

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Competitive Bidding Procedures for)	AU Docket No. 18-85
Auction 101 (28 GHz) and Auction 102 (24 GHz))	

COMMENTS OF UNITED STATES CELLULAR CORPORATION

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TABLE OF CONTENTS

I.	INTRODUCTION & SUMMARY.....	1
II.	THE COMMISSION SHOULD ADOPT ITS PROPOSAL TO OFFER 24 GHz LICENSES USING AN ASCENDING CLOCK AUCTION FORMAT.....	2
III.	THE COMMISSION SHOULD ADOPT SEPARATE LIMITED INFORMATION PROCEDURES AND QUIET PERIODS FOR EACH AUCTION.....	3
A.	The Limited Information Procedures Should Be Auction-Specific.....	4
B.	The Prohibition of Certain Communications Should be Auction-Specific.....	7
IV.	EVERY UNENCUMBERED 24 GHz BLOCK SHOULD BE INCLUDED IN A SINGLE CATEGORY OF GENERIC LICENSES.....	8
V.	THE COMMISSION SHOULD PROHIBIT ALL FORMS OF PACKAGE BIDDING IN BOTH AUCTIONS.....	12
VI.	THE COMMISSION SHOULD BRIEFLY “PAUSE” AUCTION 102 AFTER EACH INCREASE IN THE ACTIVITY REQUIREMENT.....	13
VII.	CONCLUSION.....	15

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United States Cellular Corporation (“USCC”) submits these comments in response to the Public Notice released April 17, 2018 in the above-captioned proceeding.¹ In the Public Notice, the Commission announces that it will auction a total of 5,986 Upper Microwave Flexible Use Service (“UMFUS”) licenses in the 27.5-28.35 GHz (“28 GHz”) and 24.25-24.45 and 24.75-25.25 GHz (“24 GHz”) bands, and seeks comment on proposed procedures for these auctions, which are designated Auction 101 and Auction 102, respectively.

I. INTRODUCTION & SUMMARY

USCC commends the Commission for its work, both in the underlying rulemaking proceeding and here, to make millimeter wave (“mmW”) spectrum available for terrestrial Fixed and Mobile services. This spectrum will be a crucial component both in meeting the public’s skyrocketing data demands and in facilitating the deployment of next-generation wireless services. Accordingly, access to this spectrum will be critical to small and regional carriers’ continued ability to compete with the dominant nationwide carriers and to provide cutting-edge wireless services to rural and other underserved areas. This is particularly true with respect to the bands at issue here given that the superior propagation characteristics of this spectrum (as

¹ See *Auctions of Upper Microwave Flexible Use Licenses for Next-Generation Wireless Services; Comment Sought on Competitive Bidding Procedures for Auctions 101 (28 GHz) and 102 (24 GHz)*, Public Notice, AU Docket No. 18-85, FCC 18-43 (Apr. 17, 2018) (“Notice”).

compared to the other bands currently designated for UMFUS operations) will allow licensees to better serve areas with low population densities.

USCC therefore focuses these comments on several actions it believes will help ensure the success of Auctions 101 and 102 and provide a reasonable opportunity for small and regional carriers to acquire UMFUS licenses in these auctions. First, USCC supports the Commission's proposal to offer the 24 GHz licenses in a separate auction using an ascending clock auction format. Second, USCC urges the Commission wait to open the application window for Auction 102 until after Auction 101 concludes, and to apply the limited information procedures and prohibited communications rule separately to each auction. Third, in order to increase bidding flexibility in Auction 102, USCC urges the Commission to include all of the unencumbered 24 GHz blocks in each PEA in a single category. Fourth, USCC urges the Commission not to permit any form of package bidding in either auction due to the well-documented disadvantages such procedures cause for all but the largest bidders. Finally, given that activity rule waivers are incompatible with a clock auction format, USCC urges the Commission to briefly "pause" the auction both before and after the first round following an increase in the activity requirement so bidders have sufficient time to ensure compliance with the higher activity requirement.

