is responsible for separate default payments for each package. For the first package, the payment equals a total of \$56 million consisting of \$50 million (the original \$250 million bid less the subsequent winning bid of \$200 million) plus \$6 million (3% of the subsequent winning bid). For the second package, the subsequent winning bid is higher than the defaulting bidder's original bid and therefore there is no shortfall; the default payment equals only \$7.5 million (3% of the original bid). In total, the defaulting bidder owes a payment equal to \$63.5 million (\$56 million for the first package plus \$7.5 million for the second package).

III. ADDITIONAL AUCTION DESIGN CONSIDERATIONS

A. “Or” Bids

We propose the use of “or” bids that would allow bidders to specify that they wish to win one bid or the other, but not both, if we implement package bidding. Such bids could provide a bidder greater flexibility to aggressively bid on licenses that it considers substitutes. For example, suppose a bidder wants a license for one region and only one region. Without “or” bids a bidder with a retained but non-provisional winning bid on a license might be reluctant to start bidding on another license that it considers a good substitute because it could end up winning both. Allowing “or” bids would overcome this problem.

For computational simplicity and transparency, we propose (1) to allow only pairs of bids to be linked by the “or” function or operator and (2) not to allow links between national and regional packages. For example, we would allow bidders to use the “or” function between the 10 MHz nationwide package and the 20 MHz nationwide package, but not between the 10 MHz nationwide package and a 30 MHz region. We would also allow bidders to use the “or” function to link to their retained bids as long as the retained bids are not part of the provisional winning set.

In order to implement “or” bids, we would need to modify the method by which we determine retained bids. Rather than using the method described in “II. B. Definitions: Winning and Retained Bids,” we would determine retained bids as follows:

- Retain a global package bid if it is the provisional winner. Do not retain attached “or” bids.
- Retain a national package bid if it would be part of the provisional winning set including national packages and individual license bids, but excluding global and regional packages. Do not retain attached “or” bids.
- Retain a regional package bid if it would be part of the provisional winning set including regional packages and individual license bids, but excluding global and national packages. Do not retain attached “or” bids.

- Retain individual license bids if it would be part of the provisional winning set including individual license bids, but excluding global, national and regional package bids. Do not retain attached “or” bids.⁴²

We seek comment on this proposal, including whether the number of “or” bids per bidder be limited.

B. Bid Cancellation

Another method that could overcome the reluctance of bidders that have retained but non-provisional winning bids from bidding on other licenses that they consider substitutes is to allow bidders to *cancel* their bids. If we adopted such a procedure, bidders would be permitted to cancel only non-provisional winning retained bids; provisional winning bids could not be cancelled. Allowing non-provisional winning retained bid cancellation could avoid the possible complexity of “or” bids and provide bidders more flexibility to pursue backup strategies — and to explore ways to beat package bids. However, it also could facilitate adverse strategic bidding, similar to that associated with allowing withdrawal of provisional winning bids. Allowing cancellation of retained but non-provisional winning bids could also make it *more* difficult for bidders for single licenses or smaller packages to beat package bids. Moreover, if bidders were permitted to freely cancel non-provisional winning retained bids, the total of retained bids would not necessarily always increase during the auction and we might be unable to ensure an acceptable pace of the auction. We therefore tentatively conclude not to permit bidders to cancel bids. We seek comment, however, on this.

If we permitted cancellation of non-provisional winning bids, we would also likely adopt the option of retaining all bids. The possibility that bids may be cancelled means that many, or all, bids are potentially part of a winning set of bids, and thus it may be appropriate to retain all bids. Rather than the auction system canceling non-provisional winning bids automatically, bidders would be required to cancel those bids. If we were to adopt this approach, it would also be necessary to modify the activity rules and the procedures for calculating minimum acceptable bids. The currently proposed activity rule could provide inadequate incentives to move the auction along if the same activity credit were given to all bids regardless of their likelihood of winning. We seek comment on this proposal.

C. Bid Composition Restriction

We seek comment on bid composition restrictions. For example, the Milgrom-McAfee bid composition restriction⁴³ would not allow a bidder that is active in a round on a package, but not on a subset of that package, to bid subsequently for the subset. Such a restriction could help mitigate the *threshold problem*.⁴⁴ It would tend to deter bidders that are interested in multiple license but do not have strong synergies from strategically making package bids to create a threshold problem for bidders interested in subsets of the

⁴² Following this four-step approach may result in retaining both parts of an “or” bid. Such bids would remain linked with an “or.” If we wished to avoid retaining any “or” bids the approach proposed by Professor Paul Milgrom could be used. He proposed determining retained bids in the following sequence: (1) Determine provisional winners. Retain these and do not retain attached “or” bids. (2) Determine national and regional winners. Retain these and do not retain attached “or” bids. (3) Determine individual license winners. Retain these and do not retain attached “or” bids. See Paul R. Milgrom, *FCC-SIEPR-NSF, Wye Woods Conference: Lessons plus a Simple Proposal* (May 2000).

⁴³ We note that Milgrom and McAfee have a pending patent application for this device.

⁴⁴ See *supra* page 2.

package. Such a rule would, however, somewhat limit bidders' flexibility. We seek comment on this device and similar restrictions.

