

licenses, bidders be permitted to create and bid on up to twelve different packages of their own choosing during the course of the auction. Bidders will not be required to identify or create their packages before the start of the auction, but may create their packages as the auction progresses. A bidder may modify or delete a package it has created up until the point where it has bid on the package and the round has closed. If the bidder submits a bid on a package and subsequently removes the bid during the same round, the bidder has the option of also deleting or modifying the package. However, once a bidder bids on a package and the round closes, the package may not be modified or deleted and counts as one of the bidder's twelve allowable packages. A bid on an individual license does not count as a bid on a package; packages consist of two or more licenses. The Bureau seeks comment on this proposal.

#### *D. Winning and Provisionally Winning Bids*

55. Winning bids in a package bidding auction are the set of "consistent" bids (non-overlapping, and for each winning bidder, only bids made or renewed in the same round) on individual licenses and packages that maximizes total revenue when the auction closes. Provisionally winning bids are the set of consistent bids that maximizes total revenue in a particular round (they would win if the auction were to close in that round), assigning each license to either a bidder or the FCC. When determining winning and provisionally winning bids, all bids made in every round throughout the course of the auction (except for bids that are placed and subsequently removed during the same round) will be considered. In addition, each license is treated as having a bid placed by the FCC at \$1000 less than the minimum opening bid. This procedure will ensure that a bid on a license or package at the minimum opening bid always beats the FCC bid.

56. Since there can be more than one set of consistent bids that produces the maximum revenue, the Bureau proposes to use a procedure that randomly selects among these tied sets when determining the provisionally winning bids. This tie breaking procedure involves two steps: (i) The assignment of a selection number to each bid, and (ii) the determination of, among all tied bid sets, the set that produces the maximum sum of selection numbers. The Bureau seeks comment on this proposal.

57. A bid's selection number is the sum of  $n$  pseudo-random numbers where  $n$  is the number of licenses comprising the bid's package. A bid's

selection number will be included in the publicly-available round results released after each round.

58. Once the selection numbers have been generated for each bid, the second step of the tie breaking procedure will decide the provisionally winning bids. Computer software is used to determine, among all tied bid sets, the set that produces the maximum sum of selection numbers. Thus, the set of provisionally winning bids is the set of consistent bids that maximizes revenue and maximizes the sum of selection numbers. Each bid will be assigned a new selection number in every round. Consequently, if there are ties, the set of provisionally winning bids may change even after a round in which there are no new bids. The solver will not be run after the last round of the auction, so that the winning set is the same as the set of provisional winners generated after the next-to-the-last round (*i.e.*, there won't be any surprise winners).

59. Please note that it is possible that a provisionally winning bid might not be the highest bid on the particular license or package. This possibility is primarily due to each bidder's bids being considered mutually exclusive across rounds. For example, if one bidder has placed the highest bid on each of two different licenses in two different rounds (and did not renew the earlier of the two bids), then those two bids are considered as mutually exclusive and only one of them can be a provisionally-winning bid.

#### *E. Minimum Acceptable Bids and Bid Increments*

60. The Bureau proposes that in each round, eligible bidders will be able to place bids on a given license or package in any of nine different amounts. The Automated Auction System interface will list the nine acceptable bid amounts for each license and package. In the first round of the auction, the minimum acceptable bid for a license or package will be equal to its minimum opening bid. The Bureau proposes that in all subsequent rounds, the minimum acceptable bid for a license or package will be the greatest of: (i) The minimum opening bid; (ii) the bidder's own previous high bid on a license or package plus  $x\%$ , where the Bureau will specify the value of  $x$  in each round; and (iii) the current price estimate of the license plus  $z\%$ , or for a package, the sum of the current price estimates for the licenses in the package plus  $z\%$ , where the Bureau will specify the value of  $z$  in each round.

61. Current price estimates are estimates of the prices of the individual licenses being auctioned. The estimates

take into account the minimum opening bids for the licenses as well as all the bids placed in the auction and, therefore, reflect all available information that has been revealed in the auction about the relative demands for the licenses. Current price estimates for the component licenses of a package that is provisionally winning are constrained to sum to the provisionally winning bid for the package. These estimates are generated during round results following every round of the auction as part of the mathematical optimization process used by the Bureau to determine the provisionally winning bids. The precise methodology used to calculate current price estimates is described in Attachment B of the *Auction No. 51 Comment Public Notice*. Until a bid is placed on a license or on a package containing that license, by any bidder in any round, the current price estimate is the FCC bid amount.

62. The Bureau proposes to retain an exception to part (iii) for calculating the minimum acceptable bid for a "global" package—a package consisting of all six of the licenses available in the auction. After the first round of the auction, part (iii) of the minimum acceptable bid rule for a global package will always be the revenue generated by the provisionally winning bid set in the previous round plus  $w\%$ . The Bureau makes this distinction in order to retain the ability to ensure that bids for the global package will continue to increase even if it employs a percentage  $z$  that does not guarantee that outcome.

63. The result of the minimum acceptable bid calculation will be rounded using the Bureau's standard rounding procedure. Initially, the Bureau proposes to set  $x$  at ten,  $z$  at five and  $w$  at five, but retains the discretion to adjust these variables during the course of the auction.

64. For bids higher than the minimum acceptable bid—*i.e.*, multi-increment bids—the Bureau proposes to define the amount of the additional bid increments as  $v\%$  of the minimum acceptable bid, where the minimum acceptable bid is determined as discussed. Initially, the Bureau proposed to set  $v$  at ten, but proposes to retain the discretion to adjust the amount during the course of the auction. Thus, when  $v$  equals ten, a bidder will be able to place multi-increment bids of the minimum acceptable bid plus approximately 10%, 20%, etc. with the maximum bid being approximately equal to the minimum acceptable bid plus 80%.

65. The Bureau retains the discretion to change minimum acceptable bids, and to do so on a license-by-license and package-by-package basis, if