II. THE COMMISSION SHOULD ADOPT ITS PROPOSAL TO OFFER 24 GHz LICENSES USING AN ASCENDING CLOCK AUCTION FORMAT

USCC strongly supports the Commission's proposal to use an ascending clock auction format for Auction 102. Further, USCC acknowledges that the benefits of a clock auction are less compelling with respect to the two-license 28 GHz band, and that the differences between the 24 GHz band and the 28 GHz band make including both bands in the same auction more challenging. Accordingly, USCC supports the Commission's proposals to offer UMFUS

licenses for the 24 GHz and 28 GHz bands in separate auctions, and to use an SMR format for Auction 101 and a clock format for Auction 102.

The clock auction format has a number of benefits that make it especially appropriate for the 24 GHz band. Most notably, a clock auction with a contiguity-optimized assignment phase will make it easier for winning bidders to assemble contiguous spectrum blocks, leveraging the flexibility of the 100 megahertz blocks in the 24 GHz band plan. The assignment phase also will facilitate frequency alignment across a bidder's winnings in different markets. In addition, as the Commission explains, the shorter duration of a clock auction benefits bidders in several ways, including by reducing "the cost of bidder participation, which typically involves internal and external staff resources dedicated to auction monitoring and strategy..."² Given these advantages of a clock auction relative to an SMR auction, as well as the ease with which a clock auction can be implemented in the 24 GHz band,³ USCC agrees that the Commission should use this format for Auction 102.

III. THE COMMISSION SHOULD ADOPT SEPARATE LIMITED INFORMATION PROCEDURES AND QUIET PERIODS FOR EACH AUCTION

If the Commission adopts its proposal to offer the 24 GHz and 28 GHz licenses in separate auctions with separate application filing windows, the Commission also should treat the auctions as separate in all other respects, rather than needlessly subject applicants for one auction to restrictions that need only apply to applicants for the other auction. In order to permit such separation between the two auctions, the Commission should wait to open the application window for Auction 102 until after Auction 101 concludes, as well as adopt its proposals related to this scheduling scenario. Specifically, the Commission should: (1) apply the limited

² *Id.* at ¶ 83.

³ *See id.* (explaining that the "relatively unencumbered nature of the 24 GHz band means that the blocks can be treated as largely interchangeable").

information procedures to each auction separately, and “make non-public information relating to Auction 101 available after the close of that auction and before the application filing window for Auction 102;”⁴ and (2) “apply the prohibition of certain communications separately to each auction, using each auction’s post-auction down payment deadline to determine when the prohibition ends for applicants in that auction.”⁵ As discussed below, applying these restrictions separately to each auction would benefit bidders and facilitate more successful auctions, while unnecessarily applying these restrictions across both auctions would negatively impact bidders, and in particular, smaller bidders.

A. The Limited Information Procedures Should Be Auction-Specific

Under the Commission’s proposed limited information (*i.e.*, anonymous bidding) procedures, information that could reveal bidders’ identities would not be made public until after bidding has closed. As an initial matter, USCC notes that continuing to withhold information related to Auction 101 until after the close of Auction 102 would not advance the goal of the Commission’s limited information procedures – namely, to safeguard against potential anticompetitive behavior, such as collusion and retaliatory bidding. Given that the Commission will release bidding information related to Auction 101 no earlier than the conclusion of bidding in Auction 101, it would be impossible for bidders to use such information to collude in Auction 101, which is the behavior anonymous bidding procedures is intended to prevent. In addition, while theoretically there is some risk of retaliatory bidding in Auction 102 based on the results of Auction 101, such risk would be no greater here than for any other non-simultaneous auctions offering licenses for different spectrum bands.

⁴ *Id.* at ¶ 19.

⁵ *Id.* at ¶ 23.

Moreover, releasing the non-public information from Auction 101 prior to the Auction 102 application filing window would provide information that is crucial for bidders, and in particular smaller bidders, to effectively and confidently participate in Auction 102. As the Commission has recognized since the advent of its competitive bidding rules, bidders require sufficient information in order to make accurate valuation determinations.⁶ Bidders rely on numerous sources to confirm and refine their valuations prior to an auction. In addition to their own internally-driven valuations, bidders often rely on publicly-available data regarding secondary market transactions and the results of other auctions. Smaller bidders are especially reliant on these external sources because they have fewer resources to devote to auction preparation and participation.