IV. CONCLUSION

Comments are due on or before June 9, 2000, and reply comments are due on or before June 16, 2000. Comments should refer to the DA number on this public notice, DA 00-1075. An original and four copies of all pleadings must be filed with the Commission's Secretary, Magalie Roman Salas, Office of the Secretary, Federal Communications Commission, 445 Twelfth Street, S.W., TW-A325, Washington, DC 20054, in accordance with Section 1.51(c) of the Commission's rules. *See* 47 C.F.R. § 1.51(c). In addition, one copy of each pleading must be delivered to each of the following locations: (1) the Commission's duplicating contractor, International Transcription Service, Inc. (ITS), 1231 20th Street, N.W., Washington, DC 20036; (2) Office of Media Relations, Public Reference Center, 445 Twelfth Street, S.W., Suite CY-A257, Washington, DC 20554; (3) Rana Shuler, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, 445 Twelfth Street, S.W., Suite 4-A628, Washington, DC 20554. Comments and reply comments will be available for public inspection during regular business hours in the FCC Public Reference Room, Room CY-A257, 445 12th Street S.W., Washington, D.C. 20554.

This proceeding has been designated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules. 47 C.F.R. §§ 1.1200(a), 1.1206. Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentations must contain summaries of the substance of the presentations and not merely a listing of the subjects discussed. More than a one or two sentence description of the views and arguments presented is generally required. *See* 47 C.F.R. § 1.1206(b). Other rules pertaining to oral and written *ex parte* presentations in permit-but-disclose proceedings are set forth in Section 1.1206(b) of the Commission's rules, 47 C.F.R. § 1.1206(b).

For further information concerning this proceeding, contact Walter D. Strack, Bureau Chief Economist, Wireless Telecommunications Bureau, (202) 418-0600; Evan Kwerel, Senior Economist, Office of Plans and Policy, (202) 418-2030; Craig Bomberger, Auctions Analyst; Howard Davenport, Auctions Attorney; or Joel Rabinovitz, Auctions Attorney, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, (202) 418-0660.

ATTACHMENT A

Minimum Opening Bids and Upfront Payments for Auction No. 31

Economic Area Grouping	License Numbers	License Bandwidth (MHz)	Description	Population (1990)	Bidding Units	Upfront Payment	Minimum Opening Bid
EAG701	WXEAG701-C	10	Northeast	41,567,654	14,000,000	\$14,000,000	\$40,000,000
EAG702	WXEAG702-C	10	Mid-Atlantic	42,547,218	14,000,000	\$14,000,000	\$40,000,000
EAG703	WXEAG703-C	10	Southeast	44,516,919	14,000,000	\$14,000,000	\$40,000,000
EAG704	WXEAG704-C	10	Great Lakes	41,560,906	14,000,000	\$14,000,000	\$40,000,000
EAG705	WXEAG705-C	10	Central / Mountain	40,926,284	14,000,000	\$14,000,000	\$40,000,000
EAG706	WXEAG706-C	10	Pacific	41,427,686	14,000,000	\$14,000,000	\$40,000,000
			Subtotal		84,000,000	\$84,000,000	\$240,000,000
EAG701	WXEAG701-D	20	Northeast	41,567,654	28,000,000	\$28,000,000	\$80,000,000
EAG702	WXEAG702-D	20	Mid-Atlantic	42,547,218	28,000,000	\$28,000,000	\$80,000,000
EAG703	WXEAG703-D	20	Southeast	44,516,919	28,000,000	\$28,000,000	\$80,000,000
EAG704	WXEAG704-D	20	Great Lakes	41,560,906	28,000,000	\$28,000,000	\$80,000,000
EAG705	WXEAG705-D	20	Central / Mountain	40,926,284	28,000,000	\$28,000,000	\$80,000,000
EAG706	WXEAG706-D	20	Pacific	41,427,686	28,000,000	\$28,000,000	\$80,000,000
			Subtotal		168,000,000	\$168,000,000	\$480,000,000
			Total		252,000,000	\$252,000,000	\$720,000,000
Packages:							
Global package of all twelve licenses (30 MHz nationwide)					252,000,000	\$252,000,000	\$720,000,000
National package of six 20 MHz licenses					168,000,000	\$168,000,000	\$480,000,000
National package of six 10 MHz licenses					84,000,000	\$84,000,000	\$240,000,000
Regional package of one 20 MHz and one 10 MHz license in EAG701					42,000,000	\$42,000,000	\$120,000,000
Regional package of one 20 MHz and one 10 MHz license in EAG702					42,000,000	\$42,000,000	\$120,000,000
Regional package of one 20 MHz and one 10 MHz license in EAG703					42,000,000	\$42,000,000	\$120,000,000
Regional package of one 20 MHz and one 10 MHz license in EAG704					42,000,000	\$42,000,000	\$120,000,000
Regional package of one 20 MHz and one 10 MHz license in EAG705					42,000,000	\$42,000,000	\$120,000,000
Regional package of one 20 MHz and one 10 MHz license in EAG706					42,000,000	\$42,000,000	\$120,000,000