Holland & Knight

Tel 202-955-3000
Fax 202-955-5564
www.hklaw.com

Holland & Knight LLP
800 17th Street, N.W., Ste. 1100
Washington, DC 20006

Leighton T. Brown
(202) 457-7161
Leighton. Brown@hklaw.com

April 22, 2015

Via ECFS

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Notice of Ex Parte Presentation*
GN Docket No. 12-268 and AU Docket No. 14-252

Dear Ms. Dortch:

On April 20, 2015, Grant Spellmeyer, Vice President, Federal Affairs and Public Policy, United States Cellular Corporation ("USCC"), Dr. Robert Weber, Frederik E. Nemmers Distinguished Professor of Decision Sciences, Kellogg School of Management, Northwestern University, and Leighton Brown, Partner, Holland & Knight LLP, met with staff from the Commission's Incentive Auction Task Force, Wireless Telecommunications Bureau, Office of Engineering and Technology, and Office of Strategic Planning & Policy Analysis[1] to discuss competitive bidding procedures for the broadcast incentive auction, on which the Commission sought comment late last year.[2] Also joining the meeting via telephone was Joseph Hanley, Senior Vice President, Telephone and Data Systems, Inc. (the parent company of USCC).

During the meeting, we distributed the enclosed presentation and discussed the issues detailed therein. We also discussed several topics arising out of, but not explicitly covered by, that presentation. First, we clarified that the proposal detailed in the presentation regarding a "point system" that would allow bidders to express their frequency preferences during the assignment phase of the forward auction could be implemented without informing bidders of the spectrum block assignments that remain feasible for them after the auction system has optimized for the three objectives proposed by the Commission in the Procedures PN.[3] Second, we explained that our proposed "point system" likely would not result in a large number of ties after bidders have expressed their preferences for particular spectrum blocks in a PEA. We further noted that, if the Commission is concerned about the possibility of a large number of ties, it could utilize our proposed fourth "impairment averaging" objective as a means to equitably break any ties that arise

[1] A complete list of Commission staff participating in the meeting is provided in the Attachment hereto.

[2] *See Comment Sought on Competitive Bidding Procedures for Broadcast Incentive Auction 1000, Including Auctions 1001 and 1002*, Public Notice, 29 FCC Rcd 15750 (2014) ("Procedures PN").

[3] *See id.* at 15815.

as a result of bidders expressing their block preferences in accordance with the proposed "point system." Finally, we explained that our proposal for the Commission to sequence the assignment rounds on a random basis should not add any complexity or length to the assignment phase. For instance, we noted that the Commission still could conduct the assignment rounds for the PEAs in the different REAGs in parallel, as it proposed in the Procedures PN.[4] The only difference would be that the sequencing of the PEAs in each REAG, including the "high-demand" PEAs, would be on a random basis rather than in descending order of weighted-pops.

This notice of ex parte presentation is being filed electronically in the above-referenced dockets pursuant to Section 1.1206 of the Commission's rules.

Respectfully submitted,
HOLLAND & KNIGHT LLP

/s/
Leighton T. Brown
Counsel for United States Cellular Corporation

Enclosure

[4] *See id.* at 15814.

<u>Attachment</u>
Commission Participants[5]

Jonathan Campbell (jonathan.campbell@fcc.gov)
Melissa Dunford (melissa.dunford@fcc.gov)
Gary Epstein (gary.epstein@fcc.gov)
Erin Griffith (erin.griffith@fcc.gov)
Chris Helzer (chris.helzer@fcc.gov)
Mary Margaret Jackson (marymargaret.jackson@fcc.gov)
Sasha Javid (sasha.javid@fcc.gov)
Evan Kwerel (evan.kwerel@fcc.gov)
Madelaine Maior (madelaine.maior@fcc.gov)
Catherine Matraves (catherine.matraves@fcc.gov)*
Aspasia Paroutsas (aspasia.paroutsas@fcc.gov)
Barbara Pavon (barbara.pavon@fcc.gov)
Jim Schlichting (jim.schlichting@fcc.gov)
Blaise Scinto (blaise.scinto@fcc.gov)
Karen Sprung (karen.sprung@fcc.gov)
Martha Stancill (martha.stancill@fcc.gov)
Joel Taubenblatt (joel.taubenblatt@fcc.gov)
Jennifer Tomchin (jennifer.tomchin@fcc.gov)
Margaret Wiener (margaret.wiener@fcc.gov)

*Participated via Teleconference

[5] USCC is providing each Commission participant with a carbon copy of this notice of ex parte presentation via email at the address noted.