Significantly, the adverse effect limited information procedures generally have on smaller bidders would be amplified here if the Commission withholds bidding information related to Auction 101 until after the close of Auction 102. Due to the differences between the 24 GHz and 28 GHz bands, many smaller bidders may decide to participate only in Auction 102. For instance, smaller bidders may conclude that they will not have a reasonable opportunity to acquire 28 GHz band licenses given that this band consists of only two blocks and the fact that, in many markets, 28 GHz licenses will not be made available in Auction 101 as a result of the Commission granting mobile operating rights to the large number of Local Multipoint Distribution Service (“LMDS”) licensees operating in the 28 GHz band. Further, the large size of the blocks in the 28 GHz band – 425 megahertz each – will cause the price of these licenses to exceed the financial means of most smaller bidders.

⁶ See *Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, Second Memorandum Opinion and Order, 9 FCC Rcd 7245, 7252 (1994) (discussing the “advantages of providing more information to bidders”).

In contrast, the 24 GHz band consists of seven largely unencumbered blocks of 100 megahertz each, which also makes the 24 GHz band more flexible and accessible to smaller bidders than any of the other bands that the Commission has designated for UMFUS operations, all of which will be licensed on the basis of 200 megahertz blocks.⁷ Another advantage that the 24 GHz band has over these other UMFUS bands is its relatively low frequency range. Services operating on spectrum below 30 GHz are far more efficient than those using higher frequency spectrum due to the superior propagation characteristics of below-30 GHz spectrum, something that is particularly important for smaller bidders, who often focus their deployment efforts in rural and other less densely-populated areas.

Larger bidders that participate in Auction 101 therefore will have better valuation information than most smaller bidders, as well as others who participate only in Auction 102. These large bidders will possess valuation information with respect to many of the 28 GHz licenses – complete information regarding those licenses they won, and partial information regarding every license on which they bid – even if the Commission withholds the non-public information from Auction 101 until after the close of Auction 102. The Commission, however, could mitigate this disparity in valuation information between small and large bidders by releasing the non-public information from Auction 101 prior to the application deadline for Auction 102.

The information gained by the large bidders likely to participate in Auction 102 will be in addition to the valuation information that already is publicly available as a result of Verizon's recent acquisitions of a large number of 28 GHz LMDS licenses from Straight Path

⁷ See *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, Second Report and Order, Second Further Notice of Proposed Rulemaking, Order on Reconsideration, and Memorandum Opinion and Order, 32 FCC Rcd 10988, 11000 (2017) (“*mmW Second R&O*”) (noting that the 24 GHz band “offers an alternative to the 200 megahertz and 425 megahertz channel widths offered elsewhere in the UMFUS bands”).

Communications and XO Holdings. However, given the concentration of those LMDS licenses in major metropolitan areas,⁸ little information currently is publicly available regarding the value of UMFUS licenses for the less densely-populated areas that typically are the focus of smaller bidders. Thus, smaller bidders will go into Auction 102 with a dearth of relevant valuation information unless the Commission releases the non-public information from Auction 101 prior to the Auction 102 filing deadline. Smaller bidders may even feel compelled to forgo this opportunity to acquire UMFUS licenses or, to the extent they do participate in Auction 102, they may be restrained in their bidding. Either way, the largest, already-dominant bidders would gain yet another competitive advantage.

B. The Prohibition of Certain Communications Should Be Auction-Specific

Like with the limited information procedures, given that the Commission intends to commence Auction 102 only after the close of Auction 101, subjecting applicants for either auction to a prohibition of certain communications for the duration of both auctions would not deter anticompetitive behavior to a greater extent than implementing individual quiet periods for each auction. Moreover, while applying the prohibition across both auctions would interfere with applicants' routine business proceedings and potentially dampen interest in these auctions, the benefits of implementing auction-specific prohibitions would be significant.

For instance, the longer quiet period and added complexity associated with a communications prohibition covering two separate auctions would increase the likelihood that some applicants inadvertently disclose bidding information. In addition, due to the ongoing lack of clarity regarding the intended scope of the prohibited communications rule, which is

⁸ See Letter from Steve B. Sharkey, Vice President, Government Affairs Technology and Engineering Policy, T-Mobile USA, Inc. to Marlene H. Dortch, Secretary, FCC, AU Docket No. 18-85, GN Docket No. 14-177, p. 2 (Apr. 3, 2018) (noting that only two percent of the 28 GHz spectrum in the top 50 markets).

compounded by the industry's conflicting interpretations of the rule, many auction applicants hesitate even to engage in business discussions unrelated to "bids or bidding strategies (including post-auction market structure)." With a longer quiet period, this disruption to applicants' ongoing business concerns will be prolonged, and thus, more detrimental.

Applying the communications prohibition across both auctions also would disproportionately impact entities that choose to only participate in one of the auctions, as they would be subject to a quiet period for significantly longer than the period of time during which they will be an active auction participant. At the same time, entities that have applied for both auctions would benefit from separate quiet periods because there presumably would be a short gap between the end of the Auction 101 quiet period and the start of the Auction 102 quiet period, during which such entities could engage in negotiations and transactions that were held in abeyance during the Auction 101 quiet period.

IV. EVERY UNENCUMBERED 24 GHz BLOCK SHOULD BE INCLUDED IN A SINGLE CATEGORY OF GENERIC LICENSES

USCC urges the Commission to include all of the unencumbered 24 GHz blocks in each PEA in a single category, as the Commission's proposal to instead create separate categories for the unencumbered blocks in the lower and upper segments of the 24 GHz band would greatly curtail bidding flexibility. Specifically, price disparities will arise between two categories in the same market over the course of an auction, even if all of the blocks in both categories are perfect substitutes, as bidders switch their demands between the categories whenever one category becomes overpriced relative to the other category. This phenomenon was borne out during the Incentive Auction in the clock prices for the reserved and unreserved licenses. In that auction, reserve eligible bidders could freely engage in this bidding strategy because, even if they ended up with one reserved and one unreserved license in a market at the end of the clock phase, they

could be assigned contiguous blocks because the assignment phase eliminated the distinction between reserved and unreserved licenses.

In contrast, under the Commission's proposed procedures for Auction 102, a bidder seeking to acquire two blocks in a PEA could pursue the above bidding strategy only if it was willing to assume the risk of ending up with one block in each category as a result of a partially-accepted switch bid and subsequent lack of excess demand in one of the categories. In this situation, an Auction 102 bidder could not be assigned contiguous blocks because, under the Commission's proposal, the distinction between the two categories would continue through to the assignment phase. As a result, at least in later rounds of the auction, most bidders would feel compelled to opt for reduced bidding flexibility rather than risk acquiring a single block in each segment of the 24 GHz band.

USCC notes that, if the Commission includes all of the unencumbered 24 GHz blocks in a PEA in a single category, the auction bidding system could optimize the frequency assignments pursuant to contiguity objectives that guarantee the assignment of at least two contiguous blocks for every clock phase winner of multiple generic licenses and, to the extent feasible, assign only contiguous blocks to winners of three or more generic licenses in a PEA. The only possible exception to being able to guarantee at least two contiguous blocks for every winning bidder of multiple licenses during the clock phase would be in the nine PEAs where an incumbent licensee will be relocated to the upper block of the lower segment of the 24 GHz band. Even in those PEAs, however, every winning bidder potentially could be assigned only contiguous blocks, depending on the specific number of winning bidders in the PEA and the number of generic licenses won by each of the bidders.

Given the extremely small number of PEAs (approximately two percent of all PEAs) that will have a single unencumbered block in the lower segment of the 24 GHz band, USCC strongly urges the Commission not to base its decisions on this minor exception to the rule and unnecessarily apply suboptimal bidding procedures to every PEA. Likewise, the Commission should not split the blocks in the lower and upper segments into separate categories as a result of the existing and potentially future co-primary Fixed Satellite Service (“FSS”) operations in the upper segment of the 24 GHz band given the limited impairments such operations will create for UMFUS licensees. Specifically, the Commission grandfathered (*i.e.*, granted co-primary status to) a total of only five Broadcast Satellite Service feeder link earth station operations.⁹ Moreover, even if the Commission adopts its proposal to authorize additional FSS earth stations in the upper segment of the 24 GHz band on a co-primary basis, the number of, and population covered by, such future operations will be strictly limited pursuant to Section 25.136(d) of the Commission’s rules.¹⁰

The use of fewer categories of generic licenses has other benefits as well. For instance, in declining to adopt additional categories for the Incentive Auction, the Commission explained that, “[w]ith fewer categories for bidding, the likelihood that there will be excess demand in any one category is greater, giving bidders’ greater flexibility to modify their bidding strategies.”¹¹ The Commission also explained how limiting the number of categories in a clock auction “simplif[ies] the auction interface and make[s] the bidding process more manageable” for

⁹ See *mmW Second R&O*, 32 FCC Rcd at 10995.