Bidding Procedures for the Broadcast Incentive Auction

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Maximizing Spectrum Clearing & Ensuring an Equitable Distribution of Licenses

- Certain modest revisions to the current proposals would help to maximize the amount of repurposed spectrum and ensure a more equitable distribution of the 600 MHz licenses amongst all bidders.
  - These outcomes would, in turn, advance the public interest by allowing more robust competition in the wireless industry and spurring broadband network deployments in rural and other underserved areas.
- Although USCC addressed several other issues in its comments and reply comments filed in this proceeding, USCC believes the revisions discussed herein are particularly important with respect to attaining the above-noted public interest benefits.

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Maximizing Spectrum Clearing & Ensuring an Equitable Distribution of Licenses

- First, USCC urges the FCC not to incorporate bidding procedures into the assignment phase.
  - Bidding likely would lead to reduced revenue in the far more crucial clock phase of the forward auction.
  - Bidding likely would relegate smaller bidders to the most impaired licenses included within a generic category, and these bidders would not be "made whole" by the proposed impairment discounts.
- Second, USCC urges the FCC to instead utilize one of two assignment procedures that would not rely on bidding.
  - One option would be to allow each bidder to express its block preferences by assigning a varying number of "points" to the block (or combination of blocks if the bidder holds more than one generic license in the PEA) that could be assigned to it after optimizing for all three of the proposed spectral-contiguity objectives.
  - Alternatively, the FCC could optimize for the three spectral-contiguity objectives *and* USCC's proposed fourth "impairment averaging" objective and then, if more than one feasible assignment plan remains, determine the winning plan for the PEA on a random basis.

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Maximizing Spectrum Clearing & Ensuring an Equitable Distribution of Licenses

- Third, USCC urges the FCC to randomly sequence the assignment rounds.
  - If sequencing is based on descending order of weighted-pops, smaller bidders will not participate in the assignment phase for many rounds.
  - By that time, the largest bidders will be willing to pay a premium for blocks that are contiguous to those they were assigned in earlier rounds, and even if bidding procedures are not used, the largest bidders would possess a significant "informational advantage" by the time smaller bidders first begin to participate in the assignment phase.
- Fourth, USCC urges the FCC to abandon its proposal to group certain PEAs together into a single assignment round because this could force a bidder to acquire an undesirable block in one PEA in order to acquire a desired block in another PEA.
- Finally, and on a separate topic, USCC urges the FCC not to base the amount of reserved spectrum on the demand by reserve-eligible bidders in a single clock round because this would not accurately reflect their true level and type of demand.
  - This approach would artificially, and unreasonably reduce the amount of reserved spectrum in a large number of PEAs, and thereby undermine the pro-competition, pro-consumer purpose of the spectrum reserve.

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Assignment Phase

The Proposed Vickrey-Style Auction is Flawed,
And Can (and Should) be Improved

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Overview

- The Problem: If revenues are to be collected (and retained) in the assignment phase, it is likely that bidders will bid less in the crucial clock phase, which would make it more likely the auction would have to move to another stage with a lower clearing target.

- The Solution(s)
  - Do Not Retain Revenues - Messy
  - Do Not Collect Revenues - Simple

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The Problem (1)

- Auctions are typically used to arrange a sale of property rights from a seller to one or more bidders at a demand-driven price.
- The sale of generic licenses in the clock phase will fully allocate rights to the bidders (i.e., the entire set of generic licenses will be sold).
- In the assignment phase, what remains is for the FCC to assist the bidders in dividing their shared rights (the proposed impairment discounts and spectral-contiguity optimization objectives fit that role).
- Forcing bidders to pay for part of the assignment service is equivalent to restricting the rights sold in the clock phase, and can be expected to reduce bidders' valuations of, and bids for, the generic licenses.