¹⁰ See Notice at ¶ 10.

¹¹ *Broadcast Incentive Auction Scheduled to Begin on March 29, 2016; Procedures for Competitive Bidding in Auction 1000, Including Initial Clearing Target Determination, Qualifying to Bid, and Bidding in Auctions 1001 (Reverse) and 1002 (Forward)*, Public Notice, 30 FCC Rcd 8975, 9051 (2015).

bidders,¹² as well as serves the “goal of speeding up the [] auction bidding process.”¹³ For these reasons, USCC also believes that, where a PEA has a reduced bandwidth block in both the lower and upper segments of the 24 GHz band, it would be advantageous to include both of the reduced bandwidth blocks in the same category.

USCC stresses that it will be critical to include all of the unencumbered 24 GHz blocks in each PEA in a single category if the Commission does not adopt its proposal “to require that any equipment capable of operating anywhere within the 24 GHz band must be capable of operating across the entire 24 GHz band, on all frequencies in both band segments.”¹⁴ Absent this operability requirement, a boutique band class could be developed for only the larger, upper segment of the 24 GHz band. As a result, an adequate device ecosystem may never develop for the lower band segment. At a minimum, equipment for that spectrum would be delayed and more costly. With a single category for all of the unencumbered blocks in both segments of the 24 GHz band, however, the assignment phase’s contiguity objectives could result in one or more of the largest service providers, who alone can drive device development, being assigned blocks in the lower segment of the 24 GHz band.

Finally, if the Commission creates separate categories for the unencumbered blocks in the lower and upper segments of the 24 GHz band despite the various benefits of including all of these blocks in a single category, USCC urges it to also permit bidders to make “all-or-nothing” bids, as it did in the Incentive Auction. As noted, because switch bids may be applied partially, a bidder seeking to transfer its demand for two blocks from one category to the other could end up

¹² *Id.*

¹³ *Comment Sought on Competitive Bidding Procedures for Broadcast Incentive Auction 1000, Including Auctions 1001 and 1002*, Public Notice, 29 FCC Rcd 15750, 15797 (2014).

¹⁴ *Notice* at ¶ 108.

with one license in each category if applying the switch bid in full would cause aggregate demand for the “from” category to drop below the available supply of blocks in that category. The use of an all-or-nothing bid would eliminate this risk because all-or-nothing bids either are applied in full or not at all.

V. THE COMMISSION SHOULD PROHIBIT ALL FORMS OF PACKAGE BIDDING IN BOTH AUCTIONS

USCC strongly supports the Commission’s proposal not to incorporate any package bidding procedures into Auction 102 given “the additional complexity such procedures would introduce into the auction...”¹⁵ USCC also strongly urges the Commission not to permit any form of package bidding in Auction 101. As USCC has previously detailed in several Commission proceedings, package bidding creates significant and unwarranted biases in favor of the largest bidders. For instance, package bidding greatly increases the likelihood that the largest bidders will tie up multiple licenses in large package bids to the exclusion of other bidders. Although the bids for individual licenses theoretically could defeat a package bid, for a variety of reasons this outcome is highly unlikely, including the fact that package bidding gives rise to the widely-acknowledged “threshold problem” (*i.e.*, restrained bidding by those seeking individual or a small number of licenses in the hope that bidders for other licenses in the same package will increase their bids sufficiently to defeat the package bid).

Moreover, even if the valuations assigned to the individual licenses exceed the valuations the package bidder assigned to the same licenses in formulating its package bid amount, the package bid will almost always prevail because the individual bids typically relate to only a subset of the licenses included in the package. Package bidding, therefore, also can allow large bidders to acquire certain licenses at a discount. In turn, such discounts, coupled with decreased

¹⁵ *Id.* at ¶ 121.

auction participation by smaller bidders as a result of package bidding's well-known bias against these bidders, lead to lower auction revenues. At the same time, large bidders do not require package bidding in order to attain the efficiencies associated with expansive service areas. Because both counties and PEAs "nest" into EAs and even larger license areas, bidders seeking expansive mmW spectrum coverage will be able to aggregate the licenses being offered in these auctions into larger license areas.