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The Problem (2)

- When bidders have similar preferences, auctions can come close to extracting every bit of their potential gains through the collected bids.
  - For example, imagine two bidders who value a single object equally.
  - Under a variety of different auction rules, the final auction price will equal that common value, leaving both the winner and loser with no gain.
- Licenses with impairments located in certain key areas of the PEA likely will impose elevated costs on all potential licensees.

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The Problem (2 cont…)

- The impact of such positively-linked costs could be severe.
- We have provided a series of simulations which show that, under the Vickrey-style bidding procedures proposed for the assignment phase, “losing” bidders could pay nothing and receive their least-preferred assignments, while “winning” bidders could receive their preferred assignments but end up paying so much they would be no better off than had they been freely awarded their least-preferred assignments.
- Consequently, during the earlier clock phase, each bidder would value the generic licenses under the assumption that they would receive their least-preferred possible assignment(s) (after optimizing for the spectral-contiguity objectives). This would depress their bids.

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The Problem (3)

What follows is a thought experiment, rather than a serious proposal. It illustrates that the current proposal can easily be improved:

- Imagine conducting an auction prior to the clock phase, where speculators bid for the total revenue generated by the Vickrey-style assignment auction. Take the revenue from the winning speculator, and put it into the clock phase revenue pot (and thus, count it towards satisfaction of the final stage rule).
- Bidders would bid the same as if the FCC retained the direct assignment revenues, the same assignments would result, the FCC would receive roughly the same revenues … and the final stage rule would be strictly more likely to be satisfied!

(this observation is due to Jeff Eli)

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Collecting, but Not Retaining, Bids

- The previous slide suggests one approach: Add assignment revenues to revenues from the clock phase.
  - The lack of prior history could restrain speculators from participating.
  - The nature of the Vickrey-style pricing rule could (as pointed out previously) bias bidders towards making extremely negative presumptions about the value of generic licenses.
- After a Vickrey-style auction to determine assignments, the revenues could be returned to the bidders.
  - The "bid your valuations" strategy would no longer be dominant. Indeed, bidders likely would bid higher for licenses expected to be of interest only to them, and lower on licenses facing competition. Inefficient assignments could result.
- **For these reasons, we do NOT propose either of these approaches.**

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Potential Solution #1
Still collect preferences, but not via bidding

- After optimizing for all three of the proposed spectral-contiguity objectives, confidentially list for each bidder the sets of spectrum blocks it could be assigned in each PEA.
  - Each bidder would then assign 0 to 100 points to each set of blocks that could be assigned to it.
  - The winning assignment plan for the PEA would be the one which maximizes the sum of the bidders' point assignments.
- Not facing a payment, and not knowing the feasible sets of blocks of the other bidders, each bidder has little incentive to misreport its relative preferences.
- Expecting an unbiased assignment outcome, bidders should not feel the need to reduce their bids for generic licenses in the clock phase.
- **This is our favored proposal.**

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Potential Solution #2
"Quasi-Random" Assignment Process

- After finding the feasible assignment plans for a PEA by optimizing for a set of "efficiency objectives," equiprobably select one at random.
  - Strong record support for random or quasi-random assignments rather than the use of bidding procedures.
  - **We view this support primarily as objections to a revenue-generating assignment phase, and suspect that the use of a point-based assignment would be acceptable to most or all of these commenters.**
- A quasi-random assignment process could include lexicographic objectives in addition to the three currently-proposed spectral-contiguity objectives. For example:
  - Minimize the difference in mean impairment across the sets of blocks awarded to the bidders in a PEA; or
  - Minimize the variance in mean impairments across every bidder in a PEA.

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Sequencing the Assignment Rounds

- USCC urges the FCC to randomly sequence the assignment rounds.
- If the assignment rounds are instead sequenced based on descending order of weighted-pops as currently proposed, most, if not all, smaller bidders will not participate in the assignment phase for many rounds because they generally will not hold generic licenses for any of the largest PEAs.
- If bidding is allowed despite the demonstrated risks of that approach, by the time smaller bidders first participate in the assignment phase, the largest bidders will be willing to pay a premium for blocks that are geographically-contiguous to those they were assigned in the earlier rounds.
  - Thus, smaller bidders likely would be relegated to their least preferred blocks in each PEA absent submitting economically unreasonable assignment round bids.