VI. THE COMMISSION SHOULD BRIEFLY "PAUSE" AUCTION 102 AFTER EACH INCREASE IN THE ACTIVITY REQUIREMENT

As the Commission notes, it typically has provided each bidder in a multiple round auction with a specified number of activity rule waivers.¹⁶ Such waivers provide an important safety valve because they allow a bidder "to avoid the loss of bidding eligibility in the event that exigent circumstances prevent it from bidding in a particular round."¹⁷ Notably, when the Commission first adopted its competitive bidding procedures, it described the availability of these waivers as a "critical element" of its activity rule framework because it "would not wish to reduce a bidder's eligibility due to an accidental act or circumstances not under the bidder's control."¹⁸ Activity rule waivers are particularly important to smaller bidders, who typically have fewer resources to devote to an auction, and thus, may require additional time to accurately value licenses and plan their bidding strategies. In addition, because smaller bidders often have a firmly-fixed budget, they need sufficient time to carefully analyze all of the potential consequences of their bidding activity prior to placing bids. As a result of these circumstances largely outside of their control, smaller bidders are more likely to find it necessary to withhold a

¹⁶ See *id.* at ¶ 101.

¹⁷ *Id.* at ¶ 57.

¹⁸ *Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, Second Report and Order, 9 FCC Rcd 2348, 2372 (1994).

certain level of bidding activity in a few rounds of an auction. Consequently, smaller bidders tend to be more reliant on activity rule waivers, and thus, are disadvantaged to a greater extent in auctions where these waivers are not made available to bidders.

Despite this demonstrated need for activity rule waivers, USCC recognizes that a clock auction format weighs against the use of these waivers because of the need to maintain a consistent level of demand.¹⁹ USCC therefore understands the Commission’s proposal not to provide activity rule waivers in Auction 102.²⁰ In the absence of such waivers, however, USCC urges the Commission to take other actions to reduce the likelihood that bidders will have their eligibility reduced as a result of time constraints largely outside of their control. For instance, the Commission could provide bidders with additional time whenever it increases the activity requirement during the auction. More specifically, the Commission could briefly “pause” the auction for one or two hours both before and after the first round following an increase in the activity requirement to provide bidders with sufficient time to adjust their bidding strategies to ensure compliance with the higher activity requirement. These necessary adjustments by every bidder often lead to a surge of new bids during the first round after an increase to the activity requirement. Bidders therefore also require additional time before the start of the subsequent round to analyze all of the bids and to adjust their strategies accordingly.

This approach would have a minimal effect on the overall length of Auction 102, while reducing the likelihood that bidders, and in particular smaller bidders, lose eligibility due to the lack of activity rule waivers. USCC notes that such pauses will become increasingly important as Auction 102 progresses. For instance, because the clock prices, and thus the percentage-based

¹⁹ See Notice at ¶ 101.

²⁰ See *id.*

dollar increases to those prices, will continue to rise throughout the auction, it will be during the later rounds, “when the consequences of bidding decisions are greatest, that bidders [will] need the most time to deliberate.”²¹ In addition, because lower activity requirements allow bidders greater flexibility in maintaining their eligibility,²² once the activity requirement for Auction 102 is at a very high percentage as a result of a series of incremental increases, the additional time would help to compensate for bidders’ reduced flexibility at these higher percentage thresholds.

VII. CONCLUSION

For the reasons detailed herein, with a few minor revisions, the Commission’s proposed procedures should ensure successful auctions of UMFUS licenses for the 24 GHz and 28 GHz bands, in part by providing small and regional service providers with a reasonable opportunity to acquire these licenses and to use this spectrum to provide next-generation mobile broadband services to rural and other underserved areas.

Respectfully submitted,

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²¹ *Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, Fifth Report and Order, 9 FCC Rcd 5532, 5553 (1994).

²² See *Notice and Filing Requirements, Minimum Opening Bids, Reserve Prices, Upfront Payments, and Other Procedures for Auctions 73 and 76*, Public Notice, AU Docket No. 07-157, DA 07-4171, ¶ 168 (2007) (noting that lower percentage thresholds provide bidders “more flexibility in fulfilling their activity requirements”).