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Sequencing the Assignment Rounds (cont…)

- If bidding is allowed *or* if bidders are permitted to express their block preferences in another way (see, e.g., Potential Solution #1 above), by the time smaller bidders first participate in the assignment phase, the largest bidders will possess a significant "informational advantage" with respect to winning bid strategies in this completely novel auction process.

- Notably, because the advantages of having contiguous blocks across adjacent PEAs arise regardless of how heavily-populated the PEAs happen to be, random sequencing would in no way undermine the FCC's primary goal in proposing to sequence the assignment rounds rather than conduct them concurrently.

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Grouping PEAs Together

- The FCC should abandon its proposal to group certain PEAs together into a single assignment round.
- This proposal fails to recognize that the level of impairment, or the location of impairments (either generally or in relation to a particular carrier's current service area), will vary from one PEA to another.
  - Thus, a bidder could be forced to acquire an undesirable block in one PEA in order to acquire a desired block in another PEA.
- Notably, because few PEAs likely would satisfy the proposed grouping constraints, abandoning this proposal would have little effect on the length of the assignment phase.
- If the FCC nevertheless desires to group some PEAs together, it should at least add another constraint that allows PEAs to be grouped only if they do not contain licenses with impairment levels exceeding 5%.

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The Spectrum Reserve

A Simple Proposal to Increase the Likelihood that the Actual Number of Reserved Licenses Reflects the True Demand of Reserve-Eligible Bidders

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Actual Number of Reserved Licenses in a PEA

- The current proposal is that "the actual number of blocks reserved in a PEA will be based on demand for Category 1 blocks by reserve-eligible bidders at the time the auction reaches the trigger, i.e., when the final stage rule is satisfied."

- Reserve-eligible bidders, unaware of the bidding intentions of others in the clock round within which the trigger is reached, might find themselves providing excess demand for Category 1 licenses in one PEA when the trigger is reached, while demand for the Category 1 licenses in other PEAs of interest to them falls short of the maximum number of reserved licenses, as determined by the initial clearing target.

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A Simple Fix

- In this case, the number of reserved licenses would be artificially reduced to fewer than the potential maximum number of reserved licenses.
- We propose an immediate single “adjustment” clock round of bidding before the final determination of the number of reserved licenses that will be made available in each PEA.
- In this adjustment round, reserve-eligible bidders would be permitted to shift their bidding activity from PEAs (where they are providing more demand than needed to maximize the number of reserved licenses) to other PEAs.
- The implementation details require essentially no change to the overall procedures proposed for the clock phase of the auction.

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Details of Proposed Solution

- "Because a uniform clock price will apply to all the Category 1 spectrum blocks in a PEA at the time of the split, the clock price will be the same for both the reserved and the unreserved Category 1 blocks in the first bidding round after the auction reaches the spectrum reserve trigger."
- In the adjustment round, the end-of-round clock prices would be exactly the same as they were when the trigger was reached (i.e., clock prices would not advance).
- Only reserve-eligible bidders would be allowed to bid in this round.
- No demand-reduction bid would be accepted in this round if it would leave demand by reserve-eligible bidders for the Category 1 licenses in a PEA below the maximum number of reserved licenses, or if it would reduce total demand for the Category 1 licenses in that PEA below the total supply of Category 1 licenses.

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Example

- Since the clock price would not change, every bid made in this round would be processed concurrently (and possibly multiple times), in random order.
- If a reserve-eligible bidder submits a demand-reducing bid in a PEA, it would not be accepted unless the bidder is, at that instant, providing demand for the Category 1 licenses in the PEA in excess of the maximum possible number of reserved licenses, and in excess of the total supply of Category 1 licenses in the PEA.
- Bids for other PEAs made during this round would not be accepted unless the bidder has sufficient bidding eligibility.
- Basically, a bidder could attempt to increase the demand for Category 1 licenses in a PEA, while not decreasing demand elsewhere below the maximum possible number of reserved licenses or the total supply of Category 1 licenses in another PEA.

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Question & Answer

Q: Why can't non-reserve-eligible bidders bid during this one special round?

A: The main reason they might wish to do so would be to strategically "lock" a reserve-eligible bidder into its current position. Any constructive bid can be made at the same price in the following regular round.

Q: How is eligibility handled?

A: Just as in a regular round. Reserve-eligible bidders could shed eligibility while adjusting their bidding profile, if they wish.